FINAL
ENVIRONMENTAL IMPACT REPORT
FOR THE
LOWER MOOSA CANYON WATER RECLAMATION FACILITY EXPANSION
(SCH# 95121009; MUP# P73-18W[1])

VOLUME I

Prepared for:

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USER'S GUIDE TO THE ENVIRONMENTAL IMPACT REPORT

The California Environmental Quality Act (CEQA) requires the preparation of an Environmental Impact Report (EIR) for any project which may have a significant effect on the environment. The purpose of an EIR is to identify such effects, to identify alternatives to the project, and to indicate the manner in which those significant effects can be mitigated or avoided. EIR's must be organized and written in such a manner that they will be meaningful and useful to both decision-makers and the public. When an EIR is required, it must be considered by involved public agencies prior to its approval or disapproval of a project. The lead agency has the responsibility for determining whether an EIR or a negative declaration is required for a project. The Valley Center Municipal Water District is the lead agency for this project and has determined that an EIR is necessary.

Since County approval of a modification of the Major Use Permit is necessary for project implementation, the Moosa Expansion constitutes a "discretionary project" with respect to the County as defined by Section 15357 of the CEQA Guidelines. The County is therefore a Responsible Agency as defined by Section 15381 and the CEQA Guidelines. Section 15096 of the CEQA Guidelines spells out the procedures by which a Responsible Agency is to provide input into the environmental review and documentation prepared by the Lead Agency. The purpose of this input is to ensure that the environmental documentation prepared is adequate and that it meets the concerns of the Responsible Agency. The role of the County in the environmental review of the Moosa Expansion is guided by Section 15096 of the CEQA Guidelines. Every effort has been made to ensure that County staff, designated in accordance with Section 15096(c), had sufficient opportunity to comment upon each step in the EIR preparation process. This included opportunities for comment upon the "screencheck" draft EIR, the version of the draft EIR circulated for public review, and this Final EIR. The purview of County comments is limited only as specified in Sections 21104 and 21153 of the Public Resources Code.

The Lower Moosa Canyon Water Reclamation Facility Plant currently operates under Special Use Permit (the predecessor of a Major Use Permit) P73-18W[1], issued by the County of San Diego in 1973. The plant constitutes a use consistent with "Major Impact Services and Utilities" as included in Section 1350 of the County Zoning Ordinance. Implementation of the proposed improvements at the plant site would require that this permit be modified by the County. The District would, therefore, be required to submit an application for a Modification to a Major Use Permit for site improvements only.

Environmental Impact Reports (EIRs) must contain discussions of specific topics as outlined in the guidelines for the implementation of CEQA prepared by the Secretary for Resources. These guidelines are periodically updated to comply with changes in CEQA and court interpretations. This report follows the most recent edition of guidelines and amendments to CEQA. This Final

Environmental Impact Report (DEIR) is an informational document intended for use by the Valley Center Municipal Water District (District), the County of San Diego, and the public. As such, it provides a review and analysis of the potential environmental impacts that could result from implementation of the project. This document has been prepared in accordance with the Valley Center Municipal Water District Local Guidelines for Implementing the California Environmental Quality Act (1995) and complies with all criteria, standards, and procedures of the California Environmental Quality Act (PRC 21000 *et seq.*) and State EIR Guidelines (Title 14, California Code of Regulations, 15000 *et seq.*).

As noted, this Final EIR evaluates the potential for environmental impacts resulting from project implementation. The document is printed in two volumes: Volume I contains a discussion of all required issues. Supporting information is contained in the technical appendices included as Volume II.

A list of Acronyms is included for the reader's use immediately following this User's Guide in order to provide an easy reference to the many acronyms utilized throughout the document.

A project Summary follows the User's Guide and briefly describes the project, issues, significant impacts and required mitigation measures that are evaluated in more detail later in the text. Section I provides an Introduction to the project. This section includes a discussion of the project location, environmental setting, purpose and objectives, lead and responsible agencies, and existing operations. This section also provides the project design/description and concludes with a brief history of the project.

Section II provides a detailed environmental analysis of issues identified as potentially impacted by the proposed project. Each issue is discussed under the following headings as required by CEQA: existing conditions, impacts, and mitigation. Issues identified as having the potential to be impacted include Biological Resources, Odor, Hydrology, Land Use, Visual Aesthetics, Public Health/Safety, Water Quality, Cultural Resources, and Energy. The discussions of impacts to specific resources are followed by discussions of Growth Inducement (Section III), Cumulative Impacts (Section IV); Alternatives to the Proposed Project (Section V); Environmentally Preferred Alternative (Section VI); The Relationship Between Local Short-term Uses of Man's Environment and the Maintenance and Enhancement of Long-term Productivity (Section VII); Effects Found Not to be Significant (Section VIII); References (Section IX); Comments and Responses to Comments (Section X); and a certification that this document was prepared in accordance with CEQA (Section XI).

The document, entitled Draft Environmental Impact Report for the Lower Moosa Canyon Water Reclamation Facility Expansion (SCH#95121009; MUP# P73-18W[1]), was made available for review by the public and public agencies for 45 days from May 9, 1996 through June 25, 1996. The Draft EIR was available for review at the Valley Center Municipal Water District, 29300 Valley Center Road, Valley Center, and both the Valley Center Branch and City of Escondido Public Libraries.

ACRONYMS

1990 CAAA	1990 Clean Air Act Amendments
ACOE	U.S. Army Corps of Engineers
AF	Acre-feet (an acre-foot is roughly equivalent to 325,900 gallons of water)
amsl	Above Mean Sea Level
APCD	San Diego County Air Pollution Control District
BDCM	Bromodichloromethane
BFMA	Brian F. Mooney Associates
bgs	Below Ground Surface
BMPs	Best Management Practices
BOD	Biological Oxygen Demand
BTU	British Thermal Units
CAA	Clean Air Act
CDFG	California Department of Fish and Game
CDMB	Dibromochloromethane
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CNDDB	California Natural Diversity Data Base
CNPS	California Native Plant Society
CUDA	Current Urban Development Area
CWA	Clean Water Act
DEIR	Draft Environmental Impact Report
District	Valley Center Municipal Water District
DPLU	Department of Planning and Land Use
du	Dwelling Unit
EDA	Estate Development Area
edu	Equivalent Dwelling Unit
edus	Equivalent Dwelling Units
EIR	Environmental Impact Report
EPA	U.S. Environmental Protection Agency
EPCRA	Emergency Planning and Community Right-to-Know Act
ESA	Federal Endangered Species Act
FEMA	Federal Emergency Management Agency
GBtu	Billion (Giga) British Thermal Units
gpd	Gallons Per Day
gpm	Gallon Per Minute
Hete.Plt.Cnt.	Heterotrophic Plate Count
HSA	Hydrologic Subarea
I-15	Interstate 15
kW	Kilowatt
kWh	Kilowatt-hours
LAFCO	Local Agency Formation Commission

lbs./day	Pounds Per Day
MBAS	Methylene Blue Absorbing Substance
mg/l	Milligrams Per Liter
mgd	Million Gallons Per Day
MHCP	Multiple Habitat Conservation Plan
ml	Milliliters
MPN	Most Probable Number
MUP	Major Use Permit
NCCP	Natural Community Conservation Planning Program
NOP	Notice of Preparation
NPDES	National Pollution Discharge Elimination System
NTU	Turbidity Units
OSHA	Occupational Safety and Health Administration
ppm	Parts Per Million
RAS	Return Activated Sludge
RMPP	Risk Management and Prevention Program
ROWs	Right-of-Ways
RWQCB	Regional Water Quality Control Board
SANDAG	San Diego Association of Governments
SARA	Superfund Amendment and Reauthorization Act
SDCWA	San Diego County Water Authority
SDG&E	San Diego Gas and Electric Company
SDHS	San Diego Herpetological Society
SPA	Specific Planning Area
SWPPP	Storm Water Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TAC	Toxic Air Contaminant
TDS	Total Dissolved Solids
TKN	Total Kjeldahl Nitrogen
TOC	Total Organic Carbon
TSS	Total Suspended Solids
TTHM	Total Trihalomethane
USF&WS	U.S. Fish and Wildlife Service
W	Watt
WAS	Waste Activated Sludge
μg/l	Micrograms Per Liter

SUMMARY

Introduction

The Valley Center Municipal Water District (District) is the Lead Agency and has prepared an Environmental Impact Report (EIR) for phased improvement and expansion projects to the Lower Moosa Canyon Wastewater Reclamation Facility and its service area. The County of San Diego will serve as a Responsible Agency for the processing of a Modification of a Major Use Permit (P73-18W[1]). The District's sewer service area is centered approximately six miles north of the City of Escondido and covers approximately seven square miles in the western portion of the Water District. The existing wastewater treatment plant occupies an approximate five-acre site located on Circle R Drive, east of Interstate 15 (I-15) in the area of the Castle Creek/Circle R community. The percolation ponds are located approximately two miles northwest of the treatment plant on Camino del Rey. The ponds occupy an approximate 11-acre area outside the District's service area and boundaries, west of I-15 and south of the Lower Moosa Canyon Creek.

Project

The existing Lower Moosa Canyon Wastewater Reclamation Facility, which has an operational capacity of 0.25 million gallons per day (mgd) and Major Use Permit (MUP) capacity of 0.5 mgd, includes a comminutor, two activated sludge aeration tanks, two secondary clarifiers, chlorination facilities, an aerobic digester, and four sand and two concrete-lined sludge drying beds. After receiving secondary treatment, effluent is then discharged to three percolation ponds located 1½ miles northwest of the plant on Camino del Rey. Expansion of the Lower Moosa Canyon Wastewater Reclamation Facility to 1.0 mgd is proposed in a minimum of four phases. Improvements include the phased construction of an aerated grit removal chamber, chemical and solid handling facilities (digestion and dewatering), odor scrubbing systems, an additional clarifier, new aerobic digester, and nutrient removal facilities if required. The proposed project also includes the addition of a forebay on a portion of the project site located south of existing facilities.

New gravity and low pressure sewers will allow the collection system to be extended to serve customers from the northern portion of the service area just north of Palos Verdes Drive, to the southern limit just south of Mountain Meadow Road, where lines extend east to the Mountain Gate area. The District will extend a pressure line for the reclamation system from the Moosa Canyon Plant to the Castle Creek Golf Course and from the forebay effluent pump station to the Lawrence Welk Golf Course. An existing pipeline will serve as a pump-back main from the percolation ponds to the effluent forebay. Reclaimed water will be delivered to existing open ponds at the Castle Creek Golf Course and later to existing storage ponds at the Lawrence Welk Golf Club in conjunction with Phase II improvements at the treatment plant. Other Phase II improvements include facility upgrades that provide full Title 22 tertiary treatment of effluent,

allowing the facility to increase its treatment capacity to 0.63 mgd. Phase III facility improvements and the addition of seasonal storage capacity at the existing percolation pond site increase treatment capacity to 0.75 mgd. Long-term improvements proposed as Phase IV further increase filtration and pumping capacity and provide ultraviolet disinfection equipment in anticipation of treating ultimate 1.0 mgd flows.

The Valley Center Municipal Water District proposes establishing Assessment Districts as needed to fund improvements required for approved new development. The District is also expecting to receive requests from property owners to allow annexation of small parcels isolated from their current district by the construction of I-15.

Purpose and Objectives

There is a need to expand the sewer service capacity of the Valley Center Municipal Water District to adequately address the estimated 1.32 mgd requirements of the Lower Moosa Canyon Wastewater Reclamation Facility service area as allowed by the County General Plan and to increase usage of reclaimed water. To achieve these goals the District will:

- Expand wastewater sewer collection facilities for already approved and planned development within the service areas;
- Provide reclaimed water for non-potable uses to meet District and San Diego County Water Authority goals;
- Provide wastewater treatment and reclamation facilities which meet all federal, state and local requirements;
- Protect the Moosa and Bonsall Hydrologic Sub-Basins
- Provide the most cost-effective wastewater collection and treatment system for the Lower Moosa Canyon Water Reclamation Facility service area

Significant Impacts and Mitigation

- The impacts to biological resources are significant because there will be both direct and indirect impacts from specific actions proposed as a part of the overall expansion program. Construction of the forebay will directly impact willow riparian/oak riparian woodland habitat. Indirect noise impacts could occur to the sensitive bird species during construction of pipelines through areas of sage scrub. Installation of pipelines could also result in indirect impact from siltation and runoff into blue-line streams. These impacts can be reduced to a level below significance through a revegetation program resulting in a no-net-loss of habitat, protection of sensitive species during construction and standard measures for control of runoff during installation.

- Because of past odor complaints at existing effluent flow rates and a project design which will provide up to four times as much treatment capacity at the expanded Treatment Plant, the potential for treatment facilities to create odor is considered significant. However, the proposed project includes design features to treat any odors or reduce the potential for creating odors.

- The impacts to hydrology are significant because construction of the forebay will encroach into the floodplain and floodway of Moosa Creek. Locating any new Treatment Plant facilities within the floodway is inconsistent with the San Diego County Conservation Element Policy #18. The impact can be reduced to a level below significance by careful engineering design and implementation of proposed mitigation measures.

Issues of Public Controversy

Public responses to the Notice of Preparation (NOP) raised the issues of odor and visual impacts as important concerns to be addressed in the EIR. Comments received during the public review period of the Draft EIR continue to emphasize that odor is the major issue. Questions about the floodplain and Treatment Plant screening were also raised by reviewers of the Draft EIR. The County of San Diego staff feel that growth induction is a principal consideration.

Impacts Found Not To Be Significant

The following areas of concern were identified through the Notice of Preparation process to be addressed in the Environmental Impact Report. Evaluation of the environmental circumstances resulted in the conclusion that these issues will not have any significant impacts:

- Land Use because the expansion and construction actions are located within the existing facility boundaries and are consistent with the San Diego County General Plan, relevant Community/Subregional Plans and Zoning Ordinance and are compatible with adjacent uses;

- Visual/Aesthetics because proposed actions do not reflect a significant visual change from those existing at the Lower Moosa Canyon Wastewater Reclamation Facility, percolation ponds site, roadways used for pipelines and service area;

- Public Health and Safety because the proposed actions will reduce possible risks to public safety from accidental releases of hazardous chemicals, will reduce the public health effects of potential releases of air toxins from the Lower Moosa Canyon Wastewater Reclamation Facility and will have no effect on the public health from pathogens in effluent;

- Water Quality because the Proposed Project is in substantial conformance with water quality-related regulations and will not exceed water quality standards and effluent limitations;

- Cultural because a records search and field survey were conducted during which no resources were found within any areas of construction or pipeline installation;

- Energy because the Proposed Project increases plant efficiency and needs only a small annual commitment of energy resources, will not require development of any new resources, and will enhance energy conservation by recycling wastewater; and

Growth Inducement

The Proposed Project is phased, sized and located to provide, as a piece of the regional infrastructure, sewer services for the next twenty years in accordance with the projected growth for the area and planned development as controlled by the San Diego County General Plan, associated Community Plans, Specific Plans, and Zoning Ordinance. The expansion of District facilities will remove one of the obstacles to the planned changes for the area's physical, social and economic setting.

Cumulative Impacts

Cumulative impacts result when two or more individual impacts are considered together and found to be considerable, or when they compound or increase other environmental impacts. The Treatment Plant and associated facilities are designed to provide service to already planned development within the service area. Impacts to riparian habitat, hydrology/floodways, water quality, and public safety have been identified as cumulative impacts because of their regional significance. All discretionary projects will be subject to the same environmental review and permit requirements as this project and will be required to reduce to an insignificant level or avoid impacts to biological resources. No other wastewater treatment facility improvements are proposed to serve this area. Development of other projects in the vicinity will cumulatively impact the hydrology of the area by reducing infiltration of rainfall (which will be partially replaced by golf course irrigation) and increasing the amount and rate of stormwater runoff into available drainage facilities. However, these impacts will be mitigated by existing development ordinance requirements implemented at the individual project level. The project will result in a net improvement of water quality in the hydrologic sub-basin, and a net reduction in cumulative public health and safety impacts.

Alternatives

Alternative analyses include:

- No Action - Under this alternative no additional improvements or expansion of the Lower Moosa Canyon Wastewater Reclamation Facility, percolation ponds site and pipelines will occur. Assessment Districts will not be established and small isolated areas of contiguous land will be included within the Valley Center Water District boundaries. The No Action alternative does not meet the needs of the District to provide sewer services to existing commitments and future development, improve current operations and provide reclaimed water to replace the use of potable water for irrigation.

- No Project - The County approved Major Use Permit and Regional Water Quality Control Board authorizations will allow capacity expansion of up to a maximum of 0.5 million gallons per day. Existing facilities are sufficient to provide service to approximately one-half of the existing commitments but will not provide the estimated 0.54 mgd capacity needed to meet all of the District's existing commitments.

- Pond Modification to Eliminate Forebay at Treatment Plant Site - Expansion and improvements to the system will be similar to the proposed project except the forebay for temporary storage of reclaimed water will not be constructed adjacent to the existing Treatment Plant. In lieu, modification of an existing percolation pond on Camino del Rey will be completed to provide short-term storage and allow reclaimed water to be collected and redistributed for irrigation. Biological resources and hydrology impacts will be avoided; however, the reclaimed water distribution system may be less efficient, result in higher energy costs, accelerate the construction schedule to provide seasonal storage facilities and possibly require the replacement of an existing line.

- Reduced Project - The maximum capacity allowed under this alternative will be 0.76 million gallons per day. This is the minimum requirement necessary to meet the estimated needs of all existing connections, those not yet connected but who have paid or partially paid for capacity, and those that have requested capacity and been assessed for preliminary expenses. This alternative does not provide additional capacity to meet peak flow demands once all existing commitments have been met nor does it allow the District to provide service to meet long-term population growth in the service area as forecast by the General Plan and amended by San Diego Association of Governments (SANDAG) Series VIII growth projections.

The environmentally preferred alternative is to eliminate the forebay at the Treatment Plant site, thus avoiding all significant impacts in the area of the riparian habitat and floodway. Selection of this alternative requires that the lining of an existing percolation pond be accomplished in Phase II rather than Phase III as proposed. It also results in a reduction of plant efficiency which in turn will increase operational costs which would have to be absorbed by the rate payer, and could necessitate the replacement of an existing transport line due to the need for increased line pressure.

I. INTRODUCTION

This EIR has been prepared for the Valley Center Municipal Water District (District). This project proposes phased improvements and expansions to the Lower Moosa Canyon Water Reclamation System facilities and service area. This action is undertaken in phases in order to alleviate plant deficiencies, accommodate projected growth within the service area and meet requirements for water reclamation.

This document complies with all criteria, standards and procedures of the California Environmental Quality Act (CEQA) (California Code of Regulations 21000 *et seq.*), the State CEQA Guidelines (California Code of Regulations 15000 *et seq.*), and the Valley Center Municipal Water District Local Guidelines for Implementing the California Environmental Quality Act (1995).

A Notice of Preparation (NOP) for the proposed actions was distributed by the State Clearinghouse to potential responsible agencies on December 5, 1995 and to the County of San Diego as a responsible agency on December 1, 1995. Appendix A also contains public and agency comments received during the NOP review period. The Draft EIR was made available for review by individuals and public agencies for 45 days. Written comments submitted to the Lead Agency during the 45-day review period are included as Section X of this EIR along with written responses to these comments.

A. Project Location

The District proposes improvements to existing wastewater treatment facilities, modification of the percolation ponds site and installation of sewer collection (trunk and collector) and reclamation lines. The project is located within the western portion of the District in the unincorporated area of northern San Diego County, within an approximate seven square mile service area (Figure 1). The Lower Moosa Canyon Water Reclamation Facility (Treatment Plant) occupies an approximate 5-acre site in the NW ¼ of Section 1, T11S, R3W, SBB&M, east of Interstate 15 (I-15) and west of the Castle Creek development on Circle R Drive. The percolation ponds are located on an 11-acre site adjacent to Moosa Creek, in the N½ of Section 35, T10S, R3W, SBB&M, west of I- 15 on the north side of Camino del Rey. Proposed trunk and collector sewer lines and reclaimed water distribution lines are expected to extend throughout the service area from north of the existing Treatment Plant, southerly through the I-15 corridor to the portion of the service area south of Mountain Meadow Road. The project area is centered approximately six miles north of the City of Escondido (Figure 2).

Improvements associated with the proposed project will occur partially within the boundaries of the Valley Center Community, Bonsall Community, and North County Metropolitan Subregional Plan areas and the I-15 Study Area as designated by the San Diego County General Plan. Proposed improvements will serve development within the Hidden Meadows Specific Planning

Area (SPA), the Mountain Gate SPA, Castle Creek resort, portions of the Lawrence Welk SPA, and selected areas in the general vicinity.

B. Project Purpose and Objectives

The District finds that there is a need to improve the existing Treatment Plant and to expand ancillary facilities to ensure that adequate treatment capacity and collection is available to service area users and that reclaimed water is available to reduce potable water consumption where economically and environmentally feasible. Based on the existing County General Plan and zoning, the District could be required to provide a treatment capacity of 1.32 million gallons per day (mgd). This equates approximately to 6,600 equivalent dwelling units (edus) if the service area were to build out completely. However, the ultimate design capacity of the plant is limited by existing facilities which are already installed and incapable of processing flows in excess of 1.0 mgd and by groundwater basin constraints which would require expanded seasonal storage facilities. Specific objectives to meet these needs have been identified.

1. Expand wastewater sewer collection facilities to serve already approved and planned development in the Lower Moosa Canyon service area.

Approved development projects along with County General Plan land use densities within the service area will exceed the available capacity of the existing plant. Of the 5,000 equivalent dwelling units (edus) which can be served by the proposed improvements to the Treatment Plant, a total of 3,800 are either currently being served by the District, have fully or partially paid for capacity but have not connected to the system, or have accepted liens on their property in conjunction with the formation of an assessment district in order to fund preliminary expenses, to design the improvements required and to provide the requested capacity. An additional 1,200 edus will be available in the final phase of the project to meet the long-term build-out needs of the service area. The following provides a breakdown of existing and future users:

- 1,720 edus currently receive services;
- 937 edus (435 fully paid but not connected and 502 partially paid but not connected) require connections when available service capacity exists;
- 1,143 edus have requested capacity, are included in an assessment district and are liened for preliminary expenses; and
- 1,200 edus are available to meet build-out service capacity requirements of the Community Plans.

The existing wastewater reclamation facilities currently treats slightly less than its current operational capacity of 0.25 mgd. The operational capacity is limited by constraints associated with the sludge ingestion. If the District were required to serve all existing edu commitments, capacity requirements would be approximately 531,000 gallons per day (gpd). For planning purposes, the District calculates an edu at 200 gpd. This estimate does not include additional capacity required to serve the 1,143 users identified

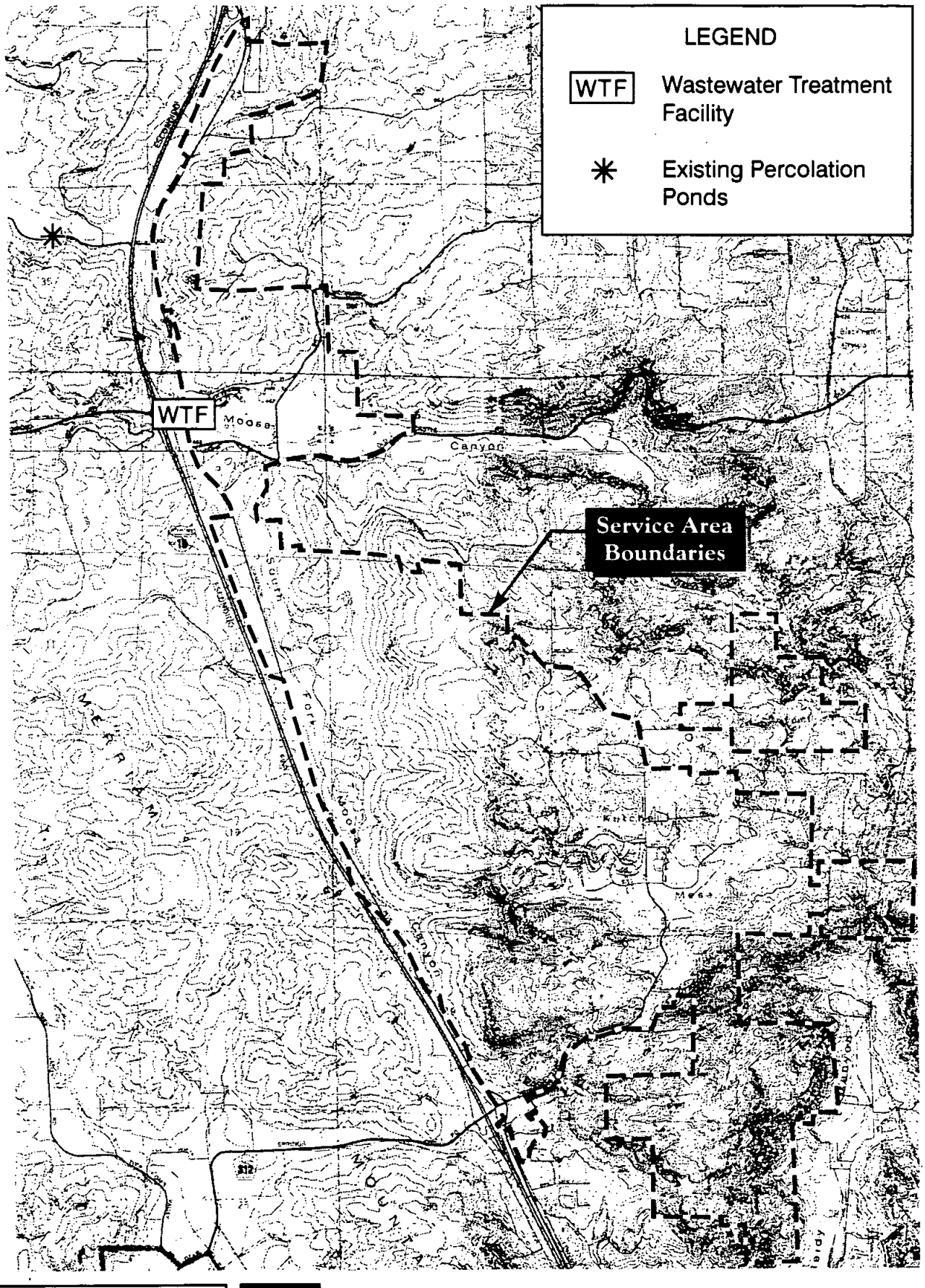
Brian F. Mooney Associates

North

Figure 1

Regional Location Map

Lower Moosa Canyon Facility



Brian F. Mooney Associates

N

0 2000' 4000'

Figure 2

Vicinity Map/Treatment Plant Service Area

Lower Moosa Canyon Facility

within the District who have requested and been assessed for preliminary expenses nor the 1,200 edus that will be available upon completion of Phase IV improvements and are projected to require capacity prior to build-out of the service area.

2. Provide reclaimed water for non-potable uses to meet District and San Diego County Water Authority (SDCWA) goals.

Since the demand for water will soon outstrip water availability without proper planning, the District and SDCWA have established goals to increase production of reclaimed water. Of the total effluent currently produced within the SDCWA boundaries, only two percent is used as reclaimed water.

Reclaimed water from the expanded facility will be supplied primarily to two existing golf courses in the area; the Castle Creek and Lawrence Welk Golf Courses. However, other appropriate users may be identified and ultimately supplied under the District's mandatory reclaimed use ordinance, subject to the Regional Water Quality Control Board (RWCQB) regulations and the current basin plan objective.

Golf course irrigation for three courses in the Treatment Plant service area is currently estimated to utilize 870 acre-feet of water. Approximately 195 acre-feet (AF) of this total is supplied from the District's potable water supplies is used by the Meadow Lake Country Club. The remainder is drawn from either the alluvial (603 AF) or basement (73 AF) aquifers within the service area for the Castle Creek and Lawrence Welk courses (Barrett Consulting Group 1995). Ultimately, 1120 AF of reclaimed water will be produced of which 490 AF is planned to be returned to the groundwater basin. Only Castle Creek and Lawrence Welk golf courses are designated to receive reclaimed water because of the elevation difference between the Treatment Plant and Meadow Lake County Club area. Each golf course requires approximately 300 AF for irrigation. The remaining 630 AF of reclaimed water would be available with season adjustments for the golf courses to use. If there are other future users of reclaimed water, the quantity returned to the groundwater basis can be reduced.

3. Provide wastewater treatment and reclamation facilities which meet all federal, state and local requirements.

The project is subject to all state, federal and regional water quality regulations, including the San Diego Regional Water Quality Control Board Ground Water Basin Management Plan (Order No. 95-32); State of California Department of Health Services (Chapter 3, Division 4, Title 22 of the California Administrative Code, Sections 60301 through 60355 and Division 7 of the California Water Code and Regulations, Section 13050); and District's own waste discharge guidelines.

4. **Protect the Moosa and Bonsall Hydrologic Subareas (HSA) (HSA 903.13 and HSA 903.12).**

Because the San Diego Region of the California Regional Water Quality Control Board Order No. 95-32 requires the District to meet minimum standards for the discharge of reclaimed water within HSA 903.13, existing secondary level wastewater treatment facilities must be upgraded to provide a tertiary level of treatment.

The District must combine groundwater extraction with the reuse of effluent when service area flows exceed approximately 0.44 million gallons per day in order to service existing and future residents. Order No. 95-32 establishes effluent limitations for the discharge of nitrates, iron, and manganese to District percolation ponds and interim limitations for total dissolved solids (TDS), iron, and manganese for direct discharge to reuse areas located in the Moosa HSA (903.13).

The District proposes to replace the use of poorer quality local groundwater drawn from the alluvial and or basement aquifers with reclaimed water. Reclaimed water will be used primarily for irrigation of golf courses within the study area.

5. **Provide the most cost-effective wastewater collection and treatment system for the Lower Moosa Canyon Water Reclamation Facility service area.**

The costs associated with a conventional gravity sewer system would be higher due to the service area topography and construction requirements for the larger minimum pipe size. Therefore, a low pressure sewer system has been incorporated into the District's Standard Plans and Specifications to reduce initial capital costs and provide a cost effective and environmentally sound solution for extension of sewer service to landowners.

C. Lead Agency

The Valley Center Municipal Water District is the project proponent and the lead agency for proposed actions.

D. Responsible Agencies

Because the project is subject to all federal, state, and local regulations, several discretionary actions must be approved by a responsible agency. Responsible agencies include:

County of San Diego
Local Agency Formation Commission (LAFCO)
California Department of Fish and Game (CDFG)
Regional Water Quality Control Board (RWQCB)
Army Corps of Engineers (ACOE)

E. Existing Treatment Plant, Percolation Ponds, Collection System, Service Area and Setting

Lower Moosa Canyon Water Reclamation Facility. The existing Treatment Plant is located on approximately five acres, west and adjacent to the Castle Creek resort on Circle R Drive. This facility has a rated capacity of 0.5 mgd but actual physical capacity is reduced to 0.25 mgd due to treatment capacity limitations of the aerobic digesters. The facility currently treats effluent flows of an estimated 0.25 mgd. Additional capacity constraints are related to groundwater basin capacity. With the discharge of secondary treated effluent, the groundwater basin capacity is limited to a maximum of 0.44 mgd.

The existing Major Use Permit (MUP) allows the plant to treat a maximum of 0.5 mgd and the District has recently received an interim permit from the Regional Water Quality Control Board (RWQCB) to expand treatment plant capacity to 1.0 mgd, assuming necessary facility improvements are accomplished.

Percolation Ponds Site. The Treatment Plant currently discharges secondary treatment level effluent into a gravity pipeline which is conveyed to percolation ponds on an 11-acre site located 1½ miles from the facility, in Lower Moosa Canyon. The site is located adjacent to Moosa Creek, on the north side of Camino del Rey. The ponds are protected from the 100-year flood by raised, rip-rap reinforced, earthen berms. The capacity of the groundwater basin underlying the percolation ponds has been a District concern during periods of high precipitation occurring over several consecutive years. In previous years of low or normal precipitation, groundwater levels in the vicinity of the percolation ponds remained well below the percolation pond invert and resurfacing of effluent immediately downstream of the ponds was not a concern. Historically, during wet cycle periods, groundwater levels within the Lower Moosa Canyon have increased dramatically. This increase in groundwater levels could result in surfacing effluent immediately downstream as effluent flows increase above 0.44 mgd if the proposed Phase II groundwater extraction facilities are not implemented.

This site is under a separate County Major Use Permit which does not preclude work in the pond areas as long as plot plan dimensions are retained.

Collection System. The District maintains eight and twelve inch trunk sewer lines which convey collected wastewater flows from the Hidden Meadows community near the southern extent of the service area. Flows are carried through the I-15 corridor adjacent to highway 395, paralleling South Fork Moosa Creek. Trunk lines pick up wastewater from Welk Village and the Castle Creek Resorts before arriving at the Moosa Canyon Plant. Both conventional gravity sewer and low pressure sewers serve the District's existing development.

The Rimrock Development, a newer development located east of the Lawrence Welk Resort, is being served by a low pressure sewer system. A low pressure system requires that each homeowner install and maintain an on-site pumping station which discharges into small diameter, low pressure sewer lines which then tie into the District's existing gravity trunk sewer system.

Maintenance of the on-site pump units is provided by Valley Center Municipal Water District in accordance with the terms and conditions of a mandatory Low Pressure Sewer Maintenance Agreement.

Service Area. The Lower Moosa Canyon Water Reclamation Facility service area selected by the District is shown in Figure 2. The boundary is essentially the same as reviewed in earlier study entitled the Issues and Options Study (Brian F. Mooney Associates [BFMA] 1990), with minor adjustments to accommodate land owner requests within the area. The boundary extends from the "Mountain Gate" planned development located in the vicinity of Mountain Meadow Road at the southerly edge of the service area, to north of the Moosa Canyon Water Reclamation Facility in the vicinity of Nelson Way. The boundary includes land where future densities may require sewer service and where collection system costs would be considered reasonable.

Regional Setting. Lower Moosa Canyon is situated within the Peninsular Range geomorphic province. The Peninsular Range geomorphic province occupies much of Southern California west of Imperial Valley and is divided into two environments: (1) the coastal plain and (2) the inland upland area. The Lower Moosa Canyon Basin is located within the inland upland area of the Peninsular Range province. The regional geomorphology is typified by westward-trending, alluvial valleys of variable length and width that have been eroded into the underlying crystalline igneous and metamorphic basement rocks. Both Lower Moosa Canyon, which is the site of the percolation ponds, and the South Fork Moosa Canyon were formed by stream erosion of the pre-existing crystalline basement rocks and subsequent deposition of alluvium along the stream channel. The east-west trending Lower Moosa Canyon is approximately 3½ miles in length, and has a width ranging from approximately 500 feet to 2,500 feet. Ground elevations within the Lower Moosa Canyon range from approximately 290 feet at the east end of the canyon (near Interstate 15) to approximately 170 feet at the confluence of Lower Moosa Creek and the San Luis Rey River. The more north-south trending South Fork Moosa Canyon drains in a northerly direction with elevations of just under 1,000 feet near its southern limit and approximately 300 feet as it merges with the Lower Moosa Canyon east of I-15.

The area is characterized by steep broken foothills, numerous rock outcroppings, and steep slope areas covered by a dense chaparral. Drainage within the service area is primarily into the South Fork Moosa Canyon and Lower Moosa Canyon. A small portion of the service area just north of the Hidden Meadows development drains into the main fork of Moosa Canyon. Various native tree species including oak, sycamore, and cottonwood thrive in the South Fork Moosa Canyon Creek drainage area and its tributaries.

F. Project Design

Phased Sewage Treatment and Water Reclamation Facility Improvements. The proposed Treatment Plant improvements will be developed in a minimum of four phases. A Preliminary Design Report is included as Appendix B. Plant capacity is expressed as a nominal capacity which is based on the unit process with the lowest capacity. While some unit processes at the plant may have higher capacities, the actual discharge rate will be limited by the overall ability

of the plant to meet the discharge requirements. Current nominal capacity is limited to 0.25 mgd due to processing limitations of the aerobic digesters and solids disposal facilities. In addition to expanding and upgrading the facilities at the treatment plant site, off site reclaimed water improvements are also required. These improvements include ground water recovery wells in the vicinity of the percolation pond site, reclaimed water mains, a holding pond at the treatment plant, and retrofit improvements at the Castle Creek and Lawrence Welk golf courses. The reclaimed water improvements are included in the following wastewater treatment plant phasing requirements. Phasing is directly related to the cost for capital improvements which are associated with key treatment requirement "break points" identified by design engineers in conjunction with regulatory requirements. Facility improvements have been designed to meet the needs of various "Commitment Groups" that have a need for service. The following tables provide an overview of phasing/key break-point requirements and capacity requirements. A preliminary project design is shown in Figure 3.

Table 1. Summary of Improvements and Capacity Requirements

Improvements

Phase	Discharge Rate	Required Treatment and Effluent Management Option
I	0 to 0.44 mgd	Percolation of Secondary Effluent
II	0.44 mgd to 0.63 mgd	Filtered/Disinfected Effluent Required to Accommodate Reuse as Part of a Water Balance Approach to Basin Management
III	0.63 mgd to 0.75 mgd	Filtered/Disinfected Effluent Seasonal Storage
IV	0.63 mgd to 1.0 mgd	Intermittent Live Stream Discharge or Nutrient Removal Facilities to Allow Permanent/Seasonal Live Stream Discharge

Capacity Requirements

Commitment Group	edus(1)	Required Capacity
Connected	1,720	0.34 mgd
Committed, fully paid, not connected	435	0.43 mgd
Committed, partially paid, not connected	502	0.53 mgd
Requested capacity, property included in Assessment District and assessed for preliminary expenses	1,143	0.76 mgd
Available at Build-out of Treatment Plant	1,200	1.0 mgd
Total	**5,000**	**1.0 mgd**

(1) Gross edu values - District's current policy assigns a unit flow rate of 200 gpd/edu and results in a projected flow of 531,400 gpd to service existing and committed constituents as represented by edus.

Source: *Preliminary Design Report for the Lower Moosa Canyon Water Reclamation Facility Expansion* January 22, 1996 Barrett Consulting Group and Valley Center Municipal Water District 1996.

Phase I (0.25 - 0.43 mgd capacity). Phase I includes solids handling and other facility improvements at the Treatment Plant which allow the plant to process in excess of 0.44 million gallons of secondary treated effluent per day. However, discharge capacity of the facility will be limited to 0.44 mgd by the waste discharge requirements to meet full

Title 22 effluent standards for flows in excess of 0.44 mgd (i.e., the groundwater basin limitation).

Proposed facility improvements are expected to occur over a period of five years or more and include improved chlorination facilities to enhance safety (chlorine scrubber), the addition of a covered aerated grit chamber, one covered aerobic digester, centrifuge and related equipment/facilities (solids handling building, chemical feed, etc.), odor control equipment, influent flow meter at the headworks, fine bubble aeration basin diffusers, two new Waste Activated Sludge (WAS) pumps and new Return Activated Sludge (RAS) pump drives, stairs at the RAS/WAS pump station, and other incidental improvements. The addition of the fine bubble aeration facilities is expected to result in a noticeable energy savings over the current system.

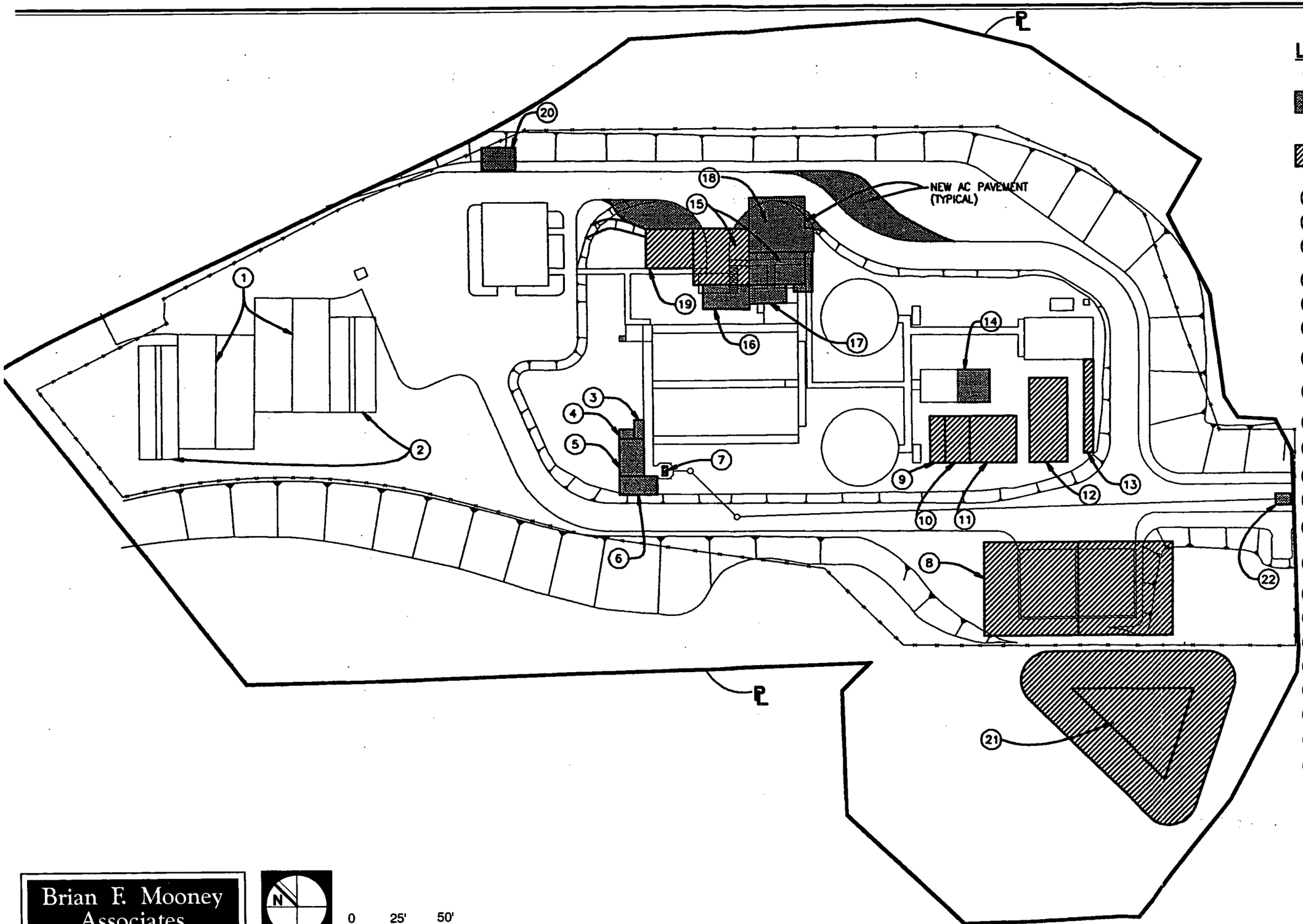
This phase will accommodate a total of 2,200 edus which represents an increase of 480 above the 1,720 edus currently being served. The resulting service capability will basically provide capacity to fully paid commitments.

Phase II (0.44 - 0.63 mgd capacity). Implementation of Phase II improvements will be in response to demand and, at current development rates, may not occur for 10 years or more. Phase II upgrades the level of effluent treatment from 0.44 mgd secondary treatment to in excess of 0.63 mgd with full Title 22, tertiary treatment. However, discharge capacity is limited to 0.63 mgd by the seasonal storage capacity of the groundwater basin. Phase II includes: construction of a flow equalization tank and a forebay to be located in the southeast corner of the facility; a mechanical bar screen; and tertiary treatment facilities (which includes rapid mix/flocculation, enhanced clarification, filtration and ultraviolet disinfection facilities necessary for the distribution of reclaimed water); the addition of one covered aerobic digester; a control building; emergency power generator; percolation pond groundwater withdrawal and pumpback facilities; and other incidental work.

The locations of future groundwater extraction wells have not been determined but it is anticipated their location will be down gradient from the percolation ponds.

Reclaimed water distribution pipelines must be constructed during this phase. An existing pipeline located parallel to an existing effluent line will serve as a pump-back main from the percolation ponds to the effluent forebay. Reclaimed water will be delivered to the Castle Creek and Lawrence Welk Golf Courses upon completion of the above improvements.

This Phase will provide capacity to serve a total of 3,150 edus which represents an increase of 950 edus above the phase I capacity of 2,200 edus. In terms of existing commitments, all partially paid and about 43 percent of the properties which have been assessed for preliminary expenses can then be served.



LEGEND

- PROPOSED RECOMMENDED 0.44 MGD PROJECT IMPROVEMENTS
- FUTURE EXPANSION

1. EXISTING DRYING BEDS
2. PHASE I DRYING BEDS
3. AERATED GRIT CHAMBER BLOWER
4. HEADWORKS CONTROL PANEL
5. AERATED GRIT CHAMBER
6. GRIT WASHER
7. FUTURE MECHANICAL BAR SCREEN
8. FLOW EQUALIZATION BASIN
9. RAPID MIX
10. COAGULATION/ FLOCCULATION
11. ENHANCED CLARIFICATION
12. FILTERS
13. ULTRAVIOLET DISINFECTION
14. SLUDGE PUMP STATION IMPROVEMENTS
15. AEROBIC DIGESTER
16. ODOR CONTROL
17. SLUDGE TRANSFER PUMPS
18. SLUDGE HANDLING BUILDING
19. CONTROL ROOM AREA
20. CHLORINE SCRUBBER
21. FOREBAY – DESIGNED BY OTHERS
22. INFLUENT FLOW METER

•• NOTE ••

FENCE LINE AND PROPERTY LINE EXHIBIT APPROXIMATE LOCATIONS.

Brian F. Mooney Associates

Figure 3

Preliminary Design Level
Site Layout

Lower Moosa Canyon Facility

Phase III (0.63 - 0.75 mgd). The Phase III improvements include modifications to aeration basin blowers and an addition of one RAS/WAS pump, a second rectangular flow equalization tank at the treatment plant, and the conversion of one percolation pond to a lined seasonal storage pond at the percolation pond site. The discharge capacity of these proposed improvements will be limited by the volume of the proposed seasonal storage pond.

Converting one of the three percolation ponds into a lined seasonal storage pond will provide sufficient seasonal storage capacity to increase discharge limits to 0.75 mgd thus providing capacity for a maximum of 3750 edus or 600 edus above the preceding phase. The level of service will be slightly short of meeting the needs of all properties in the category of assessed for preliminary expenses.

Phase IV (0.75 - 1.0 mgd). Upon completion of Phase III improvements, the District will seek an "intermittent" live stream discharge permit in lieu of pursuing: a) a "continuous" live stream discharge permit; or b) continuing with the existing inland disposal discharge permit by constructing additional seasonal storage. Regardless of the type of permit pursued, one additional filter and additional ultra-violet disinfection equipment will be required to increase the treatment capacity from 0.75 mgd to 1.0 mgd. Should an intermittent live stream discharge permit be obtained, no additional facilities will be required. If however, the District obtains a continuous live stream discharge permit, it is anticipated that nutrient removal facilities will need to be constructed.

The completion of this phase will provide capacity to serve a total of 5,000 edus, an increase of 1,250 edus above Phase III. The Treatment Plant will then be able to offer sewer services to approximately 75% of the planned 20-year build-out for the Service District.

Pipelines. Pipelines are proposed for construction within existing road right-of-ways. Both reclaimed water pipeline and low pressure sewer pipelines will be designed and constructed in accordance with the requirements of Title 22, Division 4 of the California Code of Regulations with a minimum cover of 36 inches. The proposed sewer trunk and collector pipelines, as well as reclaimed water lines, are shown on Figures 4a and 4b. Sewer and reclaimed water lines will be installed on an as-needed basis or as service capacity requirements dictate. Service to individual property owners will be coordinated through the District.

Reclaimed Water Distribution Lines. Reclaimed water will be distributed directly from the Treatment Plant first-to-the Castle Creek Golf Course and second to the Lawrence Welk Golf Course. Lines will carry water to existing storage ponds located at each site. When reclaimed water flows reach 1.0 mgd, reclaimed water produced at the Moosa Canyon Plant will exceed irrigation demand in nine out of twelve months of the year. Excess reclaimed water would be percolated into the Lower Moosa Canyon groundwater basin.

Three months of the year (July - September), the golf course irrigation demands are expected to exceed plant production and reclaimed water would be supplemented with groundwater extracted from the Lower Moosa Canyon groundwater basin. Water would be blended within a reclaimed forebay located at the Moosa Canyon Plant. The difference between the annual plant flow and golf course demand would remain in the Lower Moosa aquifer and travel downstream as underflow. In addition to the lined percolation pond, the groundwater basin would serve as a seasonal storage reservoir with percolated inflow and pumped outflow. Water discharged to the percolation ponds would receive tertiary treatment with a net benefit to the groundwater basin as quality of the treated water is higher than that of the basin.

Extracted groundwater will not require further treatment prior to irrigation on the golf courses. The reclaimed water delivered to the Castle Creek and Lawrence Welk Golf Course reservoirs will allow both course operators to continue the use of their existing groundwater supplies if needed.

Sewer Collection Lines. A combination of gravity flow and low pressure trunk and collector sewers will be constructed for those properties to be provided with sewer service within the approximate seven square mile service area. All lines would be sized for ultimate capacity of the service area based on current land use plans. Prior to project build-out, replacement of some existing sewer lines would be likely to accommodate anticipated development of the service area.

Assessment Districts/Annexation. The District's Board of Directors will determine the need to assess communities within the service area in order to fund adequate wastewater treatment facilities and distribution systems services as needed. Proposed Assessment District boundaries are included in Appendix C. Upon petition to the District and subsequent Board approval, the small islands of land east of I-15 may be annexed to the District as a logical service area provided the respective districts, within which these areas are currently designated, concur.

G. Intended Uses of the EIR

The proposed project is subject to all applicable federal, state and local regulations. Improvements to the Treatment Plant, installation of pipelines, and lining of the percolation ponds requires coordination with responsible agencies. The Clean Water Act requires that projects affecting wetlands or "navigable waters of the U.S." coordinate with the U.S. Army Corps of Engineers (ACOE) to receive a Section 404 permit. Stream channel impacts require coordination with the California Department of Fish and Game to obtain a 1601 Streambed Alteration Permit. In addition, all construction projects encompassing five acres or more must obtain a National Pollution Discharge Elimination System (NPDES) General Storm Water Permit for Construction Activities.

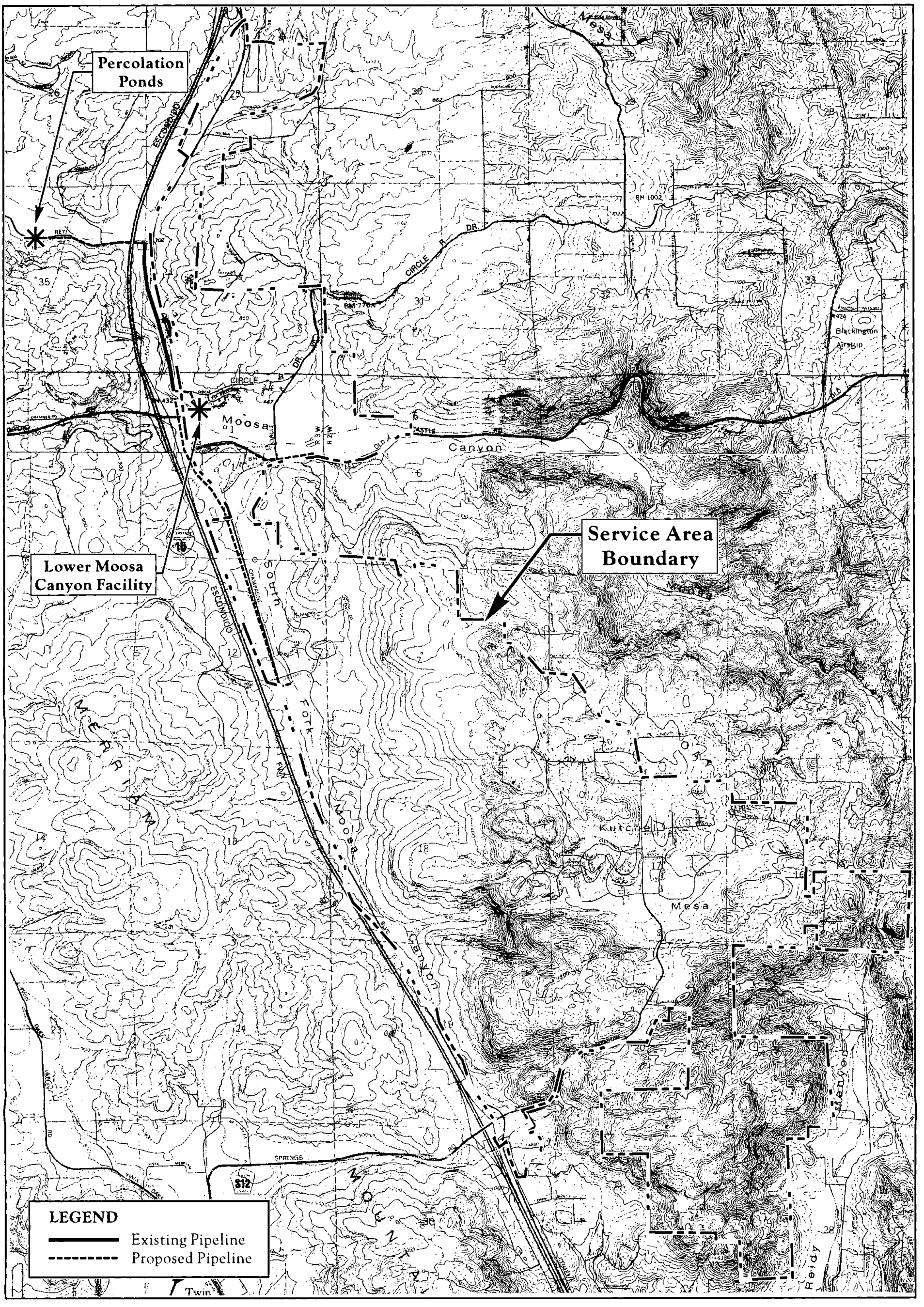


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Figure 4a

Existing and Proposed Reclaimed Water Lines

Lower Moosa Canyon Facility

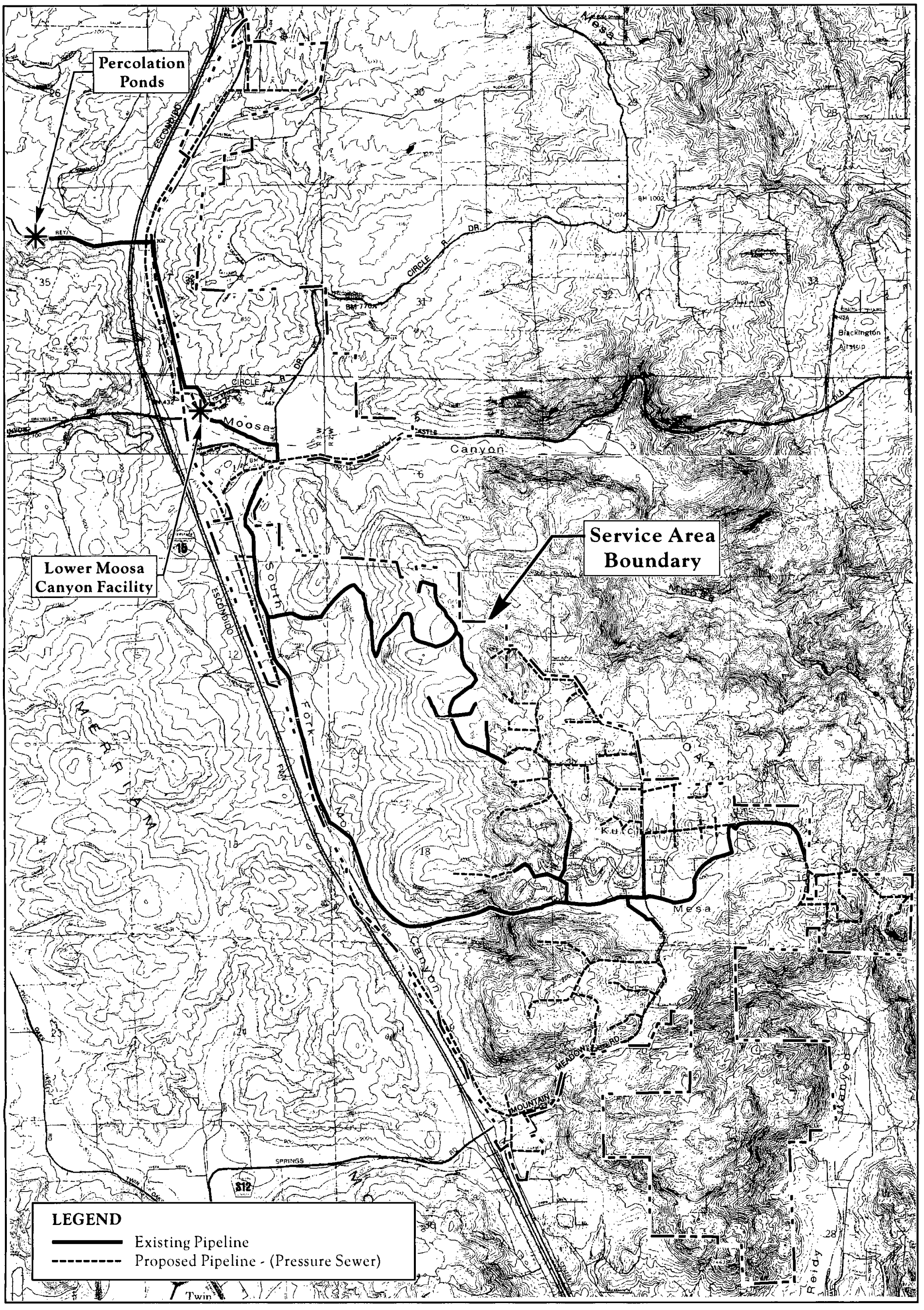

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Figure 4b

Existing and Proposed Sewer Collection Lines

Lower Moosa Canyon Facility

Wastewater treatment facility capacity improvements are subject to regulations adopted by the State Department of Health Services. Specific effluent quality standards set by this agency to ensure protection of public health are contained in Chapter 3, Division 4, Title 22 of the California Administrative Code. Title 22 standards establish the discharge requirements for flows at the project site in excess of 0.44 mgd. The local RWQCB is responsible for assuring compliance with other regulatory agencies that regulate state and local health, including the State Department of Health Services, State Water Resources Control Board, and the U.S. Environmental Protection Agency. The RWQCB is responsible for permitting the reclamation plant and the District has received permits allowing discharge of up to 1.0 mgd. Continued authorization is dependent upon validation of data to ensure that the maximum proposed discharge of treated effluent does not result in significant degradation of the Lower Moosa Canyon groundwater basin. Validation of all analysis must be completed and submitted to the RWQCB for approval by December 1996.

The proposed project requires the following discretionary actions:

- Valley Center Municipal Water District Board of Directors certification of the Moosa Canyon Sewage Treatment Plant Expansion EIR and approval of the improvement program;
- Modification by the District Board of Directors of the service area and establishment of assessment district boundaries;
- Local Agency Formation Commission (LAFCO) approval to extend the District boundaries to provide services to limited areas located between highways I-15 and SR-395. These areas are adjacent to existing and proposed improvements;
- County of San Diego approval to modify the existing Major Use Permit P73-18;
- Acquisition of California Department of Fish and Game (CDFG) 1603 Streamcourse Alteration permits;
- Acquisition of RWQCB permits where applicable; and
- ACOE Section 404 permit governs the placement of structures or obstructions, including dredge spoils, in navigable waters of the United States.

H. Project History

The existing Treatment Plant was originally constructed to replace three package treatment plants which served the Circle R, Lawrence Welk Village, and Hidden Meadows developments. The facility has been operating under the authority of the District since 1973 and operates under an existing MUP (P73-18) issued by the County of San Diego in that year. The existing MUP

allows the plant to process effluent flows up to a maximum of 0.5 mgd. A separate MUP (P73-19) for the percolation ponds site was also approved in 1973.

On October 15, 1984, the Regional Water Quality Control Board issued Order No. 84-46 to license the District to expand the Treatment Plant's rated capacity from 0.5 mgd to 1.0 mgd. The Order was recently superseded by Order No. 95-32 adopted by the RWQCB on February 9, 1995. Order No. 95-32 adds effluent limitations for nitrates, iron and manganese for discharges to the facility's percolation ponds and establishes interim limitations for total dissolved solids, iron and manganese for direct discharge to reuse areas located in the Moosa HSA (903.13). The District must validate groundwater modeling results supporting the discharge of up to 0.44 mgd of secondary treated effluent to the groundwater basin by December 1996. The District must be in compliance with Order No. 95-32 or apply for and receive a Basin Plan amendment. The order also establishes a Monitoring and Reporting Program for the District which clarifies effluent monitoring requirements.

In order to respond to requests for sewer service in a portion of the I-15 corridor, within its service area, the District initiated a study addressing the need for increased sewer treatment capacity. The *Issues and Options Study for Sewer Service Facilities along the I-15 Corridor*, herein after referred to as the Issues and Options Study, assessed available sewage treatment capacity, projected future wastewater flows, and consequently determined the need for increased sewage treatment capacity. Using the San Diego County Planning Department's General Plan as a guide, a potential service boundary was developed for consideration by the District (BFMA 1990).

The study also provided feasible, environmentally-sensitive strategies to the Board of Directors for meeting those needs recognized in the study. Another goal was to promote, where appropriate, the development and beneficial use of wastewater resources, thereby conserving imported water supplies. It was concluded in the study that additional sewer capacity is needed in this area of the County given the already approved land use densities and the current capacity limitations.

II. ENVIRONMENTAL ANALYSIS

A. Biological Resources

This section is based on a survey report prepared by BFMA: *Biological Survey and Report for Moosa Canyon Treatment Plant* (1996). The survey report is included as Appendix D. The report includes information obtained through a literature search, map review, and field surveys. The field surveys were conducted by analyzing the roads along which pipelines will be routed, water treatment plant (including the future forebay), and percolation ponds site. Limited foot surveys were conducted. Portions of several pipeline routes were not surveyed due to inaccessibility, however, the vegetation in these areas was described with a fair amount of confidence using binoculars.

1. Existing Conditions

Vegetation Communities

Vegetation within the project boundaries is discussed under three separate categories: pipeline alignments; the water treatment plant; and the percolation ponds.

Pipeline Alignments. Many of the study corridors have been graded and/or developed for residential, commercial and public uses and support very little native plant vegetation. Portions of the developed areas have been planted with ornamental or ruderal species or are covered with agriculture.

Several areas along the pipeline alignments contain native vegetation communities. The vegetation communities recorded include southern mixed chaparral (chaparral), Diegan coastal sage scrub (sage scrub), disturbed sage scrub, southern willow scrub, and coast live oak woodland (oak woodland). Scattered coast live oaks, Engelmann oaks and Engelmann oak hybrids occur along many of the roadsides at varying distances from the edge of the pavement.

Treatment Plant. Most of the Treatment Plant area is currently disturbed by plant operations (4.4 acres). Figure 5 shows the area covered by the proposed forebay (0.60 acre) which includes both disturbed vegetation (0.06 acre) and disturbed willow riparian/oak riparian woodland habitat (0.32 acre). An additional 0.22 acre of riparian habitat within the forebay area will be left intact. Another 0.04 acre of disturbed vegetation that occurs within the existing Treatment Plant will be used for construction of the forebay as will 0.10 acre of disturbed riparian habitat that occurs in two drainage swales.

The disturbed vegetation occurs directly south of the fence near the southeast corner of the existing Treatment Plan and includes mustard, Russian thistle and grasses. The disturbed willow riparian/oak riparian woodland mixture occurs within two drainage swales that are located between the disturbed vegetation and the Castle Creek Golf Course.

The vegetation within the drainages consists of willows, mulefat, and elderberry while oaks and a few scattered sycamores occur along the margins of the swales. The riparian habitat is not of high quality, due to the narrow area the vegetation occupies, it's location between a golf course and disturbed vegetation, and the invasion of Eucalyptus.

Percolation Ponds. Vegetation in the percolation ponds consists of mostly disturbed species such as cheeseweed and curly dock. Other species observed include cat-tail and tomato. The slopes of the ponds were vegetated with ruderal species such as black mustard and datura.

Wildlife

Several bird species were detected in disturbed areas throughout the project site. These include northern mockingbird, California thrasher, and European starling. Species observed at the percolation ponds include: killdeer and greater yellowlegs.

Species observed adjacent to sage scrub (primarily in the vicinity of Lotus Pond Lane and Protea Gardens Road) include wrentit, blue-gray gnatcatcher, and bushtit. Other species often observed within sage scrub include roadrunner, San Diego horned lizard and mule deer.

The dominant bird species observed in the riparian habitat within Moosa Creek was the yellow-rumped warbler. Other bird species observed in the creek near the location of the proposed forebay include red-shouldered hawk, house finch, Anna's hummingbird, and scrub jay.

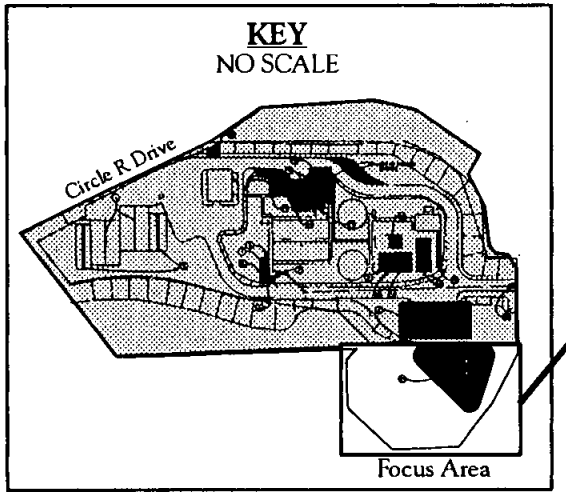
Sensitive Species

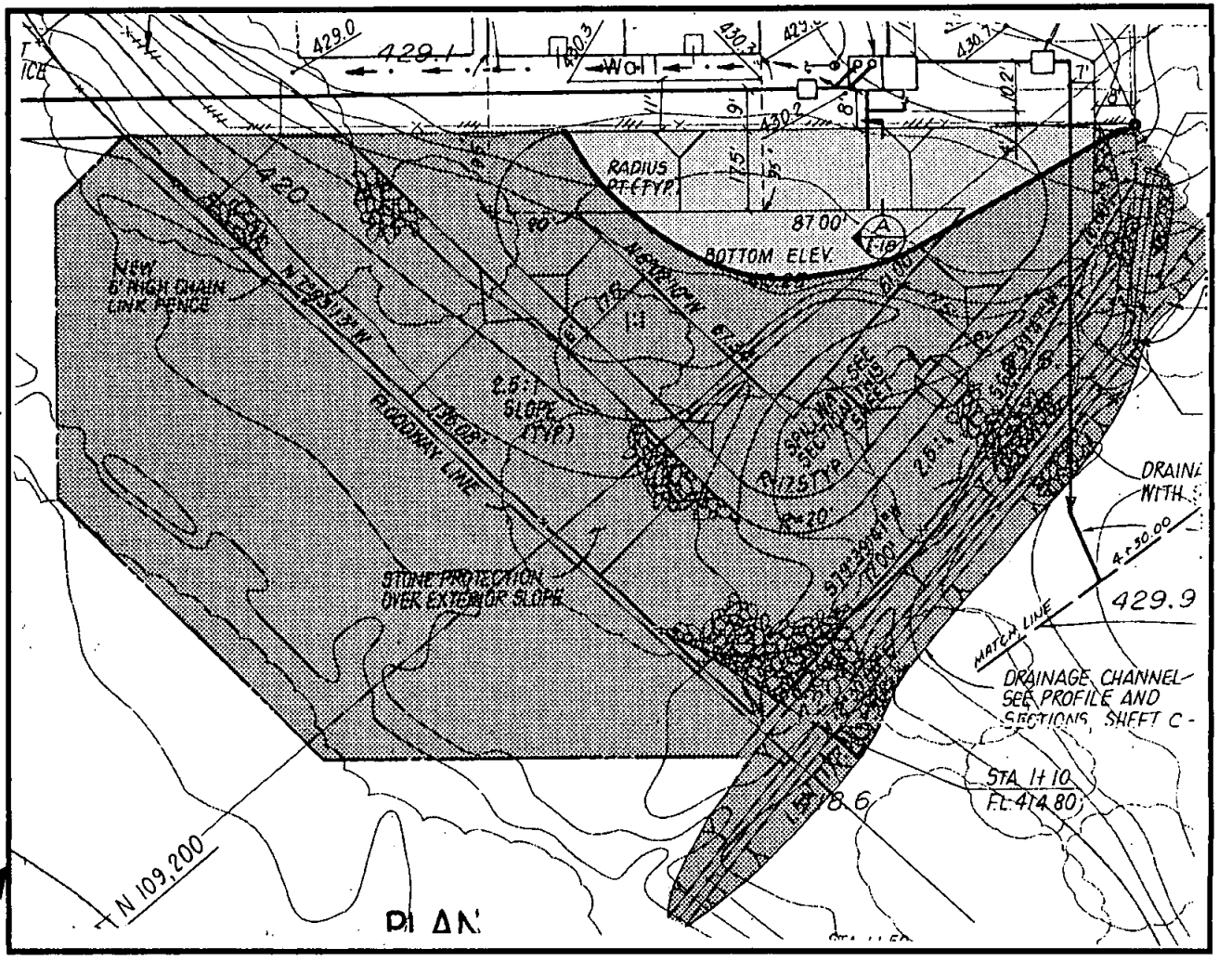
Plant and animal species are considered sensitive if they have been listed as such by federal or state agencies, or one or more special interest groups such as the California Native Plant Society (CNPS) (Skinner and Pavlik 1994). The CDFG publishes separate comprehensive lists for plants and animals through the California Natural Diversity Data Base (CNDDB) (CDFG 1995a and 1994). CDFG also publishes Database Rarefind Report (CDFG 1995b) through the CNDDB. These lists include taxa officially listed by California or the Federal Government as Endangered, Threatened, or Rare, and candidates for state or federal listing.

No directed searches for sensitive plant species were conducted. However, 12 sensitive plant species have been reported in the vicinity of the project (Table 2). The five species that could occur within the study corridors are discussed briefly below.

LEGEND

- Disturbed/Non-native landscaping
- Disturbed Willow/Oak Riparian Woodland Habitat





Brian F. Mooney Associates

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Biological Resources
Treatment Plant Forebay Site

Figure 5

Table 2. Sensitive Plant Species Potentially Occurring

Scientific Name[1]	Common Name	Status[2]	Preferred Habitat	Growth Habit (Flowering Period[2]	Potential Occurrence
Acanthomintha ilicifolia	San Diego thornmint	Federal - PE State - SE CNPS - List 1B	Grassy openings in chaparral/sage scrub with friable/broken clay soils. Associated with spring annuals and bulbs.	herbaceous annual (Apr-Jun)	yes
Adolphia californica	California adolphia	CNPS - List 2	Sage scrub, but occasionally in peripheral chaparral habitats, particularly hillsides near creeks. Associated with flat-top buckwheat and California sagebrush.	shrub	yes
Ambrosia pumila	San Diego ambrosia	Federal - C2 CNPS - List 1B	Creek beds, seasonally dry drainages, floodplains, usually on periphery of willow woodland without a protective tree canopy. Riverwash and sandy alluvium underlie these locales.	herbaceous perennial (Jun-Sep)	yes
Arctostaphylos glandulosa ssp. *crassifolia*	Del Mar manzanita	Federal - PE CNPS - List 1B	Occurs in chaparral with chamise and warty-stemmed ceanothus. Typically substrate is eroding sandstone and chaparral is low-growing.	shrub	yes
Brodiaea filifolia	thread-leaved brodiaea	Federal - PT State - SE CNPS - List 1B	Vernally moist grasslands, periphery of vernal pools. Associated with blue-eyed grass and purple needlegrass.	corm (Mar-Jun)	no
Brodiaea orcuttii	Orcutt's brodiaea	Federal - C2 CNPS - List 1B	Vernally moist grasslands, mima mound topography, periphery of vernal pools.	corm (Apr-Jul)	no
Comarostaphylos diversifolia ssp. *diversifolia*	summer holly	Federal - C2 CNPS - List 1B	Southern mixed chaparral, usually on north-facing slopes. Associated with warty-stemmed or Ramona lilac, toyon, chamise.	shrub	yes
Eryngium aristulatum var. *parishii*	San Diego button-celery	Federal - FE State - SE CNPS - List 1B	Usually restricted to vernal pools.	herbaceous biennial (Apr-Jun)	no
Harpagonella palmeri	Palmer's grapplinghook	Federal - C2 CNPS - List 2	Clay soils on open grassy slopes or open sage scrub.	herbaceous annual (Mar-Apr)	no

Table 2. Sensitive Plant Species Potentially Occurring

Scientific Name[1]	Common Name	Status[2]	Preferred Habitat	Growth Habit (Flowering Period[2]	Potential Occurrence
Horkelia truncata	Ramona horkelia	Federal - C3c CNPS - List 1B	Chamise. Associated with manzanits and Cleveland sage.	herbaceous perennial (May-Jun)	no
Navarretia fossalis	prostrate navarretia	Federal - PT CNPS - List 1B	Vernal pools and vernal swales. Associated with *Psilocarphus brevissimus* var. *brevissimus*.	herbaceous annual (Apr-Jun)	no
Tetracoccus dioicus	Parry's tetracoccus	Federal - C2 CNPS - List 1B	Low-growing chamise chaparral with moderately dense canopy cover.	shrub	no

(1) Nomenclature from Hickman 1993.

(2) Please see Appendix D, Attachment 1 for Sensitivity Guidelines.

San Diego Thornmint (***Acanthomintha ilicifolia***). The San Diego thornmint is a Federally proposed as Endangered species, a State-listed Endangered species and a CNPS List 1B species (CDFG 1995b) that could occur within the chaparral and sage scrub observed during the project surveys.

California Adolphia (***Adolphia californica***). The California adolphia is a CNPS List 2 species (CDFG 1995b) that could occur within the chaparral and sage scrub observed during the project surveys.

San Diego Ambrosia (***Ambrosia pumila***). This species is a former Federal Category 2 species and is a CNPS List 1B species (CDFG 1995b). Although the habitat value of Moosa Creek in the project vicinity is somewhat diminished because of its proximity to existing roads and the invasion of non-native species such as Eucalyptus, San Diego ambrosia could occur along the margins of the riparian habitat.

Del Mar Manzanita (***Arctostaphylos glandulosa* ssp. *crassifolia***). The Del Mar manzanita is a Federally Proposed Endangered species and is a CNPS List 1B species (CDFG 1995b) that is unlikely to occur in the chaparral within the study area.

Summer Holly (***Comarostaphylos diversifolia* ssp. *diversifolia***). This species is a former Federal Category 2 species and is a CNPS List 1B species (CDFG 1995b). Summer holly was not observed during surveys in 1990 and 1991 for the Mountain Meadow Road Reconstruction Project (County of San Diego 1993). It could occur within the chaparral habitat within the project's study area.

The Audubon Society, the Blue List, Everett and the San Diego Herpetological Society (SDHS) provide listings of sensitive animal species. No directed-searches for sensitive animal species were conducted. However, nine sensitive animal species are known from the area (Table 3). The seven species that could occur within the study corridors are discussed below as well as a sensitive species that was observed.

Southwestern Pond Turtle (***Clemmys marmorata pallida***). This species is a former Federal Category 1 species and is a State Species of Special Concern (CDFG 1995b) that has a low potential to occur within Moosa Creek.

Orange-Throated Whiptail (***Cnemidophorus hyperythrus***). The orange-throated whiptail is a former Federal Category 2 species and a States Species of Special Concern (CDFG 1995b) that could occur in those areas consisting of sage scrub and chaparral.

Table 3. Sensitive Wildlife Observed and Potentially Occurring

Scientific Name[1]	Common Name	Status[2]	Preferred Habitat	Potential Occurrence
Clemmys marmorata pallida	southwestern pond turtle	Federal - C1 State - CSC	permanent/nearly permanent bodies of water; requires basking sites, e.g., partially submerged logs, vegetation mats, open mud banks	yes
Cnemidophorus hyperythrus	orange-throated whiptail	Federal - C2 State - CSC	sandy areas with patches of brush and rocks	yes
Aquila chrysaetos	golden eagle	State - CSC	open grassland for foraging; cliff-walled canyons or large trees in open areas for nesting	no
Empidomax traillii extimus	southwestern willow flycatcher	Federal - FE State - SE BL	willow thickets in riparian growth	yes
Campylorhynchus brunneicapillus sandiegoense	coastal cactus wren	Federal - C2 State - CSC	sage scrub with tall *Opuntia*	no
Polioptila californica californica	coastal California gnatcatcher	Federal - FT State - CSC	sage scrub	yes
Vireo bellii pusillus	least Bell's vireo	Federal - FE State - FE BL	low riparian growth	yes
Aimophila ruficeps canescens	southern California rufous-crowned sparrow	Federal - C2 State - CSC	sage scrub, sparse mixed chaparral, frequents steep rocky hillsides with grass and forb patches	yes
Polioptila caerulea	blue-gray gnatcatcher	Everett	riparian under growth; weedy brush, chaparral, less frequently sage scrub	observed
Dipodomys stephensi	Stephen's kangaroo rat	Federal - FE State - SE	primarily annual/perennial grasslands, but also sage scrub	yes

[1] Nomenclature: reptiles, Jennings 1983; birds, Binford 1986 and DeBenedictis 1989; mammals, Jones, et al. 1982.
[2] Please see Appendix D, Attachment 1 for Sensitive Guidelines.

Southwestern Willow Flycatcher (*Empidonax traillii extimus*). The Southwestern willow flycatcher is both a State and Federal Endangered species, is on the Blue List (Tate 1986) and is considered sensitive by Everett (1979). It is extremely unlikely due to the very narrow width of vegetation, location between a golf course and disturbed vegetation and invasion by non-native species that the southwestern willow flycatcher would currently occur within Moosa Creek.

Coastal California Gnatcatcher (*Polioptila californica californica*). The coastal California gnatcatcher is a Federally Threatened species and a State Species of Special Concern (CDFG 1995b) that could utilize the areas covered by sage scrub.

Least Bell's Vireo (*Vireo bellii pusillus*). This species is a Federally and State listed Endangered species and occurs on the Blue List (CDFG 1995b). As with the southwestern willow flycatcher, the least Bell's vireo could occur within Moosa Creek, although it is extremely unlikely because of the location and character of the vegetation.

Southern California Rufous-Crowned Sparrow (*Aimophila ruficeps canescens*). The southern California rufous-crowned sparrow is a former Federal Category 2 species and is a State Species of Special Concern (CDFG 1995b) that could occur within the sage scrub and chaparral within the study corridor.

Blue-gray Gnatcatcher (*Polioptila caerulea*). This species is considered declining by Everett (1979). A blue-gray gnatcatcher was detected within sage scrub along Lotus Pond Lane.

Stephen's Kangaroo Rat (*Dipodomys stephensi*). The Stephen's kangaroo rat is a Federally and State listed Endangered species (CDFG 1995b). This species could occur within the sage scrub within the project boundaries, although it is unlikely because any habitat historically appropriate for the species has been disturbed by agricultural, residential and roadway activities.

Sensitive Habitats

Habitats are regarded as sensitive because they are currently limited in extent or are becoming limited in their distribution, support sensitive species, or are in general valuable to wildlife. Habitat values within the study area vary due to differing levels of disturbance, of which agriculture, development and past clearing are the primary sources for any reduced habitat values.

Diegan coastal sage scrub is regarded as a sensitive habitat because its area has been greatly reduced by development. With losses to this habitat is a corresponding displacement of plant and animal species which are also regarded as sensitive.

Oak woodlands are valuable to a wide variety of wildlife species because they provide food, cover, and nesting or denning habitat for several mammal species and as escape cover for reptiles, birds and mammals.

In southern California riparian habitats by their nature are limited. They are also one of the fastest disappearing habitats in the county. Proximity to water and a variety of habitat types are factors which contribute to the richness and productivity of wetlands. Wetland habitats are protected by CDFG and often these habitats fall under the jurisdiction of the ACOE, especially when major drainages are involved. Moosa Creek supports riparian habitat in the form of southern willow scrub, willow riparian/oak riparian woodland mixture and sycamore riparian woodland. Southern willow scrub also occurs within a number of small drainages throughout the study area.

Wildlife corridors or habitat linkages are important for their role in preserving species diversity. They allow wildlife to move between patches of habitat or between habitat and resources such as water.

Regional Habitat Planning. The Draft Multiple Habitat Conservation Plan (MHCP) has been developed by the San Diego Association of Governments (SANDAG) as a means of documenting existing biological resources and planning for the coordinated regional mitigation for impact to these resources. The Natural Community Conservation Planning Program (NCCP) was initiated by the State of California to provide protection and perpetuation of natural wildlife diversity on a regional basis while allowing compatible land use and appropriate development. The primary directive of the planning process is to shift focus from a single species conservation effort to effectively protecting species and habitats on a natural community level. The southern California sage scrub NCCP program is the first NCCP program and provides for the long-term protection of species in the sage scrub community in southern California. The most publicized sensitive species inhabiting sage scrub is the coastal California gnatcatcher (gnatcatcher) (*Polioptila californica californica*). The gnatcatcher is a Federally Threatened species and a State Species of Special Concern.

Permits

Construction in wetlands or other sensitive habitats may require state or federal permits or approvals in addition to those required by local jurisdictions. This additional regulatory framework consists mainly of Section 404 of the Clean Water Act (CWA), the Federal Endangered Species Act, and Sections 1600 of the California Fish and Game Code.

Section 404 of the Clean Water Act empowers the ACOE to regulate the placement of fill in "territorial waters of the United States," a definition that includes virtually all wetland areas. Section 9 of the Federal Endangered Species Act (ESA) prohibits the "take" of an Endangered species. "Take" refers to any action that will harm, harass or kill the species. There are exceptions to the prohibition against take that are allowed by Sections 7 and 10 of the ESA. Under Section 1600 of the California Fish and Game Code, the CDFG has authority to reach an agreement with an agency proposing to affect intermittent or permanent streams and other wetlands. The CDFG often accepts mitigation for streamcourse impacts as a product of the Alteration Agreement.

2. Environmental Impacts

Criteria for Determining Significance

Impacts to the flora and fauna observed or expected at the site were determined to be significant or insignificant based upon sensitivity of the resource and the extent of the impact. Resources are generally considered significant if they are limited in distribution and their ecological role is critical within a regional and local context. Habitats supporting species listed as rare, endangered, or threatened by the agencies that enforce the California or Federal Endangered Species Act are also regarded as significant resources. In addition, habitats meeting the following criteria were also determined to be significant:

- Natural areas, communities, and habitats of plant and animal species that are restricted in distribution.
- Habitat that is critical to species or a group of species for feeding, breeding, resting, and migrating.
- Biological resources that are of scientific or educational interest because they exhibit unusual characteristics.
- Buffer zones to protect significant resources.
- Corridors or areas that link significant wildlife habitats.

A significant impact to a sensitive resource may be direct, indirect, or cumulative. An impact is regarded as direct when the primary effects of the project result in loss of habitat that will cause a reduction in the density or diversity of biological resources within the region. The magnitude of an indirect impact is the same as a direct impact, however, the impact occurs from a secondary effect of the project.

Environmental Consequences - Issue Analysis and Significance

District Service Area/Assessment Districts. The project covers an approximate seven square mile area in the vicinity of the I-15 Corridor, within northern San Diego County. According to the Multiple Habitat Conservation Program's Habitat Value Biological Core and Linkage Area map, this area includes wildlife corridors of varying sizes and habitat value. However, no physical disturbances will occur in the minor realignment of the District's boundaries and Service Area limits or with the establishment of Assessment Districts. No significant impacts to any wildlife corridors are anticipated.

Pipelines. This impact analysis assumes that the proposed project follows roadways and all disturbances during construction will be confined within those roadways or disturbed road right-

of-ways (ROWs). Biological resources including sensitive habitats will not impacted except for possible indirect impacts to habitats and streams.

The equipment to be used for pipeline installation will consist of a ditchwitch that will create a relatively narrow ditch. Although the equipment may create a noise, it will not be continuous over any extended length of time, and the noise generated will not be louder than that resulting from a large truck being driven down the road. Therefore, indirect impacts to noise-sensitive wildlife occurring within the vicinity of pipelines that will be placed in roadways are not anticipated.

Biologically important areas in which pipeline installation must be sensitive to adjacent resources include the Moosa Creek crossing between Circle R Drive and Old Castle Road and other crossings. Direct impacts to streamside vegetation will be avoided by placing crossings within existing roadways or possibly attaching the pipe to the side of the bridge with brackets. Indirect impacts could occur, however, as a result of siltation and runoff into blue-line streams during construction.

Other areas of concern for resources are the access to the storage pond within the Castle Creek Golf Course along an area of oak trees, the east-west connection north of Boulder Pass where disturbed habitat and a drainage with southern willow scrub exist, and from Meadow Glen Way to Quiet Hollow Lane where it is unknown if the sensitive California gnatcatcher occurs in the sage scrub. No direct impacts to oak trees, riparian habitat or sage scrub will result with the construction work remaining within the roadways. Indirect noise impacts could occur to birds within the sage scrub habitat.

Treatment Plant. With the exception of the forebay, improvements within the operating plant site will not result in impacts to sensitive resources. The proposed forebay will be constructed in an area classified as disturbed willow riparian/oak riparian mixture and disturbed. The vegetation is currently not of a condition to sustain sensitive plant species or sensitive wildlife such as the least Bell's vireo and/or the southwestern willow flycatcher. Approximately 0.42 acre of disturbed willow riparian/oak riparian mixture is estimated to be impacted including 0.32 acre for the forebay itself and 0.10 acre where the two drainages will be combined and channelized. Any impact to wetlands will be significant because wetlands have undergone drastic reductions in their acreages and they typically support a diversity of wildlife species. Since construction may not take place for a number of years, the conditions of the resources may change naturally.

Construction of the forebay could alter wildlife movement between the riparian vegetation to the west and the oaks to the east. Revegetating over any portions of the project area that extends into native vegetation will enhance the rehabilitation of each area, thereby minimizing any loss to the wildlife use areas. Therefore, the integrity of any wildlife corridor, no matter the size, will not be compromised.

Percolation Ponds. Lining the eastern percolation pond will result in a permanent water source and will possibly prevent vegetative growth from occurring in the pond. However, the other two ponds will remain unchanged, allowing wildlife to continue to use them. In addition, other species such as ducks may use the lined pond since the water depth is expected to exceed that which currently occurs in the ponds when used for storage. Therefore, no significant impacts are anticipated as a result of lining one of the percolation ponds.

Summary of Impacts. The impacts to biological resources are significant because there will be both direct and indirect impacts from specific actions proposed as a part of the overall expansion program. Construction of the forebay will directly impact willow riparian/oak riparian moisture habitat. Indirect noise impacts could occur to the sensitive bird species during construction of pipelines through areas of sage scrub. Installation of pipelines could also result in indirect impacts from siltation and runoff into blue-line streams.

3. Mitigation Measures

1. A qualified biologist shall monitor delineation changes to the wetland area during development of the engineering plans for the forebay and within one year prior to construction. The biologist shall monitor the area of impact and the quality of habitat to be impacted. Any loss of sensitive habitat shall be mitigated by revegetation. Replacement ratios will range from 3:1 to 1:1 depending upon the quality of habitat lost and final approval of an on-site or off-site revegetation area by the resource agencies. Any impact to wetland habitat within the drainage swales in the vicinity of the proposed forebay will require a Streambed Alteration Agreement issued by CDFG and an ACOE permit.

2. A qualified biologist shall monitor the forebay site for sensitive species within one year prior to construction of the forebay. The biologist shall monitor the area of impact for the introduction of sensitive species. Any loss of sensitive plant species, or habitat with sensitive wildlife species, shall be mitigated as a part of the habitat revegetation program under Measure #1. Impacts to sensitive bird species will require implementation of Measure #5.

3. A qualified biologist shall monitor the Boulder Pass site for delineation changes to the wetland area within one year prior to construction. The biologist shall monitor the area of impact and the quality of habitat to be impacted. Any loss of sensitive habitat shall be mitigated by revegetation. Replacement ratios will depend upon the quality of habitat lost and final approval of an on-site or off-site revegetation area through the Streambed Alteration Agreement issued by CDFG and an ACOE permit.

4. Monitoring by a qualified biologist for the California gnatcatcher shall occur within one year prior to the installation of any pipeline in Lotus Pond Lane. Impacts to sensitive bird species will require implementation of Measure #5.

5. Measures to avoid or eliminate construction noise impacts to sensitive bird species (such as the establishment of construction windows) will be implemented in those areas where the presence of the species has been confirmed or established as likely by the monitoring biologist.

6. Techniques to prevent soil, silt, runoff, and sand erosion during the construction and re-establishment phase in the area of the forebay shall be identified by the monitoring biologist. Measure shall include, as warranted, placement of sandbags or erosion barriers along those areas of wetland habitat within the area of the forebay, control of dust from earth moving or blasting and continued exposure during revegetation.

7. Techniques to prevent soil, silt, runoff, and sand erosion during the construction of pipelines along the vicinity of sensitive habitats shall include, as warranted, sandbags, erosion barriers and dust control.

8. Construction activities adjacent to riparian habitat and sage scrub shall be monitored by a biologist. This monitoring will consist of the following measures which are intended to avoid any inadvertent intrusion beyond the proposed action into these habitats:

   a. The edge of the construction easement will be conspicuously marked.
   b. The biologist will discuss the sensitivity of these areas and the need to prevent any direct construction impact to them with the construction superintendent.
   c. The project biologist will establish a schedule of visits to the construction site to monitor compliance based on the circumstances of construction in relationship to resources.
   d. As part of these visits, the project biologist will evaluate the effectiveness of the erosion control measures.
   e. Monthly reports on the monitoring will be submitted to the District and the resource agencies for the entire project and, where construction is subject to the County's Major Use Permit Modification, the Department of Planning and Land Use. Any problem areas, however, will be discussed immediately with the resident engineer.

4. Summary of Impacts After Mitigation

Any loss of wetland will be mitigated by the creation of habitat so that there is no net loss of habitat. Eliminating noise impacts to sensitive bird species by methods such as establishment of specific time frames in which construction can occur will reduce indirect noise impacts to a level below significance. The indirect impact from construction to streambed areas will be avoided through the use of standard erosion control measures.

B. Odor

1. Existing Conditions

Odor is both a highly sensitive and problematic issue as it relates to wastewater treatment facilities and surrounding land uses. Some compounds can be detected by the human nose at concentrations around five parts per trillion.[1] Because of this sensitivity, odor is a major land use concern in urban areas. The human sense of smell is stimulated by many different organic and inorganic chemical compounds. The sensitivity of the human olfactory system varies greatly among these compounds, as does the effect (pleasant, neutral, or objectionable). Table 4 lists the properties of some malodorous substances that are either used in (chlorine, ozone) or produced during (ammonia, hydrogen sulfide, mercaptans) wastewater treatment.

Table 4. Odor Thresholds of Various Substances

Substance	Description	Odor Threshold (ppm)
ammonia	sharp and pungent	0.037
chlorine	pungent and irritating	0.01
mercaptans	skunk	0.00003
hydrogen sulfide	rotten eggs	0.0011
ozone	pungent and irritating	0.001

ppm = parts per million
Source: U.S. Environmental Protection Agency, 1976, *Direct Environmental Factors at Municipal Wastewater Treatment Works*, Technical Report No. EPA-430/9-76-003.

Ammonia is a normal byproduct of the natural decomposition of organic materials. Hydrogen sulfide is produced by bacteria under anaerobic conditions. Anaerobic conditions exist where circulation is poor, such as in pipelines when not in use, or where biological oxygen demand is high, such as in tank bottom sediments. Mercaptans are sulfur-based degradation products of organic materials (organic wastes contain substantial amounts of sulfur) that also are produced under anaerobic conditions. These and other odorous gases are transferred from the water to the air whenever the wastewater is in direct contact with air.

Regional and Local Meteorology

The project site is located in inland San Diego County, where surface winds typically are dominated by topography and by diurnal surface heating and cooling cycles.[2] As the earth's

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[1] James M. Montgomery, Consulting Engineers, Inc., 1985, *Water Treatment Principals and Design.*

[2] No permanent meteorological monitoring stations are located in the project area. The closest permanent monitoring station to the project site is located in Oceanside. Data collected there are not considered to be representative of conditions at the project site.

surface heats up in the morning, the warm air over the land rises and the cooler marine air over the ocean moves in underneath to replace it. These westerly winds become noticeable along the coast shortly after sunrise, and winds become noticeable in the project area about mid-morning. Shortly after noon, westerly winds reach their peak velocity. After sunset, the land surface cools (whereas the ocean maintains a relatively uniform temperature) and cool surface air begins to descend, draining down canyons toward the ocean. This nighttime easterly wind reaches peak velocities around midnight. The project site is located in an east-west-oriented canyon; because of the canyon's orientation, the project site experiences the full effect of these surface wind flows.

Existing Sources of Odor

The Lower Moosa Canyon Wastewater Reclamation Facility (Treatment Plant) and a smaller treatment plant at the All Seasons Campground are potential major sources of odor in the project area. The Treatment Plant typically receives two to three formal odor complaints per year. Numerous complaints were received during a recent period, however, when wet weather caused sludge to remain in drying beds much longer than normal. Additional complaints about odor were received by the District during public hearings on the project. District staff have identified several potential sources of odor at the Treatment Plant.

Headworks. The headworks structure, where sewage enters the Treatment Plant, is one existing source of odor. Raw sewage enters the Treatment Plant via a gravity sewer and discharges into the headworks. The headworks consists of an inlet channel and a bypass channel. The inlet channel contains a comminutor, which grinds all material in the raw sewage flow stream. The potential for odors to be released to the air is high at this first step in the treatment process because the wastewater is flowing under turbulent conditions. Hydrogen sulfide is periodically released at very low concentrations at the headworks during the first peak flow of the day (Barrett Consulting Group 1996). There also is a potential for release of odors from the headworks during its quarterly cleaning; to date, however, no odor complaints have been correlated with either first peak flow operations or this cleaning activity (Barrett Consulting Group 1994). The headworks structure has recently been covered, and the barminutor was replaced with a comminutor to help alleviate odor problems experienced in the recent past.

Aeration Basins. As it leaves the headworks structure, the wastewater flows into two aeration basins. The aeration basins have been identified as an occasional source of odor from the Treatment Plant. Ammonia is released from the basins during aeration. The decomposition of organic wastes under anaerobic (e.g., without air) conditions can generate other odorous gases, primarily hydrogen sulfide and mercaptans. By ensuring that the wastewater in the aeration basins is well-aerated, The District minimizes the potential for odors to be released to the atmosphere during this process.

Low influent velocity currently allows the aeration basins to act as a settling basin for grit and other debris passing through the barminutor. Although the basins were not originally intended for this use, settleable material is effectively removed from the wastewater stream as it moves

through the aeration basins. The accumulated sediment is periodically removed from the basins, and the influent channel is cleaned about every three months. Some potential exists for releases of odor during removal of sediment or cleaning of the influent channel, but to date no recorded complaints have been associated with such activities.

Sludge Processing. Sludge processing is another existing activity at the Treatment Plant that is capable of generating odors. Sludge is digested in two aerobic digesters. During digestion, odorous gases can escape directly to the atmosphere.

The sludge drying beds are the final source of odor at the Treatment Plant. Sludge is partly dewatered, then pumped into shallow beds to be dried into a cake (50% solids) that can be removed and disposed at a landfill. Occasionally, wet weather extends the normal drying time of two to three weeks to as much as eight weeks (Barrett Consulting Group 1994), and decomposition products produced in the beds become an odor problem. In the Spring of 1995, an extended period of wet weather resulted in numerous formal complaints to the Regional Water Quality Control Board. The District has recently instituted several facility/operational improvements to circumvent future problems associated with sludge processing. These include: contracting with RECYC, Inc. (a sludge composter located in Riverside County) to remove sludge which is dried to about 25% solids, a higher moisture content than is accepted at the County landfill, and modification of existing drying beds to alleviate odor problems experienced in the recent past. A centrifuge was installed with plant construction but is currently inoperable and is no longer used to de-water sludge prior to routing to sludge drying beds. Future planned improvements will result in replacement of the centrifuge and eliminate the use of the sludge drying beds except when the centrifuge is down for maintenance or repairs.

Sensitive Receptors

Land uses considered sensitive to odors include residential, commercial, and recreational areas and transportation corridors. The following odor-sensitive land uses are located adjacent to the Treatment Plant:

Castle Creek Resort and Golf Course (formerly Circle R) is located to the east of the Treatment Plant, where it typically is downwind of the facility from late morning until early evening. Odor complaints from adjacent residents in Castle Creek Resort were received by the RWQCB prior to its issuing Board Order 84-46 in 1984. Since that time, the RWQCB has received no odor-complaints (Barrett Consulting Group 1994).

Interstate 15 (I-15) is located to the west of the project site. Although a high volume of motorists traverse the project area on I-15, they are not considered to be sensitive receptors because of their short exposure time (probably about 20 to 40 seconds at freeway speeds) and the freeway's position upwind of the Treatment Plant for most of the daytime peak travel period.

All Seasons Campground - a campground and fishing lake are located north of, and down Moosa Creek from, the Treatment Plant. This area could be exposed to emissions from the Treatment Plant during drainage air flows. It could also be exposed to emissions of heavier-than-air gases released from the Treatment Plant.

Residential - Areas north and south of the project site, designated for low-density residential use, could be exposed to odor from the Treatment Plant. This is considered unlikely, however, because these areas are generally higher in elevation than the Treatment Plant, and are generally not downwind of the Treatment Plant.

2. Regulations, Plans, and Policies

Regional Water Quality Control Board

Treatment Plant operations are regulated by the RWQCB. In response to odor complaints the RWQCB received from the community, the RWQCB's Board Order 84-46 required the District to develop and implement a detailed plan for preventing off-site odors from the Treatment Plant when it expanded beyond it's presently permitted capacity of 0.5 mgd. The details of this plan were to be presented, along with the preliminary design of the Treatment Plant expansion, in an updated Board Order (Barrett Consulting Group 1994). The updated Board Order (95-32) recognizes that the District has installed covers over all influent channels, injects chlorine at the influent wet well and has increased sludge hauling frequency. In addition, the Order includes several prohibitions, specifically a requirement that "Neither the treatment, storage nor disposal of waste shall create a pollution, contamination or nuisance, as defined by Section 13050 of the California Water Code". Odor may be considered a "Nuisance" under this section if it is (1) anything which is both indecent or offensive to the senses so as to interfere with the comfortable enjoyment of life or property, AND (2) affects at the same time any considerable number of persons.

Air Pollution Control District

As the County agency responsible for air quality management, San Diego County Air Pollution Control District (APCD) is also responsible for control of odors. APCD's Rule 51 prohibits nuisance emissions, including odorous emissions, and provides authority for the APCD to abate such conditions.

The APCD also is responsible for the local enforcement of Section 112 of the Clean Air Act (CAA), National Emissions Standards for Hazardous Air Pollutants, which is intended to control emissions of hazardous air pollutants. Some of the odorous substances released by wastewater treatment plants are hazardous air pollutants and are subject to Section 112 of the CAA. Hydrogen sulfide, the primary malodorous substance periodically released by the Treatment Plant, is also a toxic air contaminant regulated by California Assembly Bill (AB) 2588, the Air Toxics 'Hot Spots' Information and Assessment Act; this State law is enforced by the APCD.

The APCD also is responsible for enforcement of State of California ambient air quality standards. The State has established a one-hour standard of 0.03 parts per million for hydrogen sulfide, the primary odorous substance released by wastewater treatment plants. This standard is about 30 times the odor threshold, however, and is intended to protect public health rather than to avoid odor impacts.

3. Environmental Impacts

Criteria for Determining Significance

The significance of project impacts is determined by the Lead Agency (State CEQA Guidelines, §15064). On the basis of the general guidance provided by the State CEQA Guidelines (Appendix G, Significant Effects), the project will have a significantly adverse effect on the environment if it increased the potential for the Treatment Plant to:

- frequently create objectionable odors affecting a substantial number of off-site individuals;
- occasionally create very objectionable odors affecting a substantial number of off-site individuals; or
- frequently create very objectionable odors affecting a moderate number of off-site individuals.

The project also will have a significant adverse effect if it increased the potential for the Treatment Plant to:

- violate the State's ambient standard for hydrogen sulfide;
- violate Section 112 of the CAA; or
- violate the County Air Pollution Control District's Rule 51 on public nuisances.

These significance criteria are intended to be applied to the "project increment," which is the net change in the existing environmental conditions resulting from the project.

Planned Odor-Control Improvements

The following odor control facilities will be installed at the Treatment Plant as part of the project:

Covers. The aerated grit-removal facilities, centrifuge and dewatering sludge holding bins, and existing and proposed aerobic digesters will be enclosed to permit potentially odorous air from these facilities to be collected and routed to a scrubber.

Scrubber. A three-stage, packed bed scrubber located in the vicinity of the solids-handling building will be used to remove odors from air routed to the scrubber from the headworks, aerobic digesters, and other facilities. The scrubber will use solutions of sodium hydroxide and sodium hypochlorite to minimize the potential for hydrogen sulfide concentrations to exceed threshold limitations at the plant boundaries, reducing its concentration in air released to the atmosphere to about 0.2 ppm. This concentration will still be above the odor threshold, but will be rapidly dissipated in the atmosphere and undetectable at the boundaries of the Treatment Plant.

Fine Bubble Air Diffusers. Proposed improvements in the aeration of the wastewater, intended to further minimize the potential for anaerobic conditions to develop, include replacing the existing coarse diffusers with fine bubble air diffusers. Fine bubble air diffusers should lessen the potential for low-oxygen conditions during warm summer periods, and will provide oxygen transfer rates high enough for proper operation of the system at flows up to 0.44 mgd. Other improvements, including piping modifications, the addition of air flow meters, and upgrading an existing blower in Phase III, will provide sufficient capacity through the final phase of the project (Barrett 1996).

Grit-Removal System. An aerated grit removal system will be installed. This system will be sized to accommodate flow rates up to 1.0 mgd. The grit removal system will be covered and the collected air will be processed through the proposed odor control system.

General. Equipment redundancy and a standby generator have been incorporated into the design of the new and existing facilities to reduce the potential for mechanical or electrical failure to result in the release of odors to the atmosphere.

Standard maintenance and surveillance of the facilities by plant operators is intended to minimize the potential for upset conditions to occur. Maintenance and surveillance activities can be adjusted and augmented as needed to achieve the desired level of system reliability.

Project Effects

Construction. Project construction is not expected to generate conspicuous odors. Existing percolation ponds rarely contain substantial amounts of standing water and the potential for release of malodorous substances from the percolation ponds is remote. There are no odor-sensitive land uses in the vicinity of the percolation ponds, however, so no significant effects will occur even if some odor was generated in this activity.

Operations. The project will not create any new odor-producing processes, but will expand some existing Treatment Plant processes that have caused occasional releases of odor in the past.

While facility improvements will occur in four phases and in conjunction with actual need, ultimate capacity will result in a four-fold increase over existing levels and a doubling of maximum capacity as currently allowed by the Major Use Permit. The Permit allows treatment of up to 0.5 mgd and the requested modification, if approved, will allow up to 1.0 million gallons of effluent to be treated per day. Taken by themselves, these changes could increase both the frequency and the severity of odor releases and is considered to result in a significant odor impact despite design features that will be implemented to address the issue. The project will include odor control facilities to address all existing sources of odor that have been identified to date and these odor-control facilities will be sized to accommodate the ultimate capacities of the various process facilities within the Treatment Plant. Thus, the project will substantially reduce the likelihood and the potential severity of an odor release. Nevertheless, odor emissions from the project could exceed the significance thresholds established for odor impact criteria if the odor control features are not implemented.

Seasonal Storage of Treated Effluent. The lining and conversion of one of the existing percolation ponds for use as a seasonal storage pond will not result in any odor-related impacts. Effluent stored in the pond will have received tertiary treatment to reduce Biological Oxygen Demand (BOD) and Total Suspended Solids (TSS). Tertiary treatment significantly minimizes the potential for odors.

Summary of Impacts. The proposed project includes design features to treat any odors or reduce the potential for creating odors. Project design also includes facilities that improve redundancy by upgrading backup facilities to meet higher flow rate requirements (e.g., under normal operating conditions, sludge will be stored for removal in the sludge handling building and drying beds will not be required). However, because of past odor complaints at existing effluent flow rates and a project design which will provide up to four times as much treatment capacity at the expanded Treatment Plant, the potential for treatment facilities to create odor is considered significant.

4. Mitigation Measures

The following mitigation measures shall be implemented to ensure odor emissions do not result in off-site impacts to adjacent or neighboring properties:

Covers. The influent channel, aerated grit-removal facilities, centrifuge and dewatering sludge holding bins, and existing and proposed aerobic digesters will be enclosed to permit potentially odorous air from these facilities to be collected and routed to a scrubber.

Phase I:

1. Install and cover aerated grit removal facilities and then exhaust collected air from facilities to odor control facility.

2. Construct aerobic digester, solids dewatering building, sludge centrifuge unit, and dewatered sludge bin to eliminate the need (except for emergency or maintenance purposes) for the sludge drying beds and reduce odors associated with the processing of sludge.

3. Construct packed bed scrubbing facility to remove odors from the solids handling building and aerobic digesters

4. Install fine bubble aeration system to minimize the potential for anaerobic conditions to develop, especially during warm summer months.

Phase II:

5. Install standby generator to reduce the potential for mechanical or electrical failure to result in the release of odors to the atmosphere.

6. Install second covered aerobic digester and route air to packed bed scrubber.

5. Summary of Impacts After Mitigation

Post-mitigation project effects will be reduced to a less than significant level with implementation of mitigation measures as described above.

C. Hydrology

This section describes the regional and local surface and groundwater hydrologic setting, agency plans and policies related to surface and groundwater hydrology, and potential project impacts on local hydrology.

1. Existing Conditions

Topography

The Moosa Hydrologic Subarea (HSA 3.13) is characterized by steep topography. The erosional action of flowing water has formed a dendritic drainage pattern within the basin, characterized by narrow canyons and steep ridges. Topographic high points in the HSA include Oat Hills and the Merriam Mountains. Ground elevations within the HSA range from about 300 feet at the downstream end of Moosa Creek to about 1,760 feet in the Oat Hills. The average ground surface gradient within Moosa Canyon and South Fork Moosa Canyon is about 23 feet of vertical drop per 1,000 horizontal feet.

Surface Waters

The project area is located in the coastal portion of the Peninsular Range geomorphic province, which encompasses most of southern California west of Imperial Valley. The project area is in the San Luis Rey River watershed (Hydrologic Unit 3.00), one of the largest watersheds in coastal San Diego County. Flows in lower San Luis Rey River are controlled by Lake Henshaw Dam, several miles to the east. San Luis Rey River enters the Pacific Ocean about 14 miles southwest of the project area.

Treatment Plant. The 4.5-acre, mostly gravel/partially paved Treatment Plant is located along upper Moosa Creek in the 12,400-acre Moosa Hydrologic Subarea 3.13 (HSA 3.13), about three miles west of where Moosa Creek joins San Luis Rey River. Groundwater from this aquifer is used primarily for golf courses, landscaping, and agriculture. Upper Moosa Creek is ephemeral, flowing only immediately following substantial rainstorms. Upper Moosa Creek joins South Fork Moosa Creek below the Treatment Plant, just upstream from I-15 (Figure 6). Moosa Creek flows north along I-15, then flows under the freeway into Lower Moosa Canyon. The eastern one-third of the Treatment Plant lies within the 100-year flood zone for Moosa Creek. Runoff from the Treatment Plant contributes about 6 AF of runoff annually to Moosa Creek.

Percolation Ponds. The three District percolation ponds are located on 11 acres adjacent to lower Moosa Creek, about one mile downstream from the Treatment Plant on the western side of I-15. These ponds, which provide about 60 AF of storage, are located within the Bonsall Hydrologic Subarea (HSA 3.12). The berms surrounding the percolation ponds assure that they are outside of the 100-year flood zone for Moosa Creek. Flows in lower Moosa Creek are continuous, primarily as a result of irrigation returns and groundwater recharge.

Groundwater

Aquifers. Lower Moosa Canyon, where the District's percolation ponds are located, is about three miles long and about 500 feet to 2,500 feet wide. Ground elevations in Lower Moosa Canyon range from about 290 feet above mean sea level (amsl), at its eastern end near I-15, to about 170 feet at the confluence of Lower Moosa Creek and San Luis Rey River. The Lower Moosa Canyon watershed encompasses about 7,200 acres, of which about 720 acres are underlain by deep alluvium.

An unconfined aquifer composed of stream alluvium underlies the valley portion of Lower Moosa Canyon Basin. The thickness of this alluvial aquifer ranges from zero at the valley sides to an estimated 150 feet in the middle of the canyon at its western end. Below the alluvial aquifer lies a layer of decomposed granite residuum that also contains groundwater.

Groundwater also is found in the fractures and joints of the crystalline basement rock beneath the alluvium and decomposed granite residuum. This aquifer, unlike those above it, has no intergranular porosity -- the fractures in the rock provide storage and avenues for groundwater movement. The depth to groundwater measured in wells that penetrate the basement aquifer suggests that the aquifer may be semi-confined. Groundwater in the basement aquifer appears to flow toward the west-southwest.

The crystalline basement aquifer appears to be the most important source of domestic groundwater in the project area. Most of the domestic groundwater wells located in the project area have been completed within the basement aquifer. Typical well yields from the basement aquifer vary greatly, ranging from less than one gallon per minute (gpm) to about 250 gpm (USGS 1988).

Water Table. In 1959, the depth to groundwater in five local wells located immediately downgradient of the percolation ponds ranged from about 59 feet to about 63 feet below ground surface (bgs). In 1984, the depth to groundwater immediately south of the percolation ponds was 15 feet bgs, and depths in the area of the ponds ranged from about 12 feet to about 17 feet bgs (Lowry & Associates 1984). By 1995, the water table was at nine to 15 feet bgs. A possible explanation for the rising water table could be the decline in agricultural groundwater extraction in the Bresa Del Mar Ranch area. Increases in runoff from construction of the Lawrence Welk residential area and golf course also may have contributed to this apparent trend.

Water Balance. Average annual rainfall in the 4,050-acre Bonsall Hydrologic Subarea (HSA 3.12) was assumed to be about 18 inches, or 1.5 feet, yielding about 6,070 AF per year of precipitation. Inflows to the basin were estimated at about 2,780 AF per year, and runoff losses (estimated at 10% of rainfall) were about 610 AF per year. Evapotranspiration (the combination of both evaporation from surfaces and transpiration from vegetation) was estimated at about 8,240 AF. Water balance data were originally prepared by Lowry & Associates 1984. The data

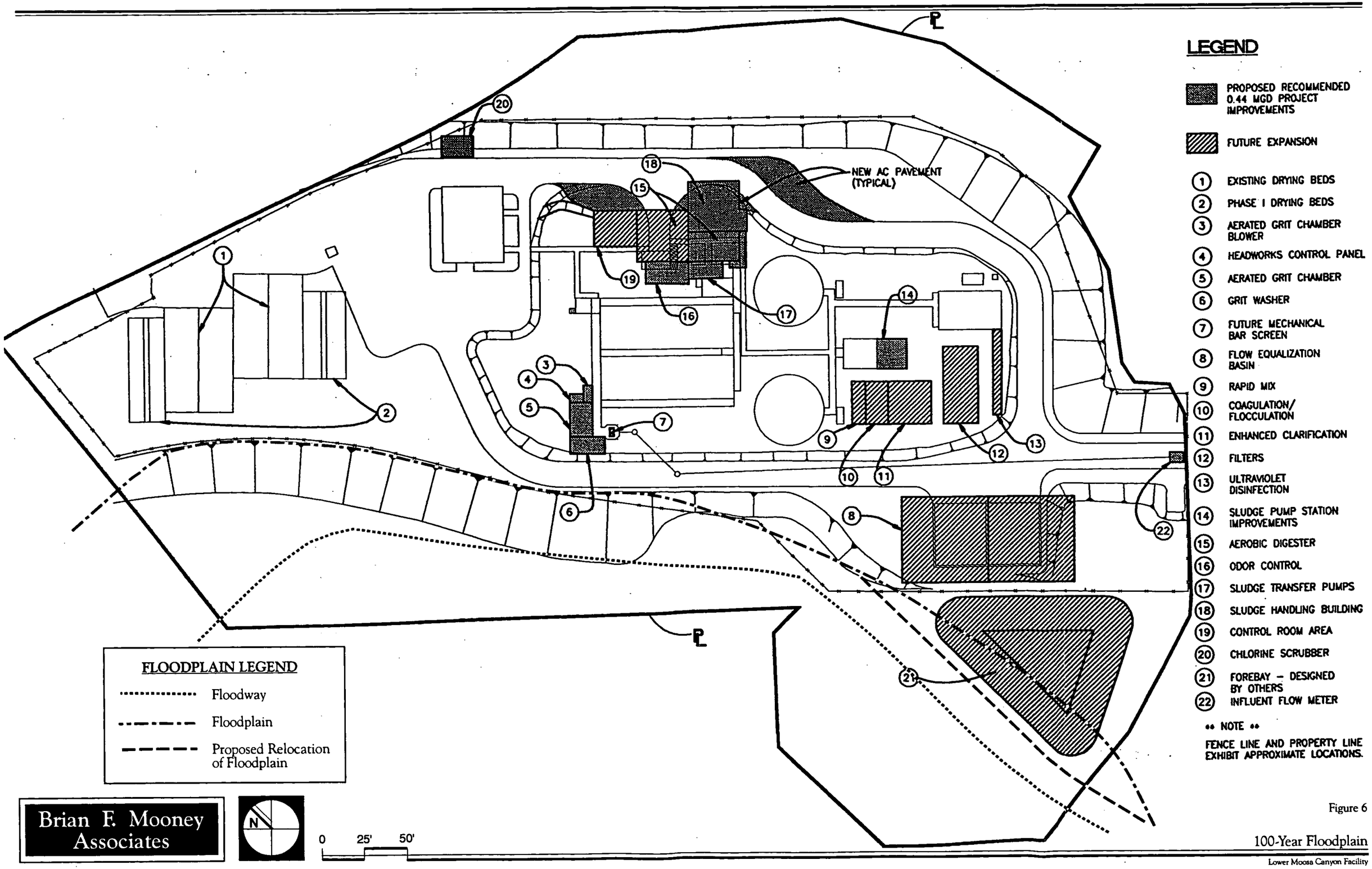

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Figure 6

100-Year Floodplain

Lower Moosa Canyon Facility

were reevaluated by Barrett Consulting Group for submittal of the *Groundwater Management Plan for the Lower Moosa Canyon Groundwater Basin* to the San Diego Regional Water Quality Control Board in March 1995.

Precipitation

The permanent rainfall gauging station closest to the project site is located in Escondido, about seven miles to the south. The project area receives about 16 inches per year of precipitation, based on 52 years of record (NOAA 1996). About 95% of the annual total precipitation is received between November 1st and April 30th, with about 60% occurring during the December and February (Table 5). The project area experiences wide variation in rainfall amounts from year to year, from less than 10 inches per year to over 30 inches per year.

Domestic Water Service

Water agencies serving HSA 3.13 include the District, Rainbow Municipal Water District, and Vallecitos Water District.

2. Regulations, Plans, and Policies

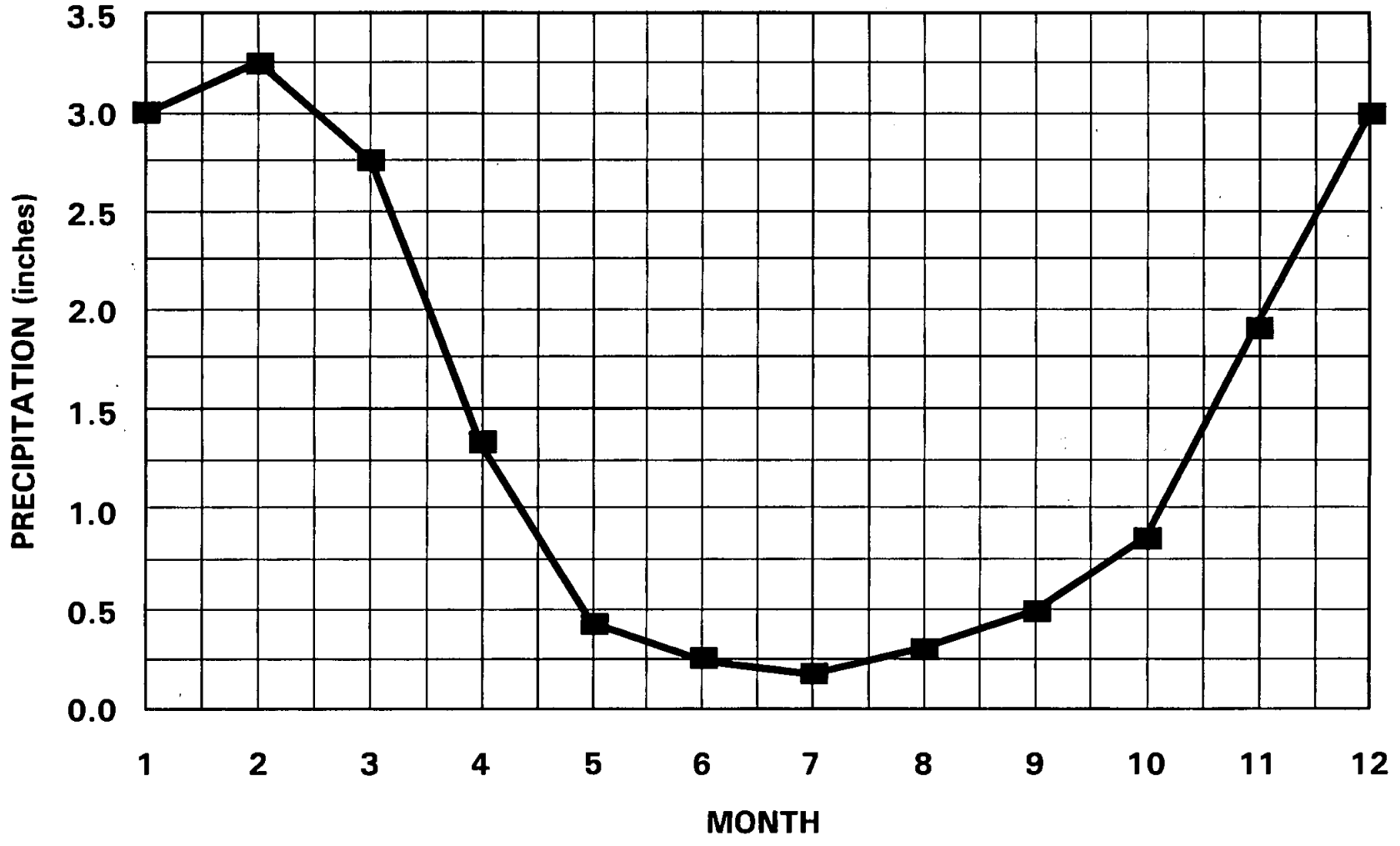
Flooding

National Flood Insurance Program. The National Flood Insurance Program, administered by the Federal Emergency Management Agency (FEMA), is a nationwide program designed to reimburse communities for flood damages and to encourage sound floodplain planning and management at the local level. In communities which participate in the National Flood Insurance Program, flood insurance is required for all properties within the 100-year flood zone. FEMA has prepared maps of flood-prone areas throughout the U.S. (e.g., 100-year flood zones). The project is subject to the County of San Diego Flood Control District's drainage and flood control standards.

County General Plan. County of San Diego's General Plan expresses the following policies with regard to hydrology and water resources (Part X - Conservation Element):

> **Policy #4:** Reduce reliance on imported water.
>
> > **Action Program #4.1:** Initiate education and incentive programs to increase the utilization of wastewater reclamation.
>
> **Policy #5:** Water distribution systems should be designed and constructed to economically accommodate future use of reclaimed or desalinized water when technologically and economically feasible.

TABLE 5: AVERAGE ANNUAL PRECIPITATION
Escondido, CA - 52 Years of Record



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Policy #11: The County will encourage projects which will promote the reclamation and reuse of wastewater.

Policy #18: The County will prevent filling or construction in the floodway.

Valley Center Community Plan. The Valley Center Community Plan identifies the following policy on water resources (VII. Recreation Policies):

Golf Course Element Policy #8: Water for the irrigation of the golf course shall be from groundwater, except irrigation of greens and tees, which may be supplemented with potable water, if needed, and subject to approval by the water district.

3. Environmental Impacts

Criteria for Determining Significance

Surface Waters. Surface hydrology impacts are primarily related to flooding and flood control. Few areas are completely safe from flooding, but serious flooding should be a very infrequent event. Federal, state, and local agencies generally agree that a statistical 100-year flood event is a reasonable basis for land use planning. Significantly adverse hydrological effects thus will occur if:

- the project site was inundated in a 100-year flood;
- construction of the project altered flood zones such that existing or planned development areas were inundated in a 100-year flood; or
- runoff from the project caused peak storm flows in natural or manmade drainage channels to exceed the channel capacity.

Groundwater. Groundwater hydrology impacts are primarily related to changes in groundwater aquifer recharge and withdrawals. Project effects on groundwater hydrology will be considered significant if increases in impervious surfaces substantially decreased infiltration and recharge in a hydrologic subarea; or if groundwater extraction associated with the project will cause or contribute to an overdraft condition. For this project -- given the relatively high water table in the vicinity of the percolation ponds and the plan to maximize recharge there -- the surfacing of groundwater downstream of the percolation ponds will be considered a significant impact of the project because of the potential for exposure of humans to insufficiently treated Treatment Plant effluent.

Environmental Consequences - Issue Analysis and Significance

Surface Waters. The project includes new paved areas and a forebay, as well as several minor additions to the facilities throughout the Treatment Plant. These improvements will increase the impervious surface area of the Treatment Plant by less than two acres. Average runoff to Moosa Creek will increase by less than 3 AF per year. This change in surface runoff amount and intensity will not be a significant impact on surface hydrology.

Portions of the forebay will be constructed within both the 100-year flood zone and in portions of the Moosa Creek floodway. The forebay berm will be sufficient to maintain a separation between the reclaimed water in the forebay and adjacent flood waters in a 100-year flood. The minor fill placed in the existing floodway to construct the forebay will not substantially reduce the channel capacity of Moosa Creek (see Section A, Biological Resources, for a discussion of the project's consistency with Section 404 of the CWA).

Groundwater. Modeling by the District (Barrett Consulting Group 1995) determined that 0.44 million gallons per day (mgd) of effluent could be discharged to the percolation ponds without surfacing of the groundwater (e.g., discharge of groundwater into the stream). Under this discharge scenario, the portion of the groundwater basin influenced by concentrations of Treatment Plant effluent of 10% or more will extend about 2,800 feet downgradient of the percolation ponds during the nine-month period when effluent will be discharged to the ponds. The minimum effluent travel time to domestic wells located downgradient of the percolation ponds is estimated to be about one year (Barrett Consulting Group 1995).[3]

At Treatment Plant effluent flows in excess of 0.44 mgd, extraction wells installed downgradient from the percolation ponds will be used to back-pump groundwater to the Treatment Plant for distribution as reclaimed water, maintaining a balance between groundwater recharge and withdrawal. This water balance could be maintained up to an effluent discharge rate of about 0.63 mgd.

At Treatment Plant throughputs above 0.63 mgd, a combination of methods will be used to dispose of wastewater while avoiding surfacing of groundwater below the percolation ponds. Additional facilities at the Treatment Plant will allow tertiary treatment of wastewater and direct transfer of treated effluent to reclaimed water users. Lining of one of the percolation ponds allows the storage of as much as seven million gallons of effluent without substantially impeding groundwater recharge through the ponds. Effluent treated to a tertiary level could be discharged to Moosa Creek on an intermittent or continuous basis (although a portion of this live stream discharge will flow into the Bonsall HSA, somewhat diminishing the available capacity for groundwater recharge through the percolation ponds).

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[3] This is considered a conservative estimate, inasmuch as the analysis did not address factors such as dispersion, diffusion, sorption, biological decay, or physical straining within the aquifer, all of which would tend to lower the estimated concentrations of contaminants.

Consistency With Established Plans and Policies. The project is supportive of County policy to encourage reuse of wastewater, and is consistent with the County policy to design and construct County infrastructure to facilitate the future use of wastewater. The project is also be consistent with Golf Course Element Policy #8 of the Valley Center Community Plan, which indicates that water for golf course irrigation should be from groundwater. By locating the forebay within the Moosa Creek floodway, however, the project is inconsistent with Policy #18 of the Conservation Element of the County's General Plan, which seeks to prevent the placement of fill or new construction within floodways.

Summary of Impacts. Project elements will not be inundated in a 100-year flood event, nor will runoff from new impervious surfaces created by the project cause peak storm flows in natural or manmade drainage channels to exceed the channel capacity. The project will result in a minor change in the 100-year floodplain and will slightly alter the Moosa Creek floodway, but these minor changes in local hydrology are not expected to cause other existing or planned development to be inundated in a 100-year flood event. In locating new Treatment Plant facilities within the Moosa Creek floodway, the project will be inconsistent with County Conservation Element Policy #18, a significant adverse impact.

Project-related changes in groundwater recharge and withdrawals in the Bonsall HSA are not expected to have any significant adverse effects on the aquifers in the basin.

4. Mitigation Measures

The following mitigation measures shall be implemented to reduce impacts to a less than significant level:

1. Buildings and facilities shown on final plans shall be elevated above the mapped floodway elevation;

2. Constructed slopes shall be natural and not covered with concrete or riprap;

3. Final engineering plans shall provide the location of the mapped floodplain and floodway in relation to the location of the flow equalization basin and the forebay. The District shall provide the County with the resulting revisions to the locations of the floodway and floodplain which can be used for updating County and FEMA maps.

5. Summary of Impacts After Mitigation

Three mitigation measures have been identified to reduce project impacts to local hydrology. Substantial implementation of the recommended measure will reduce the project's impacts on hydrology to a level of insignificance.

D. Land Use

Land use compatibility is based on consistency with the existing San Diego County General Plan, Valley Center Community Plan, North County Metropolitan Subregional Plan, I-15 Corridor Subregional Plan, San Diego County Zoning Ordinances and existing surrounding uses. Land use intensity and activities should not exceed the capacity of existing roads and other infrastructure. Community resource or landmark impacts should be avoided.

1. Existing Conditions

General Plan Considerations

With the exception of a very small area along I-15 in the southern portion of the service area, the project is outside the Current Urban Development Area (CUDA). However, much of the central portion of service area is designated Country Town Boundary. The Escondido Sphere of Influence covers roughly the southern quarter of land eventually to be served by the Treatment Plant. Both the Treatment Plant and the Percolation Ponds as well as the remainder of the service area, with minor exceptions, are located in the Estate Development Area (EDA) designation. The project for the most part falls within the North County Metro Subregional Plan and the Valley Center Community Plan Areas. The Bonsall Community Plan Area is immediately to the west of I-15 and encompasses the percolation ponds site and a very small piece of the service area.

Land use designations within and adjacent to the service area are shown on Figure 7. In general, land use designations in the northern portion of the service area, within the Valley Center and Bonsall Community Plan Areas, allow less intensive development. Land use designations are primarily 17-Estate, which allows one dwelling unit per 2 and 4 acres (1 du/2 and 4 acres), and 18-Multiple Rural Use (1 du/4,8 and 20 acres). Two small commercial areas have been designated 13-General Commercial. The Champagne Boulevard Specific Plan Area (21-SPA) is located along the I-15 corridor just north of the Lawrence Welk Country Club Village.

More intensive land uses have been planned within the central and southern portion of the service area within the North County Metro Subregional Plan, with the exception of steep slopes. This area contains several SPAs, including a portion of the Champagne Boulevard SPA, as well as the Hidden Meadows, Meadow View Ranch, and Mountain Gate communities. Visitor Serving Commercial (26) and General Commercial (13) designations are located near the Mountain Meadow Road/I-15 interchange. Allowed development progressively decreases with distance from the I-15 Corridor and interchange. The area contains lands designated Residential 1 (1.0 du/1, 2 and 4 acres), Residential 2 (1.0 du/acre), Residential 6 (7.3 du/acre), and 21-Specific Plan Area (allowed densities vary but generally allow one dwelling unit per 3.21 or more acres (when clustering is approved, a minimum one acre lot).

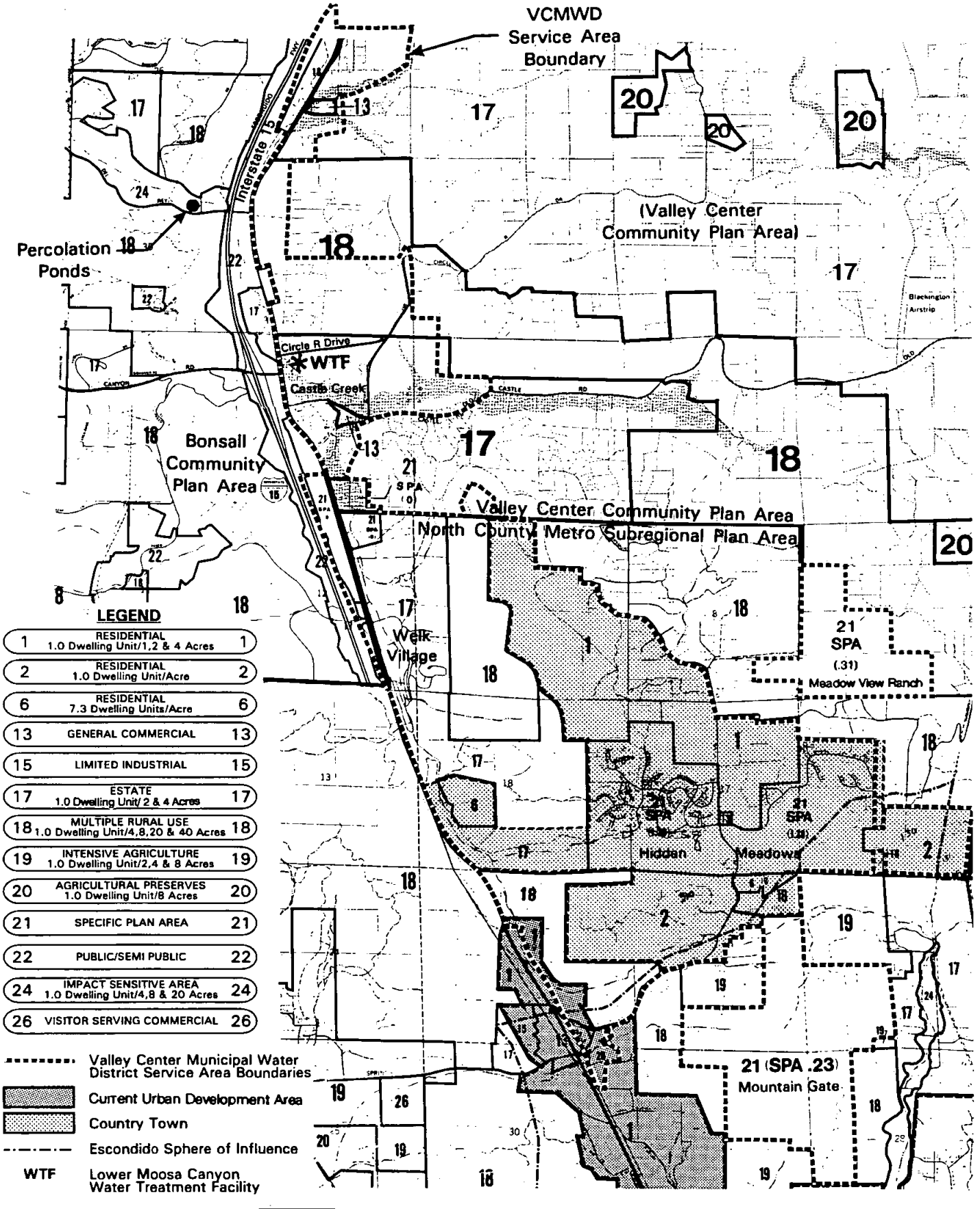

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Figure 7

Land Use Map

Lower Moosa Canyon Facility

Valley Center Community Plan. A sewer moratorium has limited residential development within the eastern basin of the Valley Center community. Development has occurred primarily in the more western areas served by the Treatment Plant. In the vicinity of the existing Treatment Plant, the Castle Creek/Circle R development consists of condominiums, single family, fire station and golf course. To the north the existing large residential lots and vacant lots are interspersed with chaparral and large boulders. The Castle Creek Resort Golf Course is located to the south. A total of 146 townhomes occupy approximately 25.5 acres east of the project site with the fire station occupies an approximate 0.7 acre site to the west.

Bonsall Community Plan. Areas within the Bonsall Community Plan across I-15 from the service area are designated 18-Multiple Rural Use buffered by 22-Public/Semi Public corridor along the freeway. In the immediate area of the existing percolation ponds sites the land is designated 24-Impact Sensitive Area as well as 18. Development is typified by rural ranches.

North County Metropolitan Subregional Plan. Because portions of the Plan covered by the service area are located within Escondido's Sphere of Influence boundaries, it is anticipated that development will continue. The Plan encourages maximum efficient use of existing facilities and services. Only the southern most portion of the District service area lies within the Escondido sphere of influence, this includes the visitor and general commercial designations near the intersection of I-15 and Mountain Meadow Road. These areas and the 1-Residential land use area immediately north of the intersection are included in the CUDA, an area where sewer service expansion is anticipated by the subregional plan.

The Hidden Meadows Country Town Regional Land Use Category, which identifies a substantial portion of the central District service area, is intended to allow continued development of the community up to a maximum of 1,600 dwelling units. The Meadow View Ranch Specific Plan Area anticipates amendment of the General Plan from 18-Multiple Rural Use to 21-SPA and development of 80 dwelling units on 257 acres.

I-15 Corridor Subregional Plan. The plan provides policies for the preservation of scenic attributes throughout the corridor, provides for public services to be phased and sized in a manner conducive to the restrictive land use pattern so as not to encourage or support development where it is not intended.

San Diego County General Plan Circulation Element. Champagne Boulevard (SA 15), Circle R Drive (SC 280.1), Camino Del Rey (SA 100) and Old Castle Road (SF 1415) are Circulation Element roads within the project area.

Escondido Sphere of Influence. The City's General Plan for the District's Service Area within its Sphere of Influence is designated "Estate I" adjacent to the freeway which calls for single family residential development on 1, 2, 4, and 20 acres and "Rural I" which calls for single family residential development on 4, 8, and 20 acres. Both categories are slope dependent but do allow clustering. Under the City's Waste Water Master Plan sewer service will not be extended into low intensity type development area such as these designations. However, the

"Estate I" does require public sewers if clustered. The City's designations and policies do not necessarily conform with those under which these properties are currently governed.

2. Environmental Impacts

Criteria for Determining Significance

Appendix G of the CEQA Guidelines state that a project will normally have a significant effect on the environment if it conflicts with adopted environmental plans and goals of a community, or if it will induce substantial growth or concentration of population or disrupt or divide the physical arrangement of an established community. The criteria used to determine significant impacts related to land use are identified below:

- Inconsistency/conflict with an adopted land use designation of the General Plan or Community Plan;
- Inconsistency/conflict with the environmental goals, objectives, or guidelines of a the General Plan or Community Plan.
- Development or conversion of land designated by the General Plan or Community Plan as open space to a more intensive land use.
- Incompatibility with existing and anticipated adjacent land uses.

Environmental Consequences - Issue Analysis and Significance

District Service Area/Assessment Districts. All parcels covered by the service area and to be included within Assessment Districts, are within the District's existing boundaries, except for several small islands of land isolated by construction of I-15 from their designated sewering agency. The level of development to be facilitated by funds to construct the needed sewer upgrade is consistent with the County's General and Community Plans.

Lower Moosa Canyon Wastewater Reclamation Facility (Treatment Plant). The District currently operates a Treatment Plant at 8711 Circle R Drive. The Treatment Plant is the only sewage treatment facility within the service area and provides secondary level treatment and disinfection capabilities. The proposed expansion is phased and sized to accommodate growth as provided for by the County of San Diego land use plans. The Treatment Plant expansion is consistent with the San Diego General Plan and the Valley Center Community Plan.

The expanded Treatment Plant will be located on two adjacent parcels totalling 4.44 and 0.62 acres, respectively. The existing treatment facility parcel is zoned RV-2 (Variable Family Residential with half acre minimum lot size) and operates under an approved Major Use Permit. The smaller adjacent parcel is currently zoned S-80 (Open Space). Expansion will be allowed

on both parcels with approval of a Modification to the Major Use Permit. Therefore, the project is consistent with the County's Zoning Ordinance.

With the exception of the forebay, all expansion will be within the existing disturbed Plant boundaries covered by the Major Use Permit. There is a County approved Landscape Plan for the existing site. The scenic attributes of the I-15 corridor will not be affected by the extension of the facility to include a forebay area. The expansion provides for public services to be phased and sized in a manner conducive to the restrictive land use pattern so as not to encourage or support development where it is not intended. The proposed project is consistent with the I-15 Corridor Subregional Plan

The facility has been operating under the authority of the District since 1973, prior to construction of the adjacent residences and fire station. No additional development is anticipated in the immediate vicinity. The facility is fenced and subject to enforcement of all conditions of the Major Use Permit, the Use Permit Modification and the Landscape Plan. The forebay area outside the existing plant boundaries will remain in its current state for some years. When eventually constructed, there will be an at grade reservoir for reclaimed water storage prior to distribution to golf course systems. Therefore, the project is compatible with adjacent land uses.

Percolation Ponds. The Treatment Plant currently discharges to three percolation ponds located west of the Treatment Plant and I-15, adjacent to Lower Moosa Canyon Creek at 7750 Camino del Rey in the N ½ of Section 35, T10S, R3W, SBB&M. The ponds occupy an 11-acre site having a collective volume of approximately 60 AF. The ponds are situated west of I-15 in the community of Bonsall, within the Rainbow Municipal Water District boundary. They are the only portion of the project located outside the defined service area boundary (see Figure 7). The applicable land use designation is 24-Impact Sensitive. The 24-Impact Sensitive designation generally denotes areas within the 100-year flood zone but according to the District, the ponds have been located outside the floodplain limits. The proposed modifications to the percolation ponds site are allowed by the existing Major Use Permit. The project will line one of the percolation ponds and construct two down gradient wells for the extraction of groundwater to accommodate flows in excess of the normal basin capacity during periods of low irrigation demand. The ponds and associated wells and pumps are similar to accessory facilities found on adjacent rural residential properties. The proposed changes to the site are consistent with the County's General Plan and the Bonsall Community Plan and compatible with existing and anticipated adjacent land uses.

Pipeline. The Treatment Plant currently receives wastewater carried by a collection system serving development in and adjacent to the Hidden Meadows Subdivision and development along the I-15 corridor from the Welk Golf Course and Resort to the Castle Creek Resort on Circle R Drive. The future pipeline construction will be a program of phased sewage collection and reclaimed water distribution system which will be installed to accommodate San Diego County General Plan land uses and to meet reclaimed water distribution needs (see Figure 4).

A low pressure, minimally sized sewage collection system will be aligned within existing road right-of-ways. The collection system will carry sewage from communities primarily located south of the existing treatment facility but will also be extended to the northern limit of the service area. Roadway segments along which pipelines may be placed include:

Boulder Knolls Drive	Deer View Drive	Meadow Glen Way East	Rock Point Way
Burned Oak Lane	Eagle View Drive	Meadow Glen Way West	Rocky Ridge Road
Cerveza Baja Drive	High Mountain Drive	Meadow Mountain Lane	Royal Rim Road
Champagne Boulevard	High Vista Drive	Mountain Meadow Road	Sandhurst Way
Cielo Vista	Indian Hill Place	Old Castle Road	Tricia Place
Circle Lane	Lan Lane	Palimo Drive	Vista Montanoso
Coastalota	Legend Rock	Protea Gardens Road	Welcome View
Cougar Pass Road	Lotus Pond Lane	Quail View Drive	Welk Highland Drive
Crescent Hill Way	Meadow Glen Way	Rancho Roble Drive	

Where construction is within County public roadways, pipelines alignments will be required to comply with ultimate improvements per County Public Road Standards. The new pipelines locations are only generally shown along each road alignment (Figure 4b) to provide information on the overall system. Where roads designated for reconstruction are to be used, the final design will be engineered in coordination with the County Department of Public Works. When road and pipeline improvement project schedules are compatible, a cooperative construction effort will be sought.

There could be temporary disruption to neighborhoods served by these roads during construction of new service lines; however, once installed there will be no obvious intrusion into adjacent land uses.

Summary of Impacts. No significant land use impacts will result from the proposed actions because assessments to fund Treatment Plant, percolation pond site, and pipeline expansions will be phased to accommodate approved and future development as intended by the County General Plan and Community Plans. Construction will only occur when approved development plans warrant. These actions are not incompatibility with adjacent land uses.

3. Mitigation Measures

No mitigation measures are necessary because no significant impacts have been identified.

4. Summary of Impacts After Mitigation

Since there are not significant impacts identified, this section does not apply.

E. Visual/Aesthetics

Identification of visual resources was based on field inspection, photography, public comments in response to the Notice Of Preparation, and information obtained from existing community planning documents.

Key views were selected based on a combination of the greatest number of potential viewers, the highest scenic quality found within the project area, and the most sensitive areas subject to change. Impact categories include land use, visibility, and scenic qualities.

1. Existing Conditions

Land Use

Treatment Plant. The existing Treatment Plant is located near the western boundary of the Valley Center community and includes a 4.44-acre existing plant site and an attached 0.62-acre parcel to the south. The site is located within the northern portion of a broad alluvial valley associated with the Moosa Creek floodplain. A portion of the southern parcel lies within the mapped 100-year floodway and floodplain. Moosa Creek flows east to west through the valley just south of the project site. Steeply sloping hills covered with native vegetation and scattered rock outcroppings surround the valley and project site. Circle R Drive borders the project site on the north and I-15 passes the project site about ¼ mile to the west. Treatment Plant facilities are located on Circle R Drive just east of the intersection of Old Highway 395. Scattered rural or estate residences occupy the ridgeline to the north and east but do not have a view of the project site. Similar residential development is distributed to the south and west of the project site. Immediately east is the Castle Creek Resort consisting of residential development and recreational facilities. The Castle Creek Golf Course is located to the south, and the Deer Springs Fire Station is west of the project site.

Pipelines. The District provides existing sewer services to the Castle Creek, Welk Village and Resort, Rimrock, and Hidden Meadows communities. A majority of these areas lie within the I-15 Corridor which roughly corresponds with Moosa Canyon from the southern portion of the service district to Camino del Rey in the northern portion. Higher density development in the low-lying areas of the corridor are associated with approved specific plans. Surrounding hillsides and ridgelines are generally undeveloped with large open space areas containing native chaparral and sage scrub habitat. Some rural or estate development is scattered throughout the corridor and can be observed along ridgelines or dotting hillsides.

The Hidden Meadows community, lying outside the I-15 Corridor Viewshed, is also served by the Treatment Plant. This area is one of the more intensively developed areas within the service area boundary and is more reflective of the Country Town land use designation the County has applied. The community is located on a mesa with primary access via Mountain Meadow Road. A centrally located golf course is a primary focus of the residential community. The Hidden

Meadows community is surrounded by rolling hills and valleys, low density rural and estate development and large open space areas.

Percolation Ponds. The District utilizes three existing percolation ponds located within the Bonsall Community Planning Area and approximately one-half mile east of I-15 on Camino del Rey. The ponds are located adjacent to Lower Moosa Creek on a broad flat alluvial plain and are set back from Camino del Rey on the north by a buffer ranging in size from 40 feet near the entrance to $\pm$100 feet. Hills surrounding the ponds remain largely undeveloped with the exception of scattered low density rural or estate residential development. No buildings are located at the pond site. Surrounding landscaping and nearby riparian vegetation blend with other features in the area.

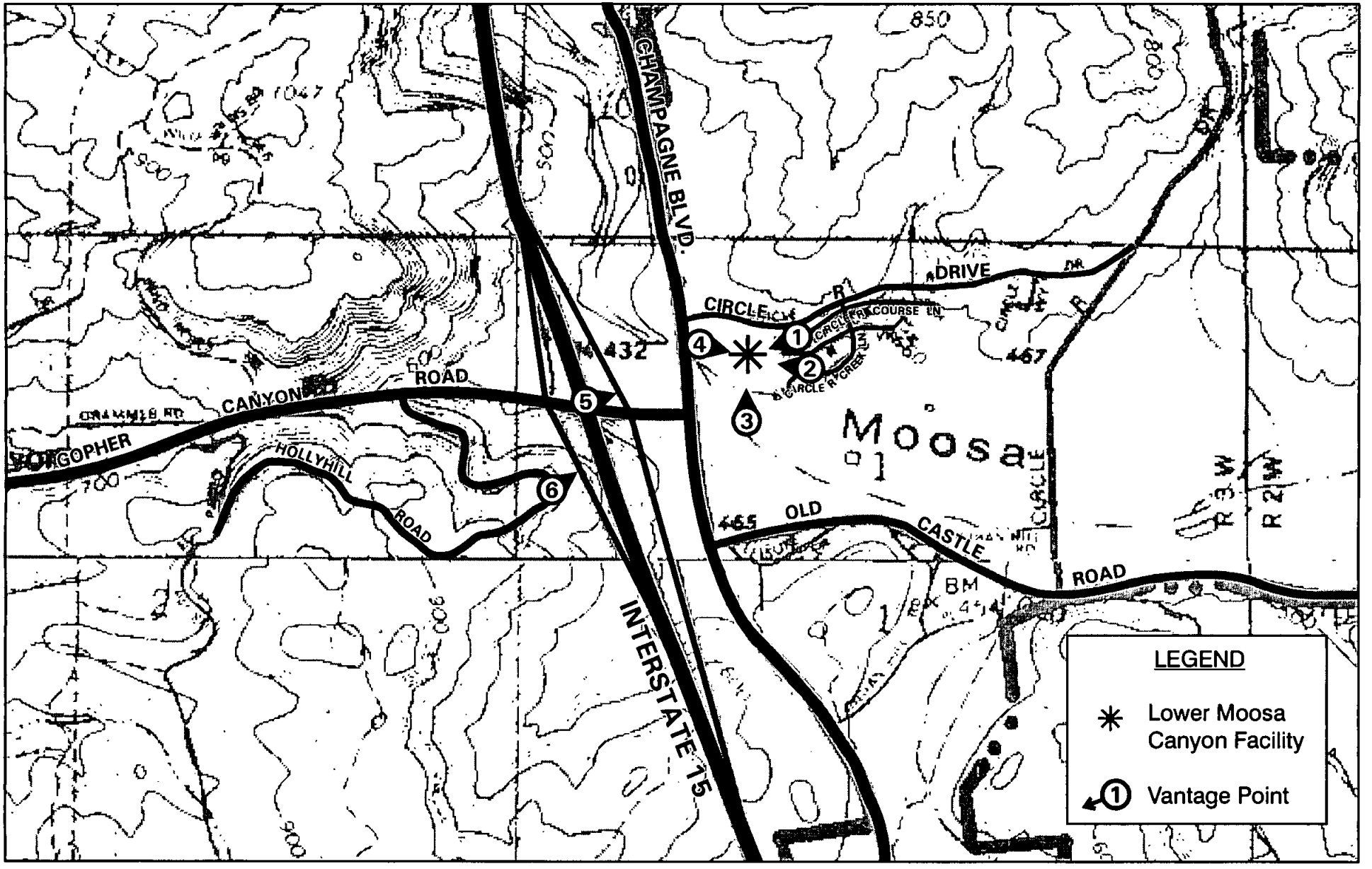
Visibility

Views by motorists driving north or south on I-15 are dominated by a panorama of the open valley and golf course, adjoining hills, more distant mountains, and skyline. Northbound passengers may glimpse the project site while passing near the Gopher Canyon freeway access ramps. Views of the Treatment Plant from the southbound lanes of the freeway are obstructed by intervening lanes to the east, vegetation, and topography.

Existing disruptions to the visual setting of the area include pockets of more intensively developed areas of which the project is a small portion. These include roadways, large estate hillside homes with associated landscaping and agricultural operations, and the I-15 Freeway. Small stretches of riparian vegetation in open space areas form a corridor along Moosa Creek, parallel to Old Highway 395. Riparian vegetation also defines a tributary to the creek which passes through the Castle Creek Golf Course and past the project site to the south.

Treatment Plant. In order to assess the quality of views from the surrounding area, significant viewsheds were identified. Views from each of the properties adjacent to the Treatment Plant are partially or fully obstructed by existing vegetation, topography, or fencing and only a very limited number of more distant locations were identified with potential views. Figure 8 identifies six Vantage Points with the most significant views within the surrounding viewshed. These vantage points were chosen based on three primary considerations: existing development, potential building sites, and prominence of view.

Of the six vantage points selected to represent views of the Treatment Plant, four were taken from neighboring properties to the east, south and west as represented by Vantage Points 1-4. More distant views were obtained from the freeway near the Gopher Canyon interchange or from further west within the I-15 freeway corridor on Hollyhill Road which is higher in elevation (Vantage Points 5 and 6). The shortest distance views are those which are capable of having the greatest impact. From higher elevations, the viewer is less visually aware of the Treatment Plant as it represents only a small fraction of the overall panoramic view of the valley. Much of the Treatment Plant is hidden from view by lush riparian vegetation, including the more distant views from higher elevations.



Brian F. Mooney Associates

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Figure 8
Vantage Point Locations

Lower Moosa Canyon Facility

Figure 9 depict Vantage Points 1 and 2 which are located east and adjacent to the project site. Vantage Point 3 represents a view of the project site from the golf course to the south (Figure 10). These views were taken from within the Castle Creek Development and Golf Course. Vantage Point 4 (Figure 10) depicts the view from the fire station neighboring the project site to the west. Figure 11 shows view from within the I-15 Corridor area and includes a representative view taken from the I-15 freeway near the intersection with Gopher Canyon Road (Vantage Point 5). Figure 11 provides a long distance view of the project area from a very low density estate residential area which looks down on the project site from west of I-15 on Hollyhill Road (Vantage Point 6).

As seen in Figures 10 and 11 most of the Treatment Plant site can not be seen from off-site locations. A detailed description of each viewshed follows.

Adjacent Property Views. The Castle Creek Development and Golf Course partially encircle the project site. Views from these neighboring uses are included because of their proximity to the project site and potential for impact. Some of the townhomes located immediately east of the project site were constructed upslope from the Treatment Plant and a site visit found that a limited number of homeowners within Castle Creek currently have only partially obstructed views of the project site (Figure 9). Otherwise, views of existing plant facilities are totally screened by intervening landscaping and fencing. Treatment Plant facilities are most visible from the parking lot behind the fire station. The two uses are similar in that each provides a necessary public service. Views of the Treatment Plant are partially screened from the parking lot and facilities are compatible (Figure 10).

I-15 Corridor Viewshed - Treatment Plant. The I-15 freeway runs north-south through the Moosa Canyon area less than ½ mile west of the Treatment Plant. The project site is scarcely visible while travelling north or south on I-15 in the vicinity of the Gopher Canyon Road interchange (Figure 11, Vantage Point 5).

Views from Hollyhill Road are indicated as Vantage Point 6 and shown in Figure 11. This location is higher in elevation and includes views of the freeway in the foreground. The existing Treatment Plant can be seen in the distance. Again, most of the facility is screened from view by intervening vegetation. Since most of the facility is at grade, only a single existing structure can be seen at the site. The existing building is constructed of slumpblock in natural tones and has a tile roof, similar in nature to other residential construction in the valley.

Pipelines. Existing pipelines are underground and generally not a viewshed concern except during the time it takes for the cross-country alignments to be revegetated when not in roadways. The District currently provides sewer connections to several developed areas. Lines were constructed primarily in roadway right-of-ways but a portion of the existing trunk line, from the Hidden Meadows community to the Treatment Plant, was constructed east of the roadway near the base of slopes to the east. The alignment is difficult to discern while travelling along the freeway but can occasionally be seen from Old Highway 395/Champagne Boulevard in the area north and south of the Welk Resort.

Percolation Ponds. The ponds are not visible to motorists on Camino del Rey. Views from surrounding hillsides are more distant and include the entire floodplain and valley within which the ponds are located. Because the ponds are at grade or below, they are not considered to be a distinguishing feature of the area.

Scenic Qualities

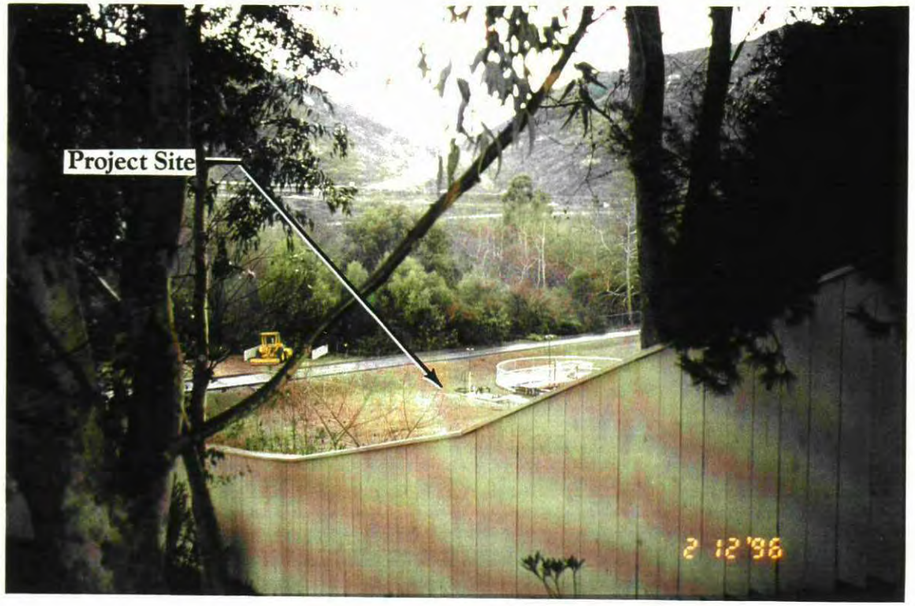
Treatment Plant. Scenic qualities of the project site must be considered in context with the surrounding Moosa Creek Valley which includes wide vistas broken by pockets of development, golf course landscaping, and narrow linear areas containing riparian woodland. The woodlands are comprised of western sycamore, cottonwood, coast live oak and willow trees. A large portion of the surrounding valley area is included in the Castle Creek Golf Course and associated development. Hillsides covered with natural vegetation and/or agricultural groves create the visual backdrop for the area. Surrounding hills range in elevation from 1,000 to 2,000 feet on either side of the I-15 Corridor. Existing urban development in the project vicinity and within the service area is mainly limited to the east side of I-15.

Designated Scenic Highways. The County of San Diego has established a Scenic Highway Element (May 18, 1983) in the General Plan which is intended to enhance scenic, historic and recreation resources within both rural and urban scenic highway corridors. The criteria for establishing the Scenic Highway System Priority List are as follows:

- Routes traversing and providing access to major recreation, scenic, or historic resources;
- Routes traversing lands under the jurisdiction of public agencies;
- Routes supported by significant local community interest;
- Routes offering unique opportunities for the protection and enhancement of scenic recreational and historical resources.

Projects which meet three or more of the above criteria are classified as first priority. Routes which meet only two of the above criteria are classified as second priority projects and routes which meet only one of the criteria are considered third priority.

Both Old Castle Road and Gopher Canyon Road are designated as Third Priority Scenic Routes in the Scenic Highway Element of the County General Plan with potential impacts from either construction of the Treatment Plant or pipelines a possibility. However, views of the project site from Gopher Canyon Road are either partially or fully obstructed by vegetation and topography. The project site can not be viewed from Old Castle Road. No First or Second Priority Scenic Routes have been identified in the vicinity of the Treatment Plant, pipelines, or percolation ponds.



Vantage Point 1: East of Project - Circle R Course Lane

Vantage Point 2: East of Project - Circle R Creek Lane

Brian F. Mooney Associates

Figure 9

Vantage Points 1 & 2

Lower Moosa Canyon Facility

Vantage Point 3: South of Project - Castle Creek Golf Course, Twelfth Green

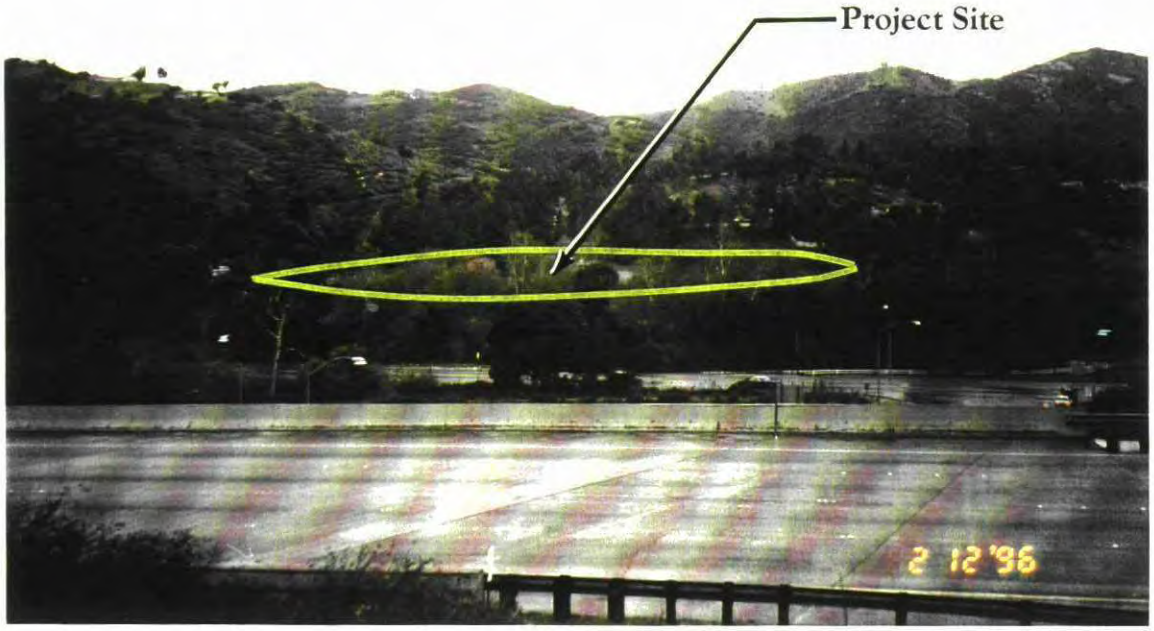
Vantage Point 4: West of Project - Deer Springs Fire Station

Brian F. Mooney Associates

Figure 10

Vantage Points 3 & 4

Lower Moosa Canyon Facility



Vantage Point 5: Interstate 15/Gopher Canyon Road Interchange

Vantage Point 6: West of Project - Hollyhill Road

Brian F. Mooney Associates

Figure 11

Vantage Points 5 & 6

Lower Moosa Canyon Facility

2. Environmental Impacts

Criteria for Determining Significance

The project may result in significant visual/aesthetic impacts if development will have a "substantial, demonstratable negative aesthetic effect" as described in Appendix G of the CEQA Guidelines. A substantial, demonstratable negative aesthetic effect for this project was defined as a significance of visual change to the existing view and the degree of degradation of visual quality, as well as a significant reduction of views within the I-15 Corridor Viewshed.

Environmental Consequences - Issue Analysis and Significance

Treatment Plant. Proposed improvements to existing facilities will be imperceptible to passing motorists within the I-15 Corridor. Long distance views from Hollyhill Road and other ridgeline development west of I-15 will include one additional structure within the broad valley panorama. Most facility improvements will be at grade and will replace existing site features. The most noticeable visual change which could affect adjacent properties will result from construction of the sludge handling building. The sludge handling building will occupy an approximate 40 foot by 40 foot surface area and be 25 feet high. The structure will match the design and character of an existing structure which is light brown slumpstone with a terracotta roof. The building will replace an existing concrete structure that is no longer used.

Although the project is in compliance, I-15 Corridor guidelines do not apply to the Treatment Plant site because improvements are considered an expansion of accessory structures for the existing plant. The project is located at the site of existing wastewater treatment facilities built to serve development in the surrounding area. Expansion of existing facilities will occur on the currently existing 4.44-acre site and an additional 0.62-acre attached parcel located south of the existing Treatment Plant. The additional parcel will contain a forebay (at grade water storage facility). No substantial landscape alteration is required. Forebay construction includes modification of an existing drainage swale and creation of an earthen berm roughly 12 feet in height from the toe of the southern slope to the top of the forebay. The forebay will be used to store reclaimed water prior to distribution to off-site users. The berm will be partially visible only from the portion of the golf course directly to the south. Existing landscaping provides an effective screen of the entire Treatment Plant including the proposed forebay site.

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Proposed improvements do not reflect a significant visual change from existing facilities. The site is well screened by existing landscaping, fencing and topography and plans call for the extension of existing fencing along the project perimeter to improve screening between the Castle Creek development and the Treatment Plant. The construction of a two-story structure and forebay represent the most visible on-site change but will not affect existing views from either the I-15 corridor or adjacent landowners.

The scenic quality of the area will not be significantly affected by implementation of the proposed project.

Pipelines. Additional sewer and reclaimed water distribution lines will be constructed throughout the Service Area. All pipelines will be constructed within existing roadways. No perceptible visual impacts will result.

Percolation Ponds. The project will not alter the three existing ponds except to place a lining in one. No visual impacts are associated with this action.

Summary of Impacts. No significant visual impacts will result from construction of improvements at the Treatment Plant, installation of sewer or reclaimed water pipelines, or lining of the percolation pond.

3. Mitigation Measures

Since no significant visual impacts have been identified, no mitigation measures are required to address impacts. However, it is recommended that the District work with the Circle R Homeowners' Association to identify where additional screening between the Treatment Plant and the residential area would block direct views.

4. Summary of Impact Significance After Mitigation

This section does not apply since no mitigation measures were required to reduce or eliminate significant visual impacts.

F. Public Health and Safety

1. Existing Conditions

This section evaluates potential project effects on public health and safety. The scope of this analysis includes potential safety effects of upset conditions at the facility and hazards associated with transportation , storage, and handling of hazardous chemicals. The scope of this analysis also includes potential health effects of: chronic emissions or toxic air contaminants; use of reclaimed water for golf course irrigation; and discharging tertiary-treated water to surface waters. Other aspects of water resources and quality are addressed in Section G, Water Quality.

Employee health and safety is regulated by the California Occupational Safety and Health Act (OSHA). The project will comply with OSHA regulations as a matter of law.

Existing Risks to Public Health or Safety

Wastewater treatment plants, by their nature, pose some potential risks to public health and safety. The Treatment Plant is an industrial facility that routinely uses hazardous chemicals (e.g., chlorine) and discharges effluent to the air and to surface waters in the course of its operations. Its potential risks to the community are associated with the transportation, handling, and storage of hazardous chemicals, and the potential release of toxic air contaminants and human pathogens in the facility's effluent. Wastewater treatment facilities are necessary in an urban area. The focus of environmental review for such necessary utilities should be on ensuring their compatibility with adjacent land uses.

Chlorine Use and Storage[4]. Chlorine gas is used at the Treatment Plant to prechlorinate raw influent downstream of the influent screens, to control bulking, and to disinfect plant effluent used in the plant's internal water system. The chlorine is delivered to the Treatment Plant in one-ton steel cylinders; a one-ton cylinder represents about a 30-day supply. The cylinders are equipped with a tank-mounted shutoff valve, a header valve and moisture trap, and a pressure-reducing valve and pressure gauge mounted on the manifold. One chlorine cylinder at a time is stored on a dual scale in a separate room located in the eastern corner of the plant control building; the storage room is large enough to safely exchange an empty cylinder for a full one.

The chlorine storage room is specifically designed for the safe handling and storage of the chlorine cylinders. A two-ton monorail-hoist is used for changing cylinders. A floor-level chlorine detection system is designed to activate an audible alarm and panel annunciation when it detects chlorine gas. A panel fan mounted near floor-level and discharging to the atmosphere through the eastern wall of the building provides ventilation, while a duct in the western corner

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[4] Gaseous chlorine, engine oil, diesel fuel, and various solvents and degreasers are currently in use at the Treatment Plant. Only the chlorine is considered to be a hazardous chemical for purposes of this analysis.

of the room supplies fresh air. A floor drain located near the center of the room allows for the discharge of nuisance water from the room. A sealed window on the wall of the storage room permits periodic inspections of the storage room from the chlorinator room.

Two 1,000-pounds per day (lbs./day) capacity chlorinators located in the chlorinator room are supplied with chlorine from the chlorine storage room through a transfer line equipped with pressure-reducing valves. One chlorinator serves as the on-line unit, delivering chlorine to the three points of application through manually adjusted valves, while the other unit serves as a backup. The two chlorinators are manifolded together, with one vent that discharges to the atmosphere. No chlorine-detection equipment is located in the chlorinator room. The chlorine concentration of Treatment Plant effluent is not monitored.

The existing chlorine gas stored and used at the Treatment Plant poses a low risk to nearby human populations. The potential for a substantial chlorine leak is very low, given the sturdiness of the storage container and the safety equipment and procedures by which it is handled and used. The chlorine transfer lines are constructed with polyvinyl chloride (commonly known as PVC) pipe, which is more flexible than metal and better able to withstand the effects of an earthquake. A break in the transfer line upstream of the regulators will be contained within the chlorine storage room and chlorine from a break downstream of the regulators will be drawn into the vacuum line. A small chlorine leak will release a small quantity of chlorine that will largely dissipate before reaching the boundaries of the Treatment Plant. The opportunities for a major chlorine release appear to be limited to: during the changing of the chlorine tank, when handling could cause a tank to be ruptured outside of the chlorine storage room, or during a major fire.

The consequences of a substantial chlorine leak, however, are very serious -- inhalation of chlorine gas at concentrations above 30 ppm can be fatal without immediate treatment. Preliminary modeling of a worst-case release of chlorine gas by BFMA staff using a heavy-gas dispersion model (TOXIC) indicates that the chlorine cloud resulting from the release of 2,000 pounds of the gas will be at a concentration greater than 30 ppm for the first approximately 22 minutes following release. During that time (assuming a two-meter-per-second wind speed) the gas cloud could move about 1.6 miles downwind and attain a radius of about 1,000 feet. Within about 50 minutes, the cloud will have moved about four miles downwind and attained a radius of about 0.5 mile, and will still be at a high enough concentration (3 ppm) to cause eyes and noses to sting.

Toxic Air Contaminants. Existing Treatment Plant operations generate emissions of hydrogen sulfide, ammonia, and mercaptans, among other organic and inorganic volatile substances. Hydrogen sulfide concentrations in the headworks and at the aerobic digesters are estimated to range from about 10 ppm to about 20 ppm. Ammonia concentrations are not measured but, on the assumption that they typically are at or below the odor threshold, are probably less than 0.04 ppm. Applying the same assumption to mercaptans, they typically are below 0.00003 ppm. At these concentrations, the toxic air contaminants released by the Treatment Plant have no adverse effects on human health.

Reclaimed Water. About 186,000 gpd to about 265,000 gpd of secondarily treated Treatment Plant effluent is discharged to existing percolation ponds. For this use, fecal coliform concentrations are limited to <23 MPN/100 ml.[5] Given the low concentrations of coliform bacteria in the effluent, the limited potential for direct contact with people and the ability of sunlight and other natural processes to rapidly reduce the coliform bacteria levels of reclaimed water, the Treatment Plant's existing effluent discharge poses no substantial risk to public health.

Sludge Disposal. Dried sludge previously was hauled to the BKK Landfill in Los Angeles for disposal. Assuming 50% solid material and a Treatment Plant throughput of about 0.23 mgd, about 53 tons per year of sludge were disposed there. Currently, the sludge is removed after drying to a concentration of about 25% solids, and is shipped to RECYC in Riverside County. Although the sludge contains low levels of coliform bacteria, and sludge typically has high concentrations of toxic heavy metals, the current processing and disposal of sludge poses no substantial risk to public health.

Sensitive Receptors. Castle Creek Resort and Golf Course (formerly Circle R) is located to the east of the Treatment Plant, where it typically is downwind of the Treatment Plant from mid-morning until early evening. Welk Village and Rimrock and Hidden Meadows are located south of the Treatment Plant, where they are seldom downwind of the Treatment Plant. Other local land uses that could be at risk from accidental releases of acute toxins or chronic releases of toxic air contaminants from the Treatment Plant include motorists on I-15 (approximately 60,000 per day [California Department of Transportation 1995]), visitors to the All Seasons Campground, and planned low-density residential areas to the north and south of the Treatment Plant. No sensitive land uses or resources are currently at risk from treatment plant effluent, as it is discharged to the percolation ponds.

2. Regulations, Plans, and Policies

Clean Air Act Amendments of 1990 (42 U.S. Codes [USC] §7401 *et seq.*)

Chlorine gas is designated by the federal government as an Extremely Hazardous Substance. Title III of the 1990 Clean Air Act Amendments (1990 CAAA) requires facilities that handle Extremely Hazardous Substances to develop an Accident Release Program to reduce the risk of and mitigate the impacts of accidental releases. This program is under development by U.S. Environmental Protection Agency (EPA). Individual states may be given the authority to develop their own accidental release programs.

Occupational Safety and Health Administration (OSHA)

Chlorine gas is classified by the federal government as an acutely hazardous material. Occupational Safety and Health Administration regulations (29 Code of Federal Regulations

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[5] MPN = Most Probable Number; ml = milliliters.

[CFR], Part 1910) require facilities that use, store, handle, process, or transport acutely toxic chemicals to prepare an emergency response plan and a fire prevention plan. In addition, as part of Process Safety Management of Highly Hazardous Chemicals (29 CFR Part 1910.119), a process safety review of the facility by the employer is required for the protection of employees. The review must include a hazard evaluation, a formal training program for employees and contractors, an investigation of the mechanical integrity of the equipment at the facility, and an emergency response plan.

Hazardous Materials Release Response Plans and Inventory Law (California Health & Safety Code §§ 25500-25547.2)

The Hazardous Material Release Response Plans and Inventory Law (California Health & Safety Code [Health & Safety] §§ 25500-25547.2) governs hazardous materials handling, reporting requirements and local agency surveillance programs. Article 1 (Health & Safety Code §§ 25500-25520) is entitled "Business and Area Plans." Facilities that handle acutely hazardous materials above a specified amount must prepare and submit a Business Plan to the County and update it every two years. (Health & Safety Code § 25505(c).)

The District must provide the Deer Springs Fire Protection District with an inventory of all hazardous substances used at the Treatment Plant, along with updates of all new chemicals introduced to the facility. (Health & Safety Code §§ 25509, 25510.) Chlorine constitutes an acutely hazardous material under the law.

This article partially integrates the federal Emergency Planning and Community Right-to Know Act (EPCRA) requirements from the federal Superfund Amendment and Reauthorization Act (SARA) into the California program. Under EPCRA, facilities handling hazardous substances must submit a Toxic Chemical Release Inventory Reporting Form (Form R). Form R summarizes toxic chemical releases to air, surface waters, land and underground injection wells.

Article 2 (Health & Safety Code §§ 25531-25543.2) is entitled "Hazardous Materials Management." Handlers of acutely hazardous materials must prepare and submit an operational and facility-related risk prevention plan to the local administering agency. The handler must fully implement the plan within one year after approval by the local administering agency.

Air Toxics "Hot Spots" Information and Assessment Act of 1987 (California Health & Safety Code §§ 44300-44394.)

Sections 44300 through 44394 of the California Health and Safety Code contain the Air Toxics "Hot Spots" Information and Assessment Act of 1987. This Act requires industrial facilities to estimate their toxic air contaminant (TAC) emissions and, if designated by the local air pollution control district as a high-priority facility, to estimate the public health risk associated with their emissions. Depending upon the level of public risk posed by the facility, it may be required to undertake a variety of actions ranging from notifying its neighbors of the estimated risks to a

mandatory audit of the facility to develop and implement risk reduction measures. Chlorine, ammonia, and hydrogen sulfide are considered to be acute, non-carcinogen TACs.

Surface Water Discharges

The Treatment Plant is regulated primarily by the RWQCB, which determines acceptable Waste Discharge Requirements for discharges to surface water or groundwater. The RWQCB identified its discharge requirements for the Treatment Plant most recently in Board Order 95-32. The RWQCB has established a coliform bacteria standard of 2.2 bacteria per 100 ml for reclaimed water for golf courses.

Sludge Disposal

Substantial governmental restrictions are placed on sludge to be reused. Sludge reuse is controlled by federal regulations (40 CRF 503), as well as state and local regulations. For the sludge to be applied to land, it must either undergo the process to significantly reduce concentrations of pathogens (disease-causing viruses and bacteria) or must meet federal fecal coliform standards. The Treatment Plant's sludge does not meet the federal requirements; to comply with those requirements, the sludge must be aerobically digested for 40 days at a temperature of 68° Fahrenheit, or air dried for a minimum of three months.

The Treatment Plant's sludge has not be tested for coliform. If the sludge can not meet the fecal coliform standard, additional processing of the sludge will be required prior to its reuse. Such additional processing can be accomplished off-site by contractors with suitable facilities. Currently, sludge from the Treatment Plant is dried to about 25% solids and collected by RECYC, Inc. for further processing prior to disposal.

3. Environmental Impacts

Criteria for Determining Significance

The significance of project impacts is determined by the Lead Agency (State CEQA Guidelines, §15064). On the basis of the general guidance provided by the State CEQA Guidelines (Appendix G, Significant Effects), the project will have a significantly adverse effect on the environment if it:

- increased the potential for the Treatment Plant to pose a substantial health or safety hazard;
- increased the use or disposal of materials which pose a hazard; or
- caused the Treatment Plant or its operations to interfere with emergency response or evacuation plans.

These significance criteria are intended to be applied to the "project increment," which is the net change in the existing environmental conditions resulting from the project.

The threshold health or safety impact considered to be "substantial" is defined in terms of both the frequency of occurrence of an event (or recurrence interval) and the severity of the event. A generally accepted significance level for cancer risk assessment is one excess (additional) case of cancer per 100,000 lifetime exposures. This value also appears to be an acceptable significance threshold for safety risks.

Project Effects

Chemical Use and Storage. The Treatment Plant will use both sodium hypochlorite and sodium hydroxide in the packed-bed odor control scrubber. Chlorine use will continue, and on-site storage will remain at one ton. Chlorine will be used for conditioning new wastewater entering the treatment plant, and ferric chloride may also be used for this purpose.

Chlorine gas alone will be used in Phase 1 for conditioning of raw wastewater, for bulking control, and for disinfection of effluent to be used in the plant's internal water system. Ultraviolet disinfection will be introduced in Phase 2 for effluent disinfection. In Phase 1, portions of the existing chlorination system will be replaced to enhance safety and improve system reliability.

Phase 1 of the project will include new safety features for storage and use of chlorine gas. A scrubber will be installed to neutralize chlorine gas evacuated from the chlorine storage room. In conjunction with changes in the storage room's ventilation system to route room air to the scrubber and piping changes intended to assure that any major releases are contained within the storage room, the scrubber will substantially reduce the potential for a release of chlorine gas to the atmosphere.

Sodium hypochlorite is a caustic material that is a respiratory irritant at high concentrations. Sodium hypochlorite will be delivered to the Treatment Plant in either 40-drum lots of 55-gallon drums or in 4,800-gallon tanks. Sodium hypochlorite, which is used in the odor control system to oxidize odorous compounds, will be stored in two 3,400-gallon tanks (Barrett Consulting Group 1993). The sodium hypochlorite storage tanks will be located within liquid containment basins to prevent leaks or spills from being released to the environment. Sodium hypochlorite is commonly used in such concentrations and quantities at industrial facilities, and its use at the Treatment Plant will pose no substantial risk to adjacent land uses.

Sodium hydroxide is a caustic material that is a respiratory irritant at high concentrations. Sodium hydroxide will be stored in a 55-gallon drum and will be used in the odor control system to oxidize odorous compounds. Sodium hydroxide is commonly used in such concentrations and quantities, and its use at the Treatment Plant will pose no substantial risk to adjacent land uses.

Ferric chloride, stored in an 1,100-gallon tank at the headworks, will be added to incoming wastewater to react with hydrogen sulfide and thus reduce odors. About one ton per month of ferric chloride will be added to the wastewater (Barrett Consulting Group 1993). Ferric chloride is commonly used in such concentrations and quantities, and its use at the Treatment Plant will pose no substantial risk to adjacent land uses.

Toxic Air Contaminants. Wastewater treatment generates ammonia, hydrogen sulfide, mercaptans, and -- in smaller quantities -- other toxic air contaminants. Ammonia is a normal waste product from the treatment of organic wastes, and its generation will increase in direct proportion to the planned increases in Treatment Plant capacity. Ammonia concentrations at the boundary of the Treatment Plant are expected to be insignificant and will not adversely affect public health in the surrounding community. In Phases 2 - 4 of the project, the air from the headworks and aerobic digesters will be collected and treated for hydrogen sulfide prior to being discharged to the atmosphere. This treatment also may reduce ammonia concentrations.

Hydrogen sulfide and mercaptan emissions from the Treatment Plant will be reduced by the project. At present, chlorine is added to the influent wastewater, oxidizing hydrogen sulfide and thus reducing odor. The project will substantially upgrade the odor control facilities, including more odor treatment of the influent, collection of air at the headworks and at the aerobic digesters, and scrubbing of hydrogen sulfide and other odorous compounds. These project-related improvements in odor control will substantially reduce the potential for release of hydrogen sulfide and mercaptans to the atmosphere.

Reclaimed Water. Treatment Plant effluent will be disinfected prior to its discharge into the percolation ponds. Groundwater extracted from the area of the percolation ponds thus could be distributed to golf courses without additional treatment. At Treatment Plant throughputs of 0.63 mgd or greater, however, groundwater pumping will be inadequate to balance effluent discharges to the percolation ponds, and effluent will be routed directly to the golf courses or discharged directly to surface drainages. This effluent will receive tertiary treatment and disinfection at the Treatment Plant prior to its use as reclaimed water or live stream discharge. The reclaimed water will meet the RWQCB's coliform bacteria standard of no more than 2.2 bacteria per 100 ml. Residual bacteria and virus concentrations in the reclaimed water will be further reduced by sunlight and other natural processes following its application to golf courses. Thus, no adverse effects on public health from use of reclaimed water at golf courses are anticipated.

Live Stream Discharge. Phase IV of the project will allow the Treatment Plant to achieve a capacity of 1.0 mgd. Modifications to the Major Use Permit provide nutrient removal facilities in order to address the "worst case" scenario in the event the District must pursue a continuous live stream discharge permit through the Regional Water Quality Control Board. Effluent flows above 0.75 mgd will receive tertiary treatment, nutrient removal and disinfection prior to discharge. In addition to the surface water objectives, the live stream discharge will meet the Regional Water Quality Control Board's coliform bacteria standard of no more than 2.2 bacteria per 100 ml. Residual bacteria and virus concentrations in the effluent will be further reduced by sunlight and other natural processes following its discharge. The District, in order to

maintain flexibility, has planned for this option although future permit requirements may allow intermittent live stream discharge without a requirement for additional nutrient removal if flows do not exceed allowable limits. Permit requirements will be determined prior to implementation of Phase IV or when discharge rates are projected to exceed 0.75 mgd. Thus, no adverse effects on public health are anticipated from continuous or intermittent live stream discharges.

Sludge Disposal. Sludge disposal from the Treatment Plant will be about 570 tons per year (at 25% solids) at project build-out. Sludge will be transported to RECYC in Riverside County, or another similar company with the appropriate permits, where it will undergo additional processing prior to being disposed in a landfill or reused. The additional transport and disposal of sludge from the project will not have a substantial effect on public health.

Summary of Impacts. The project will reduce the potential risks to public safety from accidental releases of hazardous chemicals, will reduce the potential public health effects of chronic releases of air toxics from the Treatment Plant, and will have no effect on the potential public health risks from pathogens in Treatment Plant effluent.

4. Mitigation Measures

The project will include facilities to reduce public health and safety risks from current levels. No significant impacts were identified, and no mitigation measures are necessary or required.

5. Summary of Impacts Significance After Mitigation

No mitigation measures were required because no significant impacts were identified.

G. Water Quality

1. Existing Conditions

This section addresses chemical and physical parameters of surface waters and groundwater. The potential for the transmission of pathogens to affect public health is addressed in Section F, Public Health and Safety. Characteristics of the hydrological basin, surface and groundwater resources, and changes in impervious surfaces and runoff volumes are addressed in Section B, Hydrology.

Surface Waters

Moosa Creek is the only substantial natural drainage feature in the vicinity of the project site. The quality of the water in Moosa Creek adjacent to the Treatment Plant is unknown. Runoff of unknown quality from residential areas and local streets drains to Moosa Creek. On the basis of an estimated average local rainfall of about 16 inches per year (NOAA 1996) and assuming 95% runoff, the 4.5-acre Treatment Plant contributes about 6 AF per year of runoff to Moosa Creek where it adjoins the project site.

Storm water runoff to Moosa Creek is expected to increase as the lands surrounding the Treatment Plant are developed for their planned residential and commercial uses. With the continuing implementation of non-point source water quality controls for urban development under the Clean Water Act (CWA), the quality of future surface runoff should generally be better than the quality of existing surface runoff. Because of the greater developed area, however, more urban pollutants will be flushed into Moosa Creek in the future than at present.

The District collected water quality data in 1979 and 1984 on Moosa Creek at Bresa Del Mar Ranch bridge, about 850 feet downgradient from the District's percolation ponds. Stream water also was sampled at this location by the District in 1995 (Barrett Consulting Group 1995). Relevant surface water quality data are summarized in Tables 6 and 7. On the basis of these data, the District concluded that Treatment Plant discharges to the percolation ponds do not affect surface water quality (Barrett Consulting Group 1995).

Groundwater

The Treatment Plant discharges about 0.25 mgd of secondarily treated effluent to percolation ponds located in Lower Moosa Canyon on the western side of I-15. This effluent has an average TDS content of about 940 milligrams per liter (mg/l), about 94% of the RWQCB's effluent limit of 1,000 mg/l. Modeling by the District has determined that effluent discharged to the percolation ponds accounts for about 20% of the groundwater within the alluvial aquifer of Lower Moosa Canyon Basin (Barrett Consulting Group 1995).

Table 6. Surface Water Quality Below Percolation Ponds

Water Quality Parameter	Concentration (mg/l) 1979	1984[1]	1984[1]	1995[1]
TDS	1,025	1,280	1,463	1,223
Chloride	296	294	332	259
Sodium	—	166	—	175
Sulfate	220	137	60	349
Total Kjeldahl Nitrogen (TKN)	—	<0.03	0.76	—
Total Phosphorous	—	<0.01	<0.01	—
Nitrate	2.7	1.14	4.02	6.2
MBAS	—	0.02	0.16	0.12
Boron	—	0.3	<0.1	0.1
Fluoride	0.59	0.31	0.26	0.65

[1] average of six samples from three wells tested by two laboratories. mg/l = milligrams per liter. MBAS = methylene blue absorbing substance.
Source: Barrett Consulting Group 1995

Table 7. Effluent Effects on Surface Water Quality

Water Quality Parameter	Units	Concentration (mg/l) Upgradient[1]	Effluent[1]	Downgradient[2]
Iron	mg/l	0.47	0.05	0.49
Manganese	mg/l	0.29	0.01	0.15
MBAS	mg/l	0.09	0.13	0.11
Boron	mg/l	0.14	0.44	0.16
Fluoride	mg/l	0.7	0.8	0.6
TOC	mg/l	16.7	12.6	9.6
BOD	mg/l	8.4	14.8	20.1
TSS	mg/l	21	20	27
TDS	mg/l	1,228	951	1,325
Chloride	mg/l	264	176	294
Sodium	mg/l	184	175	188
Sulfate	mg/l	361	297	369
Nitrate	mg/l	6.9	24.8	7.3
Chloroform	µg/l	<0.2	5.0	<0.2
BDCM	µg/l	<0.2	1.1	<0.2
CDBM	µg/l	<0.2	0.4	<0.2
Bromoform	µg/l	<0.5	<0.5	<0.5
TTHM	µg/l	<0.5	6.1	<0.5
Coliform	100ml	>1,012	93	>1,012
Fecal Coliform	100ml	57.0	<3.5	>129
Hete. Plt. Count	cfu/ml	+2,500	+1,050	+3,300

[1] average of two samples analyzed by two laboratories
[2] average of two samples from two different wells analyzed by two laboratories. MBAS = Methylene Blue Active Substance, BDCM = bromodichloromethane, CDMB = dibromochloromethane, BOD = biological oxygen demand, Hete. Plt. Cnt. = Heterotrophic Plate Count, µg/l = micrograms per liter, mg/l = milligrams per liter, TDS = total dissolved solids, TSS = total suspended solids, TOC = total organic carbon, TTHM = total trihalomethane.
Source: Barrett Consulting Group 1995

Groundwater is extracted from several wells in the Lower Moosa Basin; the locations and descriptions of these wells are reported in *Recommended Effluent Management Strategies for the Lower Moosa Canyon Water Reclamation Facility; Technical Memorandum No. 2* (Barrett Consulting Group 1995). The closest domestic well downgradient of the percolation ponds is located about 4,500 feet northeast of the ponds. This well is inoperable, and water quality data for the well are not available (Barrett Consulting Group 1995). The closest downgradient non-domestic wells are the Bresa Del Mar wells, which also are no longer operable. The District monitored groundwater quality between 1978 and 1983 from a well located about 200 feet south of the percolation ponds, and additional water quality tests were conducted in 1995 (Table 8). After evaluating groundwater quality upgradient and downgradient of the percolation ponds in relation to effluent quality (Table 9), the District concluded that the Treatment Plant effluent discharged into the percolation ponds does affect downgradient groundwater quality (Barrett Consulting Group 1995).

Table 8. Groundwater Quality at Percolation Ponds

	Concentration (mg/l)						
Water Quality Parameter	**1978**	**1979**	**1980**	**1981**	**1982**	**1983**	**1995**
TDS	1,166	1,070	834	942	892	1,312	1,078[1]
Chloride	257	242	91	142	260	372	237
Sodium	168	400	93	224	192	188	188
Sulfate	315	304	240	280	290	328	304
TKN	0.11	0.69	0.45	1.98	0.62	0.61	–
Total Phosphorous	0.34	0.01	0.03	0.03	0.11	0.01	–
Nitrate	6.2	12.0	17.7	10.2	9.0	5.3	5.8
Boron	0.11	0.40	0.05	0.55	0.10	0.01	0.32

[1] average of six samples from three wells tested by two laboratories. mg/l = milligrams per liter.
Source: Barrett Consulting Group 1995

2. Regulations, Plans, and Policies

Clean Water Act

National Pollutant Discharge Elimination System (NPDES). The basic federal law governing water quality is the CWA of 1977 (33 U.S. Code [USC] §1251 *et seq.*). The CWA established a comprehensive nationwide program to maintain and enhance the quality of surface waters. Section 402 of the CWA established the NPDES permit process to regulate point-source discharges to surface waters. The Treatment Plant's effluent is discharged to land (i.e., to percolation ponds and golf courses) rather than to surface waters, so it is regulated by Waste Discharge Requirements established by RWQCB.

Table 9. Effluent Effects on Groundwater Quality

Water Quality Parameter	Units	Concentration (mg/l) Upgradient[1]	Effluent[1]	Downgradient[1]
Iron	mg/l	23.1	0.1	72.0
Manganese	mg/l	0.53	0.01	2.32
MBAS	mg/l	0.11	0.10	0.78
Boron	mg/l	0.17	0.43	0.39
Fluoride	mg/l	0.5	0.8	0.6
TOC	mg/l	5.5	12.5	20.7
BOD	mg/l	22	19	16
TSS	mg/l	459	19	1,534
TDS	mg/l	1,246	951	994
Chloride	mg/l	314	175	199
Sodium	mg/l	191	174	186
Sulfate	mg/l	332	293	290
Nitrate	mg/l	5	23	6
Chloroform	µg/l	<0.2	4.6	0.7
BDCM	µg/l	<0.2	1.1	<0.2
CDBM	µg/l	<0.2	0.3	<0.2
Bromoform	µg/l	<0.5	<0.5	<0.5
TTHM	µg/l	<0.5	5.7	0.7
Coliform	100	30	93	913
Fecal Coliform	100	44.0	3.5	72.5
Hete. Plt. Count	cfu/ml	+57,000	+1,050	+57,000

[1] average of two samples analyzed by two laboratories

[2] average of two samples from two different wells analyzed by two laboratories. MBAS = Methylene Blue Active Substance, BDCM = bromodichloromethane, CDMB = dibromochloromethane, BOD = biological oxygen demand, Hete. Plt. Cnt. = Heterotrophic Plate Count, µg/l = micrograms per liter, mg/l = milligrams per liter, TDS = total dissolved solids, TSS = total suspended solids, TOC = total organic carbon, TTHM = total trihalomethane.
Source: Lowry & Associates 1984

Storm Water Pollution Prevention Plan. The 1987 amendments to the CWA added Section 402(p), which required EPA to develop regulations for the control of non-point source discharges, such as runoff from parking lots and other paved surfaces in urban areas. In 1990, the EPA published its final regulations for storm water discharges, implementing Section 402(p) of the CWA. These regulations address storm water discharges from certain industrial storm water collection systems. The State Water Resources Control Board (SWRCB) subsequently issued a General Industrial Activities Storm Water Permit (General Permit) in compliance with Section 402(p). The General Permit requires industrial facilities to prepare and implement a Storm Water Pollution Prevention Plan (SWPPP) to control the quality of storm runoff. The SWPPP describes Best Management Practices (BMPs) for on-site reduction and control of the pollutants in storm water runoff. Section 402(p) also requires the elimination of non-storm water discharges to the storm drain system and establishes minimum monitoring requirements. The

Treatment Plant is exempt from the requirement to comply with the General Permit until its discharge exceeds 1.0 mgd (San Diego Regional Water Quality Control Board 1993).

California also issued a General Construction Activities Storm Water Permit (Construction Permit) to comply with Section 402(p). Section 402(p) requires any construction activity involving the disturbance of five acres or more to be conducted in accordance with a Construction SWPPP that controls sediment and prevents other construction pollutants from entering the storm drain system. The Construction Permit also prohibits non-storm water discharges to the storm drain system.

Section 402(p) requires municipalities to obtain NPDES permits for municipal storm water discharges. The County of San Diego and associated cities were issued a NPDES Permit by San Diego RWQCB. This five-year permit requires the implementation of a number of actions to characterize and control storm water quality from within the major drainage areas in San Diego County. These actions include describing existing surface water quality and hydrology, monitoring surface water quality, and establishing a storm water management program containing BMPs. As the lead permittee, San Diego County coordinates compliance activities with its co-permittees.

Porter-Cologne Act

The Porter-Cologne Water Quality Control Act established a water quality control program for California. The Act authorizes the State to implement the provisions of the federal CWA. The RWQCBs implement and enforce provisions of the Act, subject to policy guidance and review by the SWRCB.

Comprehensive Water Quality Control Plan Report (Basin Plan)

The 1994 *California Regional Water Quality Control Board Comprehensive Water Quality Control Plan, San Diego Region* (Basin Plan), designates beneficial uses for surface water and groundwater. The designations for the Moosa Hydrologic Subarea (HSA) are shown in Table 10. The Basin Plan surface water and groundwater quality objectives for the Moosa and Bonsall HSAs are shown in Table 11. In January 1995, a proposed Basin Plan Amendment was submitted by the District, and subsequently approved by the Regional Water Quality Control Board, to relax the TDS objective in the Moosa Hydrologic Unit (HSA 3.13) from 800 mg/l to 1,200 mg/l (Barrett Consulting Group 1995). This amendment will allow a substantial change in the quality of groundwater in HSA 3.13.

Table 10. Basin Plan Beneficial Uses for Moosa HSA

Beneficial Use	Surface Waters	Groundwater
Agricultural Supply	X	X
Industrial Service Supply	X	X
Municipal and Domestic Supply		X
Contact Water Recreation	X	
Non-Contact Water Recreation	X	
Warm Freshwater Habitat	X	
Wildlife Habitat	X	

Source: San Diego Regional Water Quality Control Board, 1994.

Table 11. Surface Water/Groundwater Quality Objectives

		Surface Waters			Groundwater		
Water Quality Parameter	Units	HSA 3.12	HSA 3.13	HSA 3.14	HSA 3.12	HSA 3.13	HSA 3.14
TDS	mg/l	500	500	500	1,500	1,200[1]	1,100[1]
Chloride	mg/l	250	250	250	500	300	300
Sodium	%	60	60	60	60	60	60
Sulfate	mg/l	250	250	250	500	400	400
Nitrate, as NO_3	mg/l	45	45	45	45	10	10
Iron, Fe	mg/l	0.3	0.3	0.3	0.85	0.30	0.30
Manganese	mg/l	0.05	0.05	0.05	0.15	0.05	0.05
MBAS	mg/l	0.5	0.5	0.5	0.5	0.5	0.5
Boron	mg/l	0.75	0.75	0.75	0.75	0.75	0.5
Turbidity Odor	NTU	20	20	20	5	5	5
Color	units	20	20	20	15	15	15
Fluoride	mg/l	10	10	10	1.0	1.0	

Concentrations not to be exceeded more than 10% of the time during any one-year period.
[1] As adopted for the alluvial aquifer in Basin Plan Amendment by RWQCB (Board Resolution 95-48 1995). The objective for the deep fractured rock aquifer will remain at 800 mg/l. mg/l = milligrams per liter. NTU = turbidity units.
Source: San Diego Regional Water Quality Control Board 1994.

Board Order 95-32

In 1995, San Diego RWQCB issued Board Order 95-32 establishing requirements for expansion of the Treatment Plant up to a capacity of 1.0 mgd (Appendix E). As part of that Order, the following effluent limitations were established: Biological Oxygen Demand = 20 mg/l; Total Suspended Solids = 20 mg/l; Turbidity = 2 turbidity units (NTU) at capacities greater than 0.63 mgd; coliform bacteria = <2.2 bacteria/100 ml.

County General Plan

County of San Diego's General Plan contains the following water quality-related policies in Part X - Conservation, Chapter 3 - Water, Wastewater Disposal Subchapter:

> **Policy 8:** Wastewater discharges shall not adversely affect the beneficial uses of receiving waters...
>
> **Policy 11**: The County shall encourage projects which will promote the reclamation and reuse of wastewater.

Escondido Waste Water Master Plan

The City's Master Plan identifies a future force main and sewer improvements south of the proposed project pipeline along Centre City Parkway and North Broadway.

3. Environmental Impacts

Criteria for Determining Significance

Impacts to surface waters or groundwater will be considered significant if water quality standards and effluent limitations were exceeded such that beneficial uses of receiving waters or of potable water aquifers were adversely affected. Substantial non-conformance with water quality-related regulations, plans, and policies (e.g., Basin Plan) also will constitute a significant adverse environmental impact.

Environmental Consequence - Issues Analysis and Significance

Construction. Ground disturbance at the percolation ponds will be limited. One of the existing ponds will be lined, and extraction wells and pumps will be installed. Ground disturbance at the Treatment Plant will be entirely within the existing developed area, except for the new forebay, and will be phased over several years so it probably will total less than five acres.

Surface disturbance for installation of reclaimed water lines and sewer collector lines will be largely within the rights-of-way of existing roads, and probably will disturb less than five acres at any one time because it will be phased over a long period (except for the pump-back lines). NPDES storm water regulations thus probably will not apply to the project, and water quality impacts will be insignificant.

Operations. The project will incrementally increase the total area of impervious surfaces at the Treatment Plant, incrementally increasing the amount of surface runoff to Moosa Creek. The surface water quality effects of this incremental increase will not be significant. Based on the testing and modeling information presented above under Existing Conditions, and projected rates

of effluent discharges to the percolation ponds, the project is not anticipated to have adverse effects on downstream surface water quality.

Intermittent or continuous live stream discharge could occur in Phases 3 and 4. Assuming that the District was successful in meeting RWQCB's effluent limitations for discharges to surface waters (see Table 11), this discharge will not substantially adversely affect surface water quality.

The project is expected to have neutral or beneficial effects on groundwater quality. The quality of the Treatment Plant effluent will be higher, in general, than that of the groundwater. Pending approval of the Basin Plan Amendment submitted in January 1995, however, the Treatment Plant's effluent will continue to exceed the effluent limits for the hydrologic subbasin. The continued delivery of reclaimed water to the Castle Creek and Lawrence Welk golf courses, with the reclaimed water being treated to tertiary levels, will improve groundwater quality because the treated effluent will generally be of better quality than the existing groundwater.

Consistency With Water Quality Regulations, Plans, and Policies. The project will comply with the Waste Discharge Requirements established by the RWQCB and will prepare a SWPPP for construction if the aggregate disturbed area at any point in time exceeded five acres; in doing so, the project will be consistent with the federal CWA and the Basin Plan. The project will be consistent with the County's policies to maintain the quality of groundwater resources and to encourage the reuse of wastewater.

Summary of Impacts. The project will have no significant impacts on surface or groundwater quality.

4. Mitigation Measures

No mitigation measures are needed because no significant water quality impacts were identified.

5. Summary of Impacts After Mitigation

No mitigation measures were necessary. Project impacts were deemed to be insignificant without mitigation.

H. Cultural Resources

1. Existing Conditions

Treatment Plant

The existing Treatment Plant and adjacent area, in particular along the eastern and southeastern boundary where the forebay is proposed, are located in proximity to a previously recorded site. The recorded site has since been developed into homes. The future forebay area comprises the lowest terrace and stream bed of an intermittent steam which flows into Moosa Creek. All other portions of the Treatment Plant proposed for improvements and expansion have been previously graded.

Pipelines

Pipeline routes vary from segments built out with curbs, sidewalks and other improvements to those with open space adjacent. Two areas with open space have previously recorded sites. These segments occur along Old Highway 395 between Old Castle Road and the All Seasons Campground. The segment near the campground consists of a road cut which is already below the site level. The second area is a raised roadbed.

Service Area/Percolation Ponds Site

There are a number of recorded sites through this region.

2. Environmental Impacts

Criteria for Determining Significance

Appendix K to the CEQA Guidelines states that if a proposed "project may cause damage to an important archaeological resource, the project may have a significant effect on the environment."

Environmental Consequences - Issue Analysis and Significance

A cultural resources survey has been conducted for the Treatment Plant and the pipelines and is included as Appendix F. Special emphasis was directed to undisturbed areas on the Treatment Plant parcels and along pipeline routes. The survey was limited to the Treatment Plan and pipeline routes since the other proposed actions are not associated with disruption of undisturbed lands. The results of the survey were negative. Although no resources were found in the area of the raised roadbed, there is a possibility of encountering prehistoric resources if trenching reaches native soils. All pipeline installation along this segment within native soils should be monitored by a qualified archaeologist.

The percolation pond to be lined already exists, and the establishment of Assessment Districts and adjustments to sewering agencies boundaries will not involve any physical changes to the cultural environment.

Since no archaeological resources have been identified associated with construction in previously non-graded areas, there are no significant impacts.

3. Mitigation Measures

No mitigation measures are necessary because no significant impacts have been identified. However, it is recommended that an archaeologist be present during initial trenching in the area of known archaeological deposits.

4. Summary of Impacts After Mitigation

Since there are not significant impacts identified, this section does not apply.

I. Energy

1. Existing Conditions

Service Providers and System Capacity

Electricity is supplied to the Treatment Plant by San Diego Gas and Electric Company (SDG&E).

Existing Energy Consumption

Treatment Plant Operations. The Treatment Plant uses electricity to power its process equipment and for space heating of the office, lights, and laboratory equipment. The principal consumers of energy at the Treatment Plant are the blowers. Pumps that move the wastewater through various portions of the wastewater treatment process and the motors for individual process units also require electricity, but to a lesser degree. The Treatment Plant currently consumes about 700,000 kWh per year of electricity, with a peak demand of about 86 kW.[6]

Liquid fuels, primarily gasoline, will be consumed by District employees periodically driving to the Treatment Plant for maintenance and equipment checks.[7] Liquid fuels, primarily diesel fuel, will be consumed by trucks delivering supplies (e.g., chlorine) and removing sludge from the Treatment Plant.[8] These levels of consumption for liquid fuels are considered to be negligible.

Reclaimed Water. At present, the District could be requested to supply up to 451 AF per year of water to Castle Creek golf course and about 330 AF per year to Lawrence Welk golf course. The energy cost of pumping this water to the golf courses is unknown. Groundwater from wells is used by these golf courses instead of District potable water. The difference in energy consumption between groundwater pumping and water to deliver irrigation water to the golf courses is not considered to be substantial.

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[6] A kilowatt (kW) is one thousand watts (W) of power. A kilowatt-hour (kWh) is a unit of electrical energy equivalent to that expended in 1,000 hours by an appliance rated at one watt of power. For example, a 100-watt light bulb burning for 10 hours (100 x 10 = 1,000) would use 1,000 watt-hours (Wh) or 1.0 kWh of power.

[7] Based on the assumption of one, 20-mile round trip per day and an average fuel economy of about 20 miles per gallon in 1995 (California Department of Transportation 1983), about 360 gallons per year of gasoline would be consumed for employee trips.

[8] Based on assumptions of three 50-mile round trips per month for supplies, one 200-mile round trip per month for sludge disposal, and an average fuel economy of about seven miles per gallon for 1995 (California Department of Transportation 1983), about 600 gallons per year of diesel fuel would be consumed for truck deliveries.

Energy Conservation Regulations, Plans, and Policies

The County of San Diego's 1990 Energy Element, Part XI of its General Plan includes the following policy and action program pertaining to the project:

> **Policy User Technology (UT) 12:** Promote strict County water conservation and recycling measures as a means of conserving energy.
>
> > **Action Program UT-12.2, (County General Plan Conservation Element Policy 11):** The County will encourage projects which will promote the reclamation and reuse of wastewater.

No energy conservation regulations, plans, or policies applicable to the project exist at the federal or state level.

2. Environmental Impacts

Criteria for Determining Significance

Assessment of potential energy impacts is recommended by State CEQA Guidelines, Appendix G to determine if the project will result in:

- use of substantial amounts of fuel or energy;
- a substantial increase in demand upon existing sources of energy; or
- the development of new sources of energy.

Project effects typically are considered to be significant if the project will encourage activities which use large amounts of fuel or energy, or if they use fuel or energy in a wasteful manner.

State CEQA Guidelines, Appendix F provides specific guidance in examining the potentially significant energy implications of a project. These impacts could include:

- inefficient uses of energy;
- excessive demands on local or regional energy supplies;
- triggering a requirement for construction of additional capacity;
- conflicts with federal, state, or local energy conservation regulations, standards, plans or policies;
- excessive transportation energy requirements; or
- inefficient transportation.

Construction. Project construction will require substantial, one-time expenditures of electricity, gasoline, and diesel fuel for each phase, consuming energy derived primarily from non-renewable resources. Construction energy consumption has been estimated in terms of total primary energy intensities, which include direct and indirect energy costs of construction for a particular type of facility.[9] The amount of energy that will be required for construction of all four phases of the project is shown in Table 12.

Table 12. Construction Energy Consumption

Phase	Construction Cost ($)	Energy Cost (GBtu)
1	2,760,000	55
2	2,050,000	41
3	659,000	13
4	1,708,000	34
Total	**7,270,000**	**145**

GBtu = billion (Giga) British thermal units. Energy cost (third column) calculated from 1973 energy intensity of 50,000 Btu per construction dollar (California Department of Transportation 1983), adjusted to construction year assuming a 3.5% annual inflation rate.

Treatment Plant. The project will increase the Treatment Plant's treatment capacity in phases from its current volume of 0.25 mgd to 1.0 mgd, a 300% increase. Energy demand for in-plant processes, which are roughly proportional to Treatment Plant capacity, will increase by a similar amount (Table 13). Employee maintenance and servicing trips are not expected to increase. Assuming a 300% increase in truck trips to and from the Treatment Plant to deliver supplies and remove sludge, project-related consumption of gasoline and diesel fuel will be negligible. No energy will be consumed by new gravity-fed sewers included in the project. Low-pressure sewers would consume less than 25 kWh/dwelling unit-year, or about the same amount as burning a 100-watt light bulb for 45 minutes a day.

Reclaimed Water. Since a substantial amount of electricity will be consumed by the Treatment Plant to provide reclaimed water to local golf courses, the District will use fine bubble diffusers and energy-efficient motors. Wells and pumps downstream of the percolation ponds will be used to extract groundwater and pump it uphill back to the Treatment Plant forebay. The reclaimed water will then be pumped from the Treatment Plant to the golf courses as demand required.

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[9] Direct inputs are those consumed by the industrial sector engaged in the construction. Indirect inputs represent consumption in economic sectors not engaged in the construction activity, but which supply inputs to it through the chain of production. For example, the use of a steel beam in construction indirectly represents energy consumed in all of the industries that contributed to the production of the beam (e.g., energy consumed through mining and extraction of raw materials, manufacturing, and transportation). Indirect energy typically represents about 75% of total construction energy.

Table 13. Estimated Operational Energy Budget

Phase	Plant Capacity (mgd)	Electricity Consumption (million kWh/yr) Treatment Plant	Reclaimed Water System[1]	Ultraviolet Disinfection	Total	% Increase from Existing
1	0.44	1.37	0.07	0	1.44	105
2	0.63	1.96	0.07	0.110	2.14	206
3	0.75	2.34	0.23	0.130	2.70	286
4	1	3.11	0.23	0.175	3.52	403

[1] Rough estimate of pumping costs from percolation ponds to golf courses, based on Equation 11.28 in Aquacultural Engineering (Wheaton 1977).

The back-pumping of groundwater from the percolation ponds to the Treatment Plant is an inefficient use of energy. The substantial difference in elevation between the groundwater below the percolation ponds and the Treatment Plant (estimated at about 175 feet) accounts for the high energy cost of supplying this resource to the golf courses. Installing a turbine to capture a portion of the energy lost during gravity flow from the Treatment Plant to the percolation ponds could partly recover this wasted energy. Treating the effluent to meet tertiary standards at the Treatment Plant and pumping it directly from the Treatment Plant to the golf courses could be more energy-efficient than back-pumping groundwater. However, this approach would require an increase in the size of the forebay and increase other identified environmental impacts. Because the energy cost of providing reclaimed water will represent less than 10% of the project's overall operational energy budget, the use of energy for back-pumping will not be considered significant.

Ultraviolet Radiation Disinfection. A substantial increase in consumption of electricity will be associated with disinfection of Treatment Plant effluent in Phases 2 - 4. Ultraviolet radiation disinfection will be an inefficient use of energy, relative to readily available alternatives such as chemical disinfection, but this increase will be offset to some degree by the decrease in energy required to produce the chemicals and deliver them to the Treatment Plant. This adverse effect of the project is less than significant because it represents only a small percentage of the overall energy consumption estimated for the project.

Summary of Impacts. The project will increase the energy consumption of the Treatment Plant by about 400%. The project will require a small annual commitment of energy resources, in comparison to the total amount of energy consumed within the project area. SDG&E has determined that the expanded facility can be served without upgrading substation or distribution lines to the site (SDG&E 1996). The project will not require SDG&E to upgrade the development of new energy resources nor new distribution facilities. It will not substantially alter existing transportation energy demand, and it will be consistent with County policies to enhance energy conservation by recycling wastewater. The project's uses of electricity for back-pumping reclaimed water and for ultraviolet disinfection of effluent will increase the District's energy requirements, but not significantly so. Overall, the project will have no significant adverse effects on energy.

3. Mitigation Measures

No significant project impacts were identified, so no mitigation is required.

4. Significance of Impacts After Mitigation

The project's effects on energy consumption and utilities were determined to be insignificant without mitigation.

III. GROWTH INDUCEMENT

The CEQA Guidelines state that an EIR should discuss the ways in which a proposed project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment. Generally, growth inducing factors are those which cause access roads and/or public services such as water and sewer to be extended into an area which has been reserved for non-urban development until some time in the distant future. In relation to water reclamation/wastewater treatment projects, growth inducement involves the potential for the plant to increase pressure to develop at a faster rate or higher density than planned. Water reclamation facilities, as with all public facilities, should be large enough to adequately serve the areas designated for more intensive development, but limited so as not to encourage or support development where it is not intended.

The proposed project removes one of several infrastructure obstacles to growth by upgrading an existing wastewater treatment facility. However, because the project is phased, based on existing land use designations which anticipate a twenty-year build-out, it does not increase pressure to develop at a faster rate or higher density than allowed by the existing General Plan. Each increment of expansion attempts to address needs which will exceed plant capacity limitations in a timely manner. Improvements will not encourage development where it is not intended because the County retains authority for implementing the General Plan and ultimately controls the level of growth within the service area. The San Diego County General Plan which includes the Valley Center Community and North County Metropolitan Subregional Plans, is intended to promote orderly development and implement the County's objective for growth management. Growth associated with these planned levels was evaluated through the environmental review process required at the time the General Plan, Community Plans, and Updates were adopted. SANDAG Series VIII Growth Forecasts for the Valley Center and North County Metropolitan Planning Areas have been incorporated into growth projections. These documents are available at the County Administration Center in the office of the Clerk of the Board at 1600 Pacific Highway, San Diego, California 92101 or at the County of San Diego Department of Planning and Land Use, 5201 Ruffin Road, Suite B, San Diego, California 92123.

A previous study entitled *Issues and Options Study for Sewer Service Facilities Along the I-15 Corridor* (BFMA 1990) projected effluent flows based upon community plans, and consultation with County staff, local developers and community planning groups. Areas considered for sewer service included the Lawrence Welk, Castle Creek (formerly known as Circle "R"), Hidden Meadows, and Mountain Gate Specific Planning Areas. The report also considered additional areas designated by the general plan for development at intensities which typically require sewer service (e.g., Residential (#2), Residential (#6), and General Commercial (#13)). The County has adopted land use and zoning designations which, if developed at maximum potential density, could yield 6,600 edus and require treatment capacity of 1.32 mgd.

The District seeks to double the 0.5 mgd permitted capacity of the treatment plant through the implementation of phased improvements designed to meet existing and planned future development needs and provide reclaimed water to the area. For planning purposes, the District estimates future flows at the Moosa Canyon Treatment Plant at 200 gpd although existing flows are somewhat lower. Typically, sewage generation rates are calculated at between 200 and 280 gpd/edu within San Diego County. With the existing paid and partially paid commitments already exceeding the physical and permitted treatment plant capacity, the District designated service area boundaries and then calculated maximum design capacity based on engineering standards, existing plant facility constraints, planning feasibility, costs, and physical limitations of the groundwater basin. The ultimate design capacity of the plant is limited by existing facilities already installed which are incapable of processing flows in excess of 1.0 mgd. Flows over 1.0 mgd would also require expanded seasonal storage facilities due to the nature of the groundwater basin.

The Treatment Plant expansion will serve the northwestern portion of the North County Metropolitan Subregional Plan area which contains the Lawrence Welk Village, Rimrock, and Hidden Meadows communities, and future development of the Mountain Gate and Meadow View Ranch Specific Plan Areas. The Treatment Plant will also serve the western portion of the Valley Center Community Plan area in the vicinity of the I-15 corridor, and two isolated areas located between I-15 and Old Highway 395 in the Bonsall Community Plan area. The largest development to be served in the Valley Center planning area is the Castle Creek Resort adjacent to the existing Treatment Plant.

The 1995 SANDAG Interim Forecast for the Valley Center Community and North County Metropolitan Subregional Planning Areas utilizes adopted County land use policies to provide population and housing projections. These projections are then used to determine service requirements for the communities. The population for the Valley Center planning area is calculated to increase between 1990 and 2005 from 6,500 to 19,220 residents. An estimated 28,169 residents are expected to reside in the community by the year 2015. The North County Metro planning area is projected to grow from 39,085 (1990) to 56,058 in the year 2005, and 97,491 by the year 2015. Although the average annual growth rate previously experienced in the region has decreased substantially from the twenty year period between 1970 to 1990, average annual growth will exceed 3% (Valley Center - 3.2%, North County Metro - 3.7%). Growth in the Valley Center Municipal Water District (which is comprised of portions of Valley Center and North County Metropolitan Community Planning Areas) is expected to exceed the average annual growth rate of the individual community planning areas. According to 1990 census data obtained from SANDAG, the population served by the District was 17,541.

The District is expected to experience an average annual growth rate of 4.2%, and serve an expected population of approximately 49,388 by the year 2015 (SANDAG 1995). Dividing the 1990 population value by the number of 1990 housing units gives a 1990 average factor of 2.6 persons per household. Using this figure as constant into the year 2015, the District could contain 18,995 households (49,388/2.6). Based on 18,995 and assuming all units required sewer service (which they do not), treatment capacity requirements for the entire sewer district could

approach four million gallons per day. However, the Moosa Treatment Plant can serve only the western portion of the District because site location and other plant constraints limit expansion of treatment capacity to 1.0 million gallons per day or a maximum of 5,000 edus.

Table 14 below provides a summary of the number of existing connections currently being served by the District and the number of paid and partially paid commitments for which the District has a near term need to provide service. Estimates are shown in edus. The table also provides an estimate of future service connection needs within the service area. Table 15 provides a breakdown by phase of the number of additional edus that will be made available. Property owners who have requested future capacity have accepted liens against their properties to pay for preliminary expenses. The District has initiated a process to form an assessment district to finance required Treatment Plant and delivery system improvements.

Table 14. Capacity Requirement Summary[1]

Development	Edus(2)	Required Capacity
Connected	1,720	0.34 mgd
Committed, fully paid, not connected	435	0.43 mgd
Committed, partially paid, not connected	502	0.53 mgd[3]
Requested capacity, property included in Assessment District and assessed for preliminary expenses	1,143	0.76 mgd
Available at Build-out of Treatment Plant	1,200	1.0 mgd
Total	**5,000**	**1.0 mgd**

[1] Reprinted from Section I.E. Project Design

[2] Gross edu values - District policy assigns a unit flow rate of 200 gpd/edu.

[3] Actual projected flow of 531,400 gpd to service existing and committed constituents as represented by edus.

Table 15. Edu Capacity by Phase

Phase (maximum capacity)	Additional Edus/Phase[1]	Maximum Edus/Capacity
Existing - 1996 (0.25 mgd)		1,720/existing
Phase I (up to 0.44 mgd)	480	2,200/0.44 mgd
Phase II (up to 0.63 mgd)	950	3,150/0.63 mgd
Phase III (up to 0.75 mgd)	600	3,750/0.75 mgd
Phase IV (up to 1.0 mgd)	1,250	5,000/1.0 mgd
Total at Build-out	**3,280**	**5,000/1.0 mgd**

[1] Service connections will be based upon request from owners and will not be extended to areas where no demand exists. Of the 480 edus made available in Phase I, 435 have been purchased. In addition, 502 of the 995 edus available upon completion of Phase II represent partially paid commitments. The remaining 493 edus (995-502) will begin to meet needs of those properties where requests for service have been made and liens on property have been accepted.

A precise match between increments of facilities improvements and levels of the District's obligations to serve can not be accomplished because of factors such as groundwater basin requirements and unit processing capacities of upgraded equipment. Although there are some minor discrepancies in exact numbers from table to table, the District has correlated the expansion plan phases with the anticipated need for services. For Phase I, the resulting service capability will basically provide capacity to fully paid commitments. With Phase II, all partially paid and about 43 percent of the properties which have been assessed for preliminary expenses can be served. The level of service will be slightly short of meeting the projected needs of all properties in the category of assessed for preliminary expenses after the Phase III improvement. At Phase IV's 5,000 edus level, the Treatment Plant will be able to offer sewer services to approximately 75% of the planned 20-year build-out for the Service District.

The District has recently received Regional Water Quality Control Board approval to expand the existing Treatment Plant to 1.0 mgd, doubling its previous 0.5 mgd rating. The higher rating is a preliminary step required prior to subsequent approval of the MUP modification, EIR, and construction. Because existing facility limitations allow treatment of only 0.25 mgd, and existing connections, for planning purposes require just over 0.34 mgd (1,720 edus x 200 gpd) treatment plant capacity is clearly inadequate. Furthermore, the District has an additional 937 paid and partially paid commitments which will require capacity in excess of the current rated 0.5 mgd. Plant improvements have been designed and phased to accommodate existing development, paid commitments, reasonably expected future commitments, and other development which could occur within the service area boundaries in accordance with existing land use designations of the County General Plan.

In conclusion, under the current planning policies of the County, the project's design capacity is reflective of existing and forecasted demand. The Project is intended to allow the District to provide services where commitments already exist or have been purchased. In addition to these commitments, the District anticipates the need for some additional capacity based on approved land use plans. Improvements are designed to provide services to meet the expected demands of the new and existing users in areas designated for future growth and will not result in the addition of services to areas not intended for such purposes. Proposed improvements providing a 1.0 mgd capacity are appropriate given this anticipated need.

IV. CUMULATIVE IMPACTS

A cumulative impact is an impact on the environment which results from the incremental impact of the project when added to other past, present, and reasonably foreseeable future projects. The intent of the cumulative impacts discussion, as required by Section 15130 of the CEQA Guidelines, is to account for impacts that may not be considered significant on a case by case basis, but may be part of a larger regional trend that would be considered significant and should be addressed. While in some cases project-specific mitigation measures may reduce cumulative impacts, regional plans are often the most effective form of mitigation. This EIR bases its cumulative impacts discussion on previously approved land use documents including but not limited to the County of San Diego General Plan, Valley Center Community Plan, North County Metropolitan Subregional Plan, I-15 Corridor Plan, Plan Updates and Environmental Impact Reports. Projects discussed in these documents include:

Circle R Resort SPA. The Circle R Resort Specific Plan was adopted by the Board of Supervisors in 1978 and includes the Castle Creek Resort and Golf Course and the project site and other developed areas. The Specific Plan encompasses approximately 361 acres at the northeast intersection of Interstate 15 on Old Castle Road. The property is bounded on the north and east by land use designation (18) Multiple Rural Use and is primarily characterized by avocado groves, steep topography and large residential estates.

Hidden Meadows SPA. This SPA has been under development since 1965. Tentative maps continue to be processed as part of this SPA, including recently, one located on Mountain Meadow Road between Meadow Glen Way and Hidden Meadows Road consisting of 160 single-family homes on approximately 214 acres and another with 120 townhomes on 9.8 acres of a 26.7-acre site located just to the south, on Mountain Meadow Road between Meadow Glen Way East and Legend Rock Road.

Lawrence Welk SPA. This SPA is located approximately 0.5 mile to the south, and encompasses about 925 acres. Mainly a retirement community, it consists of approximately 460 mobile home pads, 65 condominiums, 98 motel units, a golf course and other amenities. A majority of the Lawrence Welk SPA has been developed; however, additional development is proposed. The Rimrock development is located on the hills overlooking Lawrence Welk Village. Several subdivision maps have been approved for Rimrock, along Meadow Glen Way West, including 75 single-family residences on 99.8 acres, 73 single-family residences on 195.3 acres and 29 single-family residences on 59.5 acres.

Mountain Gate SPA. The Mountain Gate SPA has not been developed to date. Overall density is not to exceed 0.23 du/acre with a minimum lot size of one acre. The area is zoned single-family residential RS1 (1 du/1,2,4 gr. ac.) and A70 (limited agricultural).

Champagne SPA. Another SPA has been proposed in an area north of the Lawrence Welk SPA. The Champagne SPA would consist of about 90 acres between Welk Highland Drive and Old Castle Road, on Champagne Boulevard. The proposed zone is C42 (Visitor-Serving Commercial).

Meadow View Ranch SPA. The SPA designation changed an area of approximately 257 acres from (18) Multiple Rural Use (1 du/4, 8, 20 and 40) to .31 dwelling units per acre density with an associated equestrian center and recreational facilities. Clustered parcel sizes can be no smaller than one acre in size.

Non-SPA Development. Much of the remaining land is designated for development which is controlled by topography and ranges from 1 dwelling unit per acre up to 1 dwelling unit per 40 acres. Several smaller areas allow 1 dwelling unit per acre without any slope constraints. A limited number of acres allow densities as high as 7.3 residential dwelling units per acre, general commercial, and visitor serving commercial. Both major and minor subdivision maps have or are being processed in these areas.

Planning and environmental documents referenced above are available at the County Administration Center in the office of the Clerk of the Board at 1600 Pacific Highway, San Diego, California 92101 or at the County of San Diego Department of Planning and Land Use, 5201 Ruffing Road, Suite B, San Diego, California 92123.

A review of the environmental documents for all of the projects proposed in the District's designated service area indicated that the proposed project will have cumulative impacts associated with four environmental components which are of regional concern: Biological Resources, Hydrology, Water Quality and Public Health and Safety.

Biological Resources

In San Diego County, riparian habitats are extremely limited, somewhere between 0.2% (5,000 acres) or 0.5% (13,000 acres) of the County's total land area of 2.7 million acres (Wheeler and Fancher 1981). The incremental loss of wetland habitat in association with the prior development has resulted in a cumulative impact to these resources in the Valley Center and North County Metropolitan Community Planning Areas. Continued build-out of the General Plan could incrementally add to this impact. Although in the past, minor intrusions were individually considered insignificant, today it is recognized that the cumulative effect of individual actions has reached a level such that project impact criteria for significance of riparian habitat loss has been reduced to a very low threshold.

Moosa Creek supports riparian habitat in the form of southern willow scrub, disturbed willow riparian/oak riparian woodland mixture and sycamore riparian woodland. Southern willow scrub also occurs within a number of small drainages throughout the study area. The loss of this sensitive habitat associated with the proposed project is limited to a portion of the 0.62-acre forebay site. The proposed location will result in impacts to 0.4 acre of wetland containing a

mixture of disturbed willow/oak riparian habitat. This loss of less than one acre is considered to be a significant impact and recognized as adding to the cumulative impact.

Wetland habitats are protected by CDFG and often these habitats fall under the jurisdiction of the U.S. Army Corps of Engineers (ACOE), especially when major drainages are involved. Construction in wetlands or other sensitive habitats may require state or federal permits or approvals in addition to those required by local jurisdictions. This additional regulatory framework consists mainly of:

- Section 404 of the Clean Water Act
- The Federal Endangered Species Act
- Sections 1600 of the California Fish and Game Code

Project mitigation measures for impacts to these resources which are required by state or federal agencies as a condition of their approval can be integrated into the mitigation measures outlined in the environmental document. A brief summary of each of the environmental regulations listed above is provided below:

Clean Water Act. Section 404 of the Clean Water Act empowers the Army Corps of Engineers (ACOE) to regulate the placement of fill in "territorial waters of the United States," a definition that includes virtually all wetland areas. Fill or effects of fill impacting one acre or less can be allowed, after a pre-discharge notification in instances where a Federal Endangered Species would not be impacted. At the discretion of the ACOE and the Environmental Protection Agency, fill of between one and ten acres may be allowed under a Nationwide Permit. Aggregate impacts exceeding ten acres are automatically subject to an individual Section 404 permit. The U.S. Fish and Wildlife Service (USF&WS) as well as the State wildlife conservation agency are offered the opportunity to comment.

Federal Endangered Species Act. Section 9 of the Federal Endangered Species Act (ESA) prohibits the "take" of an Endangered species. "Take" refers to any action that would harm, harass or kill the species. There are exceptions to the prohibition against take. These are allowed by Sections 7 and 10 of the ESA. For public or private projects that require some level of approval by a federal agency, such as a 404 permit, take of an Endangered species can be allowed if it can be shown that the take involved would not jeopardize the survival of the species. Take is also allowed under Section 10(a) of the ESA if it occurs in association with an otherwise lawful act and a USF&WS-approved Habitat Conservation Plan is in place.

California Fish And Game Code Streamcourse Alteration Agreement. Under Section 1600 of the State Fish and Game Code, the CDFG has authority to reach an agreement with an agency proposing to affect intermittent or permanent streams and other wetlands. The CDFG often accepts mitigation for streamcourse impacts as a product of the Alteration Agreement. Regardless of whether federal action is involved at any one of the stream crossings, the project proponent must apply directly to the CDFG for a 1601 Streambed Alteration Agreement for any proposed wetlands impacts despite the acreage amount affected. The CDFG requires no net loss

of wetland habitat and typically sets forth construction restrictions and mitigation conditions for the granting of the Agreement.

Natural Community Conservation Planning Program. The Natural Community Conservation Planning Program (NCCP) was initiated by the State of California to provide protection and perpetuation of natural wildlife diversity on a regional basis while allowing compatible land use and appropriate development. The primary directive of the planning process is to shift focus from a single species conservation effort to effectively protecting species and habitats on a natural community level.

San Diego County jurisdictions have devised several local plans to protect against the increasing loss of wildlife and native habitats while allowing compatible land use. The programs have been accepted by the state as meeting the requirements of the NCCP. Conservation efforts in the San Diego region have been designed to accelerate planning efforts for protection of species before their listing by a state and/or federal agency is warranted and to provide interconnected open space preserves. Three primary programs within the County have been working jointly to map vegetation and wildlife and to create plans to preserve native habitats.

The increment of cumulative impacts associated with construction of the forebay will be mitigated by a revegetation program to ensure there is no-net-loss of wetland habitat. These impacts, when considered with other future regional projects, will likewise be subject to the same reviews and permits as the forebay construction, and will not result in significant, unmitigable cumulative impacts.

Hydrology

Cumulative impacts to hydrology could occur as a result of filling and construction affecting the mapped floodway and floodplain. Any impacts to the mapped floodway will incrementally contribute to a change in the hydrologic character of the drainage basin. Additionally, portions of HSA 3.12 and HSA 3.13 designated for residential and commercial development will decrease infiltration of rainfall into the aquifer and increase both the amount of and rate of storm water runoff to available drainage facilities. Portions of the forebay construction will alter the 100-year floodplain and floodway in the immediate vicinity of the structure and add to the incremental change in the character of Moosa Creek. Also any new paved area for the Treatment Plant and the forebay itself will incremental increase the impervious surface areas.

All projects within the 100-year floodplain will be subject to the County Flood Control District's drainage and flood control standards. Although major development under the Community Plans could occur within the hydrologic subareas, County Policy #18 of the Conservation Element prevents fill and construction within floodplains except for minor or unique situations. The provision by a special district to provide a water distribution system designed and constructed to economically accommodate future use of reclaimed water can be considered a unique situation. A case for unique circumstances will not generally apply to the types of development

provided for in the Community Plans. Specific mitigation measures for the forebay constructions are being required by the County's Flood Control Division.

The County requires runoff from impervious surfaces be controlled. Major projects must design these facilities to County standards. Although not all future development will be subject to discretionary action and thus these design standards as is the Treatment Plant, some level of regional mitigation will occur. The project itself will be adding a component of regional mitigation by supplying reclaimed water to the golf course for irrigation which will subsequently infiltrate into the aquifer.

Water Quality

Cumulative development, for the purpose of evaluating water quality impacts, will include all approved and planned development within Moosa HSA 3.13. Major portions of HSA 3.13 have been designated for residential and commercial development. Storm water runoff from these areas will discharge to Moosa Creek. Although the amount of runoff and the amounts of urban pollutants that will be discharged to the Creek cannot be quantitatively estimated at this time, the amounts of pollutants likely will be substantial, and will lead to degradation of water quality in the Creek. Existing and new impervious surfaces at the Treatment Plant result in an insignificant level of pollutants but add to the total pollutants within the Moosa Creek drainage. Hidden Meadows currently proposes installation of septic systems. Hidden Meadows sewage disposal along with existing and installation of individual systems as residential and commercial development occurs on existing legal lots could reduce groundwater quality.

With the continuing implementation of non-point source water quality controls for urban development under the CWA, the quality of future surface runoff should generally be better. Overall cumulative water quality impacts to the groundwater basin will be reduced with project implementation because the project produces a higher quality effluent than the existing secondary treatment facility. In addition, the project will mitigate existing significant unmitigable impacts associated with liquid waste management for the adopted Hidden Meadows Specific Plan. Groundwater basin studies have shown there will be a net improvement to water quality in the basin as phased project improvements are implemented. Expansion of the Treatment Plant allows up to 1.0 mgd to be reclaimed for irrigation uses, thus reducing the need to fully or partially rely on potable water.

Public Health and Safety

Additional construction, being planned, and/or reasonably foreseeable without adequate sewerage disposal facilities will affect the public health and safety of the local community. At this time, there are no other known projects in the area that will contribute to the other types of public health and safety issues as specifically identified for the Treatment Plant itself.

Cumulative impacts to public health and safety will actually be reduced in the region as treatment facility upgrades are implemented. Improvements include, but are not limited to:

hazardous materials storage facilities, effluent treatment upgrades to a tertiary level, and sewer service capacity upgrades capable of meeting the exiting and reasonably expected future needs as described in existing planning documents.

V. ALTERNATIVES TO THE PROPOSED PROJECT

As required by CEQA, an EIR must describe a range of reasonable alternatives to the proposed project, or to its location, that can feasibly attain the project's basic objectives. The "No Action" and "No Project" Alternatives are also discussed. With respect to the proposed project, the objectives are to provide sewer treatment service to residences and commercial users within the District's service area boundary, while producing and making available reclaimed water to irrigate the golf courses. To this end, a total of seven alternatives were considered in addition to the Proposed Project. These include the No Project, No Action, Reduced Project, Lined Percolation Pond Modification to Replace Forebay at Treatment Plant Site, and Hidden Meadows Location Alternatives plus two additional alternatives which address different scenarios for the management of the affected hydrologic subareas. The last three alternatives were rejected.

A. No Action Alternative

Under this alternative no additional improvements or expansion of the Lower Moosa Canyon Wastewater Reclamation Facility, percolation ponds site, and pipelines will occur. Assessment Districts will not be established and small isolated areas of contiguous land will not be included within the Valley Center Municipal Water District boundaries. All short-term environmental impacts associated with construction activities will be eliminated, and existing environmental conditions will remain unaffected.

This alternative will severely limit the Valley Center Municipal Water District in its ability to provide adequate sewer service to already approved land uses in the area. Existing treatment capacity at the plant is limited to 0.25 mgd because of solids handling constraints despite an approved operating capacity of 0.5 mgd. The District is currently providing service to 1,720 edus with projected service capacity requirements in excess of 344,000 gpd. Additional sewer service contracts increase the District's service obligation to 2,657 edus. Based on this, ultimate flows to the Moosa Plant will exceed 0.5 millon gallons per day ($\pm$530,000 gpd). This need is based only on existing fully and partially paid commitments. It does not consider future service requirements, including capacity to serve the 1,143 edus that have submitted service requests and been assessed for preliminary expenses or future edus that will result from approved land uses. Projected service needs require upgrades to the existing plant to provide full California State Health Department Title 22 tertiary level treatment once flows exceed 0.44 mgd and to provide seasonal storage when flows exceed 0.63 mgd.

The No Action Alternative will severely limit the District's goal to provide for reclaimed water, in order to maximize the conservation and efficient use of imported water sources. It will hinder the goals of the District's reclamation program and limit their ability to meet to overall goals of the State Department of Water Resources, the Metropolitan Water District of Southern California, San Diego County Water Authority, and County of San Diego Conservation Element Policies to increasing the production and use of reclaimed water and reduce the region's reliance on imported water. The No Action Alternative will impede development of reclaimed water

sources and use for those activities that are not dependent on potable water, such as golf course irrigation. The Castle Creek and Lawrence Welk Golf Courses are important recreational and visual focal points in their communities. Both courses currently have rights to District potable water supplies for their irrigation needs if use of groundwater becomes infeasible due to costs or availability. Given the likelihood of future drought conditions in California, as well as southern California's general dependency on imported water, irrigation of these golf courses with potable water could be severely limited or forbidden in the future. The proposed reclamation facility expansion will reduce the need for continued reliance on imported water for irrigation. Without reclamation facilities, both the need for sewer service and the need for production and beneficial use of reclaimed water will be severely affected.

The No Action Alternative does not realize the needs of the District to provide sewer service to approved and future development, to improve current operations, to protect health and safety by meeting Title 22 requirements, or to provide reclaimed water.

B. No Project Alternative

Under the No Project Alternative, allowed expansion of the Treatment Plant will be limited by conditions of the existing Major Use Permit (MUP) and will therefore not meet the needs of the District to provide for existing service commitments.

The No Project Alternative will allow capacity expansion of up to a maximum of 0.5 mgd. This will provide service to a majority of the existing fully paid commitments but existing partially paid commitments will not be fully served. Future connections for partially paid commitments will be provided on a first come first serve basis within the designated service area until plant capacity is reached. New requests for capacity which are currently known or anticipated under the existing land use and zoning ordinance will not be accommodated.

The No Project Alternative precludes construction of the forebay and will therefore avoid wetland/biological impacts in the southeast portion of the project site. However, other actions which do not have any identified significant impact will also not be allowed. A reclaimed water distribution system will not be installed. District boundaries will not be adjusted to include small areas of contiguous land. Assessment Districts will not be established to fund the allowable improvements.

Some facility improvements could be accomplished but the Treatment Plant will not be able to provide enough capacity to meet the calculated service area needs. Hydrologic subarea constraints require flows which exceed 0.44 mgd to receive additional disinfection and filtration (tertiary treatment) prior to transport to the percolation ponds and thus require construction of facilities not allowed under the existing major use permit.

As with the No Action Alternative, selection of this alternative will severely limit the District's ability to meet existing and projected community sewer treatment requirements and reclaimed water production goals.

C. Pond Modification to Eliminate Forebay at Treatment Plant Site Alternative

Other than providing seasonal storage capacity in Phase II rather than Phase III, this alternative is the same as the Proposed Project in many respects. It allows facility expansion within the existing treatment plant site, provides sewer and reclaimed water distribution lines, and allows the lining of the percolation ponds to provide seasonal water storage.

The distribution of reclaimed water is a primary objective of the project which can not be accomplished without a short-term storage reservoir or forebay. The forebay is required to contain reclaimed water prior to irrigation of the Castle Creek and Lawrence Welk Resort Golf Courses. Selection of this alternative will require storage at an alternative location. The most feasible alternative relocates the forebay function to the percolation pond site on Camino del Rio. One of the existing percolation ponds is already scheduled to be lined in Phase III to function as a seasonal storage holding pond to allow the Treatment Plant to increase its capacity to a maximum of 0.75 mgd. Lining of the pond in Phase II will provide more than adequate temporary storage capacity to meet the anticipated irrigation needs of both golf courses.

This alternative requires that the schedule for lining of the pond be advanced from Phase III to Phase II, accelerates costs associated with lining of the ponds, and increases Phase II storage capacity above minimum requirements as outlined in the engineering design report. Engineering design of this alternative is not complete, but preliminary analysis indicates that this alternative decreases distribution efficiency and results in a substantially higher energy consumption rate and cost due to the need to pump irrigation water over a greater distance than would be required with implementation of the Proposed Project. Reclaimed water will have to be pumped from the storage reservoir, along Camino del Rey and Old Highway 395, to the Treatment Plant for distribution to the golf courses. Higher pressure heads will be required to move the reclaimed water. Replacement of existing reclaimed water distribution lines may be necessary if high pressure pumping requirements exceed existing line strength along the portion of the line used to transport reclaimed water both to the Camino del Rey reservoir and back to the Treatment Plant prior to irrigation use. Higher pressure flows may result in greater flooding or roadway erosion in the event of a line rupture. Elimination of the forebay may also result in distribution problems which could arise if reclaimed water distribution can not be accommodated within specified time constraints.

Biological resources and hydrology impacts related to construction of the forebay in the area immediately south of the existing Treatment Plant, will be avoided in the floodway and floodplain areas which contain wetlands with willow/oak riparian habitat. Modification of an existing intermittent blueline stream channel will not be required and coordination with the ACOE and CDFG will not be necessary since impacts will be avoided. Significant impacts to biological resources and hydrology are avoided with selection of this alternative.

D. Reduced Project Alternative (Maximum 0.75 mgd)

Selection of this alternative allows construction of phases I through III of the Proposed Project. This phase eliminates the need to pursue future approvals for live stream discharge but there is little difference in facility requirements necessary to treat flow rates between 0.75 mgd and 1.0 mgd. For example, selection of this alternative eliminates the need for one of the new Return Activated Sludge pumps and additional ultraviolet disinfection equipment to accommodate flows up to 1.0 mgd. All other treatment plant, pipeline and storage reservoir improvements are provided in earlier phases. The Reduced Project Alternative allows the District to expand plant capacity to include tertiary treatment facilities capable of treating a maximum of 0.75 mgd, the minimum capacity required to serve all existing users, paid and partially paid commitments, and those who have already requested capacity. This alternative eliminates the 1,200 edu capacity that would become available with implementation of Phase IV and will not meet additional demand that will be generated by development as allowed by existing land use designations and zoning. Storage capacity will be provided at the existing percolation pond location on Camino del Rey for flows above 0.63 mgd as with the proposed project. Reclaimed water will be available for golf course irrigation.

E. Alternatives Considered But Rejected

Hidden Meadows Treatment Facility. The District prepared a report in 1990 which evaluated the placement of a water reclamation plant in the Hidden Meadows community. Plans were subsequently abandoned in response to a combination of factors which included lack of community support and the need to construct additional sludge dewatering facilities at the Moosa Canyon treatment plant site to support treatment processes initiated at the Hidden Meadows site.

No Groundwater Extraction Alternative Basin Management Plan. The *Groundwater Management Plan for the Lower Moosa Canyon Water Basin* was submitted to the San Diego Regional Water Quality Control Board in March 1995 by the Valley Center Municipal Water District. The report, prepared by Barrett Consulting Group, concludes that, without groundwater extraction, a maximum of only 0.44 mgd of secondary effluent can be discharged to the existing percolation ponds without affecting the quality of groundwater extracted from existing downgradient domestic wells. The District can not meet future service area requirements under these conditions. The No Groundwater Extraction Alternative Basin Management Plan was rejected because it will not provide the necessary treatment capacity to process the required volume of flows which are expected to result from existing and new service commitments.

100% Percolation of Secondary Treated Effluent with Groundwater Extraction for Reclaimed Water Use Alternative Basin Management Plan. A second disposal/reuse option was considered by the District. This option provides for the percolation of 100% of the plant effluent (treated to secondary level) and withdrawal of groundwater from the Lower Moosa Basin for landscape irrigation. Direct discharge to percolation ponds and groundwater withdrawal was planned to occur during a nine month period to meet irrigation demands during

the months with least precipitation and to create an overdraft condition in the groundwater basin underlying the percolation ponds to accommodate discharges of up to 1.0 mgd during the three winter months. Subsequent evaluations concluded that this alternative was viable only for discharges up to 0.66 mgd (*Groundwater Management Plan for the Lower Moosa Canyon Water Basin* March 15, 1995). Future District service requirements are in excess of this volume and the option was rejected.

VI. ENVIRONMENTALLY PREFERRED ALTERNATIVE

The environmentally preferred alternative is the Pond Modification to Eliminate Forebay at Treatment Plant Site Alternative. This alternative provides for future service needs identified by the District by allowing treatment plant expansion and upgrades which will improve plant safety and efficiency. This alternative provides facility improvements to treat effluent to a tertiary level in order to protect the hydrologic subarea and provides facilities for the distribution of reclaimed water to local golf courses in order to reduce potable water use.

This alternative is environmentally preferred because it eliminates significant biological impacts to wetlands containing disturbed willow/oak riparian woodland habitat and impacts to the 100-year floodway. Elimination of floodway impacts reduces significant hydrology impacts to a less than significant level.

However, this is not the proposed project because selection of this alternative does not provide a holding facility at the Treatment Plant prior to reclaimed water distribution to golf courses. As a result, a percentage of water must be transported a greater distance from the percolation ponds and will not result in the same level of efficiency that would otherwise be achieved. Longer transport distances result in an increase to energy costs. Required higher pressure heads may mandate replacement of the existing lines currently planned for transportation of reclaimed water. Also there will be greater flooding and roadway erosion in the event of a pipeline rupture due to increased quantities of flows.

VII. THE RELATIONSHIP BETWEEN LOCAL SHORT-TERM USES OF MAN'S ENVIRONMENT AND THE MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY

This section addresses the long-term effects of the proposed project on the environment, and associated impacts that may narrow the range of beneficial uses of the environment, or pose long-term health and safety risks to local residents.

Implementation of the proposed project will have an effect on the long-term productivity of the environment. Expansion of the water reclamation plant will be no more disruptive to the environment than planned residential development. In fact, the water reclamation plant will be a beneficial use as it will help to reduce the area's dependency on imported water.

San Diego County and Southern California as a whole are arid and have been experiencing drought conditions for the last four years. The San Diego area is more dependent on imported water than the southern California average. About 90 percent of the water used in the SDCWA service area is imported during normal years and about 95 percent is imported during dry years. Developing wastewater reclamation facilities provides the opportunity to conserve potable water for those uses that require it. Until recently, reclamation of wastewater for practical uses was considered too expensive and potentially hazardous to the environment and public health. Today, however, wastewater reclamation is considered to be a viable alternative source of low-cost, non-potable water. The SDCWA, of which the District is a member agency, has set goals to increase the production and use of reclaimed water.

Expansion of the Lower Moosa Canyon Treatment Plant will reduce the area's imported water consumption and maximize the use of existing resources thereby contributing to the attainment of regional reclaimed water goals. Water reclaimed at the plant will be used to irrigate the Castle Creek and Welk golf courses.

VIII. EFFECTS FOUND NOT TO BE SIGNIFICANT

Environmental analysis for the proposed project focused on the issues of Biological Resources, Land Use, Visual Aesthetics, Odor, Public Health and Safety, Water Quality, Hydrology, Cultural Resources, Energy and Growth Inducement. This analysis found that significant impacts associated with the proposed project could occur to biological resources, odor, and hydrology. Significant impacts will be reduced to a level of insignificance with the implementation of recommended mitigation measures. For a complete analysis of the aforementioned issues, please refer to the appropriate section of this EIR. This section briefly discusses additional issues which were considered but dismissed upon initial review by the District and BFMA.

Noise

Pumps, agitators, blowers and other machinery associated with the proposed project are potential sources of noise. The project design reduces noise levels by placing potential sources of noise either indoors, within soundproof containers, or under water. The emergency generator will be equipped with an exhaust muffler. A minimum amount of operations-related traffic will be generated by the project and associated noise impacts are considered less than significant. As with existing facilities the proposed project will include or replace the same types of equipment already in operation. There will no change in the circumstances within which the existing system operations occur today and operations will continue to comply with Section 36.404 (Sound Level Limits) of the County Code of Regulatory Ordinances dated 3-25-86. Further analysis was deemed unnecessary as a consequence.

Traffic

Traffic volumes generated by the expanded reclamation plant and pump stations will not significantly impact existing circulation in the project vicinity.

Vector Control

Vector (pest) control is a common concern associated with reclamation plants. Flies and other insects may breed in exposed organic material that has not been stabilized. The project incorporates several features designed to reduce or eliminate potential breeding areas for pests. Project design includes the installation of a centrifuge for sludge dewatering and a new sludge handling building for the collection and storage of sludge until hauled away for disposal. Existing sludge drying basins will only be utilized as a back-up during brief periods when the centrifuge may require maintenance or repairs. Covers incorporated into the project design will also serve to control insect breeding. Standard housekeeping practices, including daily washing of areas where particles of unstable organic material may accumulate, also aide in the control of insects.

Lining of one of three existing percolation ponds will occur in Phase III of the project in order to provide seasonal storage capacity for tertiary treated effluent. Mosquito breeding areas will be controlled by (1) lining the pond with a hypalon liner to prevent vegetative growth along the bank, (2) existing natural wind patterns which sufficiently agitate the pond surface to prevent development of breeding areas, and (3) standard maintenance of the facility, such as maintaining adequate water depth and regularly cleaning the edges of the pond. The project reduces or eliminates potential breeding areas for pests. Further analysis is not required.

IX. REFERENCES

Barrett Consulting Group

1993 *Final Engineering Report for the Lower Moosa Canyon Water Reclamation Facility.*

1994 *Evaluation of Effluent Management Strategies for the Lower Moosa Canyon Water Reclamation Facility, Technical Memorandum No. 1*; prepared for Valley Center Municipal Water District.

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1994 *Special Animals.* Natural Diversity Data Base. August.

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California Water Resources Control Board

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X. COMMENTS AND RESPONSES TO COMMENTS

The Draft Environmental Impact Report for the Lower Moosa Canyon Water Reclamation Facility Expansion was circulated for public review from May 9, 1996 through June 25, 1996. A notice advertising availability of the report and opportunity to provide comments along with notice of Board of Directors meeting on August 5, 1996 was published in the Valley Roadrunner on Wednesday, May 8,1996. As a result, eight letters of comment were received. These comments have been considered, and responses are made within this Section following copies of all the letters. The California Environmental Quality Act (CEQA) Guidelines, Section 15204 (a) provides that in evaluating the accuracy of draft EIRs, the reviewer should focus on the sufficiency of the document in identifying and analyzing the possible impacts on the environment and ways in which the significant effects of the project might be avoided or mitigated. Comments were evaluated for their helpfulness in suggesting additional specific alternatives or mitigation measures that would provide better ways to avoid or mitigated the significant environmental effects as intended by the Guidelines.

A. Letters of Comment

The following letters were received from San Diego Local Agency Formation Commission, Hidden Meadows Community Sponsor Group, San Diego County Archaeological Society, City of Escondido, N. John Koda, County of San Diego Department of Planning and Land Use, Circle R Homeowners' Association No. 1, Inc. and County of San Diego Department of Public Works.

LAFCO
San Diego Local Agency Formation Commission

1600 Pacific Highway • Room 452
San Diego, CA 92101 • (619) 531-5400

May 29, 1996

Brian F. Mooney
Brian F. Mooney Associates
9903-B Businesspark Avenue
San Diego, CA 92131

SUBJECT: Draft Environmental Impact Report and Public Comment Opportunities for the Lower Moosa Canyon Water Reclamation Facility Expansion

Dear Mr. Mooney:

Thank you for the opportunity to review the above-referenced Draft Environmental Impact Report (EIR). A copy of LAFCO's response to the Notice of Preparation is contained within the Draft EIR's Appendices, and the recommendations have been incorporated into the document. Since the possible annexation of territory to the Valley Center Municipal Water District (MWD) has been identified in the project description and included in the list of discretionary actions, LAFCO has no further comments regarding this project.

If we may be of any further assistance, please contact me at 531-5400.

Sincerely,

Ingrid Hansen

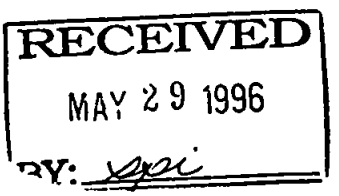
INGRID HANSEN
Local Governmental Analyst

IEH:hm

HIDDEN MEADOWS COMMUNITY SPONSOR GROUP

Advisory Group to the San Diego County Board of Supervisors
Mailing Address: 10320 Meadow Glen Way East
Escondido CA 92926-6917
Telephone: (619) 749-6884, Fax: 749-8359

May 24, 1996



Sonja Itson
Brian F. Mooney Associates
9903-B Businesspark Avenue
San Diego, CA 92131-11220

Dear Ms. Itson,

At the May 23 meeting of the Hidden Meadows Community Sponsor Group, the DEIR for the Lower Moosa Canyon Water Reclamation Facility Expansion was thoroughly discussed.

The following motion carried unanimously:

It was moved that the secretary send a letter approving the project providing that every reasonable effort is made to control emission of odors, since our concern is for the Circle R area which is down wind.

Thank you for your work on this project and attention to the request in our motion.

Cordially,

Caryl W. Krueger
Secretary

San Diego County Archaeological Society

Environmental Review Committee

June 12, 1996

RECEIVED
JUN 14 1996
BY: sps

To: Ms. Sonja Itson
Director of Environmental Services
Brian F. Mooney Associates
9903-B Businesspark Avenue
San Diego, California 92131-1120

Subject: Draft Environmental Impact Report
Lower Moosa Canyon Water Reclamation Facility Expansion

Dear Ms. Itson:

I have reviewed the cultural resources aspects of the subject DEIR on behalf of this committee of the San Diego County Archaeological Society.

Based on the information contained in the DEIR and its Appendix F, We concur in the impact analysis and mitigation recommendations presented.

Thank you for including SDCAS in thee District's environmental review process for this project.

Sincerely,

James W. Royle, Jr., Chairperson
Environmental Review Committee

cc: SDCAS President
file

CITY OF
ESCONDIDO
201 NORTH BROADWAY
ESCONDIDO, CA 92025

Charles D. Grimm
Director of Planning and Building
Planning Division
(619) 741-4671, FAX (619) 738-4313

June 18, 1996

RECEIVED
JUN 19 1996
BY:

Sonja Itson, Director of Environmental Services
Brian F. Mooney Associates
9903-B Businesspark Avenue
San Diego, California 92131-1120

Re: Comments on the Lower Moosa Canyon Water Reclamation Facility Draft EIR.

Dear Ms. Itson:

The City of Escondido appreciates the opportunity to comment on the above referenced project. Approximately 1,000 acres of the Valley Center Municipal Water Service Area are located within Escondido's General Plan and Sphere of Influence. In the EIR's evaluation of the proposed project, the following text is recommended for inclusion:

Land Use (page 57):
This section should include a discussion of Escondido's General Plan and Waste Water Master Plan for the area overlapped by the Valley Center Municipal Water Service District. The City's General Plan for this area is designated Estate I adjacent to the freeway, which calls for single family residential development on 1, 2, 4, and 20 acres, and Rural I which calls for single family residential development on 4, 8, and 20 acres depending on topography. This does not conform with the County's Land Use Plan which includes commercial uses along the I-15 corridor. Under the City's General Plan and Waste Water Master Plan, this area would not be extended sewer service due to the low intensity type of development. Included with this letter is a copy of the City's General Plan Map and corresponding text relating to the Estate I and Rural I designations.

Water Quality: 2. Regulations, Plans, and Policies (page 89):
The City's Waste Water Master Plan identifies a proposed force main and sewer improvements further south along Centre City Parkway and North Broadway which should be referenced in the EIR. Included is a graphic from the Waste Water Master Plan corresponding to the area within the Valley Center MWD illustrating proposed improvements. The EIR should also include an analysis of the project based on the following Water Quality Policy from Escondido's General Plan which affect the southern portions of the District Service Area:

Water Policy I2.6: Escondido's shallow groundwater basin shall be protected from contamination. All federal, state and local regulations relating to monitoring underground storage tanks containing hazardous materials and septic tank systems be implemented in a timely fashion. Development in significant groundwater recharge areas (i.e., areas where substantial surface water infiltrates into the ground water) shall be carefully regulated.

Thank you again for the opportunity to comment on this project. If you have any questions regarding this letter, please contact me at 432 - 4556.

Sincerely,

Jay Petrek
Senior Planner

enclosures

c: B. Redlitz, Principal Planner
P. Thomas, Assistant City Engineer

letters\moosa.doc

Land Use Policy B1.9: Residential categories are established for purposes of providing the City with a range of building intensities to address various site constraints and opportunities. Proposed development shall not exceed the densities shown on the Land Use Plan and outlined in this document as follows:

(a) **RURAL.** This residential classification is applied to areas that are not intended to receive substantial urban services; that are distant from the developed valley floor; or that are steep (generally over 25% in slope) or contain sensitive natural resources. Development in this classification is primarily detached single-family development on large (over two acres) lots, the size of which shall vary with slope. Water supply may be from individual wells or public water systems. Septic systems may be permitted provided that they meet local health standards and do not adversely affect the groundwater. Two different classes of Rural designations are defined: Rural I and Rural II.

(1) Rural I—To promote a rural living environment in areas of agricultural production, rugged terrain, environmentally constrained lands that are remote from urban development.

a) The maximum development yield of Rural I lands shall be sensiti ve to topography and be calculated according to the following slope categories:

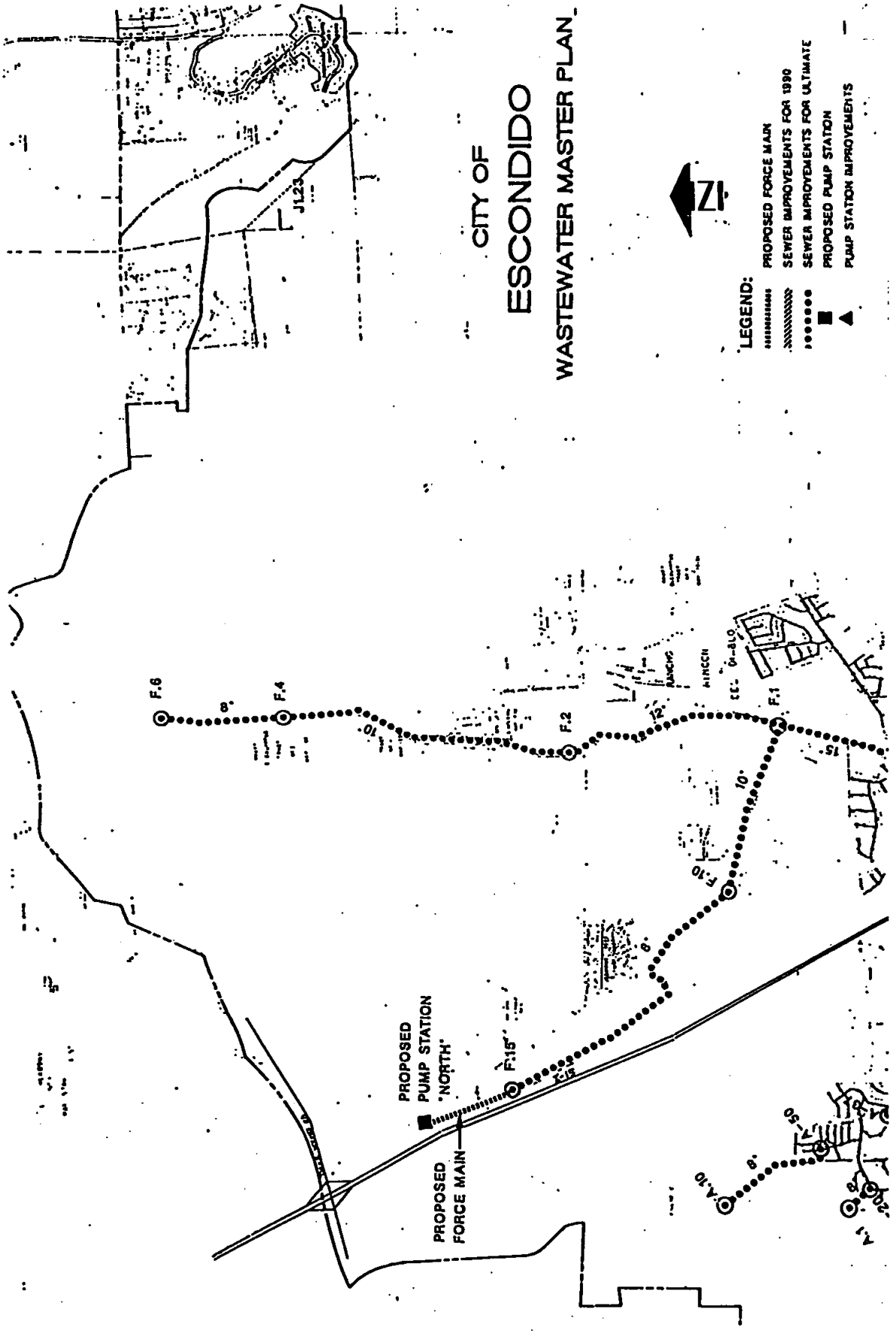
0-25%:	1 dwelling unit per 4 acres
25-35%:	1 dwelling unit per 8 acres
35+%:	1 dwelling unit per 20 acres

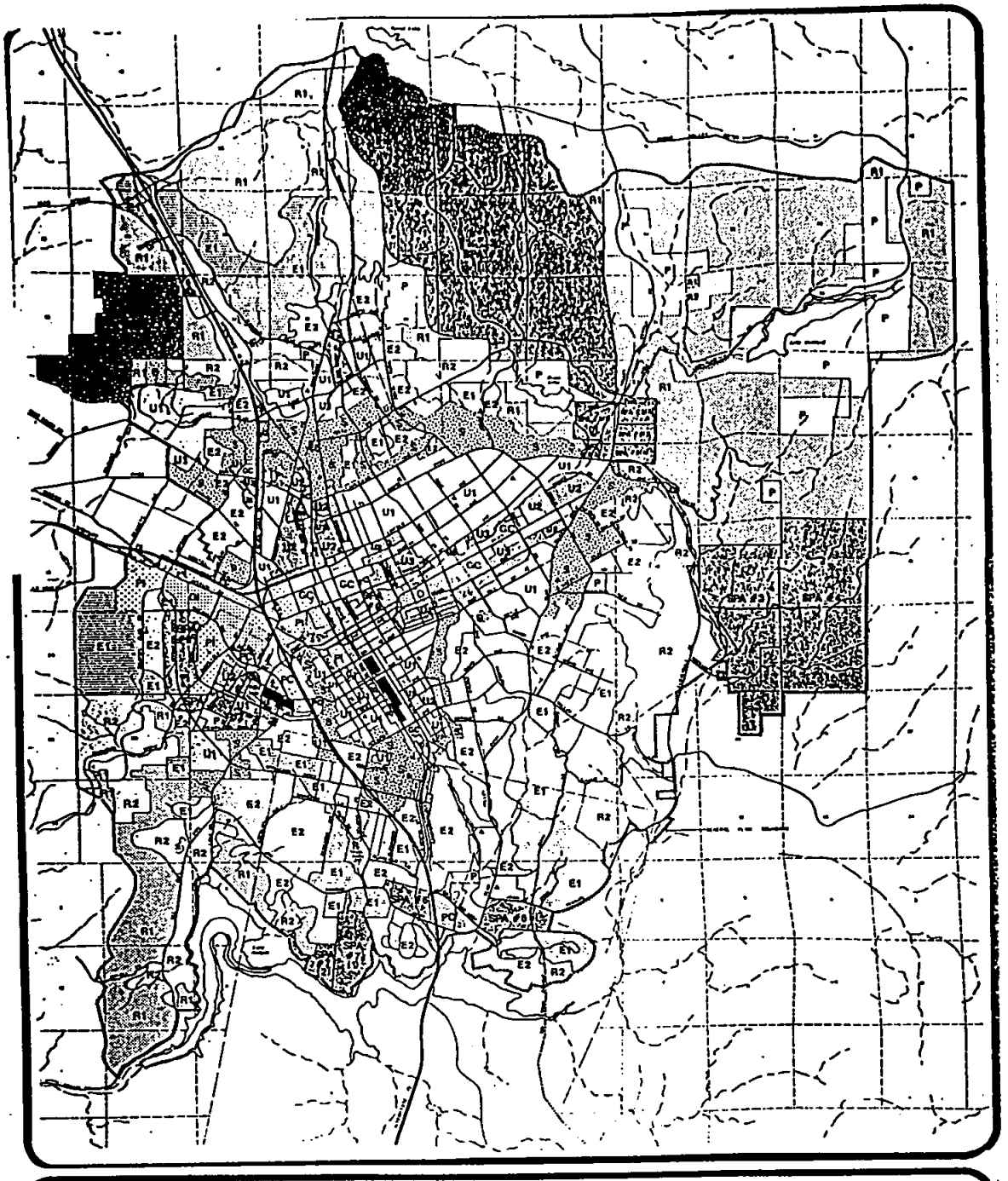
b) The minimum lot size shall be 4 acres, unless the development is clustered in accordance with the cluster provisions in Chapter VII, Implementation.

(2) Rural II—To promote a rural living environment in areas of agricultural production or rugged terrain that are relatively remote urban development.

a) The maximum development yield of Rural II lands shall be sensitive to topography and be calculated according to the following slope categories:

0-25%:	1 dwelling unit per 2 acres
25-35%:	1 dwelling unit per 4 acres
35+%:	1 dwelling unit per 20 acres


CITY OF
ESCONDIDO
WASTEWATER MASTER PLAN
LEGEND:
PROPOSED FORCE MAIN
SEWER IMPROVEMENTS FOR 1990
SEWER IMPROVEMENTS FOR ULTIMATE
PROPOSED PUMP STATION
PUMP STATION IMPROVEMENTS
J123
F.6
F.4
F.2
F.1
F.10
F.15
A.10
PROPOSED
PUMP STATION
"NORTH"
PROPOSED
FORCE MAIN



Public Lands/Parks
Rural I
Rural II
Estate I
Estate II
Suburban
Urban I
Urban II
Urban III
Urban IV
Specific Planning Area
School Site
Planned Commercial
General Commercial
Office
Planned Industrial
General Industrial
Planned Commercial/ Mixed Use

NOTE:
Environmentally constrained or sensitive lands (i.e. natural floodways, steep slopes, stream courses, etc.) may substantially reduce densities and maximum development potentials. The General Plan Text should be consulted in determining the ultimate development potential for individual properties.

CITY OF ESCONDIDO GENERAL PLAN

May 25, 1996

RECEIVED
MAY 29 1996
BY: xpi

Brian F Mooney Associates
9903-B Businesspark Avenue
San Diego, California 92131-1120

Attn: Sonja Itson:

This is in reference to your plans to enlarge the capacity of the Lower Moosa Canyon facility. We have a home within one block of the facility and during the last two summers since we moved here, we have smelled the sewage several times during the summer. Each time, it would last for a few days. My questions are: 1. Why can't the smell be controlled during the summer months if it can be controlled during the rest of the year? 2. With the capacity to be increased four times, are we to expect an increase in the odor? 3. If not, how is control going to be achieved? Would the technique be better than the Carlsbad facility?

Thank you for listening to my concerns. We are hoping for pleasant summer evenings on the patio.

Yours truly,

N. John Koda

N. John Koda

County of San Diego

GARY L. PRYOR
DIRECTOR
(619) 694-2962

DEPARTMENT OF PLANNING AND LAND USE

5201 RUFFIN ROAD, SUITE B, SAN DIEGO, CALIFORNIA 92123-1666
INFORMATION (619) 694-2960

June 20, 1996

Mr. Brian F. Mooney
Brian F. Mooney and Associates
9903-B Businesspark Avenue
San Diego Ca. 92131

SUBJECT: Environmental Comments, VCMWD Moosa Canyon Treatment Plant, Draft Environmental Impact Report, P73-018W1, Log No. 96-2-7

Dear Mr. Mooney:

The Department of Planning and Land Use has completed it's review of the second draft Environmental Impact Report (dEIR) dated May 1996 for the Lower Moosa Canyon Water Reclamation Facility Expansion. The review is focused on the reclamation facility (Permit P73-018W1). Review of the dEIR in regard to the installation of pipelines, and modification of the infiltration ponds is not included within this letter.

The following issues are not adequately addressed and will need revision before the dEIR can be found acceptable by the County for a Major Use Permit Modification.

BIOLOGY

1. Mitigation Measure #1. This measure should specifically state that the biologist is monitoring the area of impact and the quality of habitat to be impacted. Additionally, the measure should state that any loss of sensitive habitat shall be mitigated by revegetation.

   The location for the proposed revegetation is not identified and should be before the measure can be found to be acceptable. Will the mitigation/revegetation occur on-site or off-site?

2. Mitigation Measures #2, #3 and #4. These measures should specify the intent of the proposed monitoring and what action will occur if sensitive species are found or significant impacts to wetlands are identified. As stated, the measure requires monitoring but no action to mitigate impacts is identified if significant impacts are found. For this reason, these measures are not adequate.

3. Mitigation Measure #5. Wording should be added to clarify if noise impacts are from construction or from the operation of the facility. The Department believes that the proposed mitigation is ambiguous and should be specifically defined.

4. Mitigation Measure #8. This measure should include specific remedial action that will occur if erosion control techniques are not effective or if construction intrudes into sensitive habitats. Additionally, the measure should clarify how often the biologist will monitor the construction site.

GROWTH INDUCEMENT

It is clear that the proposed project is growth inducing. In fact CEQA Section 15126 g uses a waste water treatment plant as an example of a project which would allow for more construction i.e. is growth inducing. Also CEQA identifies projects which will remove obstacles to population growth as growth inducing. Thus the dEIR must comply with CEQA 15126 g. The current draft does not comply with these requirements.

CEQA requires that the discussion on growth inducement include project impacts which could foster economic or population growth (Pub. Res. Code 21100: 14 Cal. Code Regs. 15126 (g). Specificly CEQA states DISCUSS THE WAYS IN WHICH THE PROPOSED PROJECT COULD FOSTER ECONOMIC OR POPULATION GROWTH, OR THE CONSTRUCTION OF ADDITIONAL HOUSING, EITHER DIRECTLY OR INDIRECTLY, IN THE SURROUNDING ENVIRONMENT 15126 g. The general approach in the current dEIR is to state that since the project is phased, the plant will not increase pressure to develop at a faster rate or higher density than allowed by the existing General Plan page 99 paragraph 2. The entire discussion within the dEIR appears to pass the responsibility onto the County General Plan. Another example is the concluding paragraph on page 102 IN CONCLUSION, UNDER THE CURRENT PLANNING POLICIES OF THE COUNTY, THE PROJECT'S DESIGN CAPACITY IS REFLECTIVE OF EXISTING AND FORECASTED DEMAND. This approach does not comply with CEQA requirements.

In Antioch v. Pittsburg (1986) 187 Cal. App. 3d 1325 it is given that an EIR on planning actions need not describe in detail each and every conceivable development scenario however it must analyze the impacts in relation to the most probable development pattern. The current dEIR has not completed this requirement and should be changed to comply with these requirements.

Also the following comment was made in the letter, Asher to Mooney 4/29/96 and still have not been answered.

> 22. Page 10 The project is composed of four phases. Each phase will increase the capacity of the facility in successive steps. However on page 10 it is stated that phase 2 improvements may not occur for 10 years or more. In that case how long will it be until phase 3 or 4 improvements are completed? This raises the question of why such a long

development, paid commitments, reasonably expected future commitments, and other development which could occur within the service area ... If phase two might not be needed for 10 or more years it raises the question on the need for phases 3 and 4. Also on page 86 the statement is made that Proposed improvements providing a 1 mgd capacity are appropriate given the anticipated need. This should be explained in light of the above discussion.

Overall this section may not compare the growth inducing affects of the project to the County General Plan. This approach is Plan-to-Plan vs Plan-to-Ground and the section should reflect this. The approach and review in this section should be:

1) The characteristics of the project which may encourage and facilitate other activities that could significantly affect the environment, either individual or cumulatively must be addressed.

2) It must not be assumed that growth in any area is necessarily a beneficial or detrimental effect on the environment.

3) The effects of the growth on environmental resources, including effects on existing community services facilities must be discussed,

4) Any significant effects associated with the growth inducing properties of the project should be discussed and treated in the same manner as significant cumulative effects. If the effects associated with growth are significant then mitigation measures and/or a project alternatives must be provided to reduce or avoid these effects.

It is recognized that the growth inducing impacts of the project will likely be of a subregional nature. Also these impacts will be likely difficult to quantify. If in fact the impacts can not be quantified then this should be stated within the EIR and then discussed. Also if the impacts are found to be speculative in nature then just state that finding.

If you have any questions regarding this review please contact John Peterson at 694-3820.

Sincerely,

Robert E. Asher

Robert Asher, Chief
Resource Planning

cc: Lory Nagem, Staff Biologist
John Peterson, Groundwater Geologist
Eric Gibson, Environmental Coordinator
Wally Grabbe Project Engineer, Valley Center Municipal Water District
David Lassaline, Project Planner

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3

CIRCLE R HOMEOWNERS' ASSOCIATION NO. 1, INC.

A California Non-Profit Mutual Benefit Corporation
1747 S. Escondido Blvd.
Escondido, CA 92025
(619) 747-1001 Fax (619) 739-1183

June 20, 1996

Sonja Itson, Director of Environmental Services
Brian F. Mooney Associates
9903-B Businesspark Avenue
San Diego, CA 92131-1120

Re: DRAFT ENVIRONMENTAL IMPACT REPORT;
LOWER MOOSA CANYON WATER RECLAMATION FACILITY EXPANSION

Dear Ms. Itson:

This letter is written in response to the above subject and covers our concerns.

Major Use Permit: It is our recommendation that the County of San Diego not give approval for the modification of the existing Major Use Permit for the purpose of the subject facility expansion.

I. The original Major Use Permit was given in 1973 and now is out of date because 66 private homes have been built adjacent to the Moosa Canyon facility. In fact, the property of the Homeowners borders the facility. Any changes could have a direct impact on the resident's environment, health, and property values. Also, an additional 88 homes were built and occupied in the adjacent Castle Creek Golf Course area.

II. "Portions of the forebay construction will alter the 100-year flood plain and floodway", as stated on page 106 of the Draft Environmental Impact Report, is a cause for concern to the adjacent property owners at Circle R Homeowners Association. There are no specifics given clarifying what the changes will be and therefore, this change appears to be a major impact that should receive more attention.

III. The expansion is not in the footprint of the 1973 M.U.P. As stated on Page 58 of the Draft EIR, "With the exception of the forebay, all expansion will be within the existing disturbed Plant boundaries covered by the Major Use Permit." Because the forebay will be located on an adjacent parcel zoned S-80, it is not part of the 1973 Major Use Permit. We therefore feel, a new Major Use Permit is required.

Visual/Aesthetics

Exception is taken to the following statement on page 73 of the Draft E.I.R., "The site is well screened by existing landscaping, fencing and topography." Pictures do not tell the whole story, to the naked eye the plant is visible from Vantage Point 2 (Figure 9) and will be much more visible after the proposed new construction. Vantage Point 1 (Figure 9), which is where houses are located, views a large exposed area of the existing plant. There is no photo from the sidewalk along Circle R Drive (Northern border of the plant) where the plant is thoroughly exposed to walkers and vehicle passengers.

More trees and bushes are needed, as well as the fences to further reduce the significant visual impact of the sewer plant.

Odor

It is noted that the Draft E.I.R. states that the treatment plant typically receives two or three formal complaints per year. I refer you to a letter sent to various residents of the Circle R Homeowners Association from Wally Grabbe, Project Engineer, dated 8/11/95, where it is stated, "As a result of your phone calls and comments, we are very much aware of your concerns relating to recent plant odors." This certainly comes from more than two or three calls in one year.

V.C.M.W.D. has made efforts to reduce/control odors, but they still do occur. Increasing the flow of sewage four-fold will increase the probability of more odor problems accordingly in the future. There is no guarantee that we, as your neighbors, will not suffer.

We respectfully submit our concerns for your consideration.

Sincerely,

Mark Acevedo, President
Circle R Homeowners Association #1

cc: Board

moosaltr.96

County of San Diego

TOM GARIBAY
DIRECTOR
(619) 694-2212
FAX (619) 563-0461
LOCATION CODE 550

DEPARTMENT OF PUBLIC WORKS
5555 OVERLAND AVE, SAN DIEGO, CALIFORNIA 92123-1295

COUNTY ENGINEER
COUNTY AIRPORTS
COUNTY ROAD COMMISSIONER
TRANSIT SERVICES
COUNTY SURVEYOR
FLOOD CONTROL
WASTEWATER MANAGEMENT
SOLID WASTE

June 26, 1996

Mr. Wally Grabbe, P.E.
Project Engineer
Valley Center Municipal
Water District
P.O. Box 67
Valley Center, CA 92082

Dear Mr. Grabbe:

DRAFT ENVIRONMENTAL IMPACT REPORT FOR THE LOWER MOOSA CANYON WATER RECLAMATION FACILITY EXPANSION SCH #95121009 MUP #73-18W[1]

The County of San Diego is a Responsible Agency as referenced in the Draft EIR for this project. The following issues will have to be addressed in the Environmental Analysis Section of the Draft EIR before the project can be considered adequate under CEQA.

Traffic/Circulation

1. The Draft EIR should address the County Circulation Element of Roads to include Champagne Boulevard (SA 15), Circle R Drive (SC 280.1), Camino Del Rey (SA 100) and Old Castle Road (SF 1415).

2. The alignment of any of the pipelines should be compatible with ultimate improvements to County public roads per County Public Road Standards.

3. The draft EIR should address the coordination of pipeline construction projects with DPW road improvement projects. The reconstruction of Mountain Meadow Road from I-15 to Hidden Meadows Road is currently under construction and is also listed in the Draft EIR as a roadway segment along which pipelines may be placed.

4. Please provide traffic mitigation measures as necessary for any identified traffic impacts in 1., 2. and 3. above, on County Circulation Element roads and other public roads in the unincorporated area.

Flood Control

1. As stated in the Hydrology section of the Draft EIR, final engineering plans shall provide the location of the mapped floodplain and floodway in relation to the location of the flow equalization basin and the forebay. If it is not possible to identify the exact location of the floodplain and floodway at this time, the EIR needs to identify that the project will be responsible for completing appropriate revisions to existing County and FEMA mapping once the locations of the floodway and floodplain are known.

2. Figure 6 on page 47, and the text in the second paragraph of page 52 and the second paragraph on page S-3 do not agree as to the location of the forebay in relation to the existing Floodway of Moosa Creek. Please revise.

If you have any questions, please call Dirk Smith of the Environmental Services Unit at (619) 495-5679.

Very truly yours,

DAVID S. SOLOMON, Deputy Director
Department of Public Works

DSS:DDS

cc: Robert Hoglen (0336)
Kent Burnham (0382)

B. Responses to Comments

Hidden Meadows Community Sponsor Group, 10320 Meadow Glen Way East, Escondido, CA 92926-6917, May 24, 1996

In response to the Sponsor Groups concern for reasonable effort to control odor impacts to the Circle R area, inhibiting down wind odors is an important issue for the District. Facilities and operation changes have been made to resolve past problems. Implementation of the mitigation measures listed on pages 43-44 are an integral part of the project design to further reduce circumstances that produced previous problems as well as alleviate new potential problems from the plant expansion.

San Diego Local Agency Formation Commission (LAFCO), 1600 Pacific Highway, Room 452, San Diego, CA 92101, May 29, 1996

Since LAFCO stated that the Agency has no further comments regarding this project, no response is required.

San Diego County Archaeological Society, P.O. Box 81106, San Diego, CA 92138-1106, June 12, 1996

Since the Society concurs in the impact analysis and mitigation recommendations presented, no response is required.

City of Escondido, Department of Planning and Building, 201 North Broadway, Escondido, CA 92025, June 19, 1996

1. Issue Reference: Land Use (page 57)

   Response: For properties within Escondido's Sphere of Influence where there may be conflicts in land use designations and sewering policies, the City requests that its General Plan and Waste Water Master Plan information be summarized within Land Use Section. Applicable discussion from the City's General Plan and Waste Water Master Plan are included in the Final EIR under the Land Use General Plan Considerations, page 57.

2. Issue Reference: Water Quality. 2. Regulations, Plans, and Policies (page 89)

   Response: The City additionally requests that improvements identified in its Waste Water Master Plan for future construction within the District's Service Area be referenced. The reference has been included on page 89.

3. Issue Reference: Analysis of the project based on the City's Water Quality Policy 12.6

Response: As stated in the comment letter, the Escondido General Plan Water Policy 12.6 relates to monitoring underground storage tanks containing hazardous materials and septic tank systems and development in areas where substantial surface water infiltrates into the ground water. The project does not propose use of reclaimed water within the southern portion of the District Service Area. The District has no authority with regards to septic tank systems although the provision of District improvements to the southern portion of the Service Area will allow failing septic systems to convert to sewers and proposed development to be designed as sewered. Therefore, it does not appear that Policy 12.6 applies to this proposed project. Analysis of all pipeline improvements for consistency with federal, state and local regulations is covered in Section II. G, Water Quality.

N. John Koda, 8543 Circle R Valley Lane, Escondido, CA 92026-5907, May 25, 1996

1. Issue Reference: Control of odor during summer months

Response: The warmer temperatures of summer increase the potential for odor problems due to the increase biological activity (thus increase oxygen demand) in the plant. If the plant's aeration capacity is not capable of meeting the demand, odor problems can occur. The proposed facilities include several improvements to increase aeration capacity (see list of mitigation measures beginning on page 43).

1) Converting the existing coarse bubble diffusers to fine bubble diffusers in the aeration basin. This greatly increases the oxygen transfer efficiencies.

2) Providing a separate air supply system for the aerobic digesters. Currently the same aeration system serves both the aeration basins and the aerobic digesters. Providing separate air supply systems will provide more air capacity and control of that capacity to both areas.

3) Installing a centrifuge to enable the plant operators to thicken the aerobic digester without decanting. Decanting is the process that must be used currently to thicken the aerobic digester that requires stopping the digester aeration system for a short period. This process has been the source of several odor complaints and the potential for problems increase as the temperature increases. The proposed centrifuge will eliminate the need to decant thus removing one potential source of odor problems.

2. Issue Reference: Increase in odor with four times increase in capacity

Response: See "Operations" beginning on page 42 under "Project Effects" for analysis of the increased level of odor impacts anticipated with the plant expansion. Under

"Summary of Impacts" a finding of a significant impact is made based on the history of odor complaints at the facility and potential for any treatment facility to create odor complaints.

With the installation and proper operation of the odor control measures proposed as a part of this project, increased odors would not be expected. The proposed facilities are sized to provide increased aeration capacity per unit of flow. Also areas of historic odor problems will be covered or eliminated. The aerobic digester and influent channel will be covered and the exhaust air treated to remove any odors. The installation of the centrifuge eliminates the need for sludge drying beds in normal operation. The sludge drying beds will remain available for service to provide an emergency backup procedure for removing solids should the centrifuge be down for repairs or maintenance.

3. Issue Reference: Achieving odor control and comparison with the Carlsbad facility

Response: It is assumed that the Carlsbad facility being referred to is the Encina Plant. The Encina plant is a larger plant (36 mgd for Encina verses 1.0 mgd for Moosa) and may or may not utilize the same treatment processes. Because of this, the utilization of the same or similar odor control techniques may not be comparable. The odor control facilities proposed for the Moosa plant are proved methods for reducing or eliminating wastewater treatment plant odors. Once installed, the potential for odor releases at the Moosa plant will be greatly reduced for the 1.0 mgd ultimate design flow. This plant should not be compared to the Encina plant.

See pages 43-44. "Mitigation measures" are identified which will reduce the impact to a level below that of significance.

County of San Diego, Department of Planning and Land Use, 5201 Ruffin Road, Suite B, San Diego, CA 92123-1666, June 20, 1996

The County of San Diego under a Memorandum of Understanding between the District and the County reviewed a screencheck version of the Draft EIR prior to public review circulation. Changes were made by the District to the public review version based on these initial comments from the County. Where either the County's comments as a result of the public review period or the District's response refers to earlier coordination and correspondences, clarification is added where deemed helpful for the reader.

1. Issue Reference: Biology Mitigation Measure #1

Response: The requested more specific language has been added to this measure. See page 35. However, identification of a revegetation area is premature since construction will be in a later phase and under the on-going auspices of County, State and Federal resource agencies standards for revegetation mitigation.

2. Issue Reference: Biology Mitigation Measure #2, #3 and #4

Response: Requested clarifications have been added to these measures (page 35) which specify actions to be taken in the event sensitive habitat and species are found to be significantly impacted.

3. Issue Reference: Biology Mitigation Measure #5

Response: Noise from the plant operations has not be identified as a significant impact warranting mitigation measures. However, for clarification purposes reference to "construction" impacts has been added to the measure on page 36.

4. Issue Reference: Biology Mitigation Measure #8

Response: The reviewer is asking the District to make two assumptions. First, the standard, proven siltation prevention measures will uniquely fail in this case, and second, the District itself will violate the identified project restrictions. Additionally, the District is requested to speculate to what extreme such incidences will occur and the level of remedial action to be taken. In actual cases, remedial measures can only be defined realistically when the extent of damage is known. Because these situations are speculative, further evaluation and mitigation measures are not warranted.

Subsection c. of the mitigation measure addresses the issue of construction monitoring. "The project biologist will establish a schedule of visits to the construction site to monitor compliance based on the circumstances of possible disturbances in relationship to resources." See page 36.

5. Issue Reference: The EIR does not comply with CEQA 15126 (g) because the project, as a wastewater treatment plant, does not identify removal of an obstacle to growth (first paragraph under "growth inducement" title)

Response: The EIR clearly states that upgrading this wastewater treatment facility removes an obstacle to future development on page 99, paragraph number 2, first sentence. This is unchanged from the Draft EIR version. Minor changes in the following text were made to clarify how availabilities of these services relate to the planned growth for the subregion.

6. Issue Reference: Inappropriate general approach of the Draft EIR in discussing growth induction, Pub. Res. Code 21100: 14 Cal. Code Regs. 15126 (g) (second and third paragraphs under "growth inducement" title)

Response: The CEQA Guidelines require that EIRs include a discussion of the ways in which the proposed project could directly or indirectly foster economic or population growth, or the construction of additional housing. CEQA Guidelines §15126 (q). The

lead agency is not required to predict the precise form, location or amount of development which may arise from construction of the project. Instead, the level of detail is dependent upon the project. City of Antioch v. City Council of the City of Pittsburgh 1986 187 Cal. App. 3d 1325, 1338. The most probable development form, location, and amount of potential growth for the subregion that the proposed project will serve appears on pages 100 - 101 of the Final EIR as discussed in the Draft EIR. This section also addresses current needs and capacity for projects which are in the approval process.

Public Resources Code section 21083.3 provides generally that in processing a development project which is consistent with a General Plan approved with a certified EIR, the CEQA requirements shall be limited to the effects on the environment which are peculiar to the current project and its parcel. Although not contained in a single document, the various General Plan Amendments and Community Plan Updates for this subregion have been adopted with certified EIRs which analyzed the growth induction impacts for this anticipated development pattern. There currently is not any substantial new information concerning growth inducement showing that impacts will be more significant than described in the prior EIRs.

The EIR provides an adequate discussion of growth that may occur, how that growth may occur, and how the phases of the proposed project react to that growth. Therefore, no additional information is required in order to comply with CEQA requirements for growth inducement analyses.

7. Issue Reference: No response to prior question concerning the need for phases 3 and 4 when 10 or more years in the future (fourth paragraph under "growth inducement" title)

Response: In response to the original question 22. reference, the Growth Inducement Section was expanded to the discussion circulated for public review. A letter directed to Robert Asher dated May 8 1996 was provided for the County's use in identifying where responses where made in the revised Draft EIR. Typically, these responses were more page specific rather than a major amplification of a complete section, so in addition, a summary restatement of the answer was included in the letter but not incorporated in the draft. The letter stated, "Greater-than-10-year (long range) planning is necessary in order to provide the infrastructure needed for the implementation of the County's General Plan (a 20-year program). Sewer facilities can not be designed and funded, receive all approvals and complete construction without substantial lead time. Phases 3 and 4 will be required within the 20-year time frame based on the General Plan's land uses which actually require 1.3 million gallons per day (mgd) for full build-out verses the more limited capacity being proposed by this project (1.0 mgd)."

8. Issue Reference: Approach and review of the growth inducement section should include the listed 4 items (last paragraphs under the "growth inducement" title)

Response: Following the VCMWD Local Guidelines for Implementing CEQA Section 15126 (g), the Growth Inducement Section addresses, besides items covered in above responses, increases in the population which may further tax existing community service facilities and the characteristic which may encourage and facilitate other activities that could significantly affect the environment, either individually or cumulatively. It is not assumed that growth in any area is necessarily beneficial, detrimental, or of little significance to the environment. The Growth Inducement Section recognized that sewers are only one of several infrastructure facilities that will require upgrades for the population projected to move into the Service Area. The discussion identifies no new activities that could significantly affect the environment because of the proposed action. There is none of a subregional nature that will not have occurred with the implementation of the County General Plan and its Community Plans as addressed through the analyses for their adoption. The Growth Induction Section does in fact consider how the project characteristics, expansion phased to land use decisions, avoids the encouragement of other environmentally impactive activities. Although the District has the mandate to provide sewer services, the authority for land use regulation lies with the County government. Thus, the EIR additionally deals with the land use controls provided by the County through its General Plan to mitigate subregional impacts.

Circle R Homeowners' Association No. 1, Inc., 1747 S. Escondido Blvd., Escondido, CA 92025, June 20, 1996

1. Issue Reference: Denial of the MUP Modification

Response: The Draft EIR on page 21 addresses that one of the intended uses of the document is the environmental review associated with a MUP Modification application before the County of San Diego. The actual action to approve or deny is a discretionary action through the public hearing procedures and not a part of the EIR process. The County of San Diego will receive a copy of the Final EIR, including the Association's letter, for its use as a Responsible Agency.

2. Issue Reference: I. Changes in neighborhood since MUP approved.

Response: One of the purposes of an EIR is to address the changes that have occurred in an area from a prior action to a current request for modification of a project. The EIR discusses the history of the MUP, current land uses and adjacent residential development in the vicinity of the existing Treatment Plant (see pages 21, 39, 58, 59 and 61). The District has been granted an MUP under which it will continue to operate up to the maximum allowed capacity, but the District agrees that the MUP is out-of-date for a number of reasons, thus the request for the approval of a Modification.

3. Issue Reference: II. More attention for floodplain/floodway impacts.

Response: The Draft EIR finds that indeed this is a significant impact after discussion of the changes that will occur during and after construction of the forebay. The relationship between the project plot plan design and the flood zones is shown on Figure 6. Mitigation measures have been developed in conjunction with the County Flood Control Division and included. These will reduce the impacts to a level of insignificance.

4. Issue Reference: New Major Use Permit

Response: The County's Zoning Ordinance treats applications for MUP Modifications in the same manner as those for new MUPs. Inclusion of adjacent parcels under a single permit, even with different zoning, is allowed and may even be advocated. Consolidation of a comprehensive operation under a single permit and set of conditions is the most efficient and effective to administer. In any case, CEQA would allow, in fact encourage, a single EIR to cover both parcels.

5. Issue Reference: Visual/Aesthetics

Response: Under the criteria for significance and using accepted methods of visual/aesthetic evaluation, the finding of not significant impact is warranted. However, since any view of the facility is considered intrusive to the adjacent residences, the addition of vegetation and possibly fencing would help make good neighbors. Therefore, a recommendation has been added to the Final EIR under Section II. E., page 74.

6. Issue Reference: Odor

Response: The cited statement is made in the Draft EIR but is immediately followed by text that presents the circumstances of the relatively recent incident of multiple complaints. The same material appears in the Final EIR on page 38. The EIR finds odor problems related to the increased capacity to be a significant impact and includes mitigation measures to reduce to a level below significance. The District specifically incorporated many of these mitigation measures directly into the design of the Treatment Plant expansion because of the past history of complaints.

County of San Diego, Department of Public Works, 5555 Overland Ave., San Diego, CA 92123, June 26, 1996

1. Issue Reference: Identification of Circulation Element Roads

Response: Identification of Circulation Element Roads has been added under General Plan Considerations on page 57.

2. Issue Reference: County Public Road Standards

Response: Compliance with County Public Road Standards has been included under the discussion of pipeline alignments within existing road right-of-ways on page 60.

3. Issue Reference: Coordination of pipeline construction projects.

Response: The new information on page 60 also addresses coordination of improvement projects.

4. Issue Reference: Traffic mitigation measures

Response: Although temporary traffic disruption is anticipated as a possibility on both public and private roads, no unique installation requirements are expected that can not be adequately managed by standard construction practices for handling traffic flow.

5. Issue Reference: Revisions to floodplain mapping

Response: Mitigation Measure #3 provided by the Department of Public Works has been clarified as requested.

6. Issue Reference: Location of floodway in the forebay area

Response: Figure 6 is based on the floodway location as provided on current County and FEMA maps and plot plan design of the forebay. This figure does not illustrate any slope to be graded for installation of the forebay. Figure 5 included under the biological resources discussion shows some preliminary engineering design and the toe of the graded slope approximately colinear with the floodway. As indicated in Figure 5, the project would be out of the floodway but at this level of information accuracy some minor earthwork may or may not actually occur within the floodway. Under the EIR process, impacts are therefore appropriately found as significant and mitigation measures identified to reduce impacts as warranted. The Summary is revised on page S-3 to reflect more precisely the main text finding. For clarification the term "100 -flood zone" on page 53 has been changed to "100-year floodplain".

XI. CERTIFICATION

This report presents a full disclosure and independent analysis of all the identified environmental resources as required by the County of San Diego and the California Environmental Quality Act.

Sonja P. Itson
Principal in Charge

This report was prepared by Brian F. Mooney Associates of San Diego, California. Members of the Brian F. Mooney staff contributing to this report are listed below.

Brian F. Mooney, AICP, B.A.	Senior Principal
Sonja P. Itson, M.S.	Principal in Charge/Project Manager
Donna E. Steel, B.A.	Associate Planner
Bruce Campbell, AICP, REA, M.S.	Senior Scientist
Thomas M. Cherry, ASLA, B.S.	Senior Land Planner
Lisa Embree, M.A.	Senior Biologist
Gladys Baird, B.S.	Associate Biologist
Richard Carrico, SOPA, M.A.	Director of Resource Management
Carol Serr, B.A.	Associate Archaeologist
Rob Case, M.A.	Associate Archaeologist
Christy Rust, A.A.	Graphics Coordinator
Amy Jones, B.A.	Graphic Artist
Debbie Surrell	Word Processor

Valley Center Municipal Water District staff and other consultants contributing to this report include:

Chuck Bridges	Board of Directors, VCMWD
Gary Arant	General Manager, VCMWD
Patric E. Jewell, P.E.	District Engineer, VCMWD
Wally Grabbe, P.E.	Project Engineer, VCMWD
William G. Hunter, P.E.	Principal Engineer, EARTH TECH (formerly Barrett Consulting Group)
Doug Roff, C.E.G., C.H.G.	Principal Engineer, EARTH TECH

The following persons and agencies were consulted during the preparation of this EIR:

County of San Diego

Department of Planning and Land Use:
Robert Asher, Resource Planning Chief
Eric Gibson
David Lassaline
Lory Nagem
Janel Pehau
John Peterson

Department of Public Works
Joe Hill, Flood Plain Management

Department of Environmental Health Services
Frank Gabrian

Local Agency Formation Commission (LAFCO)

Michael D. Ott, Executive Officer

San Diego Association of Governments (SANDAG)

Eunice Tanjuagio, Public Information Officer

San Diego Gas & Electric Company

Deanne Brower, Distribution Planning Engineer

Regional Water Quality Control Board

Laurie Walsh, Water Resources Control Engineer

DRAFT
ENVIRONMENTAL IMPACT REPORT
FOR THE
LOWER MOOSA CANYON WATER RECLAMATION FACILITY EXPANSION
(SCH# 95121009; MUP# P73-18W[1])

VOLUME II - APPENDICES

Prepared for:

Valley Center Municipal Water District
29300 Valley Center Road
Post Office Box 67
Valley Center, California 92082

Prepared by:

Brian F. Mooney Associates
9903-B Businesspark Avenue
San Diego, California 92131

May 1996

LIST OF APPENDICES

A. Comments Received During the NOP Review Period

B. Preliminary Design Report

C. Proposed Assessment District Boundaries

D. Biological Report

E. Regional Water Quality Control Board Actions

F. Cultural Resource Survey Report

G. Environmental Checklist

H. Mitigation Monitoring Program

APPENDIX A
COMMENTS RECEIVED DURING THE NOP REVIEW PERIOD

December 5, 1995

NOTICE OF PREPARATION
ENVIRONMENTAL IMPACT REPORT

The Valley Center Municipal Water District announces the initiation of environmental studies in connection with the proposed Lower Moosa Canyon Water Reclamation Facility Expansion. Pertinent information about the project, its location, and potential environmental effects is included in this announcement.

Valley Center Municipal Water District requests input concerning the potential impacts of the project so that they may be adequately addressed in an Environmental Impact Report (EIR). Those public agencies with specific regulatory responsibilities are requested to indicate their role in the project approval process. Written responses should be sent at the earliest possible date, but no later than thirty (30) days from the date of this notice. Please send your responses to:

Brian F. Mooney Associates
9903-B Businesspark Ave.
San Diego, CA 92131

Attn: Brian F. Mooney
(619) 578-8964

PROJECT LOCATION

The project site is located in the community of Valley Center in northern San Diego County (Figure 1). Located just east of Interstate 15 (I-15) and approximately seven miles north of the City of Escondido, the subject property lies partly within the Valley Center, Bonsall, and North County Metropolitan Community Planning Areas.

PROJECT DESCRIPTION

The proposed project consists of the expansion of the existing Moosa Canyon Water Reclamation Facility; installation of reclaimed water distribution lines; and installation of low pressure trunk and collector sewer lines in order to accommodate planned development in the I-15 Corridor area. The project may also include revisions to the existing assessment district boundaries and annexation of a few small contiguous areas into the Water District.

The proposed project will require authorization from the Valley Center Municipal Water District Board of Directors for all phases of implementation. Approval of a Major Use Permit modification from San Diego County is necessary for the Reclamation Facility expansion. Local Agency Formation Commission action is needed only if an annexation is pursued.

Brian F. Mooney Associates

North

Figure 1

Regional Location Map

Moosa Canyon Treatment Plant Expansion

Capacity improvements to the 0.25 million gallon per day (mgd) treatment plant will be achieved through implementation of a five phased program. The schedule for improvements will be based on demand and ultimate buildout of the service area. A maximum 1.0 mgd capacity is planned at buildout. First phase improvements were constructed following acquisition of all required permits. Construction of Phase I did not result in any additional capacity. Phases 2 through 5 will be the focus of the Environmental Impact Report. Phase 2 will improve treatment capacity to 0.44 mgd. Phase 3 expansion plans will provide a maximum of 0.63 mgd and Phase 4 will increase capacity to 0.75 mgd. The fifth phase will be constructed to provide projected long-term service needs at buildout.

In addition to the expansion of the physical plant, the project will construct low-pressure trunk sewer line extensions and provide water reclamation facility upgrades. The reclamation facilities will provide reclaimed water to the Castle Creek and Lawrence Welk golf courses. It is anticipated that prior to provision of ultimate 1.0 mgd capacity, some existing sewer lines will require replacement. Figure 2 depicts the existing service area boundaries, proposed facilities, and areas proposed for inclusion in the assessment district for future planning purposes.

ENVIRONMENTAL ISSUES

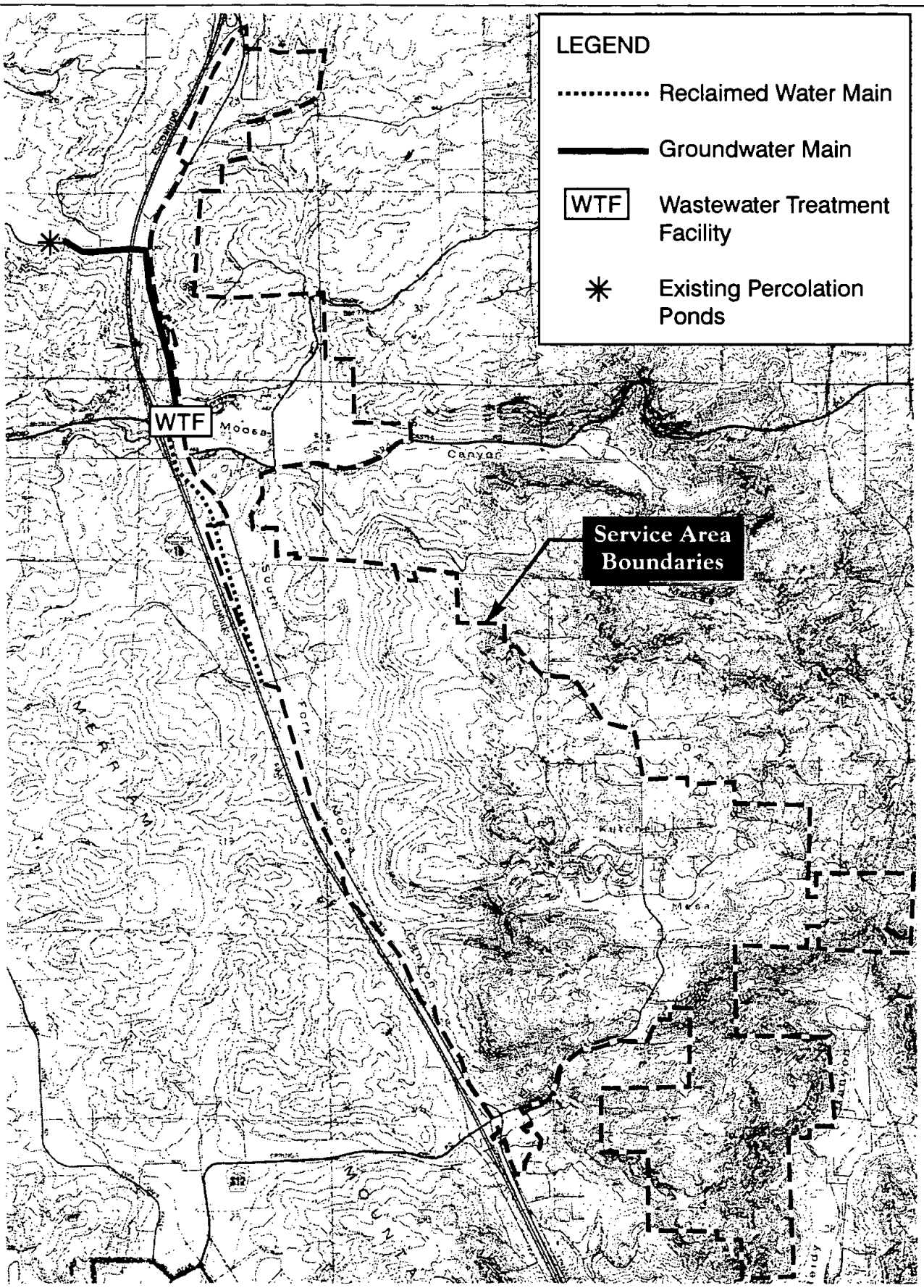
Biological Resources: A description of the existing flora and fauna that would be affected by the project will be presented including important or particularly sensitive species and habitat areas. Any candidate or listed rare, threatened, or endangered plant or wildlife species on site will be identified and if possible, a description and quantification of habitat areas that would be altered with project implementation will be prepared. A determination of impacts including direct, indirect, and cumulative impacts to wildlife habitat and vegetation will be assessed. If necessary, appropriate mitigation measures and monitoring will be recommended.

Visual Aesthetics: A complete description of the existing visual environment and views available from adjacent residential properties with regard to scenic quality will be provided for the site. Viewshed analyses will be prepared that identify significant viewsheds within and adjacent to the study area and graphically depict the extent to which the viewsheds will be impacted. Recommendations will be provided to minimize impacts to each viewshed.

Cultural Resources: A cultural resource study including a records search and field survey will be conducted for the project. Several archeological sites have been identified in the area. Significant cultural resource impacts will be identified and measures to mitigate these will be recommended.

Land Use: An assessment of the project's effects on surrounding land use and planned land use will be provided. Potential conflicts on both a short-term and long-term basis will be identified. Significant land use impacts will be delineated and measures to mitigate these will be recommended.

Water Quality: Existing conditions and potential impacts to regional water quality will be analyzed with relation to the proposed uses within the lower Moosa Canyon basin. Development will be evaluated to determine the potential for contaminants to be introduced into the local groundwater. Mitigation measures will be developed as necessary to mitigate significant water quality impacts.



Brian F. Mooney Associates

Figure 2

Existing Service Area Boundaries

Moosa Creek Treatment Plant Expansion

Public Health/Safety: An evaluation of public health and safety impacts relative to the project's proximity to populated areas will be provided. This will include an evaluation of chemical use and storage; potential health risks involved with expansion of the treatment plant and pipelines, including the distribution of reclaimed water; and the addition of nutrient removal facilities for projected live stream discharge.

Odor: Downwind odor levels will be analyzed for the project site with emphasis on residential areas. Any potential impacts will be identified and mitigation measures (such as odor eliminating features for the facility) will be discussed and recommended.

Growth Inducement: Although the proposed project is intended to provide for existing and all development which is in conformance with the existing Valley Center Community Plan and North County Metro Plan within the I-15 corridor only, potential growth inducing impacts will be addressed in the EIR as required by the California Environmental Quality Act (CEQA).

LIST OF AGENCIES, ORGANIZATIONS, AND INDIVIDUALS TO RECEIVE THIS NOTICE OF PREPARATION

Audubon Society
2270 5th Avenue
San Diego, CA 92025

Bonsall Sponsor Group
c/o Elizabeth Norton
5967 Redondo Drive
Bonsall CA 92003

California Dept. of Fish and Game
C/o Fred Worthley
250 West Broadway
Long Beach CA 90802

California Native Plant Society
PO Box 1390
San Diego, CA 92112

Castle Creek Country Club
8797 Circle R Drive
Escondido, CA 92026

Castle Creek Villas Homeowners Association
c/o Hugh Salisbury, President
29601 Circle R Greens Drive
Escondido CA 92026

Circle R Homeowners Association
c/o Jim Scott
8611 Circle R Valley Lane
Escondido CA 92026

Citizens Coordinate for Century III
1549 El Prado
San Diego CA 92101

City of Escondido
Planning Department
201 North Broadway
Escondido CA 92025-2798

City of San Marcos
Planning Department
105 Richmar
San Marcos CA 92069

Champagne Village Homeowners Association
8975-461 Lawrence Welk Drive
Escondido CA 92026

Champagne Village Property Owners Board
8975-461 Lawrence Welk Drive
Escondido CA 92026

County of San Diego, DPLU
C/o Tom Oberbauer
5201 Ruffin Road, Suite B
San Diego, CA 92123

County of San Diego, DPW
Liquid Waste Division
5555 Overland Avenue
San Diego, CA 92123-1297

County of San Diego
Environmental Health Services
5201 Ruffin Road, Suite L-0564
San Diego, CA 92123

Deer Springs Fire Protection District
8709 Circle R Drive
Escondido, CA 92026-5802

Hidden Meadows Community Sponsor Group
David Odell
c/o Kerry Krueger
10320 Meadow Glen Way East
Escondido, CA 92026

Hidden Meadows Area Association of Resident Owners
C/o Carol Fleisher, President
28528 Meadow Glen Way West
Escondido CA 92026

Hidden Meadows Homeowners Assoc.
C/o G. Richard Bell
28304 Glenmeade Way
Escondido CA 92026

I-15 Corridor Design Review Board
C/o Greg Izor
504 Mission Ave., Suite 200
Escondido, CA 92025

Rainbow Municipal Water District
4555 Highway 76
PO Box 2500
Fallbrook, CA 92028

SANDAG
1200 3rd Avenue, Suite 524
San Diego, CA 92101

San Diego Archaeological Society
ATTN: James W. Royle, Jr.
PO Box A-81106
San Diego, CA 92138

San Diego County Water Authority
3211 Fifth Avenue
San Diego CA 92101

San Diego Local Agency Formation Commission (LAFCO)
1600 Pacific Highway
San Diego, CA 92101-2472

San Diego Regional Water
Quality Control Board
9771 Clairemont Mesa Blvd., Suite B
San Diego, CA 92124

San Marcos County Library
847 West San Marcos Blvd
San Marcos CA 92069

Sierra Club, San Diego Chapter
House of Hospitality
1549 El Prado
San Diego CA 92101

State of California Clearinghouse
1400 Tenth Street, Room 121
Sacramento, CA 95814

State Water Resources Control Board
Division of Water Quality
PO Box 100
Sacramento CA 95801

Twin Oaks Valley Sponsor Group
Dick Kentro
Post Office Box 455
San Marcos, CA 92079

Vallecitos Water District
788 West San Marcos Blvd.
San Marcos, CA 92069-4299

Valley Center Community Planning Group
PO Box 127
Valley Center, CA 92082-0127

Valley Center County Library
29115 Valley Center Road
Valley Center CA 92082

Welk Resort Center
8860 Lawrence Welk Drive
Escondido, CA 92026

VALLEY CENTER MUNICIPAL WATER DISTRICT

A Public Agency Organized July 12, 1954

29300 Valley Center Road • P.O. Box 67 • Valley Center, CA 92082
(619) 749-1600 • TDD (619) 749-2665 • FAX (619) 749-6478

January 16, 1996

Mr. Mark Acevedo, President
Circle R Homeowners Association
1747 S. Escondido Blvd.
Escondido, CA 92025

Subject: Response to Notice of Preparation, Draft EIR, Lower Moosa Canyon Water Reclamation Facility Expansion Project

Dear Mr. Acevedo:

We would like to thank you and the several other homeowners who took the time to respond to the Notice of Preparation of the Draft EIR (DEIR) for the Lower Moosa Canyon Water Reclamation Facility Expansion (Moosa) Project.

Your input is valuable in that it helps to focus the environmental review process on the specific concerns of the people living near the project. It also serves to reenforce the need for the solids handling, odor control and aesthetic upgrades which represent $1.9 million or 61% of the $3.1 million anticipated to be expended on Phase 2 of this project.

Attached for your review is a copy of the letter forwarded earlier this year concerning the odor complaints and the District's short and long-term efforts toward correcting those problems. Except for modification of the two existing drying beds referred to in item 5 of August 11, 1995 correspondence, all other information is current. While work is underway on constructing the two new drying beds, modification of the two existing beds has been deferred to Phase II of the project.

Again, thank you for you input. Your comments and concerns will be addressed in the DEIR and ultimately in the actual Moosa Project. If you should have any specific questions or concerns, please feel free to contact Wally Grabbe, Project Manager, Patric Jewell, District Engineer, or myself, at your earliest convenience.

Sincerely,

Gary T. Arant
General Manager

Enclosure

cc: Mr. Bud Walker
Mr. W.F. Young
Mr. Army Ellis
Mr. Jim Scott
Ms. Donna Steel, B. F. Mooney & Associates

VALLEY CENTER MUNICIPAL WATER DISTRICT

A Public Agency Organized July 12, 1954

29300 Valley Center Road • P.O. Box 67 • Valley Center, CA 92082
(619) 749-1600 • TDD (619) 749-2665 • FAX (619) 749-6478

August 11, 1995

Re: Lower Moosa Canyon Water Reclamation Facility
Odor Control Status Report

Dear Circle R Homeowner:

As many of you may be aware, there were several odor problems at the Moosa plant this last spring. For that, we apologize. As a result of your phone calls and comments, we are very much aware of your concerns relating to recent plant odors and whether or not expanding and upgrading the facilities will increase these types of problems.

The recent odor problems were a direct result of the extended rainy season interfering with the sludge drying process. As a result, there was a solids buildup in the plant, which ultimately led to an upset of the treatment operation.

In response to this situation, the District has done the following:

1) Covered the influent channel;

2) Modified the plant operation so more solids can be stored in the plant to better allow for extended drying periods;

3) Contracted with Recyc, Inc. (a sludge composter located in Riverside County) to remove the dried sludge to their facilities on a regular basis. Recyc will take the sludge at higher moisture content than will the County landfill, thus shortening the required drying period;

4) Constructed a temporary drying area at the percolation pond site where partially dried sludge will be placed to continue drying should Recyc's removal of the dried sludge be delayed;

5) Obtained Board approval to construct two additional paved drying beds and to modify the two existing sand drying beds into four paved drying beds. The additional beds will provide more drying capacity and the modifications will reduce the labor required to remove the sludge, thus facilitating the drying process. Design of these facilities is currently under way.

The improvements outlined above are directed toward speeding up the sludge drying process for better operation of the current plant during the varying weather conditions. However, the proposed expansion project will provide an opportunity for even more enhanced odor control and solids handling capabilities.

For the future, the proposed expansion project will include installation of centrifuge mechanical dewatering facilities, covers for the aerobic digesters and headworks facilities, blowers to pull air out of these areas (including the already covered influent channel) and scrubbing equipment to treat the air before it is released to the atmosphere. These improvements will allow the plant to treat increased volumes, while reducing the potential for odor problems at the plant.

Please call me if you have any further questions or would like to discuss these plans in more detail. If desired, I would be happy to arrange a tour of the facilities.

Sincerely,

Wally Grabbe, P.E.
Project Engineer

LAFCO

1600 Pacific Highway • Room 452
San Diego, CA 92101 • (619) 531-5400

San Diego Local Agency Formation Commission

December 14, 1995

Brian F. Mooney
Brian F. Mooney Associates
9903-B Businesspark Avenue
San Diego, CA 92131

SUBJECT: Notice of Preparation, Environmental Impact Report: Proposed Lower Moosa Canyon Water Reclamation Facility Expansion

Dear Mr. Mooney,

Thank you for the opportunity to review the above-referenced Notice of Preparation for a Draft Environmental Impact Report (EIR). Of concern to LAFCO is the provision of public services, the potential need to annex to special districts, and the ability of the agencies to serve the area. The Notice identifies the possible annexation of territory to the Valley Center Municipal Water District (MWD) and acknowledges LAFCO's role in that process. If annexation is pursued, this change to local government organization requires that LAFCO be a responsible agency for environmental review. Since the document recognizes that annexation to the Valley Center MWD might be necessary, that action should be identified in the project description and be included in the list of discretionary actions contained in the summary section of the final EIR.

If we may be of any further assistance, please contact me or Ingrid Hansen at 531-5400.

Sincerely,

MICHAEL D. OTT
Executive Officer

MDO:IEH:hm

CIRCLE R HOMEOWNERS' ASSOCIATION NO. 1, INC.

A California Non-Profit Mutual Benefit Corporation
1747 S. Escondido Blvd.
Escondido, CA 92025
(619) 747-1001 Fax (619) 739-1183

January 2, 1996

Brian F. Mooney Associates
9903-B Businesspark Avenue
San Diego, CA 92131

Re: Lower Moosa Canyon Water Reclamation Facility Expansion-EIR

Attn: Brian F. Mooney

We have received your notification addressed to the Circle R Homeowners Association concerning the upcoming EIR to be done in regard to the proposed expansion of the Lower Moosa Water Reclamation Facility.

We feel constrained to advise you that this expansion will be viewed with considerable concern, apprehension and fear by the residents of this neighborhood for some basic reasons:

1) There is a long history of visual and odor problems with this facility as it presently exists - problems about which VCMWD has shown virtually no concern nor inclination toward corrective action.

2) There is no rational assurance that the expansion will accomplish anything in the way of mitigating these on-going problems nor alter the lack of concern on the part of VCMWD. The prevailing attitude is that expansion will only magnify our long-standing and largely ignored problems.

3) As in all E I R's, our anticipation is that the report will minimize the unmitigable problems and claim some great perceived advantages. Any E I R we have ever reviewed tends to take an attitude in favor of the party who is paying the expense of the report. We can find no reason this report will not do the same, but we can still hope that the EIR will genuinely address the problems involved and give a realistic and honest evaluation of same....problems as well as potential benefits.

A number of our local residents (concerned citizens) have expresssed their own misgivings per the attached report which was sent to the people doing the E I R.

We can assure you that if the EIR does not adequately and fairly address the problems about which we have expressed our sincere concerns, we're going to make A LOT OF NOISE!

Sincerely,

Mark Acevedo, President
Circle R Homeowners Association

cc: Board, Gary Arant

eir.ltr

Re Lower Moosa Plant Expansion and proposed E I R

Visual Impact

We would suggest the use of Oleanders as a part if the landscaping improvements to add color as well as an improved visual blockage.

Environmental Controls

The environmental controls implemented should be consistent through all proposed phases of development and construction - not separate for each.

Bud Walker
8563 Circle R Vly Ln

December, 1995

To: Valley Center Municipal Water District

Re: Lower Moosa Reclaimation Facility
Environmental Impact

From: W. F. Young
Circle R Development Owner

As a resident of the Circle R Development just East of the existing plant, I'm quite aware of the on-going impact of the reclaimation process...or at least one aspect of it.

When considering a large scale expansion at this site there are obviously a multitude of concerns. However, for those of us in the immediate area the **IMPACT** issues seem to be two.

ODOR

Today this is a rather small facility operating at reduced levels. Odor exists as a common event. Now, we face expansion and hear and read that potential odor impact will be "identified and mitigation measures discussed and recommended." Mitigation means to make less severe, rigorous or painful. Hardly comforting. Can we be assured that new technology, new science will clean up the by-product odor of an enlarged facility?

VISUAL AESTHETICS

Expansion....more ponds, more and bigger buildings, more vehicles, more everything. A commitment to solving future "scenic quality" and "viewshed" impact is important. Downstream, there needs to be an equal long term commitment on the part of VCMWD to continue with long term facility maintenance.

W. F. Young
29839 Circle R Creek Ln.
Escondido, Ca., 92026
(619) 749-0818

Observations Re:
Preparation of E I R - Moosa Canyon Facility Enlargment

Project Location:
"in the community of Valley Center" ? Isn't this in the unincorporated part of San Diego County?

"in the Bonsall Planning Area"? I don't think so!

Isn't some of the planned development in the Hidden Meadows Sponsor Group area?

Project Description
What, exactly, are the proposed changes to the district assessment boundaries and proposed annexation areas?

Capacity - isn't the present capacity already at .5 mgd without any enlargement?

Reclaimed Water - How much at each new phase? What are the realistic commitments of those who might use same? Who pays for the proposed reclaimed water lines?

Environmental Issues
Visual Aesthetics - emphasis should be on the impact on the nearby existing homesites within a few hundred yards

Odor - this is already a very serious and major on-going problem. Serious abatement steps must be taken at each phase of the proposed plant enlargement.

Growth Inducement
There is serious and widespread local opposition to uncontrolled residential and commercial development in this semi-rural area. The Valley Center Municipal Water District should not play a roll in promoting and enticing such unwanted developmental expansion here.

As we see it, the role of the VCMWD is to provide water and services for the present requirements and for that expansion already approved. It should not NOT strive to become bigger and bigger just for the sake of bigness NOR to attract growth. And future upscaling should be be at the financial responsibility of those demanding it.

Above Comments and observations from ... Army Ellis 12/15/95
8623 Circle R V1y Ln

Brian F. Mooney Associates
9903-B Business Park Avenue
San Diego, C A 92131

22 December 1995.

Attn: Brian F. Mooney

Re: Lower Moosa Canyon Water Reclamation Facility Expansion

The Lower Moosa Water Reclamation Facility expansion will have a very negative environmental impact and negative financial impact for those of us residing and/or owning property at the Circle R Homeowners Association complex. Our concerns are as outlined below.

Visual Aesthetics

There should be a standard developed that VCMWD must maintain to obstruct the sight of the treatment plant. VCMWD has repeatedly said they would have trees and shrubs planted to block the view of the existing sewer plant BUT still today one can see can see the drying beds and other facilities from Circle R Drive and from adjoining residences.

There was adequate visual obstruction along Circle R Drive until the drought in the early 90's when growth was allowed to die for lack of water even though there were (and still are) adequate irrigation lines. Some small plants and shrubs were recently planted along Circle R Drive but will take years to develop effectively.

Odor Problems

The odor problem from the existing facility has been on-going and occuring much more frequently of late, lasting two or more days at a time. The VCMWD has made frequent promises to abate this problem (see attached letter of 8/11/95, paragraph #5) but have not done so. Also, VCMWD has decided NOT to modify the existing drying beds into paved ones. That reflects their obvious lack of concern about the elimination, or even modification, of the odor problem offending local residents ... as it has for years.

Recently VCMWD personnel have claimed that some foreign substance dispensed into the sewer system killed the bacteria in the drying beds and, as a result, odors increased.. This has occurred more than once but to our knowledge no real effort has been made to identify this mysterious substance nor its source. When this happens, the odors are sickening and last for days ... and this seems to always happen on the weekends when the plant has no help the premises.

Increasing the number of EDUS will not only increase the number of bad odor days but will also extend the area of penetration by these obnoxious odors with the result that more and more local residents will be made to suffer the stench.

The expansion of the Encinatas plant has resulted in serious odor problems. The expansion of the Moosa plant could do the same for its immediate neighbors.

All of the odor emitting area of the Lower Moosa Canyon Water Facility should be covered and the drying beds enclosed and the exhaust air scrubbed and washed. These improvements should all be done during the first phase of the expansion to reduce the odor exposure to those living here.

Noise and Dust during construction

Steps should be taken to reduce these nuisances as much as possible during this phase. The closest neighbors are all downwind from the existing plant. Excessive dust will polute the air we breathe and expedite the need for house painting. The noise will also be an environmental nuisance.

Real Estate Values

The proposed expansion to this plant could adversely effect adjacent property values both during construction phases and for the long term. VCMWD must have a real commitment to not only mitigate this problem, but to prevent it from happening.

Jim Scott
8611 Circle R Valley Lane
Escondido, CA 92026

VALLEY CENTER MUNICIPAL WATER DISTRICT

A Public Agency Organized July 12, 1954

29300 Valley Center Road • P.O. Box 67 • Valley Center, CA 92082
(619) 749-1600 • TDD (619) 749-2665 • FAX (619) 749-6478

August 11, 1995

James F & Irene A Scott
8611 Circle R Valley Ln
Escondido, CA 92026

Re: Lower Moosa Canyon Water Reclamation Facility
Odor Control Status Report

Dear Circle R Homeowner:

As many of you may be aware, there were several odor problems at the Moosa plant this last spring. For that, we apologize. As a result of your phone calls and comments, we are very much aware of your concerns relating to recent plant odors and whether or not expanding and upgrading the facilities will increase these types of problems.

The recent odor problems were a direct result of the extended rainy season interfering with the sludge drying process. As a result, there was a solids buildup in the plant, which ultimately led to an upset of the treatment operation.

In response to this situation, the District has done the following:

1) Covered the influent channel;

2) Modified the plant operation so more solids can be stored in the plant to better allow for extended drying periods;

3) Contracted with Recyc, Inc. (a sludge cornposter located in Riverside County) to remove the dried sludge to their facilities on a regular basis. Recyc will take the sludge at higher moisture content than will the County landfill, thus shortening the required drying period;

4) Constructed a temporary drying area at the percolation pond site where partially dried sludge will be placed to continue drying should Recyc's removal of the dried sludge be delayed;

5) Obtained Board approval to construct two additional paved drying beds and to modify the two existing sand drying beds into four paved drying beds. The additional beds will provide more drying capacity and the modifications will reduce the labor required to remove the sludge, thus facilitating the drying process. Design of these facilities is currently under way.

The improvements outlined above are directed toward speeding up the sludge drying process for better operation of the current plant during the varying weather conditions. However, the proposed expansion project will provide an opportunity for even more enhanced odor control and solids handling capabilities.

For the future, the proposed expansion project will include installation of centrifuge mechanical dewatering facilities, covers for the aerobic digesters and headworks facilities, blowers to pull air out of these areas (including the already covered influent channel) and scrubbing equipment to treat the air before it is released to the atmosphere. These improvements will allow the plant to treat increased volumes, while reducing the potential for odor problems at the plant.

Please call me if you have any further questions or would like to discuss these plans in more detail. If desired, I would be happy to arrange a tour of the facilities.

Sincerely,

Wally Grabbe, P.E.
Project Engineer

STATE OF CALIFORNIA—THE RESOURCES AGENCY

PETE WILSON, *Governor*

DEPARTMENT OF FISH AND GAME
330 Golden Shore, Suite 50
Long Beach, California 90802
(310) 590-5113

RECEIVED
JAN - 4 1996
BY:_____

December 28, 1995

Mr. Brian Mooney
Valley Center Municipal Water District
9930-B Businesspark Avenue
San Diego, California 92131

Dear Mr. Mooney:

Notice of Preparation of Draft Environmental Impact Report
Lower Moosa Canyon Water Reclamation Facility Expansion
SCH# 95121009, San Diego County

The Department of Fish and Game (Department) appreciates this opportunity to comment on the above-referenced project, relative to impacts to biological resources. To enable Department staff to adequately review and comment on the proposed project, we recommend the following information be included in the draft Environmental Impact Report:

1. A complete assessment of the flora and fauna within and adjacent to the project area, with particular emphasis upon identifying endangered, threatened, and locally unique species and sensitive habitats.

   a. A thorough assessment of rare plants and rare natural communities, following the Department's May 1984 Guidelines for Assessing Impacts to Rare Plants and Rare Natural Communities (Attachment 1).

   b. A complete assessment of sensitive fish, wildlife, reptile, and amphibian species. Seasonal variations in use of the project area should also be addressed. Focused species-specific surveys, conducted at the appropriate time of year and time of day when the sensitive species are active or otherwise identifiable, are required. Acceptable species-specific survey procedures should be developed in consultation with the Department and the U.S. Fish and Wildlife Service.

   c. Rare, threatened, and endangered species to be addressed should include all those which meet the California Environmental Quality Act (CEQA) definition (see CEQA Guidelines, § 15380).

d. The Department's California Natural Diversity Data Base in Sacramento should be contacted at (916) 327-5960 to obtain current information on any previously reported sensitive species and habitat, including Significant Natural Areas identified under Chapter 12 of the Fish and Game Code.

2. A thorough discussion of direct, indirect, and cumulative impacts expected to adversely affect biological resources, with specific measures to offset such impacts.

a. CEQA Guidelines, § 15125(a), direct that knowledge of the regional setting is critical to an assessment of environmental impacts and that special emphasis should be placed on resources that are rare or unique to the region.

b. Project impacts should be analyzed relative to their effects on off-site habitats. Specifically, this should include nearby public lands, open space, adjacent natural habitats, and riparian ecosystems. Impacts to and maintenance of wildlife corridor/movement areas, including access to undisturbed habitat in adjacent areas, should be fully evaluated and provided.

c. A cumulative effects analysis should be developed as described under CEQA Guidelines, § 15130. General and specific plans, as well as past, present, and anticipated future projects, should be analyzed relative to their impacts on similar plant communities and wildlife habitats.

d. The document should include an analysis of the effect that the project may have on completion and implementation of regional and/or subregional conservation programs. Under §§ 2800-2840 of the Fish and Game Code, the Department, through the Natural Communities Conservation Planning (NCCP) program, is coordinating with local jurisdictions, landowners, and the Federal Government to preserve local and regional biological diversity. Coastal sage scrub is the first natural community to be planned for under the NCCP program. The Department recommends that the County ensure that the development of this and other proposed projects do not preclude long-term preserve planning options and that projects conform with other requirements of the NCCP program. Jurisdictions participating in the NCCP should assess specific projects for consistency with the NCCP Conservation

Guidelines. Additionally, the jurisdictions should quantify and qualify: 1) the amount of coastal sage scrub within their boundaries; 2) the acreage of coastal sage scrub habitat removed by individual projects; and 3) any acreage set aside for mitigation. This information should be kept in an updated ledger system. These issues must be addressed in an Environmental Impact Report per CEQA Guidelines, § 15065 and § 15380.

3. A range of alternatives should be analyzed to ensure that alternatives to the proposed project are fully considered and evaluated. A range of alternatives which avoid or otherwise minimize impacts to sensitive biological resources should be included. Specific alternative locations should also be evaluated in areas with lower resource sensitivity where appropriate.

   a. Mitigation measures for project impacts to sensitive plants, animals, and habitats should emphasize evaluation and selection of alternatives which avoid or otherwise minimize project impacts. Off-site compensation for unavoidable impacts through acquisition and protection of high-quality habitat elsewhere should be addressed.

   b. The Department considers Rare Natural Communities as threatened habitats having both regional and local significance. Thus, these communities should be fully avoided and otherwise protected from project-related impacts (Attachment 2).

   c. The Department generally does not support the use of relocation, salvage, and/or transplantation as mitigation for impacts to rare, threatened, or endangered species. Department studies have shown that these efforts are experimental in nature and largely unsuccessful.

4. If the project has the potential to adversely affect species of plants or animals listed under the California Endangered Species Act (CESA), either during construction or over the life of the project, a CESA-Memorandum of Understanding (CESA-MOU) must be obtained under § 2081 of the Fish and Game Code. CESA-MOU's are issued to conserve, protect, enhance, and restore State-listed threatened or endangered species and their habitats. Early consultation is encouraged, as significant modification to a project and mitigation measures may be required in order to obtain a CESA-MOU.

a. Biological mitigation proposals should be of sufficient detail and resolution to satisfy the requirements for a CESA-MOU.

b. A Department-approved Mitigation Agreement and Mitigation Plan are required for plants listed as rare under the Native Plant Protection Act.

5. The Department opposes the elimination of watercourses and/or their channelization or conversion to subsurface drains. All wetlands and watercourses, whether intermittent or perennial, must be retained and provided with substantial setbacks which preserve the riparian and aquatic values and maintain their value to on-site and off-site wildlife populations.

a. The Department has direct authority under Fish and Game Code § 1600 et seq. in regard to any proposed activity which would divert, obstruct, or affect the natural flow or change the bed, channel, or bank of any river, stream, or lake. Departmental jurisdiction under § 1600 et seq. applies to all lands within the 100-year floodplain. Early consultation is recommended, since modification of the proposed project may be required to avoid or reduce impacts to fish and wildlife resources.

b. A discussion of potential adverse impacts from any increased runoff, sedimentation, soil erosion, and/or urban pollutants on streams and watercourses on or near the project site, with mitigation measures proposed to alleviate such impacts must be included.

The Department holds regularly scheduled pre-project planning/early consultation meetings. To make an appointment, please call our regional office at (310) 590-5137.

Thank you for this opportunity to comment. Questions regarding this letter and further coordination on these issues should be directed to Ms. Lilia I. Martinez, Environmental Specialist III, at (310) 590-4830 or Mr. Randall Botta, Wildlife Biologist, at (619) 675-0124.

Sincerely,

Lilia I. Martinez

Patricia Wolf
Acting Regional Manager

Attachments

cc: See Attached List

cc: Ms. Lilia I. Martinez
Department of Fish and Game
Long Beach, California

Mr. Randall Botta
Department of Fish and Game
San Diego, California

Mr. Tim Dillingham
Department of Fish and Game
San Diego, California

Mr. Jim Dice
Department of Fish and Game
Borrego Springs, California

Mr. Terry Foreman
Department of Fish and Game
San Diego, California

Ms. Terri Stewart
Department of Fish and Game
San Diego, California

Ms. Terri Dickerson
Department of Fish and Game
Laguna Hills, California

U.S. Fish and Wildlife Service
Carlsbad, California

U.S. Army Corps of Engineers
Los Angeles, California

State Clearinghouse
Sacramento, California

APPENDIX B
PRELIMINARY DESIGN REPORT

PRELIMINARY DESIGN REPORT

FOR THE

LOWER MOOSA CANYON WATER RECLAMATION

FACILITY EXPANSION

Prepared for:

Valley Center Municipal Water District
29300 Valley Center Road
Valley Center, CA 92082

Prepared by:

Barrett Consulting Group
9675 Business Park Avenue
San Diego, California 92131
(619) 536-5610 Fax: (619) 536-5620

January 22, 1996

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EXECUTIVE SUMMARY

The Valley Center Municipal Water District (District) owns and operates the Lower Moosa Canyon Water Reclamation Facility (LMCWRF) located at Circle R Drive and Champagne Boulevard. The LMCWRF currently treats an average daily flow of approximately 0.24 mgd. to a secondary level of treatment prior to discharge to percolation ponds located west of Interstate 15 and north of Camino Del Rey Road. Although the LMCWRF has a current rated "liquid" treatment capacity of 0.5 mgd, the "solids" treatment capacity of the facility is limited to approximately 0.25 mgd due to limited sludge digestion and drying capacity. In addition, upsets at the LMCWRF realized during warm weather months could be an indication that the oxygen transfer efficiency rate provided by the existing course bubble diffuser system may not sufficiently accommodate flows up to 0.5 mgd. The LMCWRF currently does not include odor control equipment.

Prior to the recent issuance of the Board Order 95-32, which established the waste discharge requirements for the LMCWRF, the discharge of effluent to the percolation ponds was limited to 0.3 mgd without the use of water balancing practices. Per Board Order 95-32, the discharge of up to 0.44 mgd of secondary treated effluent would be acceptable assuming prior groundwater modeling results are validated by December 1996. At flow rates above 0.44 mgd, a water balancing program would have to be implemented that will require the effluent from the LMCWRF to be treated to a tertiary (rapid mix, coagulation, flocculation, filtration, disinfection) level. On June 30, 1995, a Facility Planning Report was completed that presented a strategy and associated costs for improvements required to accommodate future flows. Following review of the Facility Planning Report, the District decided to expand the LMCWRF with a phased approach that considers the anticipated rate of capacity increase, current operational limitations, the concerns of the community in the vicinity of the LMCWRF, and fiscal constraints. Phase 1 includes the addition of sludge drying beds in order to provide better operational flexibility in order to decrease the potential for future plant upsets. Phase 1 is currently being implemented. Phase 2 will include improvements needed to achieve the following:

- Provide influent metering for process control and grit removal facilities in order to minimize potential maintenance problems.
- Provide improvements to the activated sludge system in order to ensure liquid capacity is available to provide secondary level treatment for flows of at least 0.44 mgd.
- Provide sludge digestion and mechanical dewatering capabilities for flows of at least 0.44 mgd. This will increase operational flexibility and will minimize the reliance on sludge drying beds.
- Provide odor control facilities at the headworks and solids handling areas.
- Provide improvements to the chlorine disinfection facilities in order to enhance safety.

Phases 3, 4, and 5 will include improvements needed to provide tertiary treatment and other features required by the LMCWRF waste discharge permit as flows increase beyond established break points.

A preliminary level design has been conducted for the Phase 2 facilities. The primary purpose of this report is to provide the results of the preliminary design efforts. In addition, a revised facility planning level assessment of improvements required for future phases, based upon the revised phasing strategy, is provided. Chapter 1 of this report provides a discussion of the revised phasing strategy and facility planning level descriptions, and the facility planning level capital costs for Phases 2 through 5.

Chapter 2 of this report provides a summary of proposed Phase 2 improvements including a site layout, hydraulic profile, and preliminary design level capital, operation and maintenance costs. The total preliminary design level cost estimate for the Phase 2 expansion is $3,170,000. The preliminary design level construction cost component of the total cost is $2,760,000. Capital cost breakdowns and operation and maintenance cost information for the Phase 2 expansion is provided in Chapter 2 of this report. Appendices A through E provide detailed Preliminary Design Packages for the major unit process areas that will be impacted as part of the Phase 2 expansion.

CHAPTER 1

PHASING STRATEGY AND FACILITY PLANNING EVALUATION

1.1 Introduction

The District owns and operates the LMCWRF. In order to address future capacity requirements and facility expansion needs, the District directed Barrett Consulting Group (BCG) to conduct a series of studies to identify anticipated regulatory requirements and the facilities needed to satisfy those requirements. Following the completion of various study efforts, a June 30, 1995 Facilities Planning Level Letter Report was prepared by BCG which identified required improvements and associated capital costs assuming the District's originally proposed phasing strategy. The June 30, 1995 Facility Planning Level Letter Report provided a summary of the improvements required to upgrade the LMCWRF to accommodate flow rates of 0.76 million gallons per day (mgd) and 1.0 mgd.

Following review of the Facility Planning Report, the District modified its implementation approach and currently plans to expand the LMCWRF up to 1.0 mgd in five phases. This chapter discusses the rationale associated with the revised phasing approach. In addition, this chapter provides facility planning level summaries of the unit process sizing requirements for each of the five phases, and facility planning level construction costs associated with each phase. The information presented in this chapter serves to update the information presented in the Facility Planning Report. In order to facilitate comparison, the design criteria and cost estimate tables included in this chapter are presented in the same format as the tables provided in the Facility Planning Report.

As part of the revised phasing approach, Phase 1, the expansion of the sludge drying beds, is currently being implemented. A preliminary design has been competed for Phase 2. This Preliminary Design Report includes the results of the preliminary level design of the Phase 2 facilities. Chapter 2 of this report provides an overview of the proposed Phase 2 project. The cost presented in this report for the Phase 1 facilities are actual costs. The costs presented for the Phase 2 facilities are based upon a preliminary design level of accuracy.

The costs and other facility planning level information presented in this chapter for Phases 3, 4, and 5 are based on a conceptual level of analysis and are subject to change during more detailed preliminary and final design.

1.2 Regulatory And Phasing Issues

In the June 30, 1995 Facilities Planning Report, it was assumed that the expansion of the LMCWRF would be conducted in two phases. The first phase would be capable of treating up to 0.76 mgd. The second phase would be capable of treating the ultimate capacity of 1.0 mgd. Following review of the Facility Planning Report, the District decided to implement a modified phasing approach that would better accommodate the anticipated rate of capacity increase, current operational limitations, the concerns of the community in the vicinity of the LMCWRF, and fiscal constraints.

Board Order 95-32 establishes the Waste Discharge Requirements for the LMCWRF. Pending validation of recent groundwater modeling efforts, Board Order 95-32 allows for the discharge of up to 0.3 mgd of secondary effluent to the percolation ponds without groundwater extraction. Recent modeling efforts have indicated that the groundwater basin can accommodate up to 0.44 mgd without surfacing in the adjacent stream (without groundwater extraction). The Regional Water Quality Control Board (RWQCB) has indicated that the discharge of up to 0.44 mgd would be acceptable assuming the model has been validated by December 1996. This Preliminary Design Report assumes that the model will be validated and that secondary discharges up to 0.44 mgd will be allowed without groundwater extraction.

A groundwater management plan, including the extraction of groundwater from the vicinity of the percolation ponds and the utilization of reclaimed water from the LMCWRF and the groundwater basin, will be required when discharges exceed 0.44 mgd. Reclaimed water used directly from LMCWRF for irrigation purposes will require filtration and disinfection. Since the groundwater within the vicinity of the percolation ponds may also be used as reclaimed water, and the groundwater in the extraction area is anticipated to be significantly

influenced by the percolated effluent, discharges to the percolation ponds will also be required to be filtered and disinfected prior to discharge to the percolation ponds.

The modeling effort also indicated that a water balance approach would not be viable for flows above approximately 0.63 mgd. Seasonal storage, intermittent live stream discharge, or seasonal/permanent live stream discharge requiring nutrient removal provisions would be required when discharges exceed approximately 0.63 mgd. The 0.63 mgd breakpoint value is also an estimate and will require verification during the model validation process.

The following summarizes the key "break points" that have been identified and the associated level of treatment required. As indicated previously, these breakpoint values are approximate and must be verified through validation of prior groundwater modeling efforts:

Discharge Rate	Required Treatment and Effluent Management Option
0 to 0.44 mgd	Percolation of Secondary Effluent
0.44 mgd to 0.63 mgd	Filtered/Disinfected Effluent Required to Accommodate Reuse as Part of a Water Balance Approach to Basin Management
0.63 mgd to 1.0 mgd	Filtered/Disinfected Effluent Seasonal Storage or Intermittent Live Stream Discharge or Permanent/Seasonal Live Stream Discharge (requires nutrient removal)

In addition to the consideration of the additional improvements required to accommodate the levels of treatment mandated at various flow rates, the District must also consider the requirements of the various "Commitment Groups" that have indicated a need for capacity, and the timing and level of commitment associated with that need. The individual needs and funding status associated with the following four "Commitment Groups" were considered by the District in the determination of the revised phasing strategy:

Commitment Group	Capacity Required	Total Plant Capacity Required
Existing Fully Paid Commitments	0.43 mgd	0.43 mgd
Existing Partially Paid Commitments	0.11 mgd	0.54 mgd
New Commitments	0.22 mgd	0.76 mgd
District Share of Ultimate Capacity	0.24 mgd	1.0 mgd

In consideration of the regulatory "breakpoint" flow rates and the anticipated timing of the need for capacity by the various "Commitment Groups," a revised five-phase strategy has been established as follows:

Phase	Expanded Plant Capacity	Basis
Phase 1	0.25 mgd	This phase includes expansion of the sludge drying beds in order to enhance operational flexibility and the ability to reliably treat up to 0.25 mgd.
Phase 2	0.25 mgd to at least 0.44 mgd	This phase will accommodate the "Existing Fully Paid Commitments" of 0.43 mgd and will fall within the capacity allowed for continued secondary treatment. The solid handling capacity would be increased from 0.25 mgd to at least 0.44 mgd and additional improvements would be provided in order to accommodate or enhance the ability to treat a minimum flow rate of 0.44 mgd. New odor control, grit removal, and other facilities will also be provided.
Phase 3	0.44 mgd to at least 0.63 mgd	This phase will accommodate the "Existing Partially Paid Commitments" of 0.54 mgd and will fall within the capacity allowed for tertiary treatment (filtered/disinfected) without the requirements for seasonal storage or live stream

Phase	Expanded Plant Capacity	Basis
		discharge. Improvements would include the facilities required to treat flows up to 0.63 mgd to the tertiary level including associated increased solids handling capabilities.
Phase 4	0.63 mgd to at least 0.75 mgd	This phase will accommodate the anticipated "New Commitments" of approximately 0.75 mgd and will include the improvements required to increase tertiary treatment capabilities and provide seasonal storage for flows above 0.63 mgd.
Phase 5	0.75 mgd to 1.0 mgd	This phase will accommodate the anticipated "Ultimate Flow" of 1.0 mgd. If the approval for interim live stream discharge is obtained, this phase would include the improvements required to increase the tertiary treatment capabilities to 1.0 mgd and the provisions of additional seasonal storage if required. If interim live stream discharge is not obtainable, the District would be required to obtain approval for live stream discharge and would be required to provide nutrient removal facilities.

The key unit processes to be included in each of the five expansion phases are discussed in the following section.

1.3 Unit Process Summary Per Phase

Per the requirements established in Board Order 95-32, the regulatory requirements used to identify and size the required unit processes for each phase are as follows:

Flow/Quality Parameter	0.25 -0.44 mgd	0.63-0.75 mgd	1.0 mgd
Average Flow, mgd	0.25 - 0.44	0.63 - 0.75	1.0
Peaking Factor	2.5	2.5	2.25
Peak Flow, mgd	0.63 - 1.10	1.58 - 1.88	2.25
Influent BOD, mg/l	250	250	250
Influent SS, mg/l	300	300	300
Effluent BOD, mg/l	20	20	20
Effluent SS, mg/l	20	20	20
Effluent Turbidity, NTU	N.A.	2	2
Coliform, MPN	N.A.	2.2/100 ml	2.2/100 ml

The peaking factors were based upon peaking factors used in prior District studies.

Table 1.1 summarizes the facility planning level design criteria used for the various unit processes associated with each of the five proposed project phases. For financial analysis purposes, the facilities required to accommodate a Phase 2 (0.44 mgd) project without consideration of future expansion is provided. In addition, the facilities required for the Recommended Phase 2 (0.44 mgd) facility are provided. The Recommended Phase 2 facilities include provisions for future expansion. The Phases 3, 4, and 5 facilities assume that the Recommended Phase 2 facilities are implemented.

The objective of the Phase 1 expansion is to provide additional sludge drying bed capacity in order to increase the ability to manage the sludge from the current 0.25 mgd flow. The Phase 1 expansion is limited to drying bed improvements and will not result in an increase in capacity. The paved drying beds will require a significantly longer time to dry the sludge relative to the existing sand drying beds. However, the paved beds will facilitate the removal of sludge at higher moisture contents and will not require the leveling of sand that is a labor-intensive and time-consuming activity. The existing sand drying beds will remain in place for failsafe use.

Table 1.1

Design Criteria

	Parameter	Unit	0.25 mgd (Phase 1)	0.44 mgd Recommended Project	0.63 mgd (Phase 3)	0.75 mgd (Phase 4)	1.00 mgd (Phase 5)
	Average Flow	mgd	0.25	0.44	0.63	0.75	1
	Peaking Factor		2.5	2.5	2.5	2.5	2.25
	Peak Flow	mgd	0.63	1.1	1.6	1.9	2.25
1	***Headworks***						
	Influent Flow Meter	No.	-	1	1	1	1
	Mechanical Bar Screen	No.	-	-	1	1	1
	Capacity	Mgd	-	-	3.5	3.5	3.5
2	***Aerated Grit Chamber***						
	Chambers	No.	-	1	1	1	1
	Detention Time @ Peak Flow	Min.	-	5.7	5.7	5.7	5.7
	Length	Ft	-	15	15	15	15
	Width	Ft	-	8	8	8	8
	SWD	Ft	-	10	10	10	10
	Airlift Pumps	No.	-	2	2	2	2
	Grit Washer / Classifier	No.	-	1	1	1	1
	PD Blowers	No.	-	2	2	2	2
3	***Odor Control System***						
	Packed Bed Scrubber	No.	-	1	1	1	1
	Fans	No.	-	2	2	2	2
	NaOCl Tank	gallons	-	2000	2000	2000	2000
	NaOH Drum	gallons	-	500	500	500	500
4	***Aeration Basins***						
	Fine Bubble Diffusers (2 Basins)	No.	-	2	2	2	2
	Centrifugal Blowers	No.	-	-	-	1	2
	Capacity (Ea)	Cfm	-	-	-	650	650

Table 1.1

Design Criteria

	Parameter	Unit	0.25 mgd (Phase 1)	0.44 mgd Recommended Project	0.63 mgd (Phase 3)	0.75 mgd (Phase 4)	1.00 mgd (Phase 5)
5	***Flow Equalization***						
	Equalization Tank(s)	No.	-	-	1	2	2
	Capacity	Mgd	-	-	0.187	0.374	0.374
	Length (Ea)	Ft	-	-	50	50	50
	Width (Ea)	Ft	-	-	50	50	50
	SWD	Ft	-	-	10	10	10
	FEB Pumps	No.	-	-	3	3	4
	Capacity (Ea)	gpm	-	-	219	260	347
	Horsepower (Ea)	Hp	-	-	5	5	5
6	***Rapid Mix / Flocculation***						
	Tanks	No.	-	-	2	2	2
	Length (Ea)	Ft	-	-	8	8	8
	Width (Ea)	Ft	-	-	8	8	8
	SWD	Ft	-	-	10	10	10
	Rapid Mixer	No.	-	-	1	1	1
	Horsepower (Ea)	Hp	-	-	0.25	0.25	0.25
	Reactor Clarifier	No.	-	-	1	1	1
	Capacity (Ea)	Gpm	-	-	750	750	750
	Diameter	Ft	-	-	20.5	20.5	20.5
	Depth	Ft	-	-	15	15	15
	Reactor Horsepower	Hp	-	-	2	2	2
	Clarifier Drive Horsepower	Hp	-	-	0.5	0.5	0.5
7	***Filtration Facilities***						
	Type: Upflow Filters	No.	-	-	3	4	5
	Capacity (Ea)	Gpm	-	-	250	250	250
8	***Disinfection***						
	Chlorination Scrubber	LS	-	1	-	-	-
	Type: Ultraviolet Effluent Channel	No.	-	-	-	1	1
	Length	Ft	-	-	-	46	46
	Width	In	-	-	-	40	40
	SWD	In	-	-	-	48	48

Design Criteria

	Parameter	Unit	0.25 mgd (Phase 1)	0.44 mgd Recommended Project	0.63 mgd (Phase 3)	0.75 mgd (Phase 4)	1.00 mgd (Phase 5)
9	***RAS/WAS Pump Station***						
	Ras Pump	No.	-	-	4	4	5
	Capacity	Gpm	-	-	250	250	250
	Was Pump	No.	-	2	2	3	3
	Capacity	Gpm	-	120	120	120	120
10	***Sludge Digestion***						
	Type: Aerobic Digester	No.	-	1	2	2	2
	Length (Ea)	Ft	-	28	28	28	28
	Width (Ea)	Ft	-	28	28	28	28
	SWD (Ea)	Ft	-	24	24	24	24
	Detention Time	Days	-	40	40	40	40
	Submerged Aerator	No.	-	1	2	2	2
11	***Sludge Dewatering / Thickening***						
	Type: Centrifuge	No.	-	1	1	1	1
	Feed Rate	Gpm	-	50	50	50	50
	Sludge Drying Beds	No.	2*	6	6	6	6
	Length (Ea)	Ft	60	60	60	60	60
	Width (Ea)	Ft	20	20	20	20	20
	SWD (Ea)	Ft	1.5	1.5	1.5	1.5	1.5
	Volume (Ea)	Cf	1800	1800	1800	1800	1800
12	***Emergency Generator***						
	Type: Natural Gas	No.	-	-	1	1	1
	Capacity	KW	-	-	250	250	250

* *This includes 2 new drying beds. Under Phase 2, the existing drying beds will remain in operation.*

Phase 2 will include the improvements required to provide solids handling (digestion and dewatering) capabilities needed to enable the LMCWRF to accommodate at least 0.44 mgd. Improvements to the headworks area will be provided in order to provide influent flow metering and grit removal facilities. Odor control facilities will be provided under Phase 2 in order to minimize the potential for odors. Fine bubble aeration equipment will be provided in order to provide sufficient quantities of process air for adequate operation for flow rates up to and beyond 0.44 mgd. The addition of fine bubble aeration will also result in power cost savings. The RAW/WAS pump station will be expanded in order to accommodate new pumping equipment and stairs that will serve to enhance operator safety. Improvements to the chlorination facilities will be provided in order to enhance safety. Since it is anticipated that the regulatory requirements will allow for the discharge of secondary effluent to the percolation ponds for flows up to 0.44 mgd (pending validation of the prior groundwater modeling studies), no flow equalization, rapid mix/flocculation, filtration, or additional disinfection (ultraviolet) facilities will be provided.

Phase 3 will provide the improvements required to accommodate flows up to 0.63 mgd. The regulatory requirements indicate that flows up to 0.63 mgd must be treated to the tertiary (filtered/disinfected) level in order to facilitate a water balance between discharge to the percolation ponds and golf course irrigation. It is anticipated at this time that the groundwater basin can accommodate up to 0.63 mgd through the use of a water balance approach and that seasonal storage will not be required. Therefore, the Phase 3 improvements will primarily consist of the addition of flow equalization, rapid mix/flocculation, filtration, and disinfection (ultraviolet) facilities. The existing barminuter is currently being replaced by a new comminutor. If in the future the LMCWRF experiences problems associated with stringy materials passing through the comminutor, a mechanical bar screen may be installed. Costs for the mechanical bar screen are included in the Phase 3 cost estimate for planning purposes.

Phase 4 will provide the improvements required to accommodate flows up to 0.75 mgd. A project sized to accommodate the Phase 4 capacity of 0.75 mgd would require additional tertiary treatment capabilities. In addition, seasonal storage, intermittent live stream

discharge, or seasonal/permanent live stream discharge provisions would be required. Since it appears possible to convert a portion of the existing percolation ponds to a lined reclaimed water storage reservoir, the utilization of the modified seasonal storage/intermittent live stream discharge approach would be the most cost-effective option for the 0.75 mgd facility. Based on the assumption that the 0.63 mgd breakpoint value is accurate, a 12 million gallon reservoir would be required to provide 90 days of seasonal storage capacity. It is recommended that a lesser volume be provided, as part of the recommended 0.75 mgd project, that would provide the District with adequate time to pursue approval for intermittent live stream discharge. By lining the existing eastern percolation pond, the District will realize approximately 7 million gallons of storage capacity. Various design features may be incorporated that could increase this capacity. These features should be addressed as part of future Phase 4 design efforts. It is currently assumed that the available storage volume would provide the 90-day storage capacity needed to accommodate flows up to approximately 0.7 mgd. Based upon the recent Central Valley Sewer project, it appears that if intermittent live stream discharge is approved, significantly less storage (approximately 20 to 23 percent of the total) volume would be required. Therefore, if intermittent live stream discharge was approved, the required volume for the 0.75 mgd project would be approximately between 2 to 3 million gallons. For 1 mgd the required intermittent live stream discharge storage volume would be approximately between 6.5 and 7.5 million gallons (as opposed to 33 million gallons).

The facilities currently identified for the future Phase 4 (0.75 mgd) project would provide the District with enough capacity to allow a significant amount of time to pursue intermittent live stream discharge approval, and may also provide the District with a suitable storage reservoir for future 1.0 mgd flows if intermittent live stream discharge is realized. If approval for intermittent live stream discharge is not obtainable, seasonal storage would not be practical at some point between 0.70 mgd and 0.75 mgd, and live stream discharge with provisions for nutrient removal at the LMCWRF would be required.

The Phase 5 project includes provisions for flows up to 1.0 mgd. As stated previously, if the approval of intermittent live stream discharge was not obtainable, then nutrient removal

facilities would be required in order to obtain approval for live stream discharge. For general information purposes, the facility planning level cost estimates provided in this chapter include the cost for nutrient removal facilities. However, it is assumed that interim live stream discharge approval can be obtained and the layout of future facilities does not include provisions for nutrient removal. This decision was based on the assumption that the probability of obtaining approval for an intermittent live stream discharge is considered high, based upon the current actions and decisions by the RWQCB. In addition, it is anticipated that it will be many years before the demand for capacity up to 1.0 mgd are realized. Therefore, since the layout of future facilities to accommodate potential nutrient removal requirements does not produce the most efficient and cost-effective layout, the facilities have been configured assuming nutrient removal will not be required.

The following summarizes the rationale associated with the facility planning level selection and sizing of various unit processes relative to each proposed expansion phase. Discussions are provided for each major process area.

Headworks

Component Summary Per Phase

Phase 1 - No improvements provided

Phase 2 - Flow metering

Phase 3 - Mechanical bar screen under this phase, flow metering provided under Phase 2

Phases 4 and 5 - Flow metering provided and mechanical bar screen capacity provided under Phases 2 and 3

Improvements Required Under Each Phase

The proposed improvements to the headworks area for the recommended Phase 2 project includes a new influent flow meter. Due to the nature of the equipment, the flow metering device will be sized to accommodate flows from 0.25 mgd to 1.0 mgd. The addition of influent flow metering is required to accommodate process control and will also provide the operations staff with data that is currently not available (the plant currently uses an effluent meter to monitor flow rate). The influent flow metering equipment will consist of a depth

sensing devise mounted above a Palmer Bowles flume to be located in a new vault installed along the influent pipeline upstream of the existing influent channels.

The existing barminuter is currently being replaced with a new comminutor. This new comminutor should be more efficient than the existing barminuter and should serve the needs of the LMCWRF for several years. If problems should occur associated with the accumulation of stringy materials that may pass through the comminutor, a mechanical bar screen may be installed. For planning purposes, it is assumed that a mechanical bar screen would be included as part of the Phase 3 expansion. The mechanical bar screen would be sized to accommodate flows up to 1.0 mgd.

Aerated Grit Removal Facilities

Component Summary Per Phase

Phase 1 - No improvements provided

Phase 2 - Aerated grit removal facilities sized for ultimate

Phases 3, 4 and 5 - Aerated grit removal capacity provided under Phase 2

Improvements Required Under Each Phase

Various types of grit removal facilities were considered. An aerated grit removal system was selected based upon its proven ability to operate under a wide range of flow conditions, the fact that the low headloss associated with this type of system facilitates the existing configuration of downstream unit processes, and the proven operational success and reliability of this type of system. The aerated grit system will be covered, and the collected air will be processed through the proposed odor control system.

Options for phasing the grit removal facilities were evaluated. However, due to the fact that the structure required for 1.0 mgd is relatively small, it is not practical to phase the construction of the structure. The key mechanical components associated with the grit removal facilities are configured to accommodate flow rates between 0.0 and 1.0 mgd and greater.

Odor Control

Component Summary Per Phase

Phase 1 - No improvements provided

Phase 2 - Odor scrubbing systems for the headworks area and the solids handling area (sized for ultimate)

Phases 3, 4 and 5 - Odor scrubbing systems with capacities provided under Phase 2

Improvements Required Under Each Phase

Improvements to the headworks area and solids handling area under Phase 2 will include containment for potentially odorous air. The difference between the sizing requirements for the odor control equipment for Phase 2 and Phase 5 are not significant. Therefore, it is recommended that the equipment sized to accommodate the ultimate facility be installed under Phase 2.

Aeration Basins

Component Summary Per Phase

Phase 1 - No improvements provided

Phase 2 - Replacement of the existing course bubble aeration system with fine bubble aeration equipment

Phase 3 - No improvements provided

Phase 4 - One additional blower provided

Phase 5 - No improvements required

Improvements Required Under Each Phase

Recently completed studies indicate that the existing aeration basin tankage will provide sufficient volume to accommodate up to 1.0 mgd, assuming fine bubble air diffusers and additional blower capacity is provided. Under Phase 2, fine bubble air diffusion will be installed in both of the aeration basins. The installation of the fine bubble diffusers should serve to lessen the potential for problems related to a lack of adequate dissolved oxygen during summer months, and will provide the oxygen transfer rates necessary for proper operation of the system for flows up to 0.44 mgd and beyond. In addition, the improvements

will provide a more energy efficient system that will result in cost savings associated with utility costs. Rebates associated with energy savings associated with the use of fine bubble diffusers will also be pursued from SDG&E. The recommended air diffusion system is further discussed under Chapter 2 of this report. The proposed Phase 2 improvements will also include piping modifications and the addition of air flow meters in order to provide the ability to balance air flows between the aeration basins and other processes connected to the plant air system.

The existing blowers provide adequate capacity through Phase 3. It is recommended that an additional blower be provided as part of the Phase 4 expansion that will provide sufficient capacity through Phase 5.

Return Activated Sludge (RAS)/Waste Activated Sludge (WAS) Pump Station

Component Summary Per Phase

Phase 1 - No improvements provided

Phase 2 - Expansion of the station, addition of two new WAS pumps, new drives on RAS pumps

Phase 3 - Addition of one new RAS pump (total of four RAS pumps)

Phase 4 - Addition of one new WAS pump (total of three WAS pumps)

Phase 5 - Addition of one new RAS pump (total of five RAS pumps)

Improvements Required Under Each Phase

Currently, RAS and WAS pumping requirements are both served by three pumping units (two duty and one standby) located in the existing sludge pumping station. The sludge pump station is approximately 20 feet deep and can only be accessed via an access hatch and ladder. Operations personnel are required to climb into the station several times per day in order to manually adjust valves and set pumping rates to satisfy either RAS or WAS pumping requirements. The proposed Phase 2 expansion will provide for separate RAS and WAS pumping systems. The sludge pump station will be expanded in order to facilitate the installation of two new WAS pumps (one duty and one standby). Stairs to the expanded station will enable safer access to the station. In order to accommodate automated operation,

the new WAS pumps will be provided with variable speed drives, and the existing RAS pumps will be retrofitted with new variable speed drives.

Additional RAS pumps will be required under Phases 3 and 5. An additional WAS pump will be required under Phase 4.

Flow Equalization

Component Summary Per Phase

Phase 1 - No improvements provided

Phase 2 - No improvements provided

Phase 3 - One rectangular tank sized to accommodate a plant influent rate of 0.63 mgd

Phase 4 - One additional tank sized to accommodate a plant influent rate of 0.63 mgd

Phase 5 - Capacity provided by tanks constructed under Phases 3 and 4

Improvements Required Under Each Phase

A flow equalization tank and appurtenant pumping equipment will be provided upstream of the rapid mix, coagulation, flocculation, filtration, and disinfection facilities in order to minimize facility sizing requirements. The flow equalization basin will be located in the southeast corner of the facility in order to facilitate gravity flow to the equalization tank.

As part of the Phase 3 expansion, a rectangular flow equalization basin sized to accommodate a plant influent flow rate of 0.63 mgd will be constructed. As part of the Phase 4 expansion, a second rectangular tank also sized to accommodate a plant influent flow rate of 0.63 mgd will be constructed adjacent to the first tank. Pumping equipment will share a common wet well and will be sized to accommodate phasing requirements. The pumps shall be equipped with variable speed drives which can be adjusted to match the increase in plant flow rates.

Rapid Mix/Flocculation and Enhanced Clarification

Component Summary Per Phase

Phase 1 - No improvements provided

Phase 2 - No improvements provided

Phase 3 - One rapid mix/flocculation/and enhanced clarification unit sized for ultimate capacity

Phase 4 and 5 - Capacity provided by equipment installed under Phase 3

Improvements Required Under Each Phase

Chemicals such as alum and polymers are used to enhance the filtration process. Rapid mix and flocculation facilities are located upstream of the filters in order to facilitate the efficient and cost-effective use of chemicals and to allow sufficient contact time prior to the filtration process.

The existing secondary clarifiers have a shallow 8-foot sidewater depth. Facilities with shallow clarifier sidewater depths typically do not produce an effluent with a turbidity low enough to allow the downstream filters to produce a product capable of meeting Title 22 turbidity requirements. In order to mitigate this situation, it is recommended that enhanced clarification facilities be provided downstream of the rapid mix/flocculation facilities in order to consistently produce an effluent that can be filtered to meet the regulatory requirement.

The size of the tanks and associated equipment for rapid mix, flocculation, and enhanced clarification are relatively small at flow rates of 1.0 mgd. Assuming that the plant will be expanded to 1.0 mgd at some point in the future, it did not appear practical to construct these facilities in incremental components.

Filtration Facilities

Component Summary Per Phase

Phase 1 - No improvements provided

Phase 2 - No improvements provided

Phase 3 - Installation of three filter units

Phase 4 - Installation of one additional unit

Phase 5 - Installation of one additional unit

Improvements Required Under Each Phase

Self-backwashing upflow-type filters have been selected in order to minimize the capital and operating costs of the proposed improvements. The use of self-backwashing filters eliminates the need for backwash holding and pumping facilities. In addition, high volume waste backwash sidestream flows are minimized. The Dynasand-type upflow filter is the only proven upflow filter with several installations in Southern California. It may be advantageous to pre-purchase the Dynasand filters since the equipment is proprietary and pre-purchase would avoid inflation of the price during the bid period, or other bid period problems such as the "packaging" of the filters with several other items of equipment by the manufacturer in order to inflate the price of the entire package.

The configuration of the upflow filters readily accommodates the incremental addition of filters as the flows to the LMCWRF increase. Under Phase 3, three filters will be installed. Two of the filters will serve as duty units and one will serve as standby. Additional units will be required under Phases 4 and 5 to accommodate flow increases.

Disinfection

Component Summary Per Phase

Phase 1 - No improvements provided

Phase 2 - Improvements to the chlorination system to enhance safety

Phase 3 - Installation of ultraviolet disinfection equipment

Phase 4 - Ultraviolet disinfection equipment provided under Phase 3 will be adequate to serve Phase 4

Phase 5 - Installation of additional ultraviolet disinfection equipment to accommodate flows up to 1.0 mgd

Improvements Required Under Each Phase

Existing chlorination equipment is sized to accommodate process needs for Phase 2 flows. However, a chlorine scrubber and other improvements will be provided under Phase 2 to in order to enhance safety. Under Phase 3, ultraviolet disinfection facilities will be needed to satisfy Title 22 reclamation requirements. The use of ultraviolet disinfection will eliminate the need for a large chlorine contact tank. Chlorine will continue to be used for various process needs. The ultraviolet facilities installed under Phase 3 will have sufficient capacity to accommodate both Phases 3 and 4. Additional ultraviolet facilities will be required to accommodate Phase 5 demands.

Sludge Digestion

Component Summary Per Phase

Phase 1 - No improvements provided

Phase 2 - One aerobic digesters sized to accommodate flows up to 0 5 mgd

Phase 3 - One additional aerobic digester for a total combined capacity of 1.0 mgd

Phase 4 - Capacity provided under Phase 3

Phase 5 - Capacity provided under Phase 3

Improvements Required Under Each Phase

The existing digester will be used as an aerated sludge holding tank in order to provide operational flexibility. The new digester and the existing digester will be covered and the foul air will be collected and scrubbed.

The volume of the new aerobic digester included under Phase 2 provides capacity for at least 0.5 mgd. The addition of an identically-sized digester would be required under Phase 3. The sludge pumps and associated piping provided under Phase 2 will be sufficient for all phases. The positive displacement blowers provided under Phase 2 for the existing aerobic digester (and aeration basin effluent channel air) will be sufficient for all phases.

Sludge Dewatering/Thickening

Component Summary Per Phase

Phase 1 - Two new paved drying beds

Phase 2 - One centrifuge, solids handling building, and chemical handling facilities will be provided that are sized for ultimate flow conditions

Phases 3, 4 and 5 - Capacity provided under Phase 2

Improvements Required Under Each Phase

Under Phase 1, new paved drying beds will be provided. The paved drying beds will provide additional capacity in order to enhance operational flexibility. The drying time associated with the paved drying beds will be sufficiently longer than the drying time associated with the existing sand beds. However, the paved beds will facilitate removal of sludge at lower solids concentrations than the sand beds. In addition, the paved beds will not require leveling and the addition of new sand which are labor intensive tasks. The existing sand beds will remain in place in order to provide maximum flexibility and will be used as a failsafe dewatering measure.

Centrifuge and belt press equipment were considered for the required sludge dewatering and thickening operations. Based on its ability to serve both the thickening and dewatering functions, the ability to produce higher-cake solids, lower potential for odor release, and relative ease of operation, the centrifuge option was selected for this project. The centrifuge will be located within a sludge handling building. Dewatered sludge cake will be discharged to bins located within the sludge handling building. Chemical feed equipment required to provide the chemicals (polymer addition) needed to enhance the thickening/dewatering process will be located in the sludge handling building.

The smallest available centrifuge is capable of handling the sludge generated at ultimate flow conditions at the LMCWRF. Therefore, it is assumed that one centrifuge capable of providing dewatering capabilities for ultimate flow rates will be installed as part of the Phase 2 expansion.

Emergency Generator

Component Summary Per Phase

Phase 1 - No improvements provided

Phase 2 - No improvements provided

Phase 3 - Replacement of the existing emergency generator with a new unit sized for ultimate capacity of 1.0 mgd

Phases 4 and 5 - Capacity provided under Phase 3 expansion

Improvements Required Under Each Phase

Under Phase 3, a new emergency power generator capable of serving the critical load requirements of the upsized and additional facilities will be provided along with the associated electrical switchgear.

Seasonal Storage

Component Summary Per Phase

Phase 1 - No improvements provided

Phase 2 - No improvements provided

Phase 3 - No improvements provided

Phase 4 - Conversion of one percolation pond cell to provide seasonal storage capacity of approximately 7 million gallons (90 days of storage for 0.70mgd). It is assumed that intermittent live stream discharge will be pursued.

Phase 5 - Assumed that interim live stream discharge is approved and that capacity provided under Phase 4 expansion is adequate

Improvements Required Under Each Phase

Phase 4 includes the modification of a portion of the existing percolation pond in order to create a seasonal storage reservoir. By lining the existing eastern percolation pond, the District will realize approximately 7 million gallons of storage capacity. During the Phase 4 preliminary design, the design methods that may further increase the available capacity should be evaluated. The available storage volume would provide approximately 90 days storage capacity needed to accommodate flows up to approximately 0.7 mgd (not the full

0.75 mgd plant capacity). Based upon the recent Central Valley Sewer project, it appears that if intermittent live stream discharge is approved, significantly less storage (approximately 20 to 23 percent of the total) volume would be required. Therefore, if intermittent live stream discharge was approved, the required volume for the 0.76 mgd project would be approximately between 2 to 3 million gallons. For 1.0 mgd, the required intermittent live stream discharge storage volume would be approximately between 6.5 and 7.5 million gallons.

1.4 Facility Planning Level Cost Estimates

Phase 1 is currently under construction. The actual construction cost of the Phase 1 project is $92,000. A preliminary design of the Phase 2 facilities has been completed including the development of preliminary design level cost estimates. Facility planning level cost estimates have been prepared for Phases 3, 4, and 5. Table 1.2 provides a summary of the preliminary design level cost for the Phase 2 facilities. Costs are broken down per key process areas. A detailed breakdown of costs for each process area is provided in Appendices A through E. Tables 1.3, 1.4, and 1.5 provide facility planning level cost breakdowns for Phases 3 through 5. The costs presented for Phases 3, 4 and 5 are at a facility planning level only and may be modified during the preliminary and final design process. The costs for facilities not provided under Phase 2 are broken out in greater detail on Tables 1.3, 1.4 and 1.5. The costs are based upon discussions with equipment manufacturers, prices obtained from recently completed projects, and industry standards for planning level cost estimating.

Table 1.2

RECOMMENDED 0.44 MGD PROJECT (with provisions for expansion)
PRELIMINARY DESIGN LEVEL COST ESTIMATE*

ITEM DESCRIPTION	COST**
HEADWORKS/ GRIT BASIN	$160,698
ODOR CONTROL SYSTEM	$157,082
AERATION BASINS	$155,268
CHLORINE DISINFECTION	$209,800
RAS / WAS PUMP STATION EXPANSION	$187,308
SOLIDS HANDLING FACILITY (to include: aerobic digestor, sludge dewatering and thickening, chemical feed system, and solids/ chemical feed bldg.)	$996,591
MISC. SITE WORK (10%)	$186,675
SUBTOTAL	$2,053,422
CONTENGENCIES (20%)	$410,684
SUBTOTAL	$2,464,106
O& P (12%)	$295,693
TOTAL CONST. COST	$2,759,799
ENGINEERING/ ASSISTANCE DURING CONSTRUCTION (15%)	$413,970
GRANDTOTAL	$3,173,800

* SEE APPENDICES A THROUGH E FOR DETAILED BREAKDOWN

** COSTS ARE BASED ON 1996 DOLLARS

Table 1.3

RECOMMENDED 0.63 MGD PROJECT (with provisions for expansion)
FACILITY PLAN LEVEL COST ESTIMATE

ITEM DESCRIPTION	UNIT	QUANTITY	UNIT COST	COST*
HEADWORKS				
Mechanical Bar Screen	EA	1	$72,500	$72,500
Electrical & Instrumentation	LS	1	$5,000	$5,000
SUBTOTAL				$77,500
AERATION BASINS				
Centrifugal Blowers	EA	1	$30,000	$30,000
Misc. Mechanical	LS	1	$4,800	$4,800
SUBTOTAL				$34,800
FLOW EQUALIZATION BASIN				
Equalization Tank (50' x50' x10'h x 1.5' t)				
Excavation	CY	1745	$20	$34,900
Concrete	CY	95	$400	$38,000
Equalization Pumps (5 Hp)	EA	3	$15,000	$45,000
Electrical (@12%)	LS	1	$5,400	$5,400
I &C (@7%)	LS	1	$3,150	$3,150
Misc. Mechanical (@12%)	LS	1	$5,400	$5,400
Pump Supports & Catwalk	LS	1	$17,500	$17,500
SUBTOTAL				$149,350
RAPID MIX & FLOCCULATION ENHANCED CLARIFICATION				
Concrete	CY	85	$400	$34,000
Equipment	LS	1	$260,000	$260,000
Misc. Metalwork	LS	1	$20,000	$20,000
Misc. Piping / Mechanical	LS	1	$15,000	$15,000
Electrical & Instrumentation	LS	1	$17,500	$17,500
SUBTOTAL				$346,500
FILTRATION FACILITIES				
Filters (114 / 150 sf min) (tot a=152 / 190 sf)				
Excavation	CY	140	$20	$2,800
Concrete	CY	72	$400	$28,800
Upflow Filters	EA	3	$58,300	$174,900
Misc. Metalwork	LS	1	$25,000	$25,000
Misc. Mechanical (@ 12%)	LS	1	$30,000	$30,000
Electrical (@12%)	LS	1	$37,500	$37,500
I & C (@7%)	LS	1	$25,000	$25,000
SUBTOTAL				$324,000
RAS / WAS PUMP STATION EXPANSION				
RAS Pump	EA	4	$7,200	$28,800
Misc. Piping, Vlvs., & Appurt.	LS	1	$5,000	$5,000
Misc. Mechanical	LS	1	$8,300	$8,300
Misc. Coatings	LS	1	$3,500	$3,500
Electrical & Instrumentation	LS	1	$3,000	$3,000
SUBTOTAL				$48,600
SLUDGE DIGESTION AEROBIC DIGESTOR				
Excavation	CY	1000	$15	$15,000
Hauling & Disposal	CY	490	$18	$8,820
Backfill (incl. crushed rock/ gravel)	CY	225	$22	$4,950
Sheeting/Shoring & Concrete Formwork	LS	1	$10,000	$10,000
Concrete				
Roof Slab (2.0 ft thick)	CY	65	$550	$35,750
Walls (1.5 ft thick)	CY	140	$500	$70,000
Floor Slab (1.5 ft thick)	CY	40	$400	$16,000
Submersible Aerators	EA	1	$32,400	$32,400
Misc. Piping, Vlvs., & Appurt.	LS	1	$5,000	$5,000
Coatings	LS	1	$15,000	$15,000
Electrical & Instrumentation	LS	1	$5,670	$5,670
SUBTOTAL				$218,590

* COST BASED ON 1996 DOLLARS

Table 1.3

RECOMMENDED 0.63 MGD PROJECT (with provisions for expansion)
FACILITY PLAN LEVEL COST ESTIMATE

ITEM DESCRIPTION	UNIT	QUANTITY	UNIT COST	COST*
OPERATIONS / CONTROL BUILDING	SF	420	$150	$63,000
EMERGENCY GENERATOR SYSTEM	LS	1	$125,000	$125,000
SUBTOTAL				$1,387,340
SITE WORK (10%)				$138,734
SUBTOTAL				$1,526,074
CONTENGENCIES (20%)				$305,215
SUBTOTAL				$1,831,289
O& P (12%)				$219,755
TOTAL CONST. COST				$2,051,043
ENGINEERING/ASSISTANCE DURING CONSTRUCTION (15%)				$307,657
GRANDTOTAL				$2,358,700

* COST BASED ON 1996 DOLLARS

Table 1.4

RECOMMENDED 0.75 MGD PROJECT (with provisions for expansion)
FACILITY PLAN LEVEL COST ESTIMATE

ITEM DESCRIPTION	UNIT	QUANTITY	UNIT COST	COST
AERATION BASINS				
Centrifugal Blowers	EA	1	$30,000	$30,000
Misc. Mechanical	LS	1	$4,800	$4,800
SUBTOTAL				$34,800
FLOW EQUALIZATION BASIN				
Equalization Tank (50' x50' x10'h x 1.5' t)				
Excavation	CY	1745	$20	$34,900
Concrete	CY	95	$400	$38,000
Equalization Pumps (5 Hp)	EA	0	$15,000	$0
Electrical (@12%)	LS	0	$0	$0
I &C (@7%)	LS	0	$0	$0
Misc. Mechanical (@12%)	LS	0	$0	$0
Pump Supports & Catwalk	LS	0	$17,500	$0
SUBTOTAL				$72,900
FILTRATION FACILITIES				
Filters (114 / 150 sf min) (tot a=152 / 190 sf)				
Excavation	CY	0	$20	$0
Concrete	CY	0	$400	$0
Upflow Filters	EA	1	$58,300	$58,300
Misc. Metalwork	LS	0	$25,000	$0
Misc. Mechanical (@ 12%)	LS	0	$30,000	$0
Electrical (@12%)	LS	0	$37,500	$0
I & C (@7%)	LS	0	$25,000	$0
SUBTOTAL				$58,300
UV DISINFECTION				
UV Disinfection Unit (one additional cell)	EA	0	$280,000	$0
Effluent Channel (46'x40"x48")				
Excavation	CY	0	$35	$0
Concrete	CY	0	$400	$0
Misc. Piping	LS	0	$12,500	$0
Electrical & Instrumentation	LS	0	$50,000	$0
SUBTOTAL				$0
RAS / WAS PUMP STATION EXPANSION				
RAS Pump	EA	1	$7,200	$7,200
Misc. Piping, Vlvs., & Appurt.	LS	1	$15,000	$15,000
Misc. Coatings	LS	1	$3,500	$3,500
Electrical & Instrumentation	LS	1	$3,885	$3,885
SUBTOTAL				$29,585
SEASONAL STORAGE	LS	1	$250,000	$250,000
SUBTOTAL				$445,585
SITE WORK (10%)				$44,559
SUBTOTAL				$490,144
CONTENGENCIES (20%)				$98,029
SUBTOTAL				$588,172
O& P (12%)				$70,581
TOTAL CONST. COST				$658,753
ENGINEERING/ ASSISTANCE DURING CONSTRUCTION (15%)				$98,813
GRANDTOTAL				$757,566

* COST BASED ON 1996 DOLLARS

Table 1.5

RECOMMENDED 1.0 MGD PROJECT (without provisions for expansion)
FACILITY PLAN LEVEL COST ESTIMATE

ITEM DESCRIPTION	UNIT	QUANTITY	UNIT COST	COST*
AERATION BASINS				
Centrifugal Blowers	EA	1	$30,000	$30,000
Misc. Mechanical	LS	1	$4,800	$4,800
SUBTOTAL				$34,800
FLOW EQUALIZATION BASIN				
Equalization Pumps (5 Hp)	EA	1	$15,000	$15,000
Electrical (@12%)	LS	1	$1,800	$1,800
I &C (@7%)	LS	1	$1,050	$1,050
Misc. Mechanical (@12%)	LS	1	$1,800	$1,800
SUBTOTAL				$19,650
FILTRATION FACILITIES				
Filters (114 / 150 sf min) (tot a=152 / 190 sf)				
Excavation	CY	45	$20	$900
Concrete	CY	20	$400	$8,000
Upflow Filters	EA	1	$58,300	$58,300
Misc. Mechanical (@ 12%)	LS	1	$6,996	$6,996
Electrical (@12%)	LS	1	$6,996	$6,996
I & C (@7%)	LS	1	$4,081	$4,081
SUBTOTAL				$85,273
UV DISINFECTION				
UV Disinfection Unit (one additional cell)	EA	0	$280,000	$0
Effluent Channel (45'x40"x48")				
Excavation	CY	0	$35	$0
Concrete	CY	0	$400	$0
Misc. Piping	LS	0	$12,500	$0
Electrical & Instrumentation	LS	0	$50,000	$0
SUBTOTAL				$0
RAS / WAS PUMP STATION EXPANSION				
RAS Pump	EA	1	$7,200	$7,200
Misc. Mechanical	LS	1	$8,300	$8,300
SUBTOTAL				$15,500
NUTRIENT REMOVAL FACILITIES	LS	1	$1,000,000	$1,000,000
SUBTOTAL				$1,155,223
SITE WORK (10%)				$115,522
SUBTOTAL				$1,270,745
CONTENGENCIES (20%)				$254,149
SUBTOTAL				$1,524,894
O& P (12%)				$182,987
TOTAL CONST. COST				$1,707,882
ENGINEERING/ ASSISTANCE DURING CONSTRUCTION (15%)				$256,182
GRANDTOTAL				$1,964,064

* COST BASED ON 1996 DOLLARS

A summary of the various capital cost estimates for the five project phases are as follows:

Phase	Total Cost (with assistance during construction)	Construction Cost
Phase 1 (0.25 mgd) {Actual}	$127,000	$92,000
Recommended Phase 2 (0.44 mgd) {Preliminary Design Level Estimate}	$3,174,000	$2,760,000
Phase 3 (0.63 mgd) {Facility Planning Level Estimate}	$2,359,000	$2,051,000
Phase 4 (0.75 mgd) {Facility Planning Level Estimate}	$758,000	$659,000
Phase 5 (1.0 mgd) {Facility Planning Level Estimate}	$1,964,000	$1,708,000
TOTAL	$8,382,000	$7,270,000

The estimates included in this report are limited to the costs of improvements required to increase the capacity of the LMCWRF. The cost of reclaimed water storage, distribution, and pumping equipment is not included in the estimates.

In the June 30, 1995 Facility Planning Report, it is assumed that approvals for intermittent live stream discharge could be obtained to accommodate Phase 4 flows greater than 0.63 mgd, and that seasonal storage would be provided as part of the Phase 4 project that would partially satisfy the full seasonal storage requirements, or fully satisfy the storage requirements associated with intermittent live stream discharge. The cost estimates included in the Facility Planning Report, and also included for Phases 4 and 5 in this Preliminary Design Report, assume that a portion of the percolation ponds will be retrofitted in order to provide the suggested seasonal storage capacity. Recent studies have shown that the remaining percolation pond capacity should be adequate to accommodate up to 1.0 mgd. If intermittent live stream discharge approval is obtained, the ultimate 1.0 mgd project may also be able to utilize the seasonal storage capacity identified under the Phase 4 project. However, for informational purposes, the cost estimate for the 1.0 mgd facility includes capital cost for nutrient removal. The layout of future facilities provided in Chapter 2 of this Preliminary Design Report assumes that nutrient removal will not be required in the future.

CHAPTER 2

OVERVIEW OF RECOMMENDED PHASE II PROJECT

2.1 Background

The LMCWRF currently treats an average daily flow of approximately 0.24 mgd to a secondary level of treatment prior to discharge to percolation ponds located west of Interstate 15 and north of Camino Del Rey Road. Although the LMCWRF has a current rated "liquid" treatment capacity of 0.5 mgd, the "solids" treatment capacity of the facility is limited to approximately 0.25 mgd due to limited sludge digestion and drying capacity. In addition, upsets at the LMCWRF realized during warm weather months could be an indication that the oxygen transfer efficiency rate provided by the existing course bubble diffuser system may not sufficiently satisfy flows up to 0.5 mgd. The LMCWRF currently does not include odor control equipment.

Per Board Order 95-32, the discharge of up to 0.44 mgd of secondary treated effluent would be acceptable assuming prior groundwater modeling results are validated by December 1996. At flow rates above 0.44 mgd, a water balancing program would have to be implemented that will require the effluent from the LMCWRF to be treated to a tertiary (rapid mix, coagulation, flocculation, filtration, disinfection) level. As discussed in Chapter 1 of this report, a phased facility expansion program has been developed. Phase 1 includes the addition of sludge drying beds and is currently being implemented. Phase 2 will include improvements needed to achieve the following:

- Provide influent metering for process control and grit removal facilities in order to minimize potential maintenance problems.
- Provide improvements to the activated sludge system in order to ensure liquid capacity is available to provide secondary level treatment for flows of at least 0.44 mgd.

- Provide sludge digestion and mechanical dewatering capabilities for flows of at least 0.44 mgd. This will increase operational flexibility and will minimize the reliance on sludge drying beds.
- Provide odor control facilities at the headworks and solids handling areas.
- Provide improvements to the chlorine disinfection facilities in order to enhance safety.

A preliminary level design has been conducted for the Phase 2 facilities. This chapter provides a summary of proposed Phase 2 improvements.

2.2 General Description of Key Phase 2 Project Components

This section provides a general overview of the proposed Phase 2 improvements. Detailed information regarding the major unit processes included in the Phase 2 expansion is included in Appendices A through E. The appendices provide detailed "Preliminary Design Packages" for the following major process areas:

Appendix A - Headworks Area Preliminary Design Package
Appendix B - Activated Sludge Process Preliminary Design Package
Appendix C - Sludge Handling Facilities Preliminary Design Package
Appendix D - Headworks and Solids Handling Odor Control Facilities Preliminary Design Package
Appendix E - Disinfection Facilities Preliminary Design Package

Each preliminary design package includes a process description, sizing of facilities and mechanical equipment, manufacturer's catalog information, control strategies, special construction requirements and constraints, and construction costs. A preliminary site plan, preliminary mechanical plan, and process and instrumentation schematic are also included in each preliminary design package.

Figure 2.1 provides a preliminary site layout for the proposed Phase 2 facilities and the anticipated location for future facilities included in Phases 3 through 5. Figure 2.2 provides a preliminary hydraulic profile for the proposed Phase 2 facilities. The following summarizes the improvements to be included under Phase 2.

Headworks Area (Influent Metering and Grit Removal Facilities)

Currently, wastewater flow tributary to the LMCWRF is conveyed via an 18-inch gravity sewer to the headworks area as shown in Figure 2.1. Flows pass through an existing barminuter that will be replaced by a new comminutor prior to the construction of the proposed Phase 2 facilities. There is no influent flow metering devise. Flows are currently measured by an effluent flow meter.

The proposed improvements to the headworks area for the recommended Phase 2 project includes a new influent flow meter and aerated grit removal facilities. In addition to providing quantitative information regarding the influent flow rate, influent flow metering is required in order to modulate flow from the RAS pumps to the aeration basins. This capability will save energy, provide better process control, and save operator time due to the ability to automate RAS pumping activities. Influent flow metering will be provided via a Palmer Bowles flume to be located within an 8-foot by 6-foot precast vault. The vault will be installed along the existing 18-inch gravity sewer in a location that will prevent surcharging in the vicinity of the vault.

The primary purpose of installing grit removal facilities is to remove particles of inorganic solids such as sands, coffee grounds, and other forms of "grit" so that these materials do not accumulate in downstream structures or cause excessive wear on downstream rotating equipment (pumps) and piping. Historically, the LMCWRF has realized relatively high quantities of grit from the influent waste stream. Assuming that the current quantity of grit will increase proportionately with increased flow, it is recommended that grit removal facilities be provided as part of the Phase 2 expansion. An aerated grit removal system was selected based upon its proven ability to operate under a wide range of flow conditions, the

fact that the low headloss associated with this type of system facilitates the existing configuration of downstream unit processes, and the proven operational success and reliability of this type of system. The aerated grit system will be covered, and the collected air will be processed through the proposed odor control system. Due to the fact that the structure required for 1.0 mgd is relatively small, it is not practical to phase the construction of the structure. The key mechanical components associated with the grit removal facilities are configured to accommodate flow rates between 0.0 and 1.0 mgd and greater.

Activated Sludge Facilities (Aeration Basins, Blowers, RAS/WAS Pump Station)
Improvements to the Activated Sludge Facilities, as part of the Phase 2 expansion, are required for the following key reasons:

1. To provide better oxygen transfer efficiencies in order to ensure that up to 0.5 mgd can be treated to secondary levels with the existing blower capacity.

2. To save operating costs through reduced electrical usage associated with the use of more efficient aeration equipment.

3. To provide new air flow metering capabilities in order to better balance the flow of air to the basins and more effectively operate the system.

4. To provide new WAS pumping capabilities and automatic control of the Return Activated Sludge pumping equipment in order to enhance operator control and minimize operator time associated with WAS/RAS pumping.

5. Provide modifications to the existing sludge pumping station in order to enhance safe entry.

Currently, there is no local air flow read-out at the aeration blowers. Air flow to the aeration process is determined from a relation-based monitoring device which provides an analog read-out of air flow rate for each blower based on amp draw of the blower motor. Accuracy and repeatability of these devices are not high compared to direct air flow measurement. Direct air flow measurement is currently available via Venturi meters located

on each of the 8-inch air lines servicing the two aeration tanks. However, these devices do not provide sufficient upstream and downstream straight runs, and the location of flow control valves immediately upstream of the meters add to the local air turbulence through the line at the meters and provide poor conditions for accurate, repeatable air flow measurement. Therefore, the existing air flow meters will be removed and replaced with new insertion-type thermal dispersion meters located on each of the 8-inch air lines servicing the aeration tanks. New piping will be provided in order to serve the new fine bubble aeration system, as discussed in detail in Appendix B. Separate air flow metering of the new fine bubble aeration system will be provided for each of the grids of the new diffuser system.

Each aeration tank will be provided with three separate fine bubble aeration grid systems. The diffusers will be of the ceramic disc type. Fine bubble aeration provides significantly greater oxygen transfer efficiencies than course bubble systems. This factor maximizes the utilization of air provided by the aeration blowers, thereby minimizing blower horsepower requirements. Minimizing horsepower requirements minimizes power cost requirements. Problems that the facility has experienced during warm weather months could be exacerbated by poor oxygen transfer capabilities. Fine bubble diffusion may mitigate certain problems attributed to poor oxygen transfer capabilities. In order to minimize potential problems associated with foaming, the existing froth spray system put back into service will be upgraded in order to cover the entire surface of the aeration basins.

Currently, RAS and WAS pumping requirements are both served by three pumping units (two duty and one standby) located in the existing sludge pumping station. The sludge pump station is approximately 20 feet deep and can only be accessed via an access hatch and ladder. Operations personnel are required to climb into the station several times per day in order to manually adjust valves and set pumping rates to satisfy either RAS or WAS pumping requirements. The proposed Phase 2 expansion will provide for separate RAS and WAS pumping systems. The sludge pump station will be expanded in order to facilitate the installation of two new WAS pumps (one duty and one standby). Stairs to the expanded station will enable safer access to the station. In order to accommodate automated operation, the new WAS pumps will be provided with variable speed drives, and the existing RAS

pumps will be retrofitted with new variable speed drives. RAS pumping rates will be controlled via a ratio controller that utilizes input from the influent flow meter. Operation of the RAS and WAS pumps is discussed in detail in Appendix B.

Sludge Handling Facilities (Thickening, Digestion, and Mechanical Dewatering)
The existing aerobic digester is marginally sized to process the sludge realized from an influent flow rate of 0.25 mgd. Under Phase 2, a new aerobic digester will be constructed which will provide 40 days of detention time for flows of at least 0.5 mgd in order to meet the EPA 503 requirements for a Process that Significantly Reduces Pathogens (PSRP). The new digester will utilize a 40 horsepower submerged aerator mounted within the digester to provide process air needs. This will enable the aeration air blowers associated with the activated sludge system to be dedicated solely for aeration basin needs.

The existing aerobic digester will be used as an aerated sludge holding tank in order to provide operational flexibility. A new blower dedicated solely for the existing aerobic digester will be provided. The standby blower for the existing aerobic digester will also serve as a channel aeration blower for the aeration basin effluent channel. Both blowers will be located within the new sludge handling building. The new digester and the existing digester will be covered, and the foul air will be collected and scrubbed.

A new centrifuge will be provided that will serve to thicken secondary sludge and to dewater digested sludge. The sludge from the secondary clarifier will be held in the existing digester for subsequent thickening prior to discharge to the new aerobic digester. Digested sludge will be dewatered via the same centrifuge prior to discharge to a holding bin located in the sludge handling building. Dedicated sludge transfer pumps will be provided to feed sludge from the existing digester to the new centrifuge, and from the new digester to the new centrifuge. The existing centrifuge and support structure will be removed during construction. Chemical conditioning (polymer) required to facilitate both thickening and dewatering will be provided. Separate units will be provided to meet the required thickening and dewatering duties. The chemical feed equipment will be located within the solids handling building.

Specifics regarding the proposed operating strategy, and the configuration of the digester, centrifuge, transfer pumping equipment, and other associated equipment is provided in Appendix C.

Headworks and Solids Handling Odor Control Facilities

Improvements to the headworks area and solids handling area under Phase 2 will require odor containment, collection, and treatment capabilities. A three-stage, packed bed-type scrubber system has been selected in order to provide the odor control facilities required to scrub the potentially odorous air from the headworks/aerated grit removal facilities, aerobic digester, and solids thickening/dewatering areas. The scrubber system will utilize both sodium hypochlorite and sodium hydroxide in order to neutralize potential odor causing compounds. Packed bed systems are proven and have the capability of removing a variety of potential odor-causing compounds.

The scrubber system will be located in the vicinity of the proposed solids handling building. Potentially odorous air contained within the headworks area will be collected via a blower and underground piping for conveyance to the scrubber system for treatment. Potentially odorous air contained within the existing and proposed digester and the proposed sludge handling building will also be conveyed to the scrubber via air blowers and ductwork. Details associated with the operation of the odor control facilities is included in Appendix D.

Disinfection Facilities

The existing disinfection facilities provide for the capability to chlorinate utilizing gaseous chlorine delivered from one-ton cylinders. Three points of chlorination are available. Influent prechlorination provides odor control capability. RAS chlorination provides bulking control. Although not required by the District's current discharge permit, effluent disinfection capabilities are provided for at the existing chlorine contact tank. The chlorinated effluent is required, however, for plant process water needs.

From a process standpoint, the existing chlorination facilities have sufficient capacity to serve the requirements of the Phase 2 expansion. However, the District has determined that, from

a safety standpoint and in light of existing regulations that encourage the inclusion of additional safety equipment, chlorine scrubbing equipment will be included as part of the Phase 2 expansion. In addition, new state-of-the-art chlorinators will be provided as well as other improvements to enhance safety. Proposed improvements to the disinfection facilities are described in Appendix E.

2.3 Phase II Capital and Key Operation and Maintenance Costs

2.3.1 Capital Costs

Table 1.2 of Chapter 1 provided a summary of the preliminary design level capital cost estimates for construction of the Phase 2 facilities. As previously indicated on Table 1.2, the total estimated Phase 2 capital cost is $3,170,000. The estimated construction cost is $2,760,000. Breakdowns of costs for each major process area are included in the Preliminary Design Packages provided in Appendices A through E. The preliminary cost estimates are based upon a preliminary level of design and are subject to change due to changes during the final design process.

2.3.2 Key Operation and Maintenance Costs

Table 2.1 provides a preliminary estimate of key operation and maintenance costs associated with electrical and chemical requirements of the proposed Phase 2 facilities.

It is anticipated that the existing staffing level will adequately support the requirements of the Phase 2 facilities.

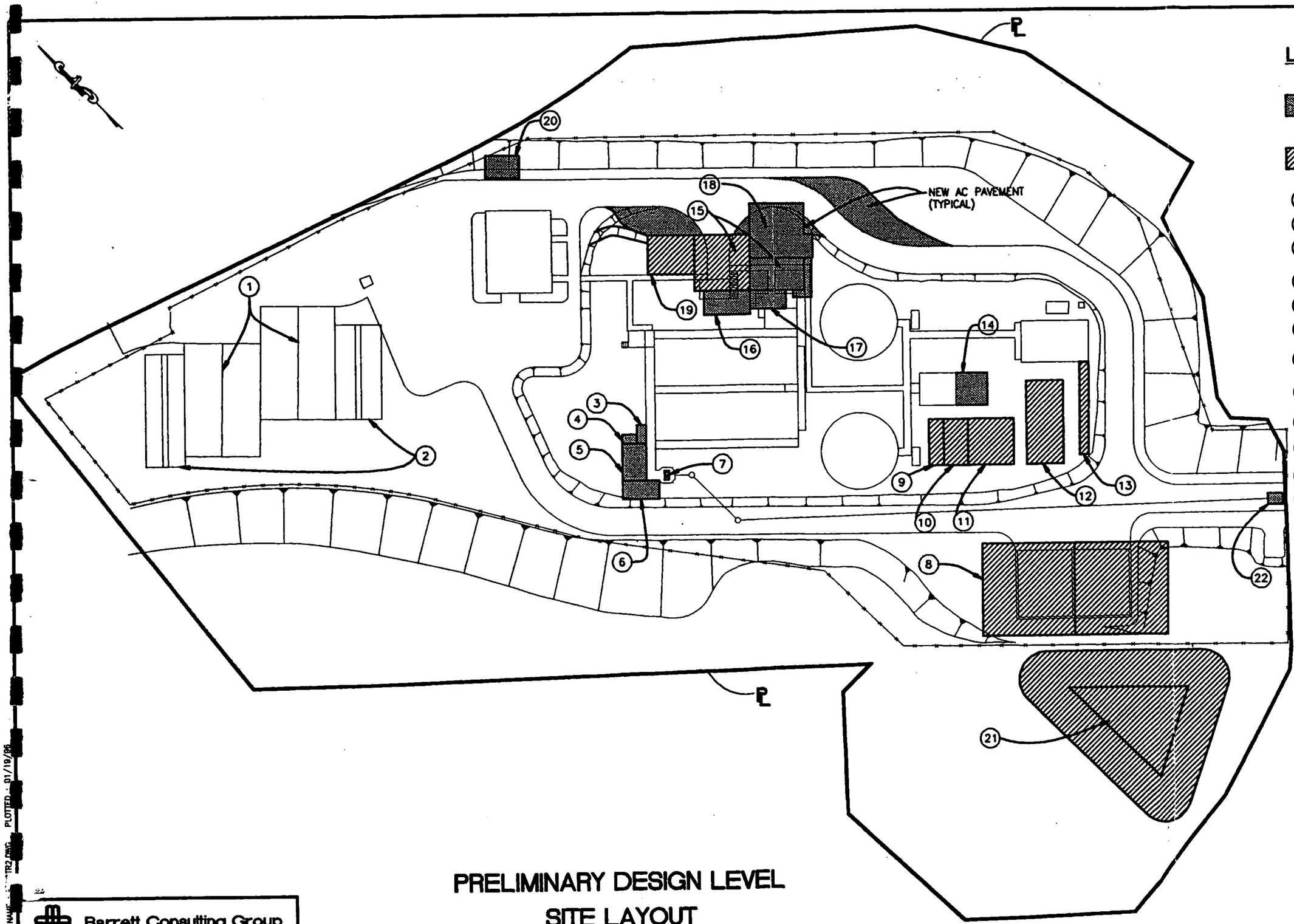
Electricity usage was calculated assuming the horsepower requirements and operating strategies identified in the Preliminary Design Packages for the key unit process areas included in Appendices A through E. Horsepower requirements for existing equipment were obtained from the LMCWRF Operation and Maintenance Manual. For estimating purposes it was assumed that the cost per kilowatt hour (kwh) is $0.12.

Table 2.1

Estimated Annual Electrical and Chemical Costs
for the Proposed Phase 2 Facilities

Description	Annual Demand	Unit Cost	Annual Cost
Electricity	1,370,000 kw	$0.12/kwh	$164,400
Polymer (emulsion)	150 gallons	$16/gallon	$2,400
Sodium Hypochlorite	21,100 gallons	$0.65/gallon	$13,700
Sodium Hydroxide	2,100 gallons	$1/gallon	$2,100
Chlorine		$0.30/pound	

Chemical usage requirements were also based on the requirements and operating strategies identified in the Preliminary Design Packages for the key unit process areas included in Appendices A through E. The cost for tests are based upon the operating protocol identified in previous reports. Testing cost only includes estimated laboratory costs and does not include costs for sample collection of delivery to the laboratory. This information should be evaluated in greater detail following completion of final design and during development of the Operation and Maintenance Manual for the Phase 2 facilities.

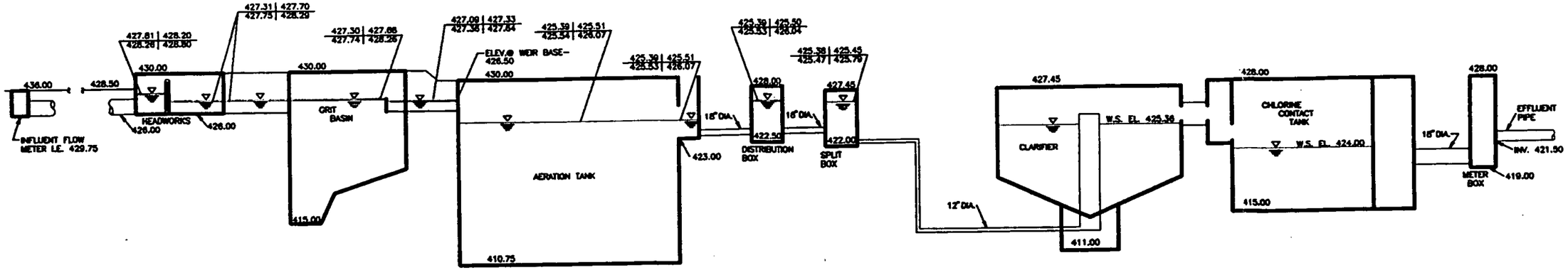


PRELIMINARY DESIGN LEVEL
SITE LAYOUT

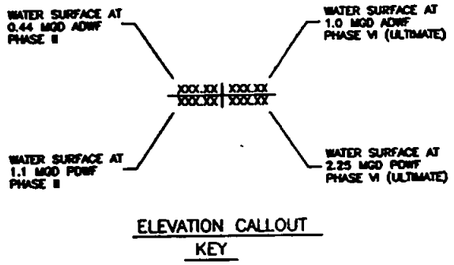
Barrett Consulting Group

FIGURE 2.1

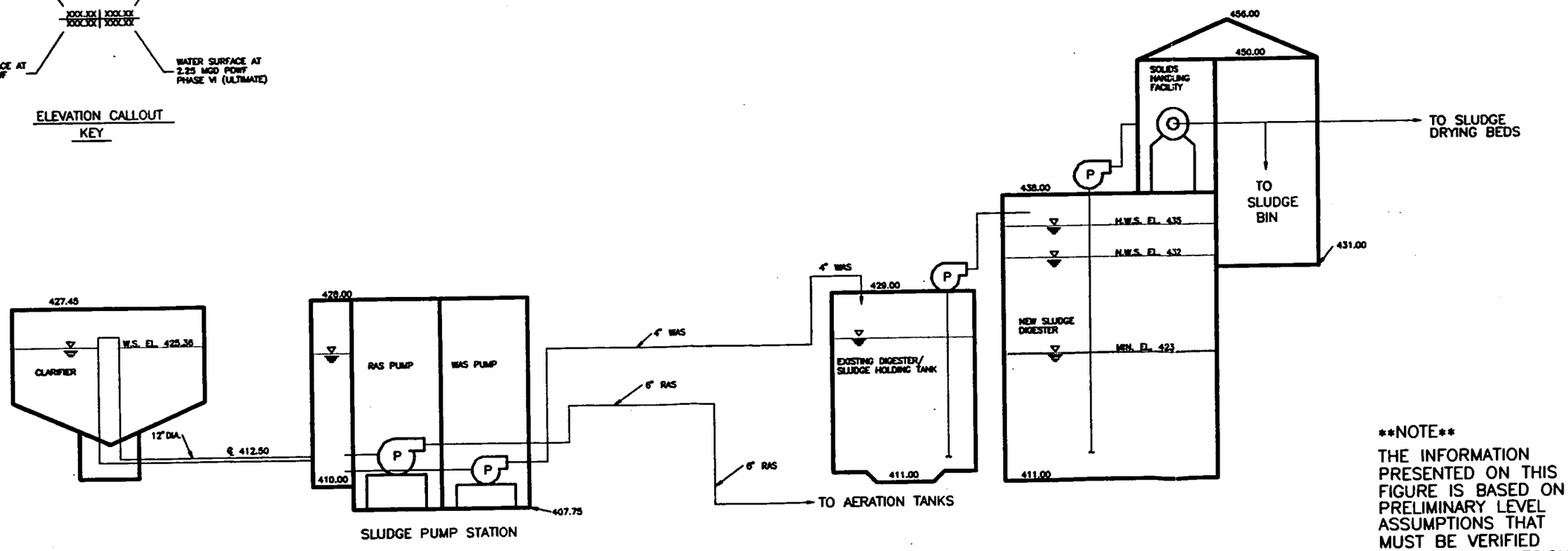
FILE NAME: ...TR2.DWG PLOTTED: 01/19/96



HYDRAULIC PROFILE



ELEVATION CALLOUT KEY



SLUDGE PUMP STATION

SLUDGE HANDLING HYDRAULIC PROFILE

NOTE
THE INFORMATION PRESENTED ON THIS FIGURE IS BASED ON PRELIMINARY LEVEL ASSUMPTIONS THAT MUST BE VERIFIED DURING FINAL DESIGN.

Barrett Consulting Group

LOWER MOOSA CANYON PRELIMINARY HYDRAULIC PROFILES

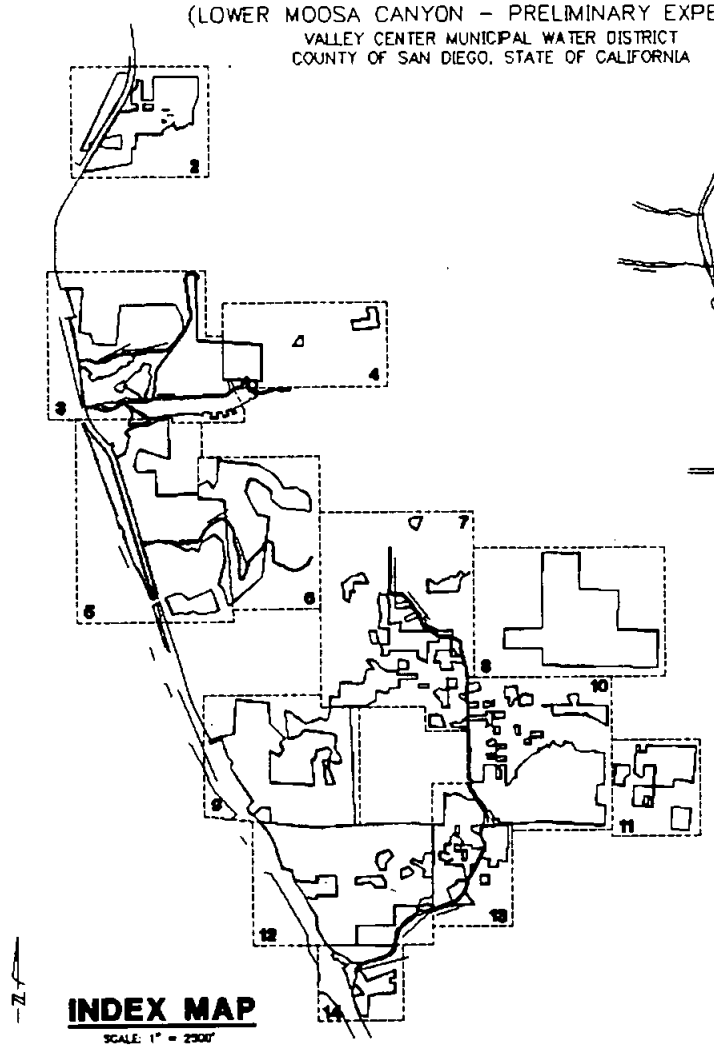
FIGURE 2.2

APPENDIX C
PROPOSED ASSESSMENT DISTRICT BOUNDARIES

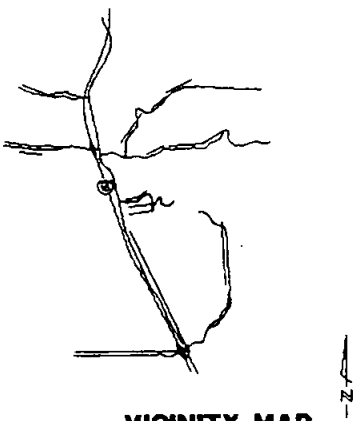
DIAGRAM OF ASSESSMENT DISTRICT NO. 93-1

(LOWER MOOSA CANYON - PRELIMINARY EXPENSES)

VALLEY CENTER MUNICIPAL WATER DISTRICT
COUNTY OF SAN DIEGO, STATE OF CALIFORNIA



INDEX MAP
SCALE: 1" = 2500'



VICINITY MAP
NOT TO SCALE

LEGEND

- DISTRICT BOUNDARY
- PARCEL BOUNDARY
- ASSESSMENT NUMBER BOUNDARY
- (10) ASSESSMENT NUMBER
- (127 / 360-22) ASSESSOR'S PARCEL NUMBER
- 11 SHEET NUMBER

FILED IN THE OFFICE OF THE SECRETARY OF THE BOARD OF DIRECTORS OF THE VALLEY CENTER MUNICIPAL WATER DISTRICT THIS____ DAY OF_____, 199____

_____
SECRETARY OF THE BOARD OF DIRECTORS
OF THE VALLEY CENTER MUNICIPAL WATER DISTRICT

RECORDED IN THE OFFICE OF THE SUPERINTENDENT OF STREETS OF THE VALLEY CENTER MUNICIPAL WATER DISTRICT THIS____DAY OF _____.

_____
SECRETARY OF THE BOARD OF DIRECTORS
OF THE VALLEY CENTER MUNICIPAL WATER DISTRICT

AN ASSESSMENT WAS LEVIED BY THE BOARD OF DIRECTORS OF THE VALLEY CENTER MUNICIPAL WATER DISTRICT ON THE LOTS, PIECES, AND PARCELS OF LAND SHOWN ON THIS ASSESSMENT DIAGRAM. SAID ASSESSMENT WAS LEVIED ON THE ____ DAY OF _____, 199____. SAID ASSESSMENT DIAGRAM AND THE ASSESSMENT ROLL WERE RECORDED IN THE OFFICE OF THE SUPERINTENDENT OF STREETS OF SAID DISTRICT ON THE_____DAY OF_____, 199____. REFERENCE IS MADE TO THE ASSESSMENT ROLL RECORDED IN THE OFFICE OF THE SUPERINTENDENT OF STREETS FOR THE EXACT AMOUNT OF EACH ASSESSMENT LEVIED AGAINST EACH PARCEL OF LAND SHOWN ON THIS ASSESSMENT DIAGRAM.

_____
SECRETARY OF THE BOARD OF DIRECTORS
OF THE VALLEY CENTER MUNICIPAL WATER DISTRICT

FILED THE_____DAY OF_____, 199____, AT THE HOUR OF____O'CLOCK____M. IN BOOK _____OF MAPS OF ASSESSMENT AND COMMUNITY FACILITIES DISTRICTS, PAGES _____THROUGH_____, AS INSTRUMENT NO. _____, IN THE OFFICE OF THE COUNTY RECORDER OF THE COUNTY OF SAN DIEGO, STATE OF CALIFORNIA.

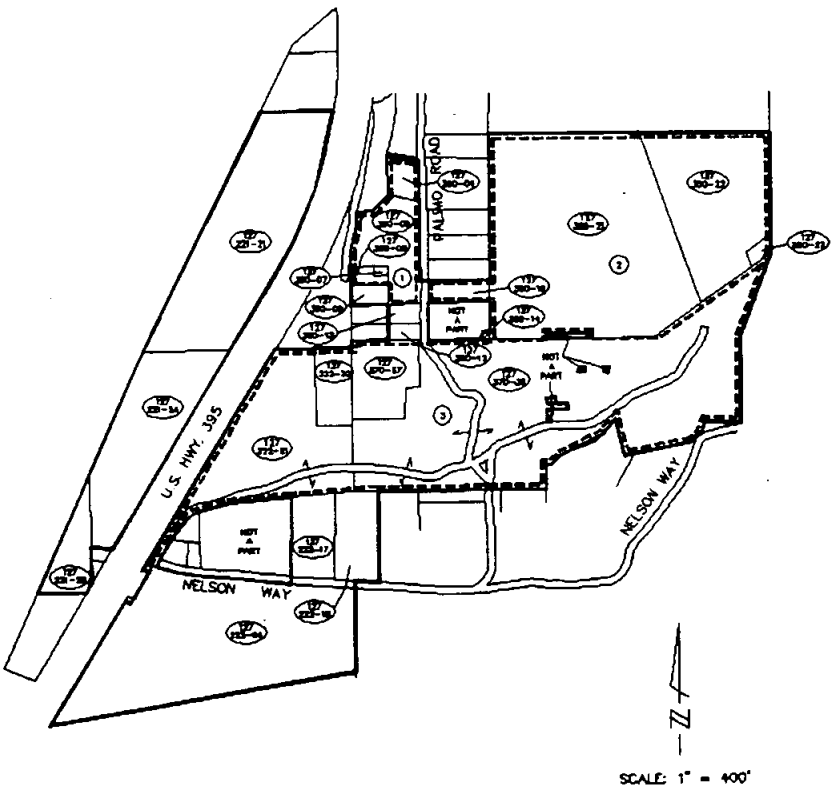
_____
COUNTY RECORDER OF THE COUNTY OF SAN DIEGO

PREPARED BY NBS/LOWRY
REFERENCE THE SAN DIEGO COUNTY ASSESSOR MAPS FOR A DETAILED DESCRIPTION OF PARCEL LINES AND DIMENSIONS

DIAGRAM OF ASSESSMENT DISTRICT NO. 93-1

(LOWER MOOSA CANYON – PRELIMINARY EXPENSES)

VALLEY CENTER MUNICIPAL WATER DISTRICT
COUNTY OF SAN DIEGO, STATE OF CALIFORNIA



PREPARED BY NBS/LOWRY
REFERENCE THE SAN DIEGO COUNTY ASSESSOR MAPS FOR A DETAILED DESCRIPTION OF PARCEL LINES AND DIMENSIONS

DIAGRAM OF ASSESSMENT DISTRICT NO. 93-1

(LOWER MOOSA CANYON – PRELIMINARY EXPENSES)

VALLEY CENTER MUNICIPAL WATER DISTRICT
COUNTY OF SAN DIEGO, STATE OF CALIFORNIA

SCALE: 1" = 400'

PREPARED BY NBS/LOWRY
REFERENCE THE SAN DIEGO COUNTY ASSESSOR MAPS FOR A DETAILED DESCRIPTION OF PARCEL LINES AND DIMENSIONS

DIAGRAM OF ASSESSMENT DISTRICT NO. 93-1

(LOWER MOOSA CANYON – PRELIMINARY EXPENSES)

VALLEY CENTER MUNICIPAL WATER DISTRICT
COUNTY OF SAN DIEGO, STATE OF CALIFORNIA

SEE SHEET 3

N

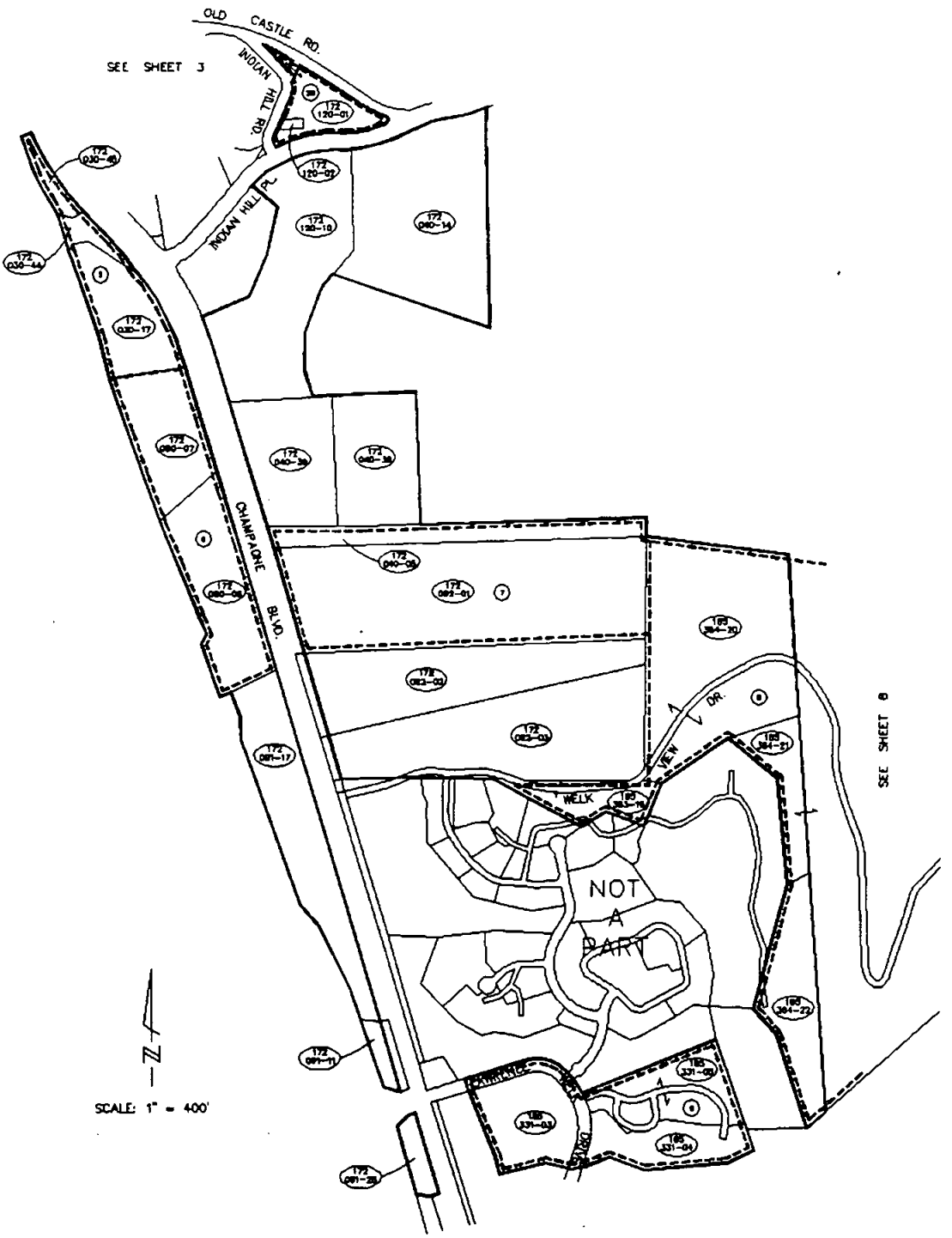
SCALE: 1" = 400'

PREPARED BY NBS/LOWRY
REFERENCE THE SAN DIEGO COUNTY ASSESSOR MAPS FOR A DETAILED DESCRIPTION OF PARCEL LINES AND DIMENSIONS

DIAGRAM OF ASSESSMENT DISTRICT NO. 93-1

(LOWER MOOSA CANYON – PRELIMINARY EXPENSES)

VALLEY CENTER MUNICIPAL WATER DISTRICT
COUNTY OF SAN DIEGO, STATE OF CALIFORNIA

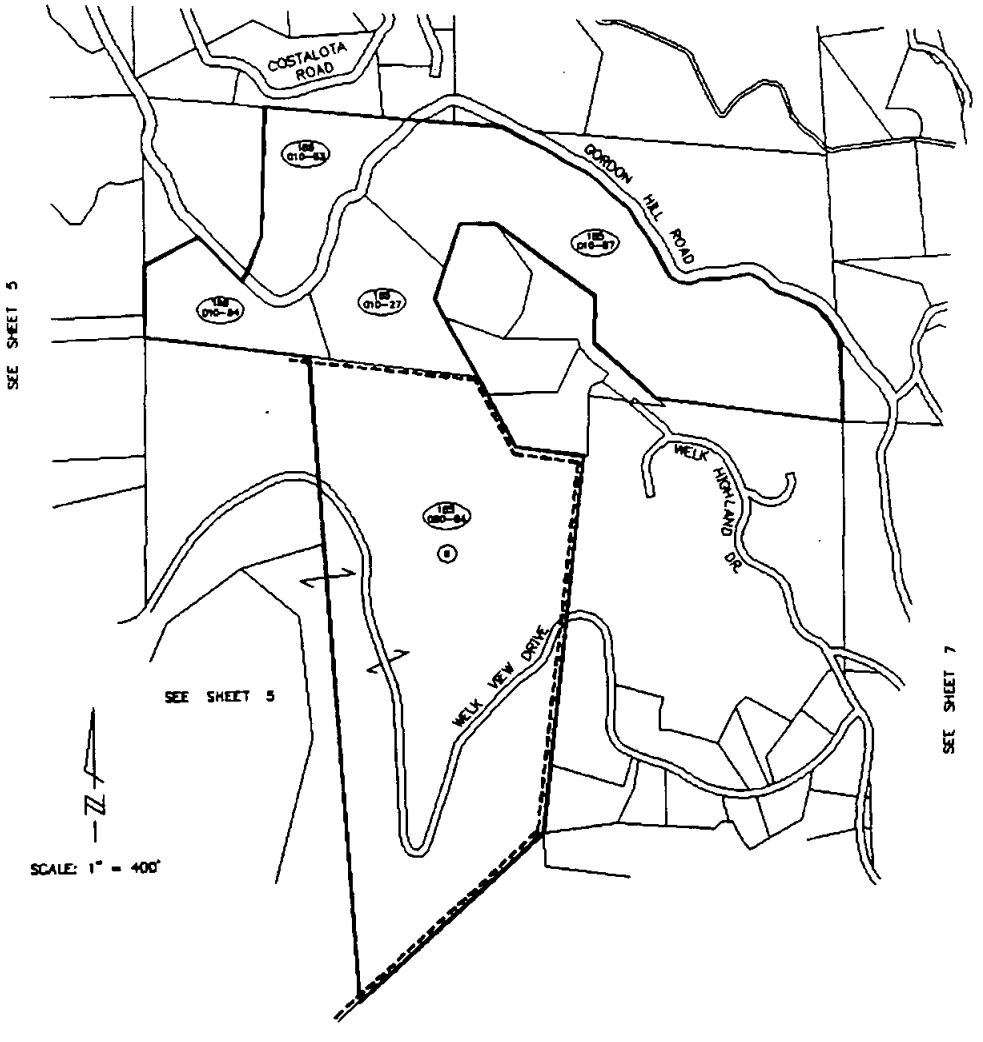


PREPARED BY NBS/LOWRY
REFERENCE THE SAN DIEGO COUNTY ASSESSOR MAPS FOR A DETAILED DESCRIPTION OF PARCEL LINES AND DIMENSIONS

DIAGRAM OF ASSESSMENT DISTRICT NO. 93-1

(LOWER MOOSA CANYON – PRELIMINARY EXPENSES)

VALLEY CENTER MUNICIPAL WATER DISTRICT
COUNTY OF SAN DIEGO, STATE OF CALIFORNIA

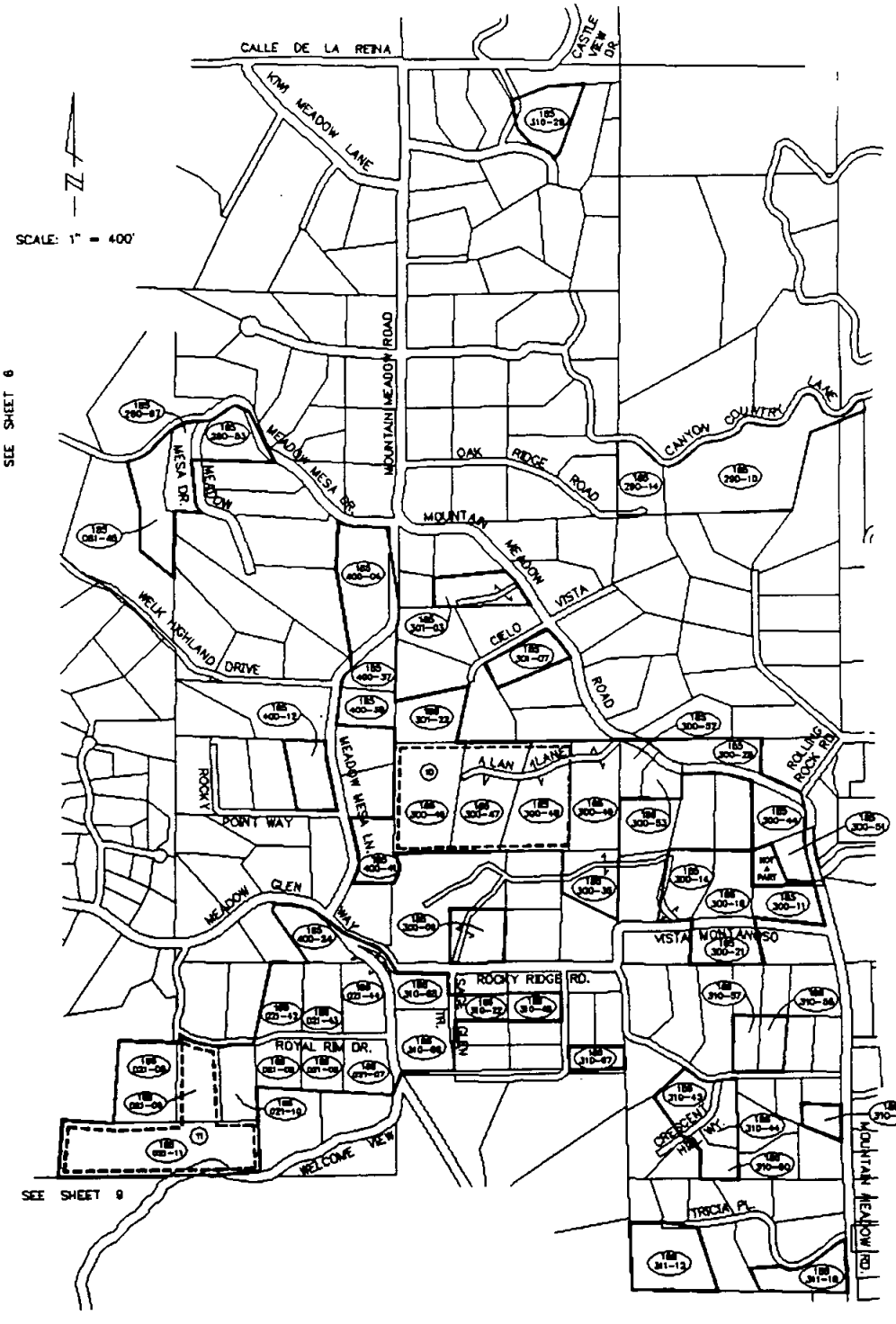


PREPARED BY NBS/LOWRY
REFERENCE THE SAN DIEGO COUNTY ASSESSOR MAPS FOR A DETAILED DESCRIPTION OF PARCEL LINES AND DIMENSIONS

DIAGRAM OF ASSESSMENT DISTRICT NO. 93-1

(LOWER MOOSA CANYON - PRELIMINARY EXPENSES)

VALLEY CENTER MUNICIPAL WATER DISTRICT
COUNTY OF SAN DIEGO, STATE OF CALIFORNIA



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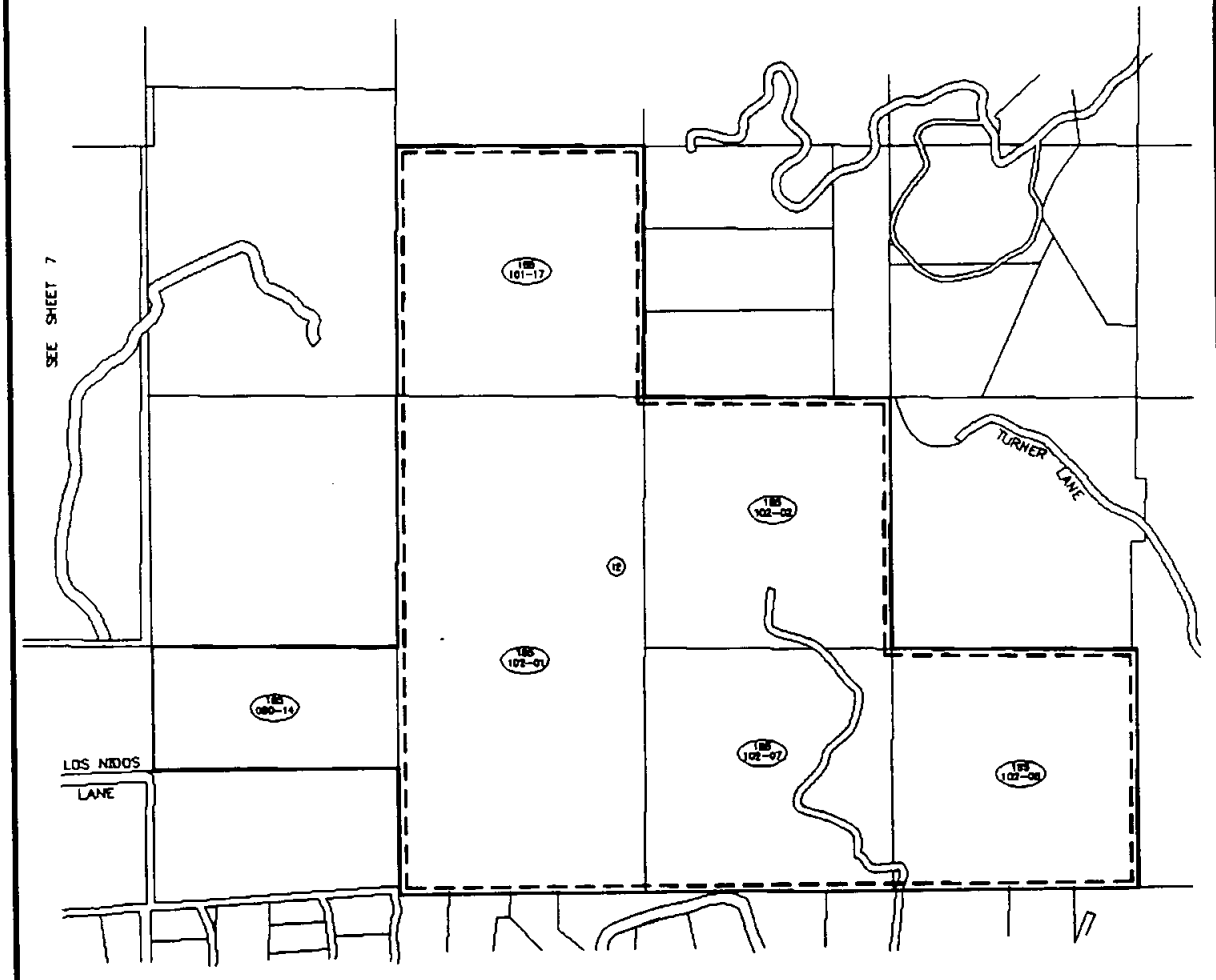

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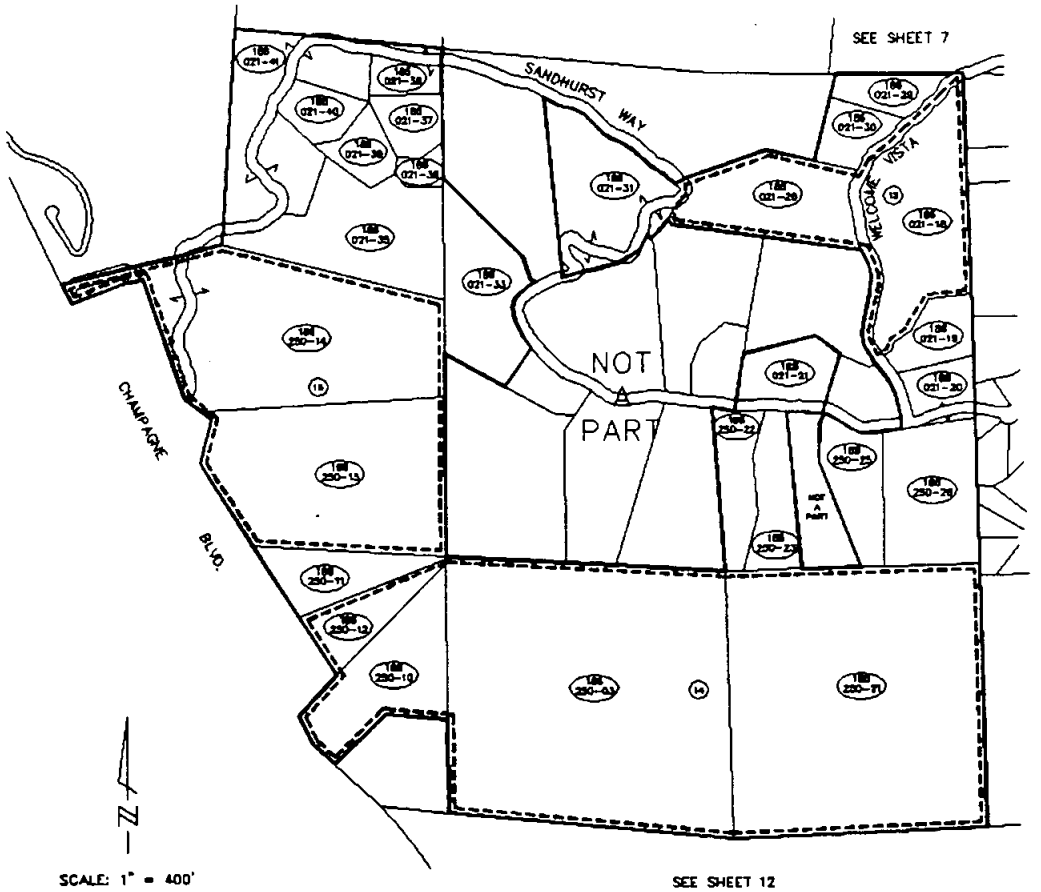

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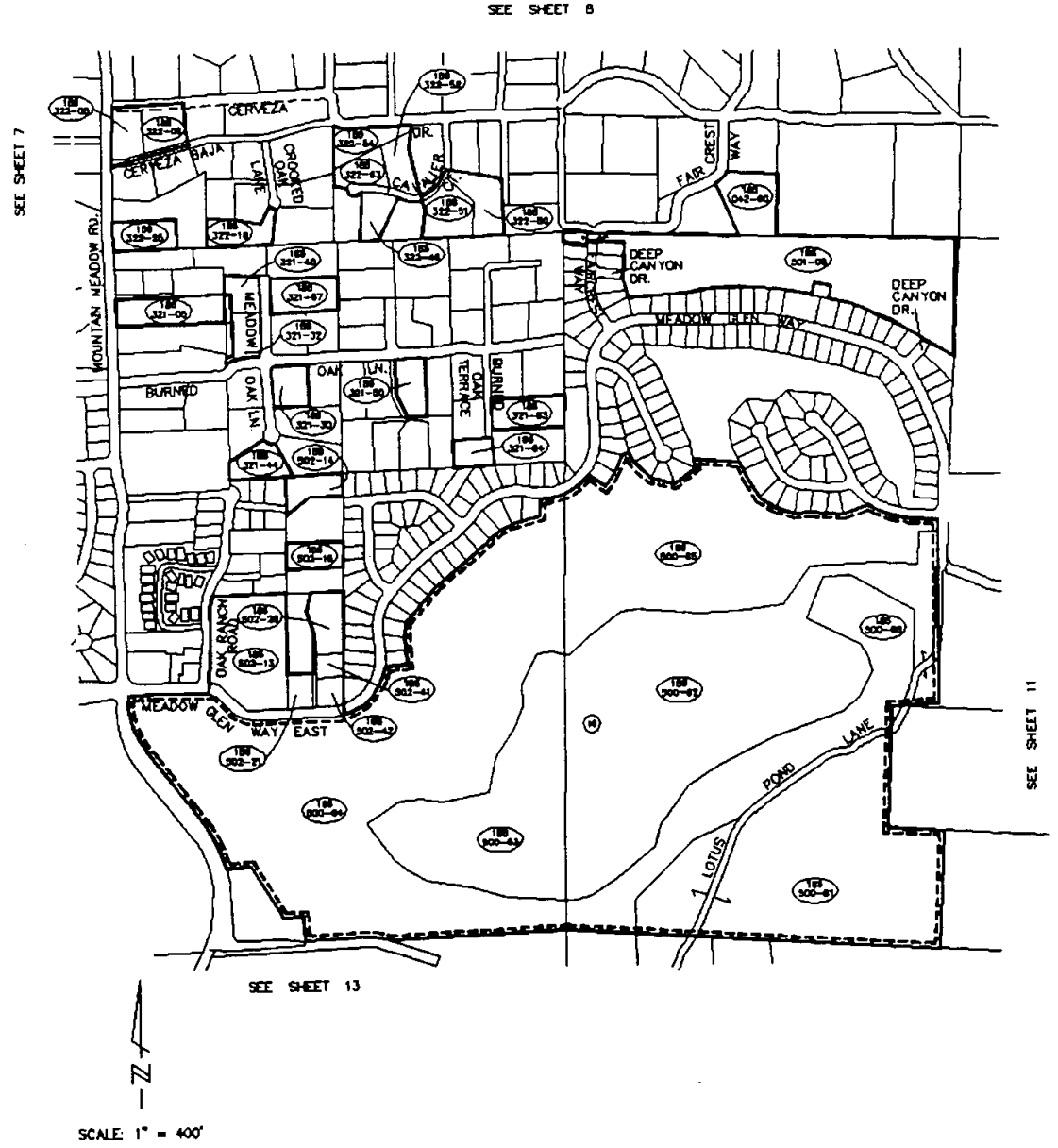

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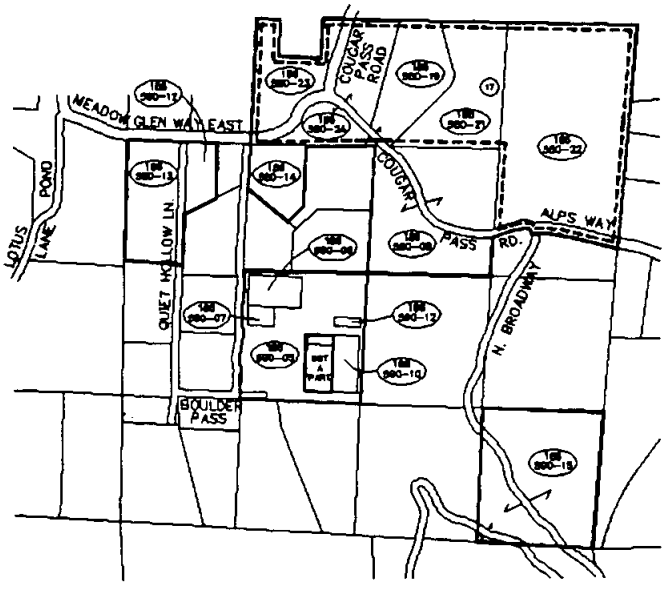

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SCALE: 1" = 400'

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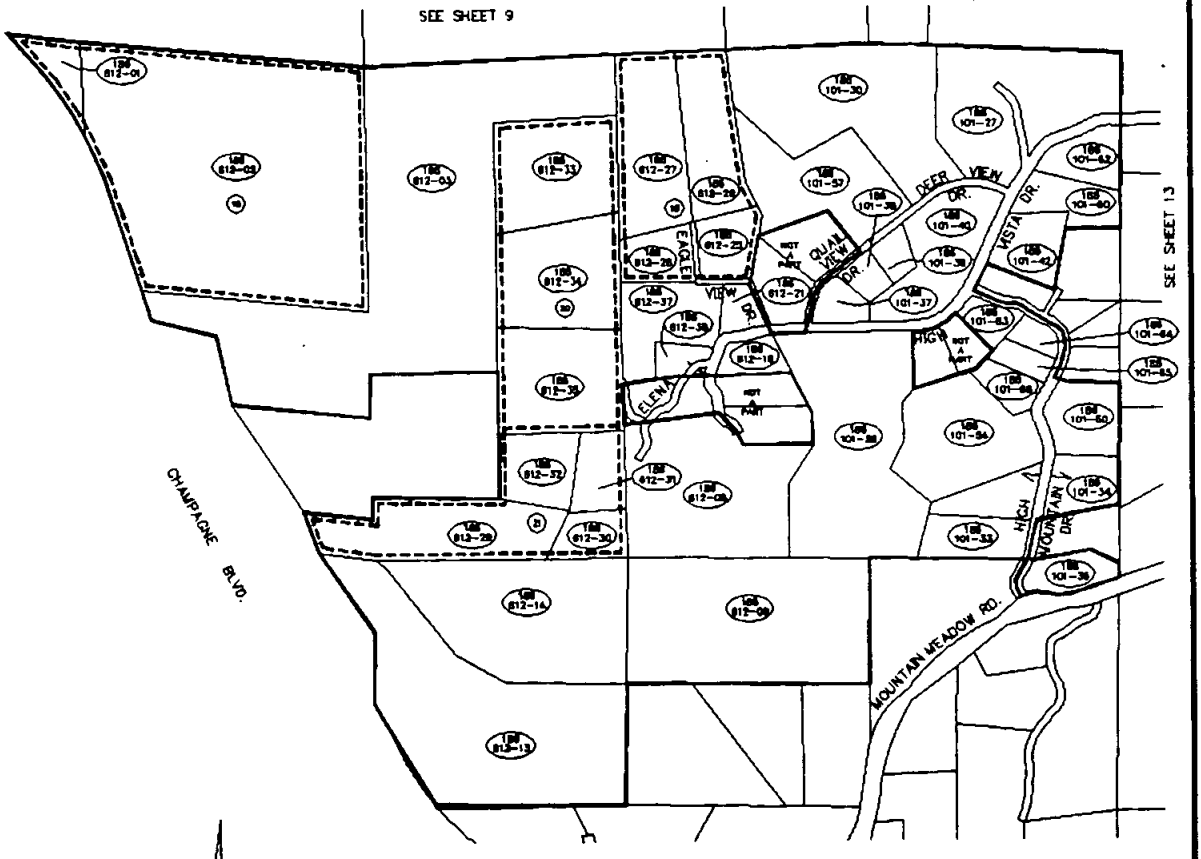

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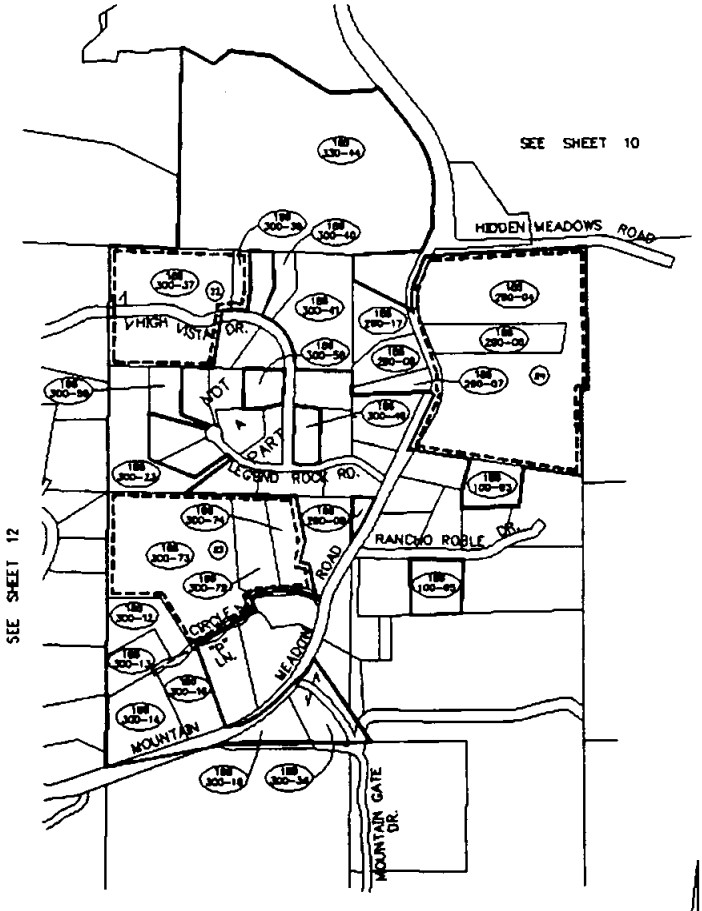

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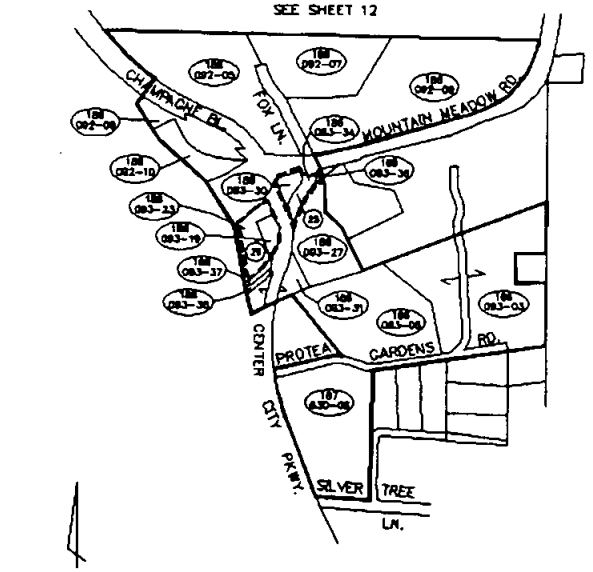


SCALE: 1" = 400'

PREPARED BY NBS/LOWRY
REFERENCE THE SAN DIEGO COUNTY ASSESSOR MAPS FOR A DETAILED DESCRIPTION OF PARCEL LINES AND DIMENSIONS

APPENDIX D
BIOLOGICAL REPORT

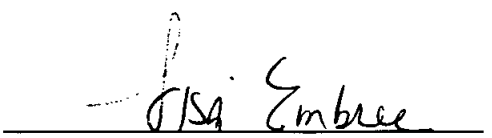
BIOLOGICAL SURVEY AND REPORT
FOR
MOOSA CANYON TREATMENT PLANT

Prepared for:

Valley Center Municipal Water District
29300 Valley Center Drive
Valley Center, CA 92028

Prepared by:

Brian F. Mooney Associates
9903-B Businesspark Avenue
San Diego, CA 92131



Lisa Embree
Senior Biologist

May 1996

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I. SUMMARY

The Valley Center Municipal Water District proposes to provide necessary sewer treatment capacity for existing and planned development in the I-15 corridor area. The project includes phased wastewater treatment plant facility improvements, construction of sewer trunk and collector pipelines, construction of reclaimed water distribution pipelines, and the lining of one of three existing percolation ponds.

The proposed project is located within the westernmost portion of the Valley Center Municipal Water District and within the Valley Center, Bonsall and North County Metropolitan Community Planning Areas. The existing wastewater treatment plant is located approximately six miles north of the City of Escondido and one mile east of Interstate 15 in San Diego County.

Many of the pipeline corridors have been graded and/or developed for residential, commercial and public uses and support very little native plant biomass. Ruderal species often occur as a narrow band on either side of the roadways beyond which native vegetation occurs while a few areas support agriculture lands. Native vegetation communities include southern mixed chaparral, Diegan coastal sage scrub, southern willow scrub, and coast live oak woodland.

Most of the water treatment plant is currently disturbed by plant operations while the area covered by the proposed forebay includes both disturbed vegetation and riparian habitat (willow riparian/oak riparian woodland mixture).

Vegetation in the percolation ponds consists of mostly disturbed species, some of which are indicative of a wetland. The slopes of the ponds are vegetated with ruderal species.

A total of 27 wildlife species were recorded during the field surveys, almost half of which were observed in the area of the proposed forebay. No directed searches for sensitive plant or wildlife species were conducted. Sensitive habitats within the study area include Diegan coastal sage scrub, coast live oak woodland and riparian habitat (southern willow scrub and willow riparian/oak riparian woodland mixture).

Biological resources were not considered impacted by pipeline construction where the project follows roadways or disturbed road right-of-ways except for possible indirect impacts to habitats and steams. In those areas where construction cannot be confined within the roadways and ROWs, impacts to biological resources may occur and may require mitigation.

Any additional impacts within the existing water treatment plant operations would not result in impacts to sensitive resources. Implementation of the proposed forebay would result in impacts to riparian habitat (estimated at 0.42 acre). Any impact to riparian habitat would be significant because wetlands have undergone drastic reductions in their acreages and they typically support a diversity of wildlife species.

Any impact to the vegetation at the percolation ponds would be exempt from Section 404 of the Clean Water Act. No significant impacts are anticipated as a result of lining one of the percolation ponds.

No mitigation measures are necessary for construction of pipelines that occur within roadways. If design changes occur, additional environmental review may be required to assess if impacts would occur to sensitive habitats.

Any loss of wetland vegetation at the forebay location would be mitigated by the creation of habitat so that there is no net loss of habitat. Replacement ratios would range from 3:1 to 1:1 depending upon the quality of habitat lost. Any impact to wetland habitat within the drainage swales in the vicinity of the proposed forebay or near the Boulder Pass crossing would require a Streambed Alteration Agreement issued by California Department of Fish and Game and an Army Corps of Engineers permit.

Techniques to prevent soil, silt, runoff, and sand erosion during the construction and re-establishment phase of the pipelines and facilities into all sensitive habitats should be employed. Measures to avoid or eliminate noise impacts to sensitive wildlife species (such as the establishment of construction windows) shall be implemented in those areas where the presence of sensitive species has been confirmed or is likely.

II. INTRODUCTION

A. Project Description

The Valley Center Municipal Water District proposes to provide sewer treatment capacity for existing and planned development in the Interstate 15 (I-15) corridor area as allowed by County approved land use plans. A summary of the various components of the project is provided below. Additional information is provided under Project Design within the Environmental Impact Report.

Phased Sewage Treatment and Water Reclamation Facility Improvements. The proposed Treatment Plant improvements will be developed in a minimum of four phases. In addition to expanding and upgrading the facilities at the treatment plant site, off site reclaimed water improvements are also required. These improvements include ground water recovery wells in the vicinity of the percolation pond site, reclaimed water mains, a holding pond at the treatment plant, and retrofit improvements at the Castle Creek and Lawrence Welk golf courses.

> **Phase I (0.25 - 0.43 mgd capacity).** Phase I includes solids handling and other facility improvements at the Treatment Plant which allow the plant to process in excess of 0.44 million gallons of secondary treated effluent per day. Proposed facility improvements are expected to occur over a period of five years or more.

Phase II (0.44 - 0.63 mgd capacity). Implementation of Phase II improvements will be in response to demand and, at current development rates, may not occur for 10 years or more. Phase II upgrades the level of effluent treatment to tertiary with additional flow capacity. The forebay will be constructed. Groundwater extraction wells will be used with the anticipated locations down gradient from the percolation ponds.

Reclaimed water distribution pipelines must be constructed during this phase. An existing pipeline located parallel to an existing effluent line will serve as a pump-back main from the percolation ponds to the effluent forebay. Reclaimed water will be delivered to the Castle Creek and Lawrence Welk Golf Courses upon completion of the above improvements.

Phase III (0.63 - 0.75 mgd). The Phase III improvements include modifications to the aeration basin blowers and the addition of one RAS/WAS pump, a second rectangular flow equalization tank at the treatment plant, and the conversion of one percolation pond to a lined seasonal storage pond at the percolation pond site.

Phase IV (0.75 - 1.0 mgd). Upon completion of Phase III improvements, the District will seek an "intermittent" live stream discharge permit in lieu of pursuing: a) a "continuous" live stream discharge permit; or b) continuing with the existing inland disposal discharge permit by constructing additional seasonal storage.

Pipelines. Pipelines are proposed for construction within existing road right-of-ways. Both reclaimed water pipeline and low pressure sewer pipelines will be designed and constructed. Sewer and reclaimed water lines will be installed on an as-needed basis or as service capacity requirements dictate. Service to individual property owners will be coordinated through the District.

Reclaimed Water Distribution Lines. Reclaimed water will be distributed directly from the Treatment Plant first to the Castle Creek Golf Course and second to the Lawrence Welk Golf Course. Lines will carry water to existing storage ponds located at each site. When reclaimed water flows reach 1.0 mgd, reclaimed water produced at the Moosa Canyon Plant will exceed irrigation demand in nine out of twelve months of the year. Excess reclaimed water would be percolated into the Lower Moosa Canyon groundwater basin.

Sewer Collection Lines. A combination of gravity flow and low pressure trunk and collector sewers will be constructed for those properties to be provided with sewer service. All lines would be sized for ultimate capacity of the service area based on current land use plans. Prior to project build-out, replacement of some existing sewer lines would be likely to accommodate anticipated development of the service area.

Assessment Districts/Annexation. The District's Board of Directors will determine the need to assess communities within the service area in order to fund adequate wastewater treatment

facilities and distribution systems services as needed. Proposed Assessment District boundaries are included in Appendix C. Upon petition to the District and subsequent Board approval, the small islands of land east of I-15 may be annexed to the District as a logical service area provided the respective districts, within which these areas are currently designated, concur.

B. Project Location

The proposed project is located within the westernmost portion of the Valley Center Municipal Water District and within the Valley Center, Bonsall and North County Metropolitan Community Planning Areas. The existing wastewater treatment plant is located approximately six miles north of the City of Escondido and one mile east of I-15 in San Diego County (Figure 1).

C. Physical Characteristics

Pipeline Alignments. The topography on-site within the entire project area consists of steep broken foothills and Moosa Canyon creek and its tributaries (Figure 2). Numerous rock outcroppings and dense chaparral blanket the steep slopes. Elevation ranges from approximately 1,760 feet above mean sea level (MSL) to 300 feet MSL. Soils found on the site are predominantly from the Visalia, Cienega, Fallbrook, Vista, Las Posas, Riverwash, and Igneous Rock series (Bowman 1973).

The surrounding land uses throughout the study corridor include rural residential, golf courses including Castle Creek, Lawrence Welk, and Meadow Lake, a fire station, orchards, horse corals and open areas.

Water Treatment Plant. The Water Treatment Plant (WTP) and the adjacent forebay are located off of Circle R Drive at approximately 500 MSL. Soils types present include Visalia sandy loam and Riverwash. The WTP facility (approximately 4.4 acres) is adjacent to Circle R Drive on the north, a fire station to the west and a housing development to the east. The southeast side of the WTP abuts the proposed location of the forebay (0.62 acre) beyond which two drainages feed into Moosa Creek. Beyond the drainages is the Castle Creek Golf Course.

Percolation Ponds. Three percolation ponds (ponds) are located west of I-15 and north of Camino Del Rey Road at approximately 300 MSL. Visalia sandy loam is the soil type found in the vicinity of the percolation ponds. The ponds are alternated for storage of secondary treated effluent. Therefore, at any one time, the three ponds have varying amounts of vegetative growth which is periodically disced. Surrounding land uses include Camino Del Rey to the south and open land in the other three directions.

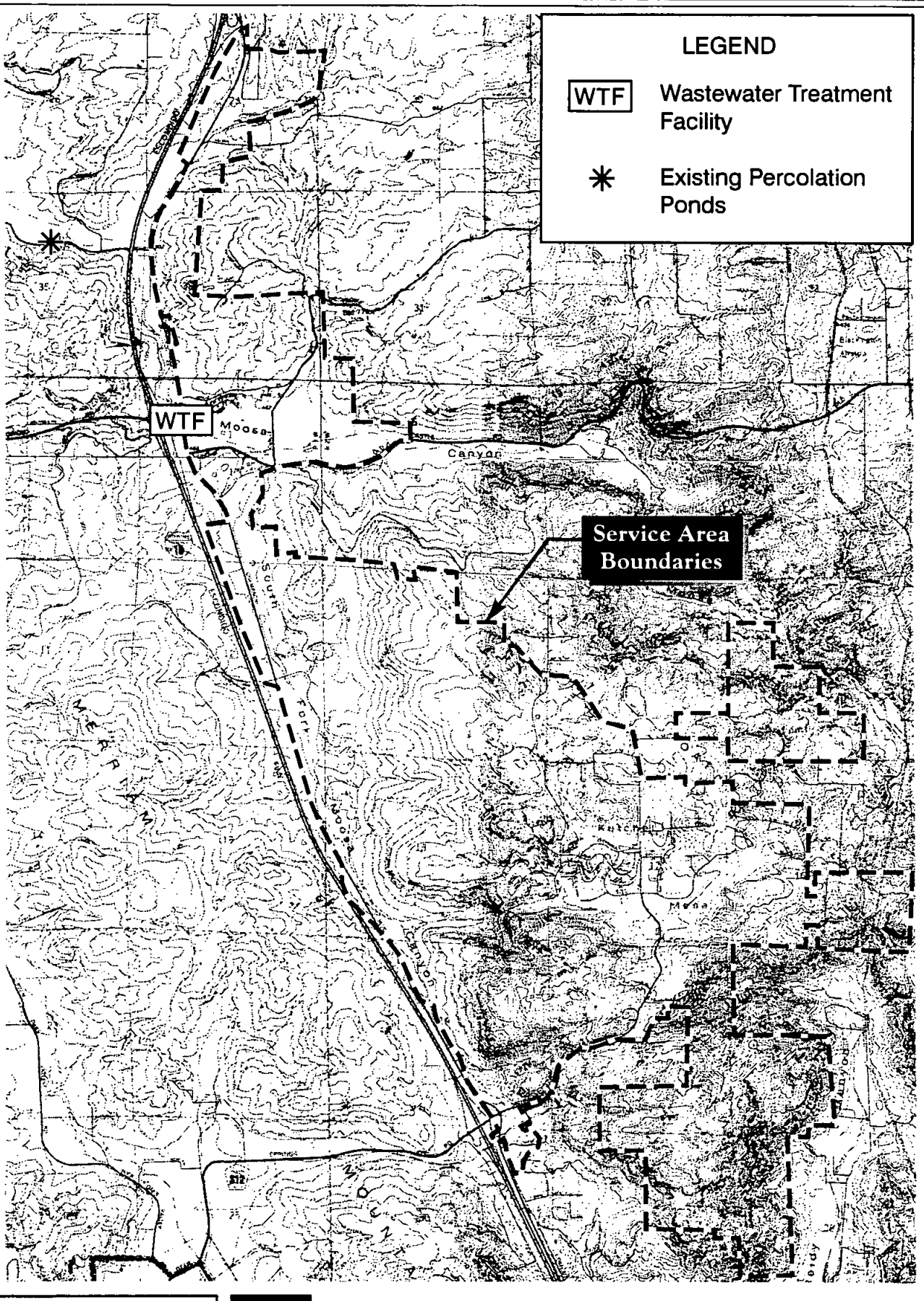
Brian F. Mooney Associates

North

Figure 1

Regional Location Map

Lower Moosa Canyon Facility



Brian F. Mooney Associates

Figure 2

Vicinity Location Map

Lower Moosa Canyon Facility

III. METHODS

The project area was surveyed over four days in 1996: January 3 and 5, and February 7 and 12. The last survey was conducted to verify vegetation at the location of the proposed forebay. The weather conditions during the first three surveys were generally clear with temperatures in the mid 70's. Weather during the final survey included rainy and cool conditions.

The field surveys were conducted by driving along the various roads where pipelines will be constructed and noting the locations of any natural vegetation. Limited foot surveys were conducted, primarily at facilities such as the forebay or the pipeline alignment along Lotus Pond Lane, both of which were not accessible by car. Portions of several pipeline routes were not surveyed due to inaccessibility, however, the vegetation in these areas was described with a fair amount of confidence using binoculars. Vegetation communities present were mapped on 1 inch = 200 feet scale ortho-topographic maps.

Locations of trees, primarily oaks, that were observed directly adjacent to roadways were noted since they could be indirectly affected by the construction.

The term pipeline or pipeline alignment refers to pipelines that will carry both sewer and reclaimed water. Champagne Boulevard is used throughout this report to denote both Champagne Boulevard and Old Highway 395. The area of the pipeline alignments and 20 feet adjacent to them on either side is subsequently referred to as the study corridor. The study corridor is not to be confused with the Area of Potential Effect (APE) which is the area that would be impacted by construction.

The following references or field guides were used for the biological resource inventory: habitats, Holland 1986; flora, Bailey 1924, Munz 1974, Beauchamp 1986, and Hickman 1993; birds, Binford 1986 and DeBenedictis 1989; mammals, Jones, et al. 1982 and Jameson and Peeters 1988; reptiles, Jennings 1983.

IV. RESULTS

A. Botany

Vegetation within the project boundaries is discussed under three separate categories: pipeline alignments; the water treatment plant; and the percolation ponds. A minor modification was made to Holland's classification scheme regarding oak and riparian habitats to provide additional detail.

1. Pipeline Alignments

This section is discussed as two separate sections: the first section discusses the vegetation communities observed during the car surveys; the other category discusses vegetation for specific pipeline alignments that are proposed in native areas or because of project design, warrant a more detailed discussion.

Many of the study corridors have been graded and/or developed for residential, commercial and public uses and support very little native plant biomass (Figure 3a-f). Portions of the developed areas have been planted with ornamental species including eucalyptus (*Eucalyptus* ssp.), hottentot fig (*Carpobrotus edulis*), acacia (*Acacia latifolia*) and bouganvillea (*Bouganvillea brasilensis*). Similarly, the land adjacent to many of the existing roadways consist of ruderal species including mustard (*Brassica* sp.), wild oats (*Avena* spp.), bromes (*Bromus diandrus* and *B. rubens*) and Russian thistle (*Salsola iberica*). Ruderal species often occur as a narrow band on either side of the roadways beyond which native vegetation occurs.

A few areas support agriculture lands, primarily row crops such as avocado or plant nurseries with such species as geraldton waxflower (*Chamelaucium uncinatum*), silver mountain gum (*Eucalyptus pulverulenta*), and protea (*Protea neriifolia*). The areas that have been graded, developed or are under cultivation are not considered biologically important for sensitive plant or wildlife species since they are primarily dominated by non-native species.

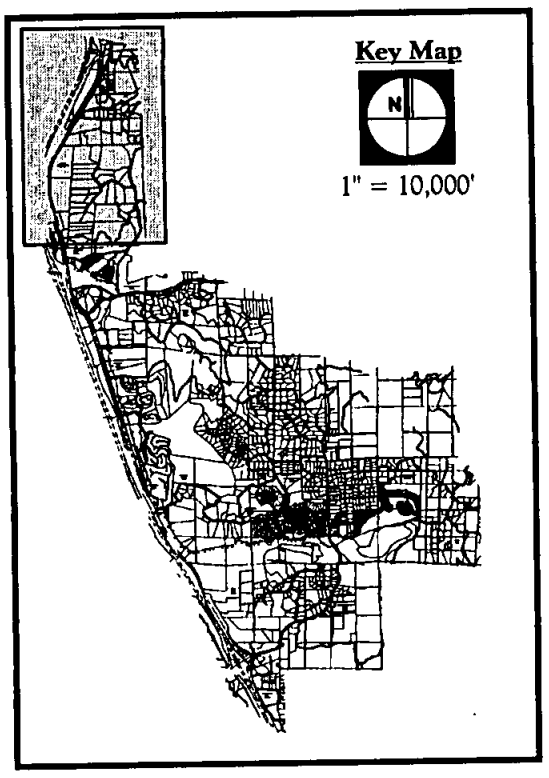
Several areas along the pipeline alignments contain native vegetation communities which are discussed below (Figure 3a-f).

Southern Mixed Chaparral. Southern mixed chaparral (chaparral) is composed of broad-leaved sclerophyllous shrubs dominated by scrub oak (*Quercus* spp.) and chamise (*Adenostoma fasciculatum*) with usually little or no understory vegetation. This habitat type is adapted to frequent fires (Holland 1986). Other shrub species associated with the habitat include eastwood manzanita (*Arctostaphylos glandulosa* ssp. *glandulosa*), toyon (*Heteromeles arbutifolia*) and laurel sumac (*Malosma laurina*).

Diegan Coastal Sage Scrub. Diegan coastal sage scrub (sage scrub) and disturbed sage scrub occur in varying compositions within the study corridors. Typically sage scrub is dominated by flat-top buckwheat (*Eriogonum fasciculatum*) or coastal sagebrush (*Artemisia californica*). Other elements include broom baccharis (*Baccharis sarothroides*), laurel sumac and black sage (*Salvia mellifera*). The disturbed sage scrub is similar in composition, but differs from the undisturbed sage scrub by the greater relative abundance of exotic annual grasses and forbs as well as openness.

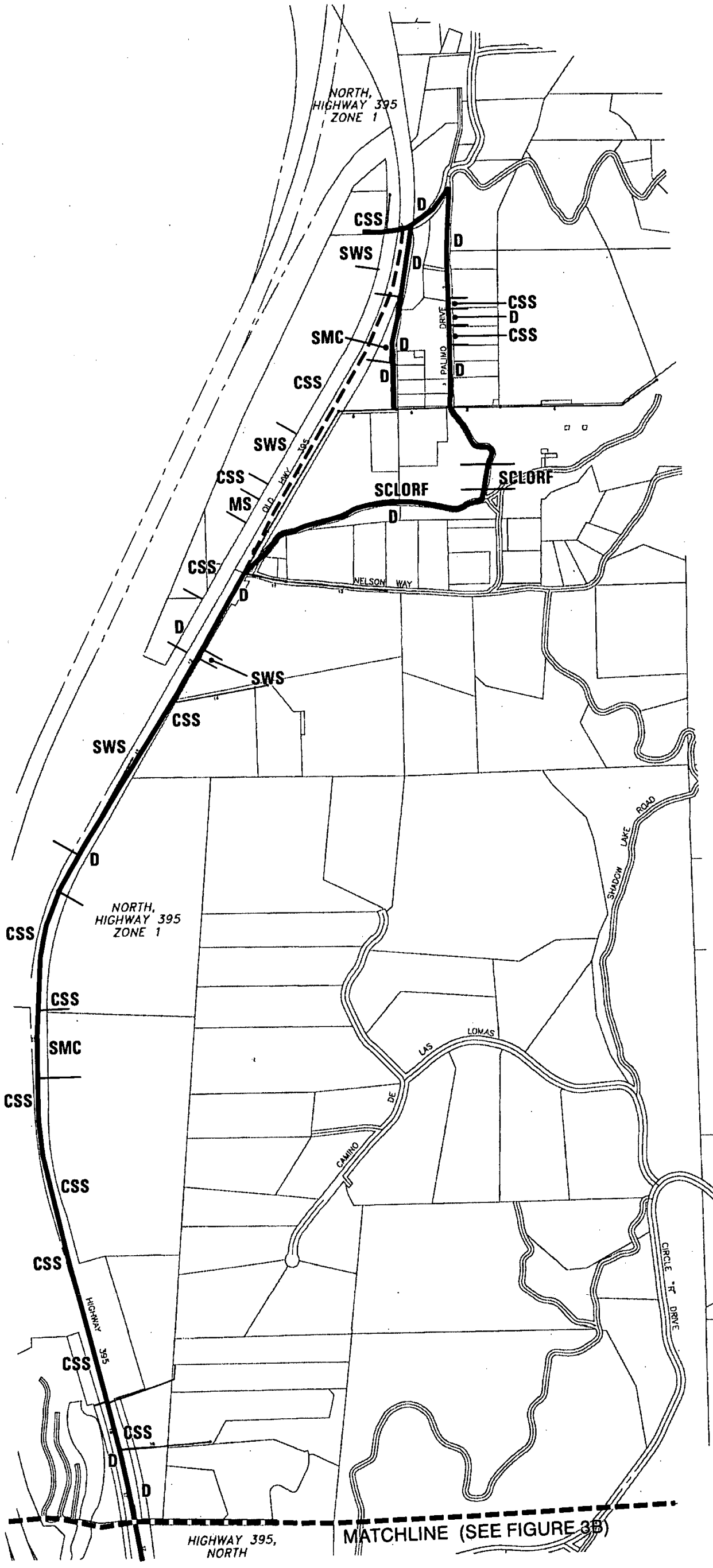
LEGEND

SCLORF	Southern Coast Live Oak Riparian Forest
CSS	Diegan Coastal Sage Scrub
SMC	Southern Mixed Chaparral
SWS	Southern Willow Scrub
MS	Mulefat Scrub
D	Disturbed
———	Pipeline Alignment
— — ·	Alternate Pipeline Alignment



Key Map

1" = 10,000'



Brian F. Mooney Associates

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Figure 3a

Biological Resources Map

Lower Moosa Canyon Facility Bio

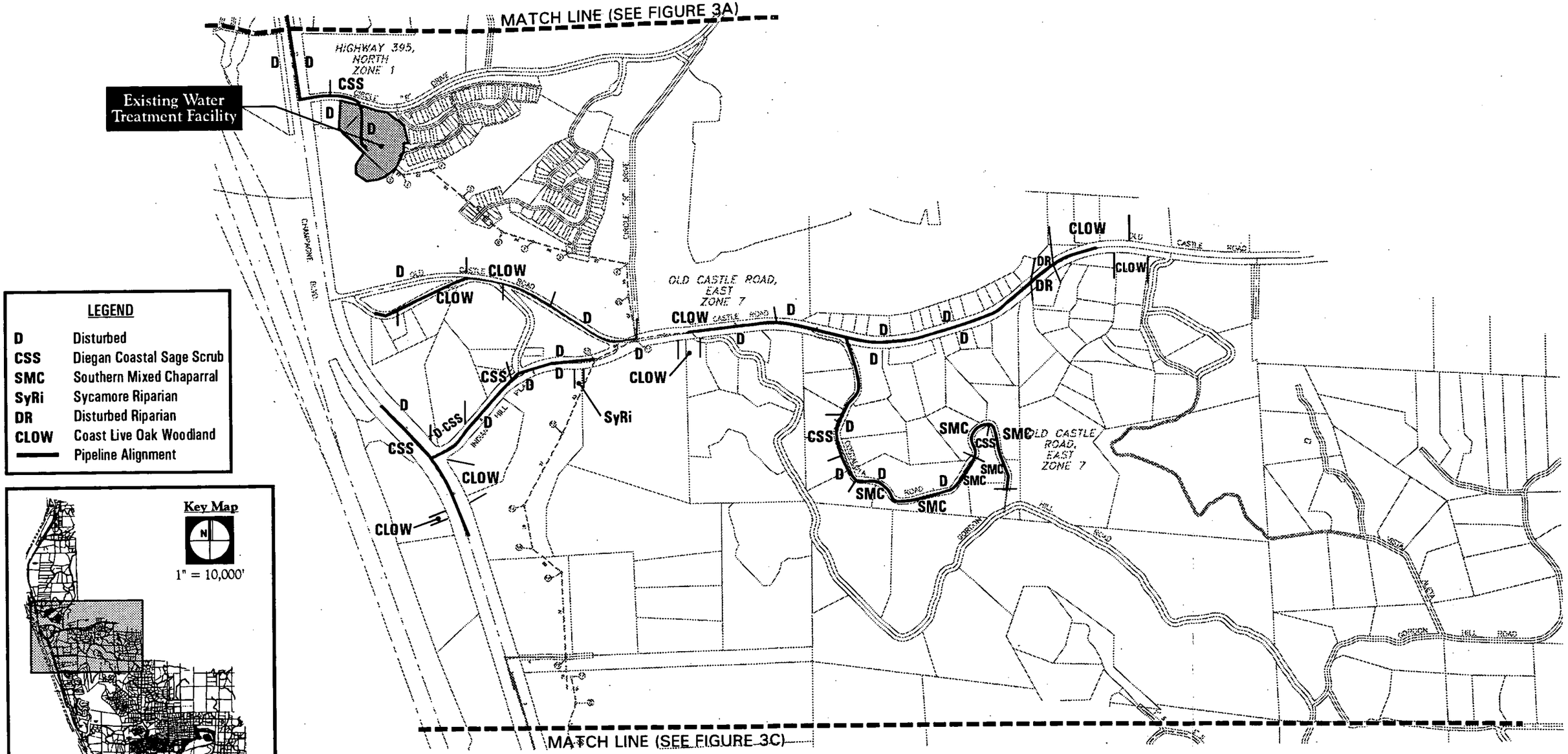


Figure 3b

Biological Resources Map

MATCH LINE (SEE FIGURE 3B)

MATCH LINE (SEE FIGURE 3D)

LEGEND

D	Disturbed
CSS	Diegan Coastal Sage Scrub
SMC	Southern Mixed Chaparral
CLOW	Coast Live Oak Woodland
———	Pipeline Alignment

Key Map

1" = 10,000'

CLOW
CHAMPAGNE BLVD. ZONE 8
CSS
WELK VIEW DRIVE
LAWRENCE WELK DRIVE
CHAMPAGNE VILLAGE DR
CHAMPAGNE, SOUTH ZONE 2
CHAMPAGNE AREA "A" ZONE 8
SANDHURST WAY
MEADOW GLEN WAY, WEST ZONE 5
MOUNTAIN MEADOW ROAD
OAK RIDGE ROAD
MOUNTAIN VISTA
HIGHLAND DRIVE
MIST MEADOW LANE
LITTLE CANYON LANE
CRYSTAL RIDGE COURT
ROCKY POINT WAY
ROYAL RIM ROAD
BOULDER KNOLLS
WELCOME VIEW WEST

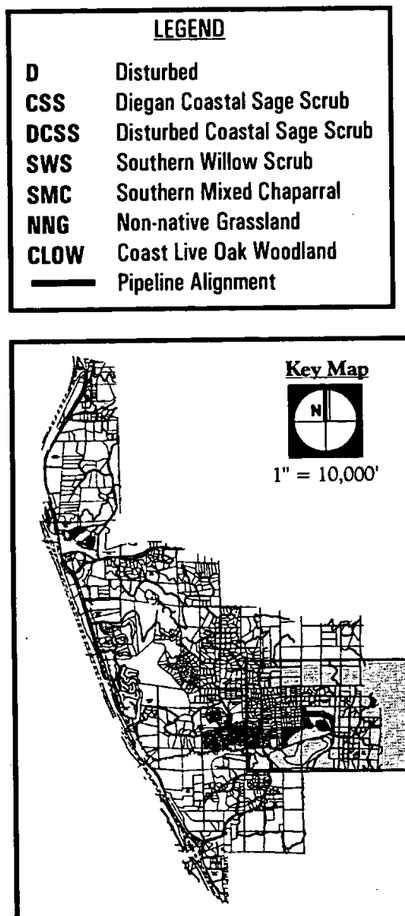
Brian F. Mooney Associates

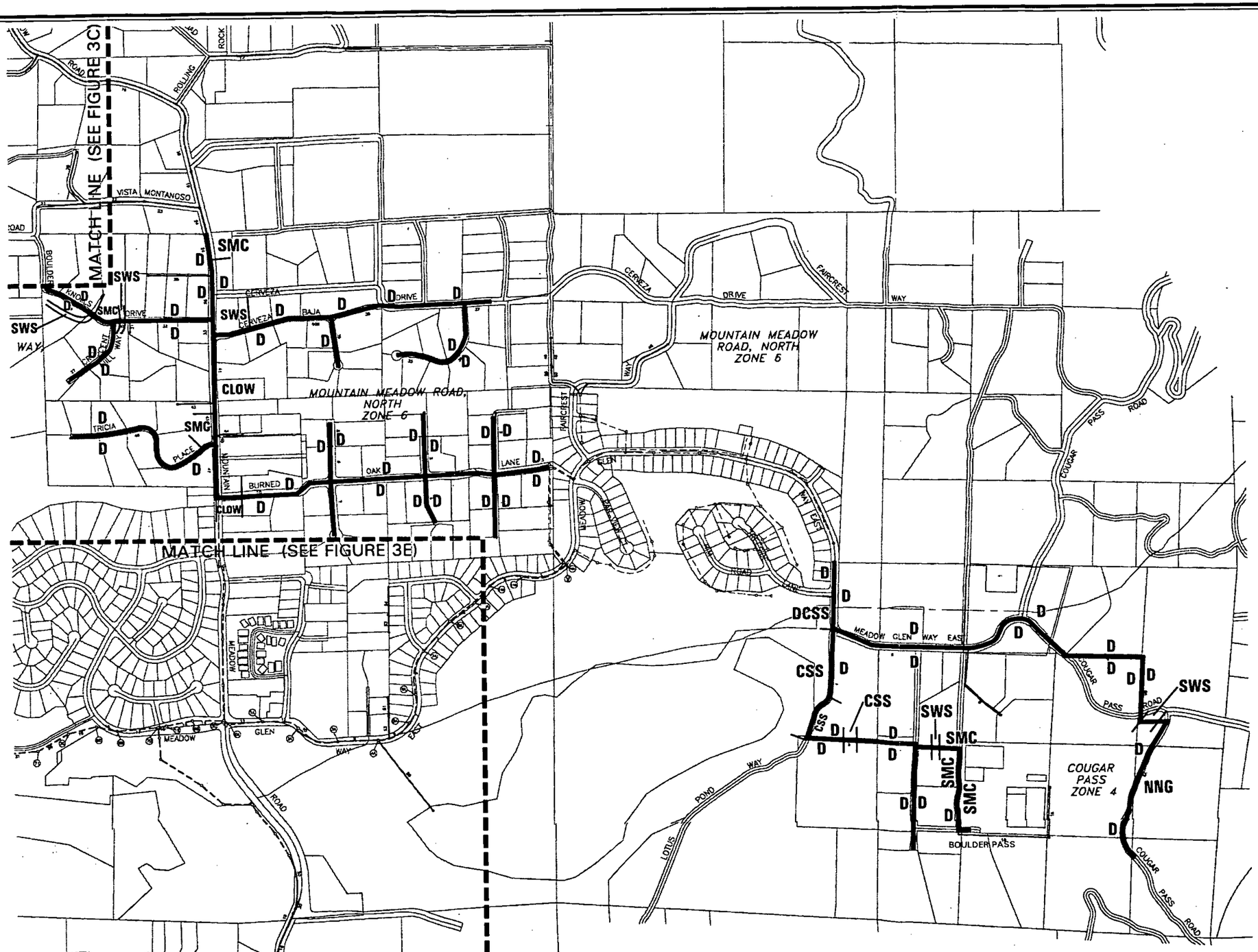
0 800'

Figure 3c

Biological Resources Map

Lower Moosa Canyon Facility Bio





Brian F. Mooney Associates

Figure 3d

Biological Resources Map

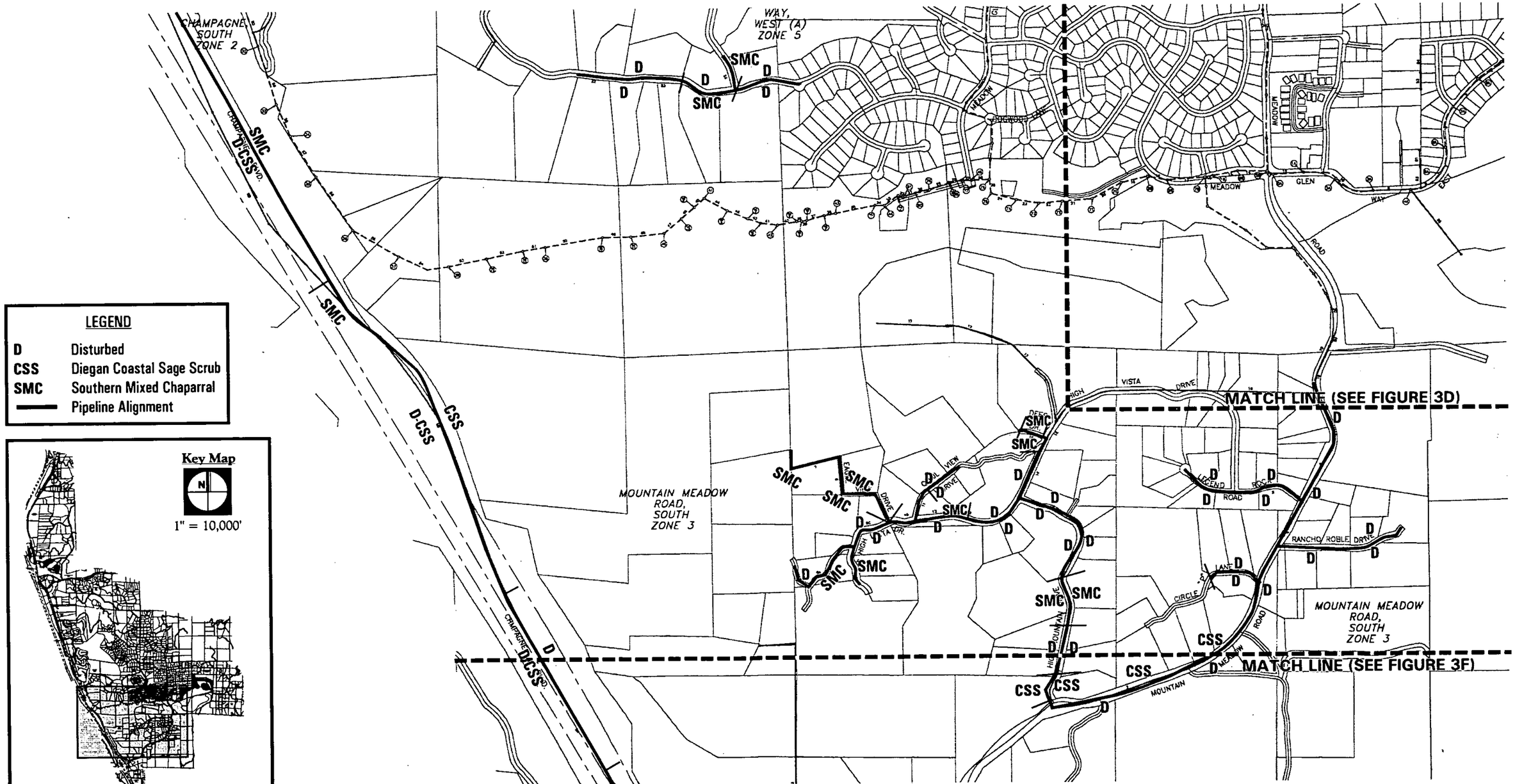
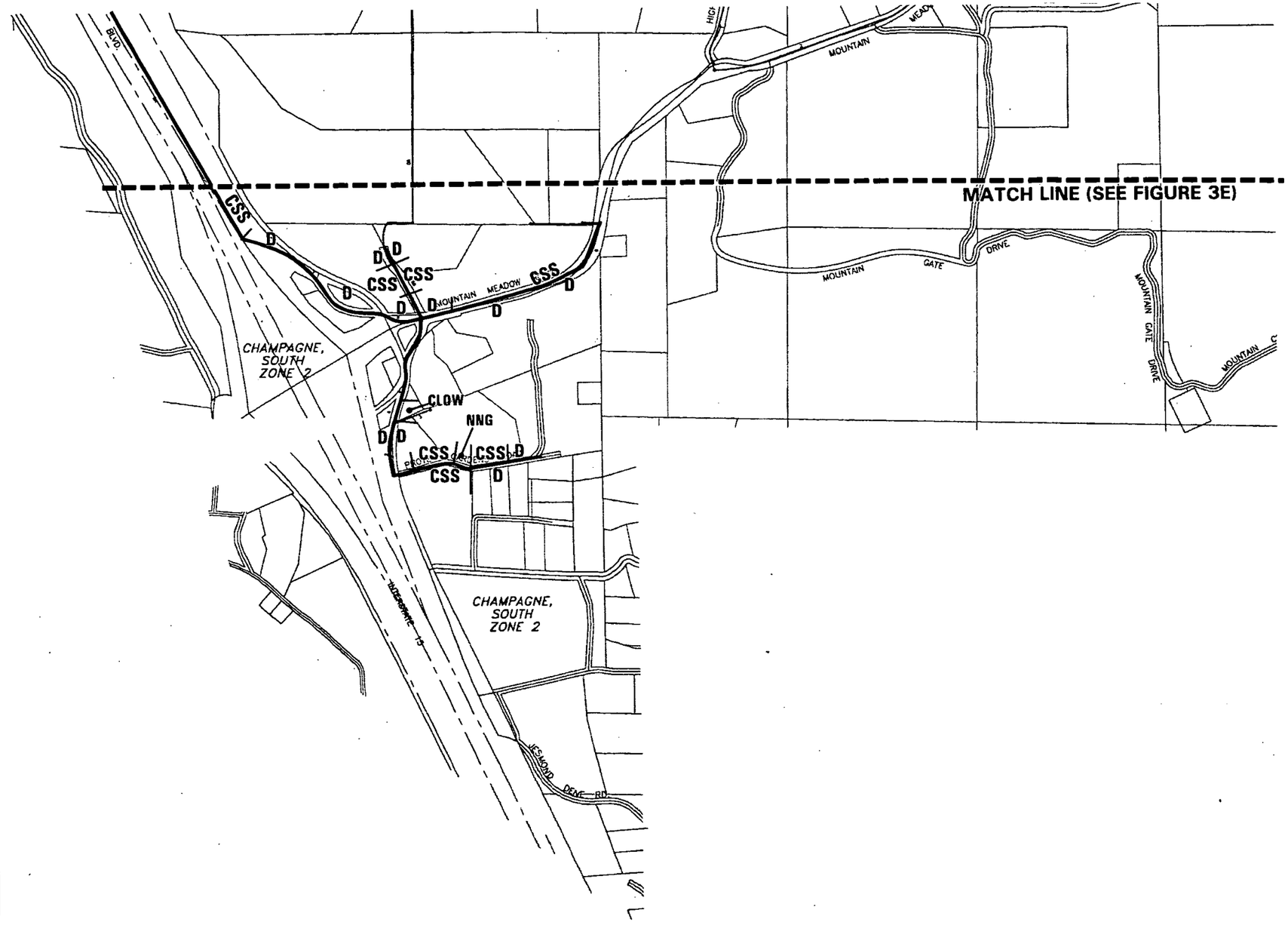


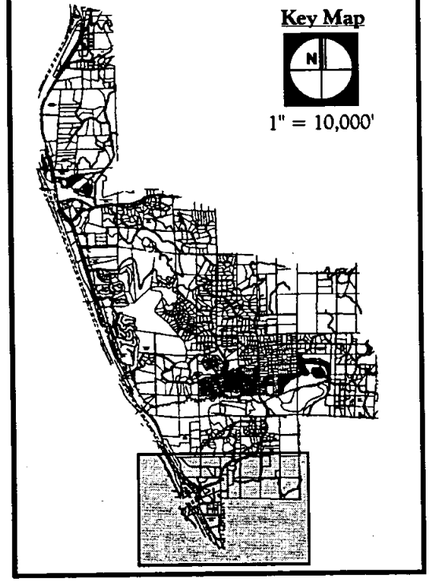
Figure 3e

Biological Resources Map



LEGEND

D	Disturbed
CSS	Diegan Coastal Sage Scrub
SMC	Southern Mixed Chaparral
CLOW	Coast Live Oak Woodland
NNG	Non-native Grassland
———	Pipeline Alignment



Brian F. Mooney Associates

N

0 800'

Figure 3f

Biological Resources Map

Southern Willow Scrub. A common element of southern willow scrub is arroyo willow (*Salix lasiolepis*) with scattered western cottonwood (*Populus fremontii*). In some areas the willows are replaced by mule-fat (*Baccharis salicifolia*), or the non-native giant reed (*Arundo donax*). Stands of southern willow scrub are typically too dense to allow for the development of any substantial amount of understory (Holland 1986).

Coast Live Oak Woodland. Coast live oak woodland (oak woodland) typically is dominated by coast live oak (*Quercus agrifolia*) with subdominants such as poison oak (*Toxicodendron radicans* ssp. *diversilobum*) and gooseberry (*Ribes speciosum*). Scattered coast live oaks, Engelmann oaks (*Quercus engelmannii*) and Engelmann oak hybrids occur along many of the roadsides at varying distances from the edge of the pavement.

The remainder of this section discusses vegetation for specific pipeline alignments.

Moosa Creek Crossing. The project as planned will cross Moosa Creek just south of Circle R Drive as the pipeline alignment extends south along Champagne Boulevard. The vegetation in the creek consists of southern willow scrub, although the vegetation immediately adjacent to the bridge is dominated by giant reed.

Pipeline Connection between the WTP and the Irrigation Storage Pond. The current pipeline path from the WTP to the irrigation storage pond (storage pond) at the Old Castle Golf Course consists of running the pipeline from the WTP within Circle R Drive to connect with Champagne Boulevard. The pipeline would then travel south along Champagne Boulevard and then east along Old Castle Road for approximately 3,400 feet before it would move north to the storage pond. This route could impact oak trees that line Old Castle Creek in the vicinity of the storage pond. Several alternatives exist for the connection between the WTP and the storage pond including the following:

a) One of the alternatives proposes to run the pipeline from the WTP westward to connect with Champagne Boulevard and thus bypass Circle R Drive. This route would impact southern willow scrub within Moosa Creek.

b) An alternative to avoid impacts to the oak trees lining Old Caste Road includes heading north from Old Castle Road onto the formerly named Circle R Drive that bisects the golf course in half. The pipeline could then run east to the storage pond near the southern boundary of the golf course.

c) Another route from the WTP to the storage pond includes the pipeline running east/southeast within an existing easement that skirts the northern boundary of the golf course, then cutting south along the former Circle R Drive, before finally heading east to the storage pond.

Sewer Line Connection via Champagne Village Drive. The project proposes to connect the pipeline placed within Champagne Boulevard with an existing sewer line near the central portion

of the project. The pipeline would follow Champagne Boulevard with a connection to the sewer line via Champagne Village Drive. This route would occur within existing roadways. An alternate route is to cross the South Fork of Moosa Creek south of the currently proposed route. This southern connection would cross chaparral and sycamore riparian woodland.

Boulder Pass. The pipeline alignment just north of Boulder Pass in the extreme northeastern portion of the project area extends from a north/south dirt road westward towards Quiet Hollow Lane. This area is covered by ruderal vegetation and a small drainage with southern willow scrub.

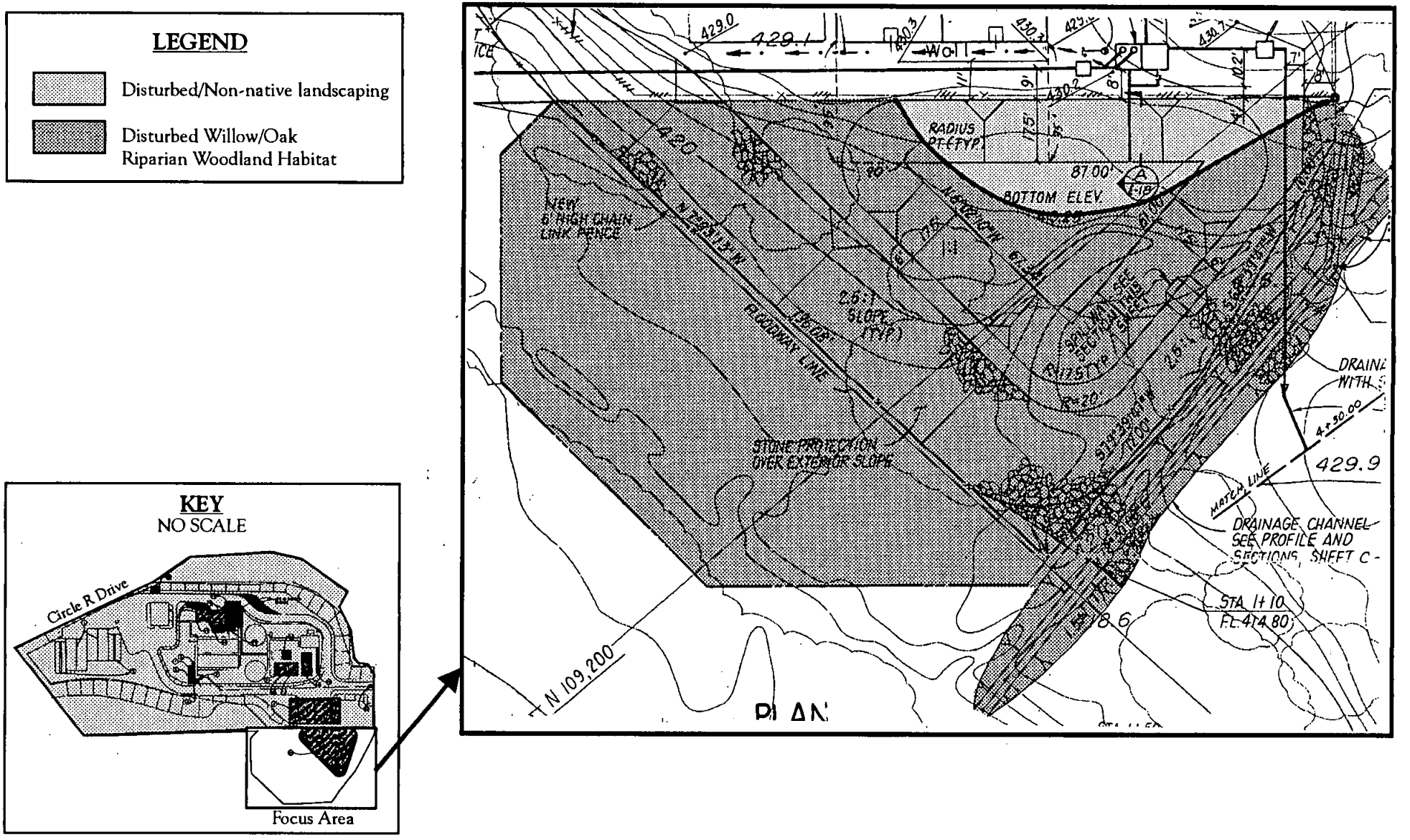
Lotus Pond Lane. The pipeline alignment extends approximately 800 feet from Meadow Glen Way south onto Lotus Pond Lane, which is a dirt road. The alignment then shifts east, continuing on a dirt road, and eventually ends up connecting with Quiet Hollow Lane. Sage scrub occurs on either side of the proposed alignment.

2. Water Treatment Plant

Most of the WTP (4.4 acres) is currently disturbed by plant operations or is covered by non-native species. The forebay (0.60 acre) consists of both disturbed vegetation (0.06 acre) and a disturbed willow riparian/coast live oak riparian woodland (willow riparian/oak riparian woodland) mixture (0.32 acre) (Figure 4). An additional 0.22 acre of willow riparian/oak riparian woodland within the forebay area will be left intact. Another 0.04 acre of disturbed vegetation that occurs within the existing WTP facility will be used for construction of the forebay as will 0.10 acre of disturbed riparian habitat that occurs in two drainage swales.

The disturbed vegetation occurs directly south of the fence near the southeast corner of the existing WTP facility and includes mustard, Russian thistle and grasses. A few scattered flat-top buckwheats, coastal sagebrush, and coyote bush (*Baccharis pilularis*) were observed within the disturbed vegetation along the northern perimeter of the smaller of two drainage swales. The disturbed willow riparian/oak riparian woodland mixture occurs within the two drainage swales that are located between the disturbed vegetation and the Castle Creek Golf Course. The southern swale is a natural drainage that extends from the east westward and eventually connects with Moosa Canyon near Champagne Boulevard. The northern swale is the result of a culvert southeast of the WTP that funnels runoff from the development to the east. The northern drainage will be rechannelized at the site of the culvert so water will flow into the larger drainage to the south. The larger drainage will also be channelized.

Coast live oak is the distinguishing native feature in the drainages. Willow riparian habitat, including willows, mulefat, and elderberry (*Sambucus mexicana*), occurs within the two drainage swales. Oaks and a few scattered sycamores (*Platanus racemosa*) occur along the margins of the swales. As the southern swale moves east/northeast, the willow riparian habitat disappears and only scattered oaks are visible. The riparian habitat is not of high quality, due to the narrow area the vegetation occupies, it's location between a golf course and disturbed vegetation, and the invasion of non-native species such as Eucalyptus and chinaberry.



Brian F. Mooney Associates

0 20' 40'

Biological Resources
Treatment Plant Forebay Site

Figure 4

3. Percolation Ponds

Cheeseweed (*Malva parviflora*), curly dock (*Rumex crispus*) and eastern cocklebur (*Xanthium strumarium*) were observed in all three ponds. Cat-tail (*Typha* sp.) was observed in the northwestern pond and the eastern pond also contained tomato (*Lycopersicon esculentum*). The southwestern pond was being filled with treated water at the time of the survey and only the extreme west end of the pond was covered by vegetation.

The slopes of the ponds were vegetated with ruderal species such as black mustard (*Brassica nigra*), datura (*Datura wrightii*), common horseweed (*Conyza canadensis*), filaree (*Erodium* sp.), and tree tobacco (*Nicotiana glauca*).

B. Flora

A total of 43 plant species were detected during the surveys (Table 1).

C. Wildlife

This section discusses the wildlife typically associated with each vegetation community, as presented above. A total of 27 wildlife species were recorded during the field surveys (Table 2). Since only a small amount of the project area was traversed by foot, this section is supplemented with additional species that were not detected but would likely be present within the communities observed.

Several bird species were detected in disturbed areas throughout the project site. These include northern mockingbird (*Mimus polyglottos*), California thrasher (*Toxostoma redivivum*), and European starling (*Sturnus vulgaris*). Species observed at the percolation ponds include: killdeer (*Charadrius vociferus*) and greater yellowlegs (*Tringa melanoleuca*).

Chaparral only occurred in areas adjacent to roadways, and therefore this community was not surveyed by foot. However, wildlife typically occurring in chaparral include western fence lizard (*Sceloporus occidentalis*), Bewick's wren (*Thryomanes bewickii*), rufous-sided towhee (*Pipilo erythrophthalmus*), California towhee (*Pipilo crissalis*), brush rabbit (*Sylvilagus bachmani*), coyote (*Canis latrans*), and mule deer (*Odocoileus hemionus*).

Species observed adjacent to sage scrub (primarily in the vicinity of Lotus Pond Lane and Protea Gardens Road) include wrentit (*Chamaea fasciata*), blue-gray gnatcatcher (*Polioptila caerulea*), and bushtit (*Psaltriparus minimus*). Other species often observed within sage scrub include roadrunner (*Geococcyx californianus*), San Diego horned lizard (*Phrynosoma coronatum blainvillei*) and mule deer.

Table 1. Plant Species Observed in the Valley Center Municipal Water District[1]

Scientific Name	Common Name	Habitat[2]
*Acacia longifolia**	golden wattle	D
Adenostoma fasciculatum var. *fasciculatum*	chamise	C
Artemisia californica	California sagebrush	CSS,D
*Arundo donax**	giant reed	SWS
Avena sp.*	wild oat	D
Baccharis pilularis	coyote brush	D
Baccharis salicifolia	mule-fat	SWS
Baccharis sarothroides	broom baccharis	CSS,D
Bouganvillea brasilensis	bouganvillea	D
*Brassica nigra**	black mustard	P
Brassica sp.*	mustard	D
*Bromus diandrus**	common ripgut-grass	D
*Bromus rubens**	foxtail chess	D
*Carpobrotus edulis**	hottentot-fig	D
Chamelaucium uncinatum	geraldton waxflower	D
*Conyza canadensis**	common horseweed	P
Datura wrightii	jimson weed	P
Eriogonum fasciculatum ssp. *fasciculatum*	flat-top buckwheat	CSS,D
Eucalyptus pulverulenta	silver mountain gum	D
Erodium sp.	filaree	D
Eucalyptus sp.*	eucalyptus	D,R
*Foeniculum vulgare**	sweet fennel	D
Hazardia squarrosus var. *grindelioides*	sawtooth goldenbush	D
Lycopersicon esculentum	cherry tomato	P
Malosma laurina	laurel sumac	CSS
*Malva parviflora**	cheeseweed	D
*Nicotiana glauca**	tree tobacco	P
Platanus racemosa	California sycamore	R
Populus fremontii var. *fremontii*	western cottonwood	R,SWS
Protea neriifolia	protea	D
Quercus agrifolia	coast live oak	R
*Raphanus sativus**	wild radish	D
Rhus ovata	sugarbush	CSS
*Rumex crispus**	curly dock	D
Salix lasiolepis	arroyo willow	R,SWS
*Salsola iberica**	Russian thistle	D
Salvia mellifera	black sage	CSS
Sambucus mexicana	desert elderberry	SWS
*Schinus molle**	Peruvian pepper-tree	SWS
Tamarix sp.*	tamarisk	SWS
Toxicodendron radicans ssp. *diversilobum*	poison oak	R
Typha ssp.	cat-tail	P
Xanthium strumarium	cocklebur	D,P

* Denotes non-native taxa.

(1) Nomenclature from Munz 1973, Beauchamp 1986, and Hickman 1993.

(2) Habitat: C = Chaparral; CSS = Coastal sage scrub; D = Disturbed; P = Percolation pond; R = Willow riparian/oak riparian mixture (Forebay); SWS = Southern willow scrub

Table 2. Wildlife Species Observed in the Valley Center Municipal Water District[1]

Common Name	Scientific Name	Habitat[2]
American crow	*Corvus brachyrl.ynchos*	O
American kestrel	*Falco sparverius*	CSS
Anna's hummingbird	*Calypte anna*	R
black phoebe	*Sayornis nigricans*	R
blue-gray gnatcatcher	*Polioptila caerulea*	CSS
bushtit	*Psaltriparus minimus*	R
California thrasher	*Toxostoma redivivum*	CSS
California towhee	*Pipilo crissalis*	R
European starling	*Sturnus vulgaris*	D
greater roadrunner	*Geococcyx californianus*	CSS
greater yellowlegs	*Tringa melanoleuca*	P
house wren	*Troglodytes aedon*	SWS
housefinch	*Carpodacus mexicanus*	R
killdeer	*Charadrius vociferous*	P
mallard	*Anas platyrhynchos*	P
northern flicker	*Colaptes auratus*	O
northern mockingbird	*Mimus polyglottos*	CSS
Pacific treefrog	*Hyla regilla*	P
red-shouldered hawk	*Buteo lineatus*	R
red-tailed hawk	*Buteo jamaicensis*	O
ruby-crowned kinglet	*Regulus calendula*	R
rufous-crowned sparrow	*Aimophila ruficeps*	R
Say's pheobe	*Sayornis saya*	D
scrub jay	*Aphelocoma coerulescens*	R
song sparrow	*Melospiza melodia*	P
wrentit	*Chamaea fasciata*	R,CSS
yellow-rumped warbler	*Dendroica coronata*	R

[1] Nomenclature from Binford 1986 and DeBenedictis 1989.
[2] Habitat: CSS = Coastal sage scrub; D = Disturbed; O = Overhead; P = Percolation pond; R = Willow riparian/oak riparian mixture (Forebay)

Riparian habitat typically supports a diverse community of wildlife. The dominant bird species observed in the disturbed riparian habitat within Moosa Creek was the yellow-rumped warbler (*Dendroica coronata*). Other bird species observed in the creek near the location of the proposed forebay include red-shouldered hawk (*Buteo lineatus*), house finch (*Carpodacus mexicanus*), Anna's hummingbird (*Calypte anna*), scrub jay (*Aphelocoma coerulescens*), and rufous-sided towhee (*Pipilo erythrophthalmus*). Mammal species often observed within riparian habitat include mule deer, bobcat (*Lynx rufus*), and raccoon (*Procoyon lotor*). Riparian habitat also provides habitat for several sensitive bird species including least Bell's vireo (*Vireo belli pusillus*) and southwestern willow flycatcher (*Empidonax traillii extimus*).

A ruby-crowned kinglet (*Regulus calendula*) was detected in a small coast live oak woodland that occurred beyond the sage scrub adjacent to Lotus Pond Lane.

D. Sensitive Species

Plant and animal species are considered sensitive if they have been listed as such by federal or state agencies, or one or more special interest groups such as the California Native Plant Society (CNPS) (Skinner and Pavlik 1994). The California Department of Fish and Game (CDFG) publishes separate comprehensive lists for plants and animals through the California Natural Diversity Data Base (CNDDB) (CDFG 1995a and 1994). CDFG also publishes Database Rarefind Report (CDFG 1995b) through the CNDDB. These lists include taxa officially listed by California or the Federal Government as Endangered, Threatened, or Rare, and candidates for state or federal listing. These categories can be applied to both plants and animals. The animal list also includes Fully Protected Species and Species of Special Concern.

Until recently, Federal Candidate species were classified as either Category 1 or 2 species. Category 1 species were those taxa for which the U.S. Fish & Wildlife Service (USF&WS) had sufficient biological information to support a proposal to list as Endangered or Threatened. Category 2 species were those taxa for which existing information may have warranted listing, but substantial biological information to support a proposed rule was lacking. These categories are applied to both plants and animals. The USF&WS has since reevaluated its classification scheme of candidate species and has discontinued use of the Category 2 lists. The USF&WS remains concerned about the Category 2 species, however, further biological research and field study are needed to warrant listing these species. These former Category 2 species are the pool from which future Candidates for listing will be drawn from, therefore, they are discussed in this report. The Federal Register (U.S. Department of the Interior 1996), provides an updated list of species Proposed for listing as Threatened or Endangered and species regarded by the USF&WS as Candidates (former Category 1) for listing under the Federal Endangered Species Act (FESA)

1. Plants

The CNPS provides a comprehensive listing of plant species. Their sensitivity evaluation of a species is based on its rarity, endangerment, and distribution (Skinner and Pavlik 1994). Number values are assigned to these categories which, when considered together, are the basis for placement on one of four lists: List 1B: Plants Rare, Threatened, or Endangered in California and Elsewhere; List 2: Plants Rare, Threatened, or Endangered in California, But More Common Elsewhere; List 3: Plants About Which We Need More Information--A Review List; and List 4: Plants of Limited Distribution--A Watch List. For the purposes of this report, species on state or federal lists or CNPS Lists 1B and 2 have been of prime consideration.

No directed searches for sensitive plant species were conducted. However, 12 sensitive plant species have been reported in the vicinity of the project or have the potential to occur in the proximity of the study area because of the presence of appropriate habitat. These sensitive plant species are discussed below and in Table 3.

San Diego Thornmint (*Acanthomintha ilicifolia*). This herbaceous annual can be found in grassy openings in chaparral and sage scrub associated with friable or broken clay soils (Reiser 1994). The San Diego thornmint is a Federally proposed as Endangered species, a State-listed Endangered species and a CNPS List 1B species (CDFG 1995b). This species could occur within the chaparral and sage scrub observed during the project surveys.

California Adolphia (*Adolphia californica*). The preferred habitat for this shrub is sage scrub, but occasionally it occurs at the edge of chaparral particularly on hillsides near creeks (Reiser 1994). The California adolphia is a CNPS List 2 species (CDFG 1995b). This species could occur within the chaparral and sage scrub observed during the project surveys.

San Diego Ambrosia (*Ambrosia pumila*). This herbaceous perennial occurs in creek beds, seasonally dry drainages, and floodplains, usually on the periphery of willow woodlands without a protective tree canopy (Reiser 1994). The San Diego ambrosia is a former Federal Category 2 species and is a CNPS List 1B species (CDFG 1995b). Although the habitat value of Moosa Creek in the project vicinity is somewhat diminished because of its proximity to existing roads and the invasion of non-native species such as Eucalyptus, San Diego ambrosia could occur along the margins of the riparian habitat.

Del Mar Manzanita (*Arctostaphylos glandulosa* ssp. *crassifolia*). This shrub is usually observed in chaparral occurring on eroding sandstone (Reiser 1994). The Del Mar manzanita is a Federally Proposed Endangered species and is a CNPS List 1B species (CDFG 1995b). Although unlikely, this subspecies of manzanita could occur within the chaparral within the study area.

Table 3. Sensitive Plant Species Potentially Occurring

Scientific Name[1]	Common Name	Status[2]	Preferred Habitat	Growth Habit (Flowering Period[2]	Potential Occurrence
Acanthomintha ilicifolia	San Diego thornmint	Federal - PE State - SE CNPS - List 1B	Grassy openings in chaparral/sage scrub with friable/broken clay soils. Associated with spring annuals and bulbs.	herbaceous annual (Apr-Jun)	yes
Adolphia californica	California adolphia	CNPS - List 2	Sage scrub, but occasionally in peripheral chaparral habitats, particularly hillsides near creeks. Associated with flat-top buckwheat and California sagebrush.	shrub	yes
Ambrosia pumila	San Diego ambrosia	Federal - C2 CNPS - List 1B	Creek beds, seasonally dry drainages, floodplains, usually on periphery of willow woodland without a protective tree canopy. Riverwash and sandy alluvium underlie these locales.	herbaceous perennial (Jun-Sep)	yes
Arctostaphylos glandulosa ssp. *crassifolia*	Del Mar manzanita	Federal - PE CNPS - List 1B	Occurs in chaparral with chamise and warty-stemmed ceanothus. Typically substrate is eroding sandstone and chaparral is low-growing.	shrub	yes
Brodiaea filifolia	thread-leaved brodiaea	Federal - PT State - SE CNPS - List 1B	Vernally moist grasslands, periphery of vernal pools. Associated with blue-eyed grass and purple needlegrass.	corm (Mar-Jun)	no
Brodiaea orcuttii	Orcutt's brodiaea	Federal - C2 CNPS - List 1B	Vernally moist grasslands, mima mound topography, periphery of vernal pools.	corm (Apr-Jul)	no
Comarostaphylos diversifolia ssp. *diversifolia*	summer holly	Federal - C2 CNPS - List 1B	Southern mixed chaparral, usually on north-facing slopes. Associated with warty-stemmed or Ramona lilac, toyon, chamise.	shrub	yes
Eryngium aristulatum var. *parishii*	San Diego button-celery	Federal - FE State - SE CNPS - List 1B	Usually restricted to vernal pools.	herbaceous biennial (Apr-Jun)	no
Harpagonella palmeri	Palmer's grapplinghook	Federal - C2 CNPS - List 2	Clay soils on open grassy slopes or open sage scrub.	herbaceous annual (Mar-Apr)	no

Table 3. Sensitive Plant Species Potentially Occurring

Scientific Name[1]	Common Name	Status[2]	Preferred Habitat	Growth Habit (Flowering Period[2]	Potential Occurrence
Horkelia truncata	Ramona horkelia	Federal - C3c CNPS - List 1B	Chamise. Associated with manzanits and Cleveland sage.	herbaceous perennial (May-Jun)	no
Navarretia fossalis	prostrate navarretia	Federal - PT CNPS - List 1B	Vernal pools and vernal swales. Associated with *Psilocarphus brevissimus* var. *brevissimus*.	herbaceous annual (Apr-Jun)	no
Tetracoccus dioicus	Parry's tetracoccus	Federal - C2 CNPS - List 1B	Low-growing chamise chaparral with moderately dense canopy cover.	shrub	no

[1] Nomenclature from Hickman 1993.
[2] Please see Attachment 1 for Sensitivity Guidelines.

Thread-Leaved Brodiaea (*Brodiaea filifolia*). This corm prefers vernally moist grasslands and the periphery of vernal pools (Reiser 1994). The thread-leaved brodiaea is a Federally Proposed Threatened species, is a State Endangered species and is a CNPS List 1B species (CDFG 1995b). This species is not expected to occur within the study corridor due to the absence of vernal pool habitat.

Orcutt's brodiaea (*Brodiaea orcuttii*). This corm occurs in vernally moist grasslands, mima mound topography, and on the periphery of vernal pools (Reiser 1994). The Orcutt's brodiaea is a former Federal Category 2 species and is a CNPS List 1B species (CDFG 1995b). This species is not expected to occur within the study corridor due to the absence of appropriate habitat.

Summer Holly (*Comarostaphylos diversifolia* ssp. *diversifolia*). The preferred habitat for this shrub is southern mixed chaparral on north-facing slopes (Reiser 1994). The summer holly is a former Federal Category 2 species and is a CNPS List 1B species (CDFG 1995b). Summer holly was not observed during surveys in 1990 and 1991 for the Mountain Meadow Road Reconstruction Project (County of San Diego 1993). It could occur within the chaparral habitat within the project's study area.

San Diego Button-Celery (*Eryngium aristulatum* var. *parishii*). This herbaceous biennial is usually restricted to vernal pools (Reiser 1994). The San Diego button-celery is a Federally- and State-listed Endangered species, and is a CNPS List 1B species (CDFG 1995b). This species is not expected to occur within the study corridor due to the absence of vernal pool habitat.

Palmer's Grapplinghook (*Harpagonella palmeri*). This herbaceous annual is found on clay soils occurring in open grassy slopes or open sage scrub (Reiser 1994). The Palmer's grapplinghook is a former Federal Category 2 species and is a CNPS List 2 species (CDFG 1995b). This species is not expected to occur within the study corridor due to the absence of appropriate habitat.

Ramona Horkelia (*Horkelia truncata*). The preferred habitat of this herbaceous perennial is chamise chaparral (Reiser 1994). The Ramona horkelia is a former Federal Category 3c species and is a CNPS List 1B species (CDFG 1995b). Ramona horkelia is not expected to occur within the study corridor due to the absence of chamise chaparral habitat.

Prostrate Navarretia (*Navarretia fossalis*). This herbaceous annual occurs in vernal pools and vernal swales (Reiser 1994). The Prostrate navarretia is a Federally Proposed Threatened species and is a CNPS List 1B species (CDFG 1995b). This species is not expected to occur within the study corridor due to the absence of vernal pool habitat.

Parry's Tetracoccus (*Tetracoccus dioicus*). This shrub can be found in low-growing chamise chaparral with a moderately dense canopy cover (Reiser 1994). The Parry's tetracoccus is a former Federal Category 2 species and is a CNPS List 1B species (CDFG 1995b). This species

is not expected to occur within the study corridor due to the absence of chamise chaparral habitat.

2. Wildlife

Many bird species are protected by the Federal government under the Federal Migratory Bird Treaty Act (MBTA) of 1918. The MBTA prohibits the incidental "take" of a migratory bird without a Special Purpose Permit which is subject to the discretion of the U.S. Department of Agriculture (USDA) and the USF&WS. The CDFG also prohibits the take, possession, or destruction of birds, their nests or eggs. To avoid violating the take provisions of these laws, disturbance at active nesting territories must generally be reduced or eliminated during the breeding season (February 1 through August 31). Any disturbance that causes the nest to be abandoned, and/or results in a loss of reproductive effort (e.g.), killing or abandoning of eggs or young) may be considered a "take" and is potentially punishable by fines and/or imprisonment.

The Audubon Society has provided sensitive bird listings on the national and local level. The Blue List (Tate 1986) is a national listing of sensitive birds which is an early warning system for sensitive birds. In addition to reporting on Federal action for the listed species, the list separates the species into those of national concern (The Blue List) and those of local concern.

The local Audubon Society published a list of sensitive bird species for San Diego County (Everett 1979). This listing categorizes species as Threatened, Declining, or Sensitive. Threatened status is accorded to those species or subspecies which have undergone dramatic, non-cyclical, long-term population declines, to the point where the situation has reached the critical level throughout their range. Declining status is given to species whose local breeding populations have been steadily reduced, or in some cases extirpated. Sensitive species are those for which declines have not been documented, but are regarded as such because of: (a) extremely localized or limited distribution, (b) sensitivity to disturbance, (c) actual or impending destruction of essential habitat, or (d) lack of sufficient data on current or past status which significantly increased the potential for serious reduction of a local population.

Analysis of sensitive reptiles and amphibians, beyond the state and federal lists, is provided by the San Diego Herpetological Society (SDHS). This group has published a listing of endangered and threatened reptile species of San Diego County (1980) and a status report for indigenous amphibians (1980). For reptiles, an endangered species is defined to be one whose population and habitat distribution have been reduced to such a widespread extent that the species is unable to reproduce at a normal rate and is imminently near extinction throughout the majority of its remaining distribution in San Diego county. A threatened species is defined to be one which has had significant population depletion and/or habitat destruction and is potentially endangered but (is) presently reproducing at or near normal where it still occurs. The amphibian report has similar endangered and threatened definitions, but also lists species as undetermined and stable. Undetermined status has been assigned to those species for which there is insufficient data available to draw any conclusions with regard to current distribution and abundance in the San

Diego County. Stable status was given to a species (or subspecies) whose San Diego county population levels appear to be holding their own.

No directed searches for sensitive wildlife species were conducted. However, one sensitive wildlife species was observed during the field surveys and another nine sensitive wildlife species have been reported in the vicinity of the project. These species are discussed below and in Table 4.

Southwestern Pond Turtle (*Clemmys marmorata pallida*). This species prefers permanent or nearly permanent bodies of water. The southwestern pond turtle requires basking sites, e.g., partially submerged logs, vegetation mats, and open mud banks. It is a former Federal Category 1 species and is a State Species of Special Concern (CDFG 1995b) that has a low potential to occur within Moosa Creek.

Orange-Throated Whiptail (*Cnemidophorus hyperythrus*). This species is often found in sandy areas with patches of brush and rocks for cover. The orange-throated whiptail is a Federal former Category 2 species and a States Species of Special Concern (CDFG 1995b). There is a potential for this species to occur in those areas consisting of sage scrub and chaparral.

Golden Eagle (*Aquila chrysaetos*). Open grassland is used by this species for foraging and cliff-walled canyons or large trees in open areas for nesting. The golden eagle is a State Species of Special Concern (CDFG 1995b). The golden eagle is not expected to use any of the project areas primarily because of the lack of open grassy areas.

Southwestern Willow Flycatcher (*Empidonax traillii extimus*). Southwestern willow flycatcher migrants are found among any tree or large shrub throughout San Diego County. Nesting birds, however, are restricted to willow thickets in riparian woodlands. The southwestern willow flycatcher is a both a State and Federal Endangered species, is on the Blue List (Tate 1986) and is considered sensitive by Everett (1979). It is extremely unlikely the southwestern willow flycatcher would currently occur within Moosa Creek in the vicinity of the project site since the vegetation is very narrow in width, it is located between a golf course and disturbed vegetation, and the area has been invaded by non-native species, primarily Eucalyptus.

Coastal Cactus Wren (*Campylorhynchus brunneicapillus sandiegoense*). This species utilizes sage scrub with tall *Opuntia* for nesting. The coastal cactus wren is a former Federal Category 2 species and a State Species of Special Concern (CDFG 1995b). This species is not expected to occur within the study corridor due to the absence of appropriate habitat.

Coastal California Gnatcatcher (*Polioptila californica californica*). Usually this species occurs in coastal sage scrub, however, it can also be found in the periphery of chaparral. The coastal California gnatcatcher is a Federally Threatened species and a State Species of Special Concern (CDFG 1995b). The coastal California gnatcatcher (gnatcatcher) could utilize the areas covered by sage scrub.

Table 4. Sensitive Wildlife Observed and Potentially Occurring

Scientific Name[1]	Common Name	Status[2]	Preferred Habitat	Potential Occurrence
Clemmys marmorata pallida	southwestern pond turtle	Federal - C1 State - CSC	permanent/nearly permanent bodies of water; requires basking sites, e.g., partially submerged logs, vegetation mats, open mud banks	yes
Cnemidophorus hyperythrus	orange-throated whiptail	Federal - C2 State - CSC	sandy areas with patches of brush and rocks	yes
Aquila chrysaetos	golden eagle	State - CSC	open grassland for foraging; cliff-walled canyons or large trees in open areas for nesting	no
Empidomax traillii extimus	southwestern willow flycatcher	Federal - FE State - SE BL	willow thickets in riparian growth	yes
Campylorhynchus brunneicapillus sandiegoense	coastal cactus wren	Federal - C2 State - CSC	sage scrub with tall *Opuntia*	no
Polioptila californica californica	coastal California gnatcatcher	Federal - FT State - CSC	sage scrub	yes
Vireo bellii pusillus	least Bell's vireo	Federal - FE State - FE BL	low riparian growth	yes
Aimophila ruficeps canescens	southern California rufous-crowned sparrow	Federal - C2 State - CSC	sage scrub, sparse mixed chaparral, frequents steep rocky hillsides with grass and forb patches	yes
Polioptila caerulea	blue-gray gnatcatcher	Everett	riparian under growth; weedy brush, chaparral, less frequently sage scrub	observed
Dipodomys stephensi	Stephen's kangaroo rat	Federal - FE State - SE	primarily annual/perennial grasslands, but also sage scrub	yes

(1) Nomenclature: reptiles, Jennings 1983; birds, Binford 1986 and DeBenedictis 1989; mammals, Jones, et al. 1982.
(2) Please see Attachment 1 for Sensitive Guidelines.

Least Bell's Vireo (*Vireo bellii pusillus*). Low riparian growth, especially willows, is the preferred habitat of this species. The least Bell's vireo is a Federally and State listed Endangered species and occurs on the Blue List (CDFG 1995b). For the same reasons cited above for the southwestern willow flycatcher, it is extremely unlikely the least Bell's vireo would presently be found within Moosa Creek.

Southern California Rufous-Crowned Sparrow (*Aimophila ruficeps canescens*). This species utilizes sage scrub and sparse mixed chaparral that frequently occur on steep rocky hillsides with grass and forb patches. The southern California rufous-crowned sparrow is a former Federal Category 2 species and is a State Species of Special Concern (CDFG 1995b). The rufous-crowned sparrow could occur within the sage scrub and chaparral within the study corridor.

Blue-gray Gnatcatcher (*Polioptila caerulea*). The blue-gray gnatcatcher is a fairly common migrant and winter visitor, and a rare summer resident. This species is considered declining by Everett (1979). A blue-gray gnatcatcher was detected within sage scrub along Lotus Pond Lane.

Stephen's Kangaroo Rat (*Dipodomys stephensi*). The preferred habitat of this species is primarily annual/perennial grasslands, but it can also be found in sage scrub with a sparse cover of shrub and herbaceous species. The Stephen's kangaroo rat is a Federally and State listed Endangered species (CDFG 1995b). Any habitat that may have historically been appropriate for the species has been disturbed by alterations due to agriculture, residential development and roadways such as Old Highway 395. This species is therefore, not expected within the project boundaries.

E. Sensitive Habitats

Habitats are regarded as sensitive because they are currently limited in extent or are becoming limited in their distribution, support sensitive species, or are in general valuable to wildlife. Habitat values within the study area vary due to differing levels of disturbance, of which agriculture, development and past clearing are the primary sources for any reduced habitat values.

Diegan coastal sage scrub is regarded as a sensitive habitat because its area has been greatly reduced by development. Furthermore there are continuing impacts to the remaining areas. With losses to this habitat is a corresponding displacement of plant and animal species which are also regarded as sensitive (e.g., San Diego barrel cactus, Palmer's grapplinghook, California gnatcatcher and San Diego horned lizard). Sage scrub in the area of Lotus Pond Lane holds value for wildlife.

Oak woodlands are valuable to a wide variety of wildlife species because they provide food, cover, and nesting or denning habitat for several mammal species and as escape cover for reptiles, birds and mammals. Oak woodlands cover areas of varying sizes throughout the study site.

In southern California, riparian habitats such as southern willow scrub, by their nature are limited. They are also one of the fastest disappearing habitats in the county. Proximity to water and a variety of habitat types are factors which contribute to the richness and productivity of wetlands. While a few wildlife species are restricted entirely to wetlands for all of their life requirements, many more are dependent on them for necessities such as food, cover, or breeding. Numerous other species also make extensive use of these habitats even though they may not be entirely dependent upon them.

Wetland habitats are protected by CDFG and often these habitats fall under the jurisdiction of the U.S. Army Corps of Engineers (ACOE), especially when major drainages are involved. In San Diego County, riparian habitats are extremely limited, somewhere between 0.2% (5,000 acres) or 0.5% (13,000 acres) of the County's total land area of 2.7 million acres (Wheeler and Fancher 1981). Riparian habitats are rapidly disappearing in the County because of encroachments by developments. Moosa Creek supports riparian habitat in the form of southern willow scrub, disturbed willow riparian/oak riparian woodland mixture and sycamore riparian woodland. Southern willow scrub also occurs within a number of small drainages throughout the study area.

Rock outcrops are often considered sensitive because they increase the habitat heterogeneity which often corresponds to a higher species diversity. However, the wildlife value of the rock outcrops scattered throughout the project area, often within remnant patches of chaparral, is greatly diminished since the majority of the rock outcrops occur as part of a landscape devoid of native vegetation.

F. Habitat and Wildlife Corridor Evaluation

Wildlife corridors or habitat linkages are important for their role in preserving species diversity. They allow wildlife to move between patches of habitat or between habitat and resources such as water. Corridors are especially important for species that are unable to cross large areas of developed land.

The project covers a wide portion of San Diego County that, according to the Draft Multiple Habitat Conservation Program's Habitat Value Biological Core and Linkage Area map, includes wildlife corridors of varying sizes and habitat value including both forks of Moosa Creek. However, most construction would occur within existing roadways and no significant impacts to any wildlife corridors are anticipated in those cases.

There are areas where pipeline alignments could extend off of roads and into native habitats, such as the Boulder Pass alignment and the Moosa Creek crossings. Impacts due to the pipeline alignments for each of these areas would be somewhat minimized since the impacts, as proposed, would be temporary. In addition, the pipeline alignments will be excavated by using a rotary ditchwitch, a type of equipment that results in a narrow width of disturbance.

Impacts to native habitat in the vicinity of the forebay would be permanent. A variety of bird species were observed within the vegetation at the proposed forebay, albeit no sensitive species. Although the riparian vegetation is disturbed (primarily because of the presence of non-native species), construction of the forebay could alter wildlife movement between the riparian vegetation to the west and the oaks to the east. Revegetating over any portions of the project area that extends into native vegetation would enhance the rehabilitation of each area, thereby minimizing any loss to the wildlife use areas. Therefore, the integrity of any wildlife corridor, no matter the size, would not be compromised.

G. Permits

Construction in wetlands or other sensitive habitats may require state or federal permits or approvals in addition to those required by local jurisdictions. This additional regulatory framework consists mainly of:

- Section 404 of the Clean Water Act
- The Federal Endangered Species Act
- Sections 1600 of the California Fish and Game Code

Issues pertinent to one or more of the approvals required under these regulations are often addressed as part of a comprehensive environmental document such as an Environmental Impact Report (EIR) or an Environmental Impact Statement (EIS). If agency coordination is initiated early in the planning process, the project conditions or mitigation measures required by a state or federal agency as a condition of their approval can be integrated into the mitigation measures outlined in the environmental document. In such instances the time delays associated with agency review and re-evaluation of existing studies can be avoided. A brief summary of each of the environmental regulations listed above is provided below:

Clean Water Act. Section 404 of the Clean Water Act empowers the Army Corps of Engineers (ACOE) to regulate the placement of fill in "territorial waters of the United States," a definition that includes virtually all wetland areas. Fill or effects of fill impacting one acre or less can be allowed, after a pre-discharge notification in instances where a Federal Endangered Species would not be impacted. At the discretion of the ACOE and the Environmental Protection Agency, fill of between one and ten acres may be allowed under a Nationwide Permit. Aggregate impacts exceeding ten acres are automatically subject to an individual Section 404 permit. The U.S. Fish and Wildlife Service (USF&WS) as well as the State wildlife conservation agency are offered the opportunity to comment on the action. The Federal noticing process is followed.

Federal Endangered Species Act. Section 9 of the Federal Endangered Species Act (ESA) prohibits the "take" of an Endangered species. "Take" refers to any action that would harm, harass or kill the species. There are exceptions to the prohibition against take. These are allowed by Sections 7 and 10 of the ESA. For public or private projects that require some level of approval by a federal agency, such as a 404 permit, take of an Endangered species can be

allowed if it can be shown that the take involved would not jeopardize the survival of the species. Take is also allowed under Section 10(a) of the ESA if it occurs in association with an otherwise lawful act and a USF&WS-approved Habitat Conservation Plan is in place.

California Fish And Game Code Streamcourse Alteration Agreement. Under Section 1600 of the State Fish and Game Code, the CDFG has authority to reach an agreement with an agency proposing to affect intermittent or permanent streams and other wetlands. If contacted early enough, the CDFG generally evaluates the information gathered during preparation of the Environmental Impact Report/Environmental Impact Study and attempts to satisfy its permit concerns via mitigation measures in the environmental document. The CDFG often accepts mitigation for streamcourse impacts as a product of the Alteration Agreement. Regardless of whether federal action is involved at any one of the stream crossings, the project proponent must apply directly to the CDFG for a 1601 Streambed Alteration Agreement for any proposed wetlands impacts despite the acreage amount affected. The CDFG requires no net loss of wetland habitat and typically sets forth construction restrictions and mitigation conditions for the granting of the Agreement.

Natural Community Conservation Planning Program. The Natural Community Conservation Planning Program (NCCP) was initiated by the State of California to provide protection and perpetuation of natural wildlife diversity on a regional basis while allowing compatible land use and appropriate development. The primary directive of the planning process is to shift focus from a single species conservation effort to effectively protecting species and habitats on a natural community level. The southern California sage scrub NCCP program is the first NCCP program and is viewed as a model for which conservation will be accelerated at a regional scale as other NCCP programs follow. This first NCCP program provides for the long-term protection of species in the sage scrub community in southern California.

San Diego County jurisdictions have devised several local plans to protect against the increasing loss of wildlife and native habitats while allowing compatible land use. The programs have been accepted by the state as meeting the requirements of the NCCP. Historic attempts at conservation of native environments have been addressed on a project-by-project basis. Fragmented habitat preserves have resulted, compounding impacts to the sensitive species these preserves are intended to protect. In addition, the conservation plans of state and federal agencies often address one species at a time and only after the species has become a listed species. Conservation efforts in the San Diego region have been designed to accelerate planning efforts for protection of species before their listing by a state and/or federal agency is warranted and to provide interconnected open space preserves.

The original goal of the San Diego programs was to provide for a joint conservation plan for the San Diego area based on the characteristics of the habitats rather than jurisdictional boundaries. For political reasons, however, the current division of the County is based on jurisdictional boundaries rather than biological ones. Land values, local plans and the need for economic development are also being taken into account.

Three primary programs within the County have been working jointly to map vegetation and wildlife and to create plans to preserve native habitats. The programs include the Multiple Species Conservation Program (MSCP) prepared by the City of San Diego, the Wildlife Habitat and Open Space Conservation Plan (WH&OSCP) prepared by the County of San Diego, and the North County MHCP prepared by the San Diego Association of Governments (SANDAG).

The MSCP includes 10 cities and portions of the unincorporated County of San Diego, in addition to the City of San Diego. The goal of the WH&OSCP is to identify resources of greatest value in all unincorporated areas of the County. This program overlaps the MHCP and the MSCP in the western portions of the County. The goal of the MHCP is to cooperatively plan and implement a wildlife and habitat preserve system for the north county. The MHCP program will be closely coordinated with the MSCP plan in the southern part of the region, and with the WH&OSCP in the remainder of the unincorporated area of the County. The State of California recognizes the programs sponsored by SANDAG, the City of San Diego and the County as on-going, multi-species plans that follow the NCCP guidelines and accepts them as NCCPs.

Each of these programs, although in draft form, is identifying biologically based planning areas to target as potential preservation areas. Each area will include large, manageable sage scrub habitat and suitable peripheral corridor and buffer habitat areas. Corridor and buffer areas may consist of habitats other than sage scrub. Lands consisting of remaining biological resources are presently being identified by these programs, and conservation areas and wildlife corridors are being designed. The efforts are being coordinated to create a regional habitat conservation system, although each plan is tailored to its specific area.

The NCCP logic flow chart contained within the Southern California Coastal Sage Scrub Community Conservation Planning Process Guidelines (California Department of Fish and Game 1993) is used to rank sage scrub habitat by assessing its long-term conservation value based on habitat patch size, proximity, linkages, and endemic species. The conservation guidelines were created to enable local, state, and federal government to provide regional conservation of listed and other sensitive species under Section 4(d) of the ESA.

In order to comply with the NCCP program, many jurisdictions issue a Habitat Loss Permit (Permit) for projects impacting coastal sage scrub. This is intended to provide a streamlined procedure for complying with Federal regulations and will be used in lieu of the cumbersome mechanism available under Sections 7 and 10(a) of the ESA. No loss of sage scrub is anticipated for this project, therefore, no Permit would be required. However, a Permit may be required for loss of sage scrub that coincides with any future design change.

V. IMPACT ANALYSIS

A. Assumptions and Assessment Guidelines

Impacts to the flora and fauna observed or expected at the site were determined to be significant or insignificant based upon sensitivity of the resource and the extent of the impact. Resources are generally considered significant if they are limited in distribution and their ecological role is critical within a regional and local context. Habitats supporting species listed as rare, endangered, or threatened by the agencies that enforce the California or Federal Endangered Species Act are also regarded as significant resources. In addition, habitats meeting the following criteria were also determined to be significant:

- Natural areas, communities, and habitats of plant and animal species that are restricted in distribution.
- Habitat that is critical to species or a group of species for feeding, breeding, resting, and migrating.
- Biological resources that are of scientific or educational interest because they exhibit unusual characteristics.
- Buffer zones to protect significant resources.
- Corridors or areas that link significant wildlife habitats.

A significant impact to a sensitive resource may be direct, indirect, or cumulative. An impact is regarded as direct when the primary effects of the project result in loss of habitat that would cause a reduction in the density or diversity of biological resources within the region. The magnitude of an indirect impact is the same as a direct impact, however, the impact occurs from a secondary effect of the project. An impact is regarded as cumulative when the project impact is not significant but the combined incremental impact of it and other projects in the region is significant.

The extent of the impact to the sensitive resource must also be considered in determining the significance of an impact. For certain highly sensitive resources (e.g. an endangered species) any impact would be perceived as significant. Conversely, other resources which have a low sensitivity (e.g. species with a large, locally stable population but may be declining elsewhere) could sustain a relatively large area of impact or population loss and not result in a significant impact. Biological impacts are considered insignificant if the resource in question does not meet the above criteria for sensitivity or the extent of impact is not considered significant.

B. Project Impacts

1. Pipeline Alignments

This impact analysis assumes that where the proposed project follows roadways, all disturbances during construction would be confined within those roadways or disturbed road right-of-ways (ROWs). For those cases for which this is true, biological resources including sensitive habitats were not considered impacted except for possible indirect impacts to habitats and streams.

The equipment to be used for pipeline installation will consist of a ditchwitch that will create a relatively narrow ditch. Although the equipment may create a noise, it will not be continuous over any extended length of time, and the noise generated will not be louder than that resulting from a large truck being driven down the road. Therefore, indirect impacts to noise-sensitive wildlife occurring within the vicinity of pipelines that will be placed in roadways are not anticipated.

In those areas where construction cannot be confined within the roadways and ROWs, additional impacts to biological resources may occur and may require mitigation. These areas are discussed below.

Moosa Creek Crossing. The biologically preferred alternative for crossing Moosa Creek between Circle R Drive and Old Castle Road would be to place the pipe within the existing bridge roadway or secure it to the side of the bridge with brackets, thereby eliminating any direct impacts to wetland habitat below in the creek. Any possible indirect impacts from construction materials falling into the creek would have to be addressed.

Pipeline Connection between the WTP and the Irrigation Storage Pond. The biologically preferred alternative for accessing the storage pond within the Castle Creek Golf Course is to have the pipeline alignment follow the current proposed alignment. This would include running the connection from the WTP north to Circle R Drive, extending it south along Champagne Boulevard, then east along Old Castle Road and then north on the former Circle R Drive which is currently a part of the golf course. The final segment would be the extension from the former Circle R Drive eastward to the storage pond along the southern boundary of the golf course greens just north of the oak trees that line Old Castle Road. A second alternative would be to have the pipeline continue eastward on Old Castle Road to an area just east of the storage pond. The extension of the pipeline from Old Castle Road north to the storage pond would occur in an area where landscape species occur along Old Castle Road.

Sewer Line Connection via Champagne Village Drive. The project as proposed, would connect the pipeline from Champagne Boulevard to an existing sewer line via Champagne Village Drive. This is the biologically preferred route since all work would occur within existing roadways precluding any impact to native vegetation.

Boulder Pass. As is currently planned, the east-west connection north of Boulder Pass would traverse disturbed habitat and a drainage with southern willow scrub. Direct impacts could occur to the southern willow scrub. However, installation of the pipeline in this portion of the project site may not occur for an extended length of time, during which the conditions of the resources may change.

It is unlikely that sensitive bird species (i.e. the least Bell's vireo and the southwestern willow flycatcher) utilize the drainage for breeding since it is surrounded by development or disturbed vegetation and it is not large in size. However, other species not listed as sensitive but protected under the MBTA or by CDFG (discussed in the Sensitive Species Section) may use it. Therefore, as the project is planned, direct impacts in the form of direct displacement of birds and/or their nests and indirect impacts in the form of noise may occur to species utilizing this area.

If the alignment of the pipeline is shifted so that the east/west connection is made directly within the Boulder Pass roadway, impacts not only to the southern willow scrub but also to potentially breeding birds will be avoided.

Lotus Pond Lane. No direct impacts to sage scrub will occur if the construction work remains within the dirt road as it travels form Meadow Glen Way to Quiet Hollow Lane. Indirect noise impacts could occur to breeding birds within the habitat, including the California gnatcatcher.

2. Water Treatment Plant

Any additional impacts within the existing plant operations, including impacts to 0.04 acre of disturbed habitat for the construction of the forebay, would not result in the loss of sensitive resources. As currently planned, the forebay itself will be constructed in an area classified as disturbed willow riparian/oak riparian mixture and disturbed. However, the forebay may not be constructed for a number of years during which the conditions of the resources may change.

Approximately 0.32 acre of disturbed willow riparian/oak riparian mixture is estimated to be impacted for the construction of the forebay. An additional 0.10 acre of the same habitat will be impacted when the two drainages are combined to flow south of the forebay. The vegetation within the proposed forebay area is currently not of a condition to sustain sensitive plant species or sensitive wildlife such as the least Bell's vireo and/or the southwestern willow flycatcher. Although the habitat present at the forebay site is of low quality, any impact to the wetlands (0.42 acre) would be significant because wetlands have undergone drastic reductions in their acreages and they typically support a diversity of wildlife species.

3. Percolation Ponds

Lining the eastern percolation pond would result in a permanent water source and would possibly prevent vegetative growth from occurring in the pond. The southwestern pond was being filled at the time of the survey at which time killdeer and greater yellowlegs were observed foraging in the shallow water. These species typically forage in shallow, moist areas. It is unknown if lining the pond will preclude bird species such as those observed from continuing to use the pond after it is lined since lining it may prevent them from foraging on prey such as worms and insects. However, the other two ponds will remain unchanged, allowing wildlife to continue to use them. In addition, other species such as ducks may use the lined pond since the water depth is expected to exceed that which currently occurs in the ponds when they're used for storage.

Some of the plant species observed in the ponds are indicative of a wetland, however, the vegetation is a result of the WTP facilities. Therefore, the ponds would be exempt from Section 404 of the Clean Water Act. No significant impacts are anticipated as a result of lining one of the percolation ponds.

VI. MITIGATION PROGRAM

No mitigation measures are necessary for construction of pipelines that occur within roadways. If design changes occur, additional environmental review may be required to assess if impacts would occur to sensitive habitats. In the event that impacts occur because of design change, native habitats impacted by the construction of the pipelines shall be revegetated by hydroseeding with a seedmix compatible with the adjacent habitat. Following construction, the impact area shall be returned to its preconstruction contours. Topsoil from the areas to be excavated shall be stockpiled and replaced after the pipeline is installed. Native vegetation removed shall be chipped and distributed over the impact area as mulch.

Sage Scrub. Any loss of sage scrub would be mitigated, by purchase, restoration or creation of habitat or by participation in the NCCP process, at ratios ranging from 3:1 to 1:1 depending upon the quality of habitat impacted and the number of sensitive plant and animal species displaced.

Boulder Pass. Since environmental conditions change over time, it is recommended that a biologist shall monitor delineation changes to the wetland area during development of engineering plans for the forebay and within one year prior to construction. Any impact to wetland habitat within the drainage swale in the vicinity of the proposed Boulder Pass crossing may require a Streambed Alteration Agreement issued by CDFG and an ACOE permit.

Lotus Pond Lane. Monitoring by a biologist for the California gnatcatcher shall occur within one year prior to the installation of any pipeline in Lotus Pond Lane.

Pipelines. Techniques to prevent soil, silt, runoff, and sand erosion during the construction in the vicinity of sensitive habitats shall include, as warranted, sandbags, erosion barriers and dust controls.

Water Treatment Plant. Since environmental conditions change over time, it is recommended that a biologist shall monitor delineation changes to the wetland area during development of engineering plans for the forebay and within one year prior to construction. Any loss of wetland would be mitigated by the creation of habitat so that there is no net loss of habitat. Replacement ratios would range from 3:1 to 1:1 depending upon the quality of habitat lost and final approval of the resource agencies. Any impact to wetland habitat within the drainage swales in the vicinity of the proposed forebay would require a Streambed Alteration Agreement issued by CDFG and an ACOE permit.

Techniques to prevent soil, silt, runoff, and sand erosion during the construction and re-establishment phase in the area of the forebay should be addressed by the monitoring biologist. An appropriate measure includes the placement of sandbags or erosion barriers along those areas where sensitive habitats have been identified. Measures for control of dust as a result of movement of soil and/or blasting should also be addressed. Temporary construction project features to reduce erosion impacts to exposed areas during the interim period before revegetation can be established should be identified.

Also since environmental conditions of the forebay site may change in the future, the monitoring of the site for sensitive species within one year prior to construction shall be done by a biologist.

Measures to avoid or eliminate noise impacts to sensitive wildlife species shall be implemented in those areas where the presence of the species has been confirmed or is likely. An example of an appropriate measure would be to establish construction windows that would limit construction to the non-breeding season.

VII. CONSTRUCTION MONITORING

Construction activities adjacent to riparian habitat and sage scrub shall be monitored by a biologist. This monitoring will consist of four measures which are intended to avoid any intrusion into these habitats. 1) The edge of the construction easement will be conspicuously marked. 2) The biologist will discuss the sensitivity of these areas and the need to prevent any direct construction impact to them with the construction superintendent. 3) The project biologist will establish a schedule of visits to the construction site to monitor compliance based on the circumstances of construction in relationship to resources. 4) As part of these visits, the project biologist will evaluate the effectiveness of the erosion control measures. Monthly reports on the monitoring will be submitted to the Valley Center Municipal Water District and the resource agencies for the entire project and, for the forebay installation under the Major Use Permit Modification, the County of San Diego Department of Planning and Land Use . Any problem areas, however, will be discussed immediately with the resident engineer.

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ATTACHMENT 1

PLANT AND ANIMAL SENSITIVITY GUIDELINES

PLANT AND ANIMAL SENSITIVITY GUIDELINES

Listings by U.S. Fish & Wildlife Service (USF&WS) and California Department of Fish and Game (CDFG) carry regulatory authority, while other listings herein are generally advisory in nature and serve to monitor and inform.

Federally Listed and Candidate Species

FE	Federal Endangered Species	Listed as Endangered by the federal government under the Endangered Species Act of 1975. Taxa that are in danger of becoming extinct throughout all or a significant portion of their range.
FT	Federal Threatened Species	Listed as Threatened by the federal government under the Endangered Species Act of 1973. Taxa which are likely to become Endangered in the foreseeable future in the absence of special protection.
PT/PE	Proposed Federal Threatened or Endangered Species	Proposed species are those for which a proposed rule to list as Endangered or Threatened has been published in the Federal Register.
C	Federal Candidate Species	Candidate species (Former Federal Candidate, Category 1) are those species for which the USF&WS has sufficient biological information to support a proposed rule to list, but issuance of the proposed rule is precluded.
C2	Former Federal Candidate, Category 2	Former category for which existing information suggested listing, but for which substantial biological information to support a proposed rule was lacking. No longer maintained by the USF&WS, however, such species are the pool from which future candidates for listing will be drawn.
C3a-c	Former Federal Candidate, Category 3a-c	Taxa that once were considered for listing as threatened or endangered but are no longer under such consideration. The subcategories associated with the former Category 3 status were divided into three subcategories: 3a) taxa which were believed extinct; 3b) taxa which do not meet the Endangered Species Act's definition of a species; and 3c) taxa more common than previously thought.

California Listed and Candidate Species

CE	California Endangered Species	A native California taxa which is in serious danger of becoming extinct throughout all or a significant portion of it's range (CDFG Code 2062).
CT	California Threatened Species	A native California taxa which, although not presently threatened with extinction, is likely to become an Endangered species in the foreseeable future in the absence of special protection and management efforts (CDFG Code 2967).
CP	California Fully Protected Species	Taxa which fall under special protection within the CDFG Codes (3511, 3700, 4800, 4900, 5000, 5050, 5515).
CSA	California Special Animals	Taxa listed as Special Animals fall into one or more of the following categories: • Taxa that are biologically rare, very restricted in distribution, or declining throughout their range. • Population(s) in California that may be peripheral to the major portion of a taxon's range, but which are threatened with extirpation within California. • Taxa closely associated with a habitat that is declining rapidly in California (e.g., wetlands, riparian, old growth forests).
CSC	Species of Special Concern	Taxa for which sufficient information exists which warrants concern over that species' status and may warrant future listing as Threatened or Endangered. Protective status falls under State government Code 66474.

California Native Plant Society

List 1A: Plants presumed extinct in California.
List 1B: Plants rare, threatened or endangered in California or elsewhere.
List 2: Plants rare or endangered in California, but more common elsewhere.
List 3: Plants about which more information is needed.
List 4: Plants of limited distribution.

R-E-D Codes:

R (Rarity)

1. Rare, but found in sufficient numbers and distributed widely enough that the potential for extinction is low at this time.
2. Distributed in a limited number of occurrences, occasionally more if each occurrence is small.

3. Distributed in one to several highly restricted occurrences, or present in such small numbers that it is seldom reported.

E (Endangerment)
1. Not endangered.
2. Endangered in a portion of its range.
3. Endangered throughout its range.

D (Distribution)
1. More or less widespread outside California.
2. Rare outside California.
3. Endemic to California.

Blue List

The Audubon Society has provided sensitive bird listings on the national and local level (Tate 1986).

SC	Special Concern	Species experiencing non-cyclical population decline over several.
LC	Local Concern	Species experiencing population declines over a limited region.

Everett

The local Audubon Society published a list of sensitive bird species for San Diego County (Everett 1979).

Th	Threatened	Status is accorded to those species/subspecies which have undergone dramatic, non-cyclical, long-term population declines, to the point where the situation has reached the critical level throughout their range.
De	Declining	Status is given to species whose local breeding populations have been steadily reduced, or in some cases extirpated.
Se	Sensitive	Those species for which declines have not been documented, but are regarded as such because of: (a) extremely localized or limited distribution; (b) sensitivity to disturbance; (c) actual or impending destruction of essential habitat; or, (d) lack of sufficient data on current or past status which significantly increased the potential for serious reduction of a local population.

San Diego Herpetological Society

This group has published a listing of endangered and threatened reptile species of San Diego County.

En	Endangered	The population and habitat distribution have been reduced to such a widespread extent that the species is unable to reproduce at a normal rate and is imminently near extinction throughout the majority of its remaining San Diego County distribution.

Th	Threatened	The species has had a significant population depletion and/or habitat destruction and is potentially endangered but is presently reproducing at or near normal where it still occurs.
St	Stable	Those species/subspecies whose San Diego County population levels appear to be holding their own.

APPENDIX E
REGIONAL WATER QUALITY CONTROL BOARD ACTIONS

STATE OF CALIFORNIA - CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY

PETE WILSON, Governor

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN DIEGO REGION
9771 CLAIREMONT MESA BOULEVARD, SUITE A
SAN DIEGO, CA 92124-1331
TELEPHONE: (619) 467-2952
FAX: (619) 571-6972

April 25, 1996

Mr. Gary Arant
General Manager
Valley Center Municipal Water District
P.O. Box 67
Valley Center, CA 92082

Dear Mr. Arant:

BASIN PLAN AMENDMENT FOR THE ALLUVIAL AQUIFER IN THE MOOSA HSA (903.13) AND VALLEY CENTER HSA (903.14)

On December 18, 1995, the Office of Administrative Law (OAL) approved the amendment to the Water Quality Control Plan for the San Diego Basin, Region (9) (Basin Plan), titled " Amendment of the Water Quality Control Plan for the San Diego Basin, Revising Total Dissolved Solids Ground Water Quality Objectives for the Alluvial Aquifer in the Moosa (903.13) and the Valley Center (903.14) Hydrologic Subareas". This amendment was previously adopted under Regional Board Resolution No. 95-48 and approved by the State Water Resource Control Board under Resolution No. 95-62. A copy of the OAL Notice of Approval and the pages of the Basin Plan that change with the adoption of this resolution is enclosed for your information.

If you have any questions, please contact Ms. Laurie Walsh at (619) 467-2970.

Very truly yours,

Robert Morris

Robert Morris
Senior WRC Engineer

Enclosure

cc: w/enclosure: Interested Parties List

LIST OF INTERESTED PARTIES

Castle Creek Country Club
Ms. Betty Lou Iverson
General Manager
8797 Circle R Drive
Escondido, California 92026

Mr. Peter MacLaggan
San Diego County Water Authority
3211 Fifth Avenue
San Diego, California 92103-5718

Barrett Consulting Group
Mr. Bill Hunter
9675 Business Park Avenue
San Diego, California 92131

Michael Welch, Ph.D., P.E.
Consulting Engineer
2735 San Clemente Terrace
San Diego, CA 92122-4030

SWRCB
Mr. Steven Fagundes
Division of Water Quality
Water Quality Planning Unit
901 P Street
Sacramento, California 95814

Vallecitos Water District
Mr. Bill Rucker, General Manger
788 San Marcos Blvd
San Marcos, California 92069

Rainbow Municipal Water District
Mr. John O'Donnell, District Engineer
3707 So. Highway 395
Fallbrook, California 92028

Lawrence Welk Resort
Mr. Jim Brown, Superintendent
8860 Lawrence Welk Drive
Escondido, California 92026

VCMPOA
Mr. Bob Hunsaker
P.O.Box 65
Valley Center, California 92082

STATE OF CALIFORNIA
OFFICE OF ADMINISTRATIVE LAW

In re: WATER RESOURCES CONTROL BOARD REGULATORY ACTION: Title 23 California Code of Regulations Amend 3985	NOTICE OF APPROVAL OF REGULATORY ACTION (Gov. Code, Sec. 11349.3) OAL File No. 95-1101-02 S

SUMMARY OF REGULATORY ACTION

This regulatory action, approved pursuant to Government Code Section 11353, amends the ground water quality objective for dissolved solids in the Moosa (903.13) and Valley Center (903.14) Hydrologic Subareas in the San Diego Region.

OFFICE OF ADMINISTRATIVE LAW DECISION

OAL approves this regulatory action.

REASON FOR DECISION

This regulatory action meets all applicable legal requirements.

Comments:

DATE: 12/18/95

Barbara Steinhardt-Carter
B. STEINHARDT-CARTER
STAFF COUNSEL

for: JOHN D. SMITH
DIRECTOR

Original: Walt Petit, Executive Director
cc: John M. Ladd

STATE OF CALIFORNIA - CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY

PETE WILSON, Governor

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN DIEGO REGION
9771 CLAIREMONT MESA BOULEVARD, SUITE B
SAN DIEGO, CA 92124-1331
TELEPHONE: (619) 467-2952
FAX:(619) 571-6972

Certified Return Receipt
Z 359 024 034

August 18, 1995

Mr. Gary Arant
General Manager
Valley Center Municipal Water District
29300 Valley Center Road
P.O. Box 67
Valley Center, CA 92082

Dear Mr. Arant:

ADOPTION OF ADDENDUM NO. 1 TO ORDER NO. 95-32

Enclosed is a copy of Addendum No. 1 to Order No. 95-32 which was adopted by this Regional Board on August 10, 1995. This addendum permits the District to discharge up to 0.44 million gallons per day (MGD) to the percolation ponds located near the Lower Moosa Canyon Creek in the Bonsall HSA. Please note that addendum No. 1 requires the District to submit a report by December 1, 1996, which provides sufficient documentation to validate the conclusions of the computer model used to support the Districts April 17, 1995, report of waste discharge.

If you have any questions, please contact Laurie Walsh at (619) 467-2970.

Very truly yours,

ARTHUR L. COE
Executive Officer

Enclosure

cc: Bill Hereth, Division of Water Quality, State Water Resources Control Board (w/enclosure)

Bill Hunter, Barrett Consulting Group, 9675 Business Park Avenue, San Diego, CA 92131 (w/enclosure)

File No. 01.0236.02

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN DIEGO REGION

ADDENDUM NO. 1 TO ORDER NO. 95-32

VALLEY CENTER MUNICIPAL WATER DISTRICT
LOWER MOOSA CANYON WATER RECLAMATION FACILITY
SAN DIEGO COUNTY

The California Regional Water Quality Control Board, San Diego Region (hereinafter Regional board), finds that:

1. On February 9, 1995, this Regional Board Adopted Order No. 95-32, "Waste Discharge Requirements for Valley Center Municipal Water District, Lower Moosa Canyon Reclamation Facility, San Diego County". Order No. 95-32 establishes requirements for the disposal of up to 1.0 million gallons per day (MGD) of secondary treated effluent.

2. Facility Design and Operation Specification C.3 requires the District, prior to initiation of discharge in excess of 0.3 MGD to the percolation ponds to submit a report that provides a program for monitoring, management, and forecasting of any future potential problems associated with balancing discharges to and extractions from the Bonsall Basin.

3. The District submitted a complete Report of Waste Discharge on April 17, 1995, requesting an increase in the allowable discharge to the Districts percolation ponds located near Lower Moosa Canyon Creek in the Bonsall basin from 0.3 MGD to 0.44 MGD. Included in the Districts RWD was a Ground Water Management Plan Report prepared by Barrett Consulting Group.

4. The report of waste discharge provides sufficient technical information to support an increase in discharge from 0.3 MGD to 0.44 MGD of secondary treated wastewater to the Districts percolation ponds located near the Lower Moosa Canyon Creek in the Bonsall Basin. The report indicated that the Bonsall basin has the capacity to accept discharges of up to 0.44 MGD without requiring some type of ground water extraction plan. Furthermore, the report concludes that the increase in flow is not anticipated to impact the water quality of existing downgradient domestic wells.

5. The Ground Water Management Plan Report recommends the District to conduct an enhanced ground water monitoring program for at least one year. The one year monitoring program is needed to validate the results of the basin computer modeling program and to provide the District with the database needed to reliably predict the response of the ground water basin as effluent discharge rates increase.

6. The Regional Board has notified all known interested parties of its intent to modify Order No. 95-32 to reflect an increase in discharge to the percolation ponds and implementation of additional ground water monitoring and sampling.

7. The Regional Board in a public hearing heard and considered all comments pertaining to the modification of Order No. 95-32.

8. This facility is an existing facility and as such is exempt from the provisions of the California Environmental Quality Act, in accordance with Title 14, California Code of Regulations, Article 19, Section 15301.

IT IS HEREBY ORDERED THAT ORDER NO. 95-32 IS MODIFIED AS FOLLOWS:

1. Facility Design and Operation Specification C.3 has been changed to read the following.

   Prior to initiation of discharge in excess of 0.44 MGD to the percolation ponds located in the Bonsall Basin, the discharger shall either submit a technical report that demonstrates the basin has capacity for discharges greater than 0.44 MGD; or implement an approved basin management plan designed to balance the discharges to and extraction from the basin.

2. Add the following as Reporting and Record Keeping Requirement F.10:

   The discharger shall submit a report to this office by December 1, 1996, that provides sufficient documentation to validate the findings made in the Districts technical report submitted as part of their April 17, 1995, report of waste discharge as described in Finding No. 3 of Addendum No. 1 of this Order.

I, Arthur L. Coe, Executive Officer, do hereby certify the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, on August 10, 1995.

ARTHUR L. COE
Executive Officer

STATE OF CALIFORNIA - CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY PETE WILSON, Governor

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN DIEGO REGION
9771 CLAIREMONT MESA BOULEVARD, SUITE B
SAN DIEGO, CA 92124-1331
TELEPHONE: (619) 467-2952
FAX: (619) 571-6972

CERTIFIED RETURN RECIEPT
Z 279 016 895

February 17, 1995

Mr. Gary Arant
General Manager
Valley Center Municipal Water District
29300 Valley Center Road
P.O. Box 67
Valley Center, CA 92082

Dear Mr. Arant:

ADOPTION OF ORDER NO. 95-32 "WASTE DISCHARGE REQUIREMENTS FOR THE VALLEY CENTER MUNICIPAL WATER DISTRICT, LOWER MOOSA CANYON WATER RECLAMATION FACILITY, SAN DIEGO COUNTY"

Enclosed is a copy of the subject Order which was adopted by this Regional Board on February 9, 1995. Order No. 95-32 supersedes Order No. 84-46 and updates the previous waste discharge requirements for your facility.

Order No. 95-32 adds effluent limitations for nitrates, iron and manganese for discharges to the percolation ponds. Additionally, this Order establishes interim limitations for total dissolved solids, iron and manganese for a direct discharge to reuse areas located in the Moosa HSA (903.13). These interim limits will allow the District to initiate a discharge that exceeds Basin Plan objectives for a period of 5 years. During this 5 year period the District shall demonstrate that the discharge from the LMCWRF to the Moosa HSA (903.13) will or will not be in compliance with the Basin Plan or apply for a Basin Plan amendment.

Monitoring and Reporting Program No. 95-32 clarifies the ground water, sewage sludge and effluent monitoring requirements. Also, this monitoring and reporting program relaxes the reporting frequency for several constituents.

If you have any questions, please contact Mrs. Laurie Walsh at (619) 467-2970.

Very truly yours,

ARTHUR L. COE
Executive Officer

Enclosure

cc: Bill Hereth, Division of Water Quality, State Water Resources Control Board (w/enclosure)

Walley Grabbe, Valley Center MWD (w/enclosure)

Bill Hunter, Barrett Consulting Group, 9675 Business Park Avenue, San Diego, CA 92131 (w/enclosure)

Toby Roy, Office of Drinking Water, State of California, 1350 Front Street, Room 2050, San Diego, CA 92101

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN DIEGO REGION

ORDER NO. 95-32

WASTE DISCHARGE REQUIREMENTS
FOR
VALLEY CENTER MUNICIPAL WATER DISTRICT
LOWER MOOSA CANYON RECLAMATION FACILITY
SAN DIEGO COUNTY

The California Regional Water Quality Control Board, San Diego Region (hereinafter Regional Board) finds that:

1. On June 14, 1971, this Regional Board adopted Order No. 71-37, Waste Discharge Requirements for the Valley Center Municipal Water District Lower Moosa Canyon Facility. Order No. 71-37 established waste discharge requirements for the disposal of up to 0.50 million gallons per day (MGD) of treated effluent by spray irrigation on three golf courses and percolation into the Lower Moosa Canyon ground water basin.

2. On October 15, 1984, this Regional Board adopted Order No. 84-46, Waste Discharge Requirements for the Valley Center Municipal Waster District Lower Moosa Canyon Reclamation Facility. Order No. 84-46 superseded Order No. 71-37 and established waste discharge requirements for the disposal of up to 1.0 MGD of treated effluent into the Lower Moosa Canyon ground water basin.

3. The Lower Moosa Canyon Water Reclamation Facility (LMCWRF) is located in the NW ¼ of Section 1, T11S, R3W, SBB&M in the Moosa Hydrologic Subarea (HSA) (903.13) of the San Luis Rey Hydrologic Unit (903.00). The facility currently provides a secondary level of treatment and has a rated capacity of 0.5 MGD with current flow rates of approximately 0.25 MGD. The treatment facilities at LMCWRF include a barminutor, two activated sludge aeration tanks, two secondary clarifiers, chlorination facilities, an aerobic digester and four sludge drying beds. The effluent is discharged to three percolation ponds.

4. The District proposes to increase the LMCWRF plant capacity from 0.5 MGD to 1.0 MGD by providing a in-line aerated grit removal chamber, two additional activated sludge aeration tanks, an additional secondary clarifier, a new aerated sludge holding tank, and additional sludge drying beds.

5. Order No. 84-46 has been reviewed by the Regional Board staff in accordance with criteria established in the Administrative Procedures Manual adopted by the State Water Resources Control Board. This Order, which supersedes Order No. 84-46, consolidates and makes changes to the Findings, Requirements, and Monitoring and Reporting Program of Order No. 84-46.

6. The District submitted an Odor Control Plan on January 10, 1985. The plan included more frequent hauling of sludge, installation of mechanical sludge dewatering equipment, chlorination at the influent wet well and introduction of air under pressure into the pressure transmission line. On February 8, 1985, the District submitted a Revised Odor Control Plan that eliminated the option of installing mechanical sludge dewatering equipment and air scrubbers. The District has since installed covers over all influent channels, injects chlorine at the influent wet well and increased the frequency of sludge hauling.

7. The LMCWRF currently discharges to percolation ponds located adjacent to Lower Moosa Canyon Creek, in the N1/2 of Section 35, T10S, R3W, SBB&M in the Bonsall Hydrologic Subarea (HSA) (903.12) of the San Luis Rey Hydrologic Unit (903.00). The ponds are contained on an 11 acre site having a collective volume of approximately 60 acre-feet. Order No. 84-46 limits the discharge of 0.3 MGD to the percolation ponds to ensure that percolated effluent does not surface down gradient within the Bonsall HSA. The District is now investigating the basin's capacity to assimilate a volume of discharge greater than 0.3 MGD.

8. The District is currently considering three alternative disposal options for up to 1.0 MGD.

   a. percolation of 100% of the plant effluent to the percolation ponds;

   b. percolation of 100% of the plant effluent (treated to secondary level) and withdrawal of ground water from the Lower Moosa Basin for landscape irrigation;

   c. full Title 22 treatment of the effluent at the LMCWRF and direct transport from the facility to reclaimed water markets. Percolation ponds would be used to accommodate flows in excess of reclamation demands.

9. According to Title 22, Division 4, Chapter 3 of the California Code of Regulations, a direct beneficial use is defined as the use of reclaimed water which has been transported from the point of production to the point of use without an intervening discharge to water of the state. Therefore, ground water extraction from the Bonsall basin for reuse within the Lower Moosa basin does not constitute a direct benficial use.

10. The Valley Center Municipal Water District has prepared a final environmental impact report dated June 1984 for the Central Valley Center Sewage Project in accordance with the California Environmental Quality Act (Public Resources Code, Section 21000 et. seq.) and the State Guidelines.

11. The District identified the potential for surfacing of percolated effluent in the Lower Moosa Canyon basin as an adverse water resource related environmental impact of the project. In order to ensure that percolated effluent does not surface in the Lower Moosa Canyon basin, the District has proposed to implement a ground water basin management plan. The proposed ground water basin management plan, if implemented, would avoid the potential adverse water quality impacts of the project identified in the District's environmental impact report.

12. The Discharger reports that the reclaimed wastewater and Lower Moosa Canyon ground water supplied by the District to the Circle "R" and the Lawrence Welk Golf Courses will replace the current use of a poorer quality local ground water for irrigation at these golf courses. The data was obtained on March 1, 1984.

GROUND WATER QUALITY - LOWER MOOSA CANYON BASIN

Constituent	Unit	Circle "R" Wells (Combined)	Lawrence Welk's Well
Total Dissolved Solids	mg/l	1387	1055
Chloride	mg/l	341	245
Sodium	mg/l	170	130
Sulfate	mg/l	144	124
Total Kjeldahl Nitrogen	mg/l	0.03	0.03
Total Phosphorus	mg/l	0.01	0.01
Nitrate/N	mg/l	0.05	0.05
Boron	mg/l	0.17	0.23
Fluoride	mg/l	0.34	0.22

NOTE: mg/l = milligrams per liter

13. The Discharger reports that the estimated quality of the Lower Moosa Canyon Water Reclamation Facility (LMCWRF) effluent is as follows:

Constituent	Unit	LMCWRF Effluent 1994
Total Dissolved Solids	mg/l	877-1011
Chloride	mg/l	142-192.3
Percent Sodium	mg/l	48.5-55.6
Sulfate	mg/l	251-330
Biochemical Oxygen Demand	mg/l	2.0-3.0
Methylene Blue Active Substances	mg/l	0-0.14
Suspended Solids	mg/l	5.1-12.6
Turbidity	NTU	3.0-5.9
Boron	mg/l	0.33-0.40
Fluoride	mg/l	0.18-1.62

NOTE: mg/l = milligrams per liter
NTU = Nephelometric Turbidity Units

14. The "Comprehensive Water Quality Control Plan Report, San Diego Basin (9) (Basin Plan) was adopted by this Regional Board on March 17, 1975; and subsequently approved by the State Water Resources Control Board (State Board). Subsequent revisions to the Basin Plan have also been adopted by the Regional Board and approved by the State Board.

15. The Basin Plan establishes the following beneficial uses for the surface waters of the Lower Moosa Canyon Hydrologic Subarea (903.13):

BENEFICIAL USES IDENTIFIED IN BASIN PLAN FOR LOWER MOOSA CANYON HYDROLOGIC SUBAREA

BENEFICIAL USES		INLAND SURFACE WATER	GROUND WATER [1]
MUN	Municipal and Domestic Supply		X
AGR	Agriculture Supply	X	X
IND	Industrial Service Supply	X	X
PROC	Industrial Process Supply		
GRW	Groundwater Recharge		
FRSH	Freshwater Replenishment		
POW	Hydropower Generation		
REC-1	Water Contact Recreation	X	
REC-2	Non-Contact Water Recreation	X	
WARM	Warm Fresh-Water Habitat	X	
COLD	Cold Fresh-Water Habitat		
WILD	Wildlife Habitat	X	
RARE	Preservation of Rare & Endangered Species	X	
SPWN	Fish Spawning		
SAL	Saline Water Habitat		
MAR	Marine Habitat		

Note:

1. These beneficial uses do not apply westerly of the easterly boundary of the right-of-way of Interstate Highway 5. The beneficial uses for the remainder of the hydrologic area are as shown.

16. The Basin Plan established the following water quality objectives for the Bonsall Hydrologic Subarea (903.12) and the Lower Moosa Canyon Hydrologic Subarea (903.13):

BASIN PLAN WATER QUALITY OBJECTIVES

CONSTITUENT	Concentration not to be exceeded more than 10 % of the time during any one year period (mg/l or as noted)			
	BONSALL		LOWER MOOSA CANYON	
	SURFACE WATER	GROUND WATER	SURFACE WATER	GROUND WATER
Total Dissolved Solids	500	1500 $_{1,2}$	500	800
Chloride	250	500 $_{1,2}$	250	300
Percent Sodium	60 %	60 %	60 %	60 %
Sulfate	250	500$_{1,2}$	250	400
Nitrate (as NO_3)	----	45$_{1,2}$	----	10
Nitrogen and Phosphorus	*	----	*	----
Iron	0.3	0.85 $_{1,2}$	0.3	0.3
Manganese	0.05	0.15 $_{1,2}$	0.05	0.05
Boron	0.5	0.5 $_{1,2}$	0.5	0.5
Odor	None	None	None	None
Turbidity	20 NTU	5 NTU	20 NTU	5 NTU
Fluoride	1.0	1.0 $_{2}$	1.0	1.0
Color	20 UNITS	15 UNITS $_{2}$	20 UNITS	15 UNITS

Notes: mg/l = milligrams per liter
NTU = Nephelometric turbidity units

1. The recommended plan would allow for measurable degradation of ground water in this basin to permit continued agricultural land use. Point sources, however, would be controlled to achieve effluent quality corresponding to the tabulated numerical values. In future years demineralization may be used to treat ground water to the desired quality prior to use.

2. A portion of the Upper Mission Basin is being considered as an underground potable water storage reservoir for treated imported water. The area is located north of Highway 76 on the boundary of hydrologic subareas 3.11 and 3.12. If this program is adopted, local objectives approaching the quality of the imported water would be set and rigorously pursued.

* Concentrations of nitrogen and phosphorus, by themselves or in combination with other nutrients, shall be maintained at levels below those which stimulate algae and emergent plant growth. Threshold total Phosphorus (P) concentrations shall not exceed 0.05 mg/l in any stream at the point where it enters any standing body of water, nor 0.025 mg/l in any standing body of water. A desired goal in order to prevent plant nuisances in streams and other flowing waters appears to be 0.1 mg/l total P. These values are not to be exceeded more than 10% of the time unless studies of the specific water body in question clearly show that water quality objective changes are permissible and changes are approved by the Regional Board. Analogous threshold values have not been set for nitrogen compounds; however, natural ratios of nitrogen to phosphorus are to be determined be surveillance and monitoring and upheld. If data are lacking, a ratio of N:P = 10:1 shall be used.

17. The Basin Plan contains the following prohibitions applicable to the proposed discharge:

"Discharge of treated or untreated sewage or industrial wastes to a natural watercourse upstream of surface storage or diversion facilities used for municipal supply is prohibited."

"Discharge of treated or untreated sewage or industrial wastewater, exclusive of cooling water or other waters which are chemically unchanged, to a watercourse, is prohibited except in cases where the quality of said discharge complies with the receiving body's water quality objectives."

"Discharging of treated or untreated sewage or industrial wastes in such a manner or volume as to cause sustained surface flow or ponding on lands not owned or under the control of the discharger is prohibited except in cases defined in the previous paragraph and in cases in which the responsibility for all downstream adverse effects is accepted by the discharger."

"The dumping or deposition of oil, garbage, trash or other solid municipal, industrial or agricultural waste directly into inland waters or watercourses or adjacent to the watercourses in any manner which may permit its being washed into the watercourse is prohibited."

18. The discharge of reclaimed water to the areas authorized under this Order is in conformance with SWRCB Resolution No. 68-16, **Statement of Policy with Respect to Maintaining High Quality of Waters in California**. The existing wastewater reclamation project will:

a) Have maximum benefit to the people of the State, because in the absence of reclaimed wastewater, alternative water supply would be used for irrigation of the reclaimed water use area described in this Order;

b) Not unreasonably affect the beneficial uses of ground water in the Moosa HSA; and,

c) Not cause the ground water quality objectives in the Bonsall HSA to be exceeded.

19. Regional Board Resolution No. 90-61, **A Resolution Amending Resolution No. 90-40, A Region-wide Groundwater Amendment to the Comprehensive Water Quality Control Plan for the San Diego Region,** indicated that for areas down gradient of municipal supply reservoirs, effluent limitations for reclaimed water shall be at levels that are not less than constituent concentrations of water supply plus a typical incremental increase resulting from domestic water use, but not more than the **"Comprehensive Water Quality Control Plan Report, San Diego Basin (9)"** (Basin Plan) ground water quality objectives.

20. This Order establishes discharge limitations for the discharge of effluent to the percolation ponds located in the Bonsall Basin that are below the Basin Plan ground water objectives established for the Bonsall HSA (903.12).

21. As noted in Finding No. 8, the District proposes to discharge reclaimed water to the Lower Moosa Hydrologic Subarea (903.13). The LMCWRF's effluent concentration as described in Finding No. 12 for total dissolved solids exceeds the Basin Plan's ground water objective within the Lower Moosa HSA. This Order establishes an interim total dissolved solids limit above the Basin Plan's objective for 5 years to give the District time to do one of the following:

    a. demonstrate that the Basin Plan objective for total dissolved solids should be relaxed;

    b. to provide additional treatment at the LMCWRF that will produce an effluent total dissolved solids concentration below 800 mg/l; or

    c. to demonstrate that the discharge will not cause a violation of the Basin Plan and Regional Board Resolution No. 90-61.

22. The discharger reports that the individual unit wastewater treatment processes will meet all Title 22 reliability standards of the State Department of Health Services.

23. As noted in Finding No. 12 and 45 of Order No. 84-46, the discharger has submitted a final environmental impact report dated June 1984 in accordance with the California Environmental Quality Act (Public Resources Code, Section 21000 et. seq.) and the State Guidelines. This report described the all aspects of the expansion of the Lower Moosa Canyon Water Reclamation Facility to a treatment capacity of 1.0 MGD.

24. The Regional Board, in establishing the requirements contained herein, considered factors including, but not limited to, the following:

    (a) Beneficial uses to be protected and the water quality objectives reasonably required for that purpose;
    (b) Other waste discharges;
    (c) The need to prevent nuisance;
    (d) Past, present, and probable future beneficial uses of the hydrologic subunits under consideration;
    (e) Environmental characteristics of the hydrologic subunits under consideration;
    (f) Water quality conditions that could reasonably be achieved through the coordinated control of all factors which affect water quality in the area;
    (g) Economic considerations;
    (h) The need for additional housing within the region; and
    (i) Need to develop and use recycled water.

25. The Regional Board has considered all water resource related environmental factors associated with the proposed discharge of waste from Valley Center Reclamation Facility.

26. The Regional Board has notified the Valley Center Municipal Water District and all known interested parties of the intent to prescribe waste discharge requirements for the proposed discharge.

27. The Regional Board in a public meeting heard and considered all comments pertaining to the proposed discharge of waste from the Valley Center Water Reclamation Facility.

IT IS HEREBY ORDERED THAT, Valley Center Municipal Water District, in order to meet the provisions contained in Division 7 of the California Water Code and Regulations adopted thereunder, shall comply with the following:

A. PROHIBITIONS

1. The discharge of a waste flow volume in excess of 1.0 million gallons per day is prohibited unless the discharger files a report of waste discharge for the proposed increased flow.

2. Neither the treatment, storage nor disposal of waste shall create a pollution, contamination or nuisance, as defined by Section 13050 of the California Water Code.

3. Discharges of treated or untreated solid or liquid waste to a navigable water or tributary of a navigable water are prohibited unless authorized by an NPDES permit issued by this Regional Board.

4. All irrigation shall be done by the District or a contracted entity. Connections to the irrigation system by individual residences is prohibited.

B. DISCHARGE SPECIFICATIONS

1. The discharge of effluent from the Lower Moosa Canyon Water Reclamation Facility shall not contain pollutants in excess of the following effluent limitations:

CONSTITUENT	UNITS	30-DAY AVERAGE[1]	DAILY MAXIMUM[2]	12 MONTH AVERAGE[3]
Biological Oxygen Demand (BOD @ 20° C)	mg/l	20	30	
Total Suspended Solids	mg/l	20	30	
Total Dissolved Solids	mg/l			1000[4]
Chloride	mg/l			200
Sulfate	mg/l			350
Fluoride	mg/l			1.0
Boron	mg/l			0.5
Iron	mg/l			0.85[4]
Manganese	mg/l			0.15[4]
Nitrate (as NO_3)	mg/l			45[5]
pH	pH Units	Within the limits od 6.0 to 9.0 at all times		

Notes: mg/l = milligrams per liter

[1] The 30-day average effluent limitation shall apply to the arithmetic mean of the results all samples collected during any month.

[2] The daily maximum effluent limitation shall apply to the results of a single composite sample collected over a period of 24 hours or a grab sample.

[3] The 12 month average effluent limitation shall apply to the arithmetic mean of the results of all samples collected during any 12 consecutive calendar month period.

[4] The effluent limitation for these constituents are applicable for discharges to the Bonsall HSA (903.12) and for an interim period of five years to the Lower Moosa HSA (903.13). At the end of this interim five year period the discharge limitations for these constituents will return to the Lower Moosa HSA ground water objectives set forth in the Basin Plan.

[5] This effluent limitation is applicable only for a discharge to the percolation ponds.

2. Any effluent used for direct beneficial use shall conform with all applicable provisions of California Code of Regulations, Title 22, Division 4, Chapter 3.

3. All storage and percolation ponds shall be so managed that a dissolved oxygen concentration of not less than 2.0 milligrams per liter is maintained at all times.

4. Collected screenings, sludge, other solids removed from liquid wastes, and filter backwash shall be disposed in a manner described in the Findings of this Order or as approved by the Executive Officer. Sewage sludge treatment and disposal shall comply with all pertinent paragraphs of Part 503, Subchapter O, Chapter I of Title 40 Code of Federal Regulations.

C. FACILITY DESIGN AND OPERATION SPECIFICATIONS

1. *PROPER OPERATION*

The discharger shall, at all times, properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the discharger to achieve compliance with conditions of this Order. Proper operation and maintenance includes effective performance, adequate funding, adequate operator staffing and training, and adequate laboratory and process controls including appropriate quality assurance procedures. This provision requires the operation of backup or auxiliary facilities or similar systems only when necessary to achieve compliance with the conditions of this Order.

2. *OPERATION MANUAL*

The discharger shall submit to the Executive Officer a facility operations manual within 90 days of the adoption of this Order. A copy of the facility operations manual shall be maintained at the dischargers facility and shall be available to personnel at all times.

3. *GROUND WATER MANAGEMENT PLAN REPORT*

Prior to initiation of discharge in excess of 0.3 MGD to the percolation ponds the discharger shall submit a report that provides a program for monitoring, management and forecasting of any future potential problems associated with balancing discharges to and extractions from the Bonsall HSA.

4. *CERTIFICATION REPORTS*

Prior to initiation of discharge in excess of 0.5 MGD from the LMCWRF the discharger shall submit a certification report, that contains a requirement by requirement analysis based on acceptable engineering practices, of how the process and physical designs of new treatment facilities will ensure compliance with these waste discharge requirements. The design engineer shall affix his/her signature and engineering license number to the certification report.

5. *ENGINEERING REPORT*

The discharger shall meet the design, operational, and reliability requirements of Articles 7, 8, 9 and 10 of the California Code of Regulations, Title 22, Division 4, Chapter 3. The discharger shall prepare an engineering report conforming to Section 60323, Article 7 of the California Code of Regulations, Title 22, Division 4, Chapter 3. The engineering report shall be submitted 120 days prior to initiation of a direct discharge to any reclaimed water use area, to the State Department of Health Services - Office of Drinking Water, County Department of Health Services, and the Regional Board Executive Officer for approval.

7. *OPERATORS' CERTIFICATION*

The discharger's wastewater treatment facilities shall be supervised and operated by persons possessing certificates of appropriate grade pursuant to Chapter 3, Subchapter 14, Title 23 of the California Code of Regulations.

8. *RECLAIMED WATER SUPERVISOR*

All reclaimed water users shall designate a reclaimed water supervisor responsible for the reclaimed water system at each use area under the user's control. Reclaimed water supervisors should be responsible for the installation, operation, and maintenance of the irrigation system, enforcement of the discharger/producer's reclaimed water user rules and regulation, prevention of potential hazards, and maintenance of the reclaimed water distribution system plans in "as built" form.

9. *FLOOD PROTECTION*

All waste treatment, containment and disposal facilities with the exception of landscape irrigation areas, shall be protected against 100-year peak stream flows as defined by the San Diego County flood control agency, unless the discharger obtains revised waste discharge requirements for less stringent flood protection requirements for landscape irrigation ponds.

10. *RUNOFF PROTECTION*

Effluent storage facilities shall be designed, constructed, operated, and maintained so as to prevent surfacing of wastes on property not owned or controlled by the discharger. All waste treatment, containment and disposal facilities with the exception of landscape irrigation areas, shall be protected against erosion, overland runoff, and other impacts resulting from a 100-year frequency 24-hour storm.

11. *OFFSITE DISCHARGES*

The discharger shall design, construct, operate, and maintain storage facilities and irrigation areas to prevent surfacing or runoff of wastewater on property not owned or controlled by the discharger.

12. *CROSS-CONNECTIONS*

The potable water supply shall not be used to supplement the reclaimed water supply except through an approved air gap. In other areas where the potable water supply is piped to premises where sewage is pumped, treated or reclaimed (e.g., sewage treatment plants or pumping stations, golf course, etc.) the potable water supply shall be protected at the property line in accordance with the State Department of Health Services' *Regulations Relating to Cross-Connections.*

13. *CAPACITY NOTIFICATION*

Whenever a publicly owned wastewater treatment plant will reach capacity within four years the discharger shall notify the Regional Board. A copy of such notification shall be sent to appropriate local elected officials, local permitting agencies and the press. The discharger must demonstrate that adequate steps are being taken to address the capacity problem. The discharger shall submit a technical report to the Regional Board showing flow volumes will be prevented from exceeding capacity, or how capacity will be increased, within 120 days after providing notification to the Regional Board, or within 120 days after receipt of notification from the Regional Board, of a finding that the treatment plant will reach capacity within four years. The time for filing the required technical report may be extended by the Regional Board. An extension of 30 days may be granted by the Executive Officer, and longer extensions may be granted by the Regional Board itself.

14. *MONITORING AND REPORTING*

The discharger shall comply with attached Monitoring and Reporting Program No. 95-32, and future revisions thereto as specified by the Executive Officer. Monitoring results shall be reported at the intervals specified in Monitoring and Reporting Program No. 95-32.

D. RECLAIMED WATER USE PROVISIONS

1. The Valley Center Municipal Water District (discharger/producer) shall have **Rule and Regulations for Reclaimed Water Users** governing the design and construction of reclaimed water use facilities and the use of reclaimed water. The Rules and Regulations shall be reviewed and updated if necessary by the discharger when a new Order or Addendum is adopted by the Regional Board, and shall, at a minimum, include the Standard Provisions for Rules and Regulations which are contained in Attachment No. 1 to this Order.

   The revised rules and regulations shall be subject to the approval of the Regional Board Executive Officer; the State Department of Health Services and the San Diego County Department of Health Services, Environmental Health Services. The revised rules and regulations or a letter certifying that the discharger/producer rules and regulations contain the updated provisions in the Order, shall be submitted to the Regional Board 90 days prior to any use of reclaimed water.

2. The Valley Center Municipal Water District (discharger/producer) shall implement and enforce the approved rules and regulations for reclaimed water users. Use of reclaimed water by the discharger/producer shall be consistent with item D.1 above. In addition, the discharger/producer shall submit an annual report certifying that the users have implemented the rules and regulations established by the discharger.

3. The Valley Center Municipal Water District (discharger/producer) shall, within 90 days of any use of reclaimed water, develop and submit to the Regional Board a program of Best Management Practices (BMP) for the reclaimed water users governing the irrigation practices, management and maintenance to avoid runoff, ponding and overspray. The discharger/producer shall oversee that the reclaimed water users have implemented the BMP upon approval of the BMP program by the Regional Board Executive Officer.

4. The Valley Center Municipal Water District (discharger/producer) shall, within 90 days of any use of reclaimed water, develop and submit to the Regional Board a program to conduct compliance inspections of reclaimed water reuse sites to determine the status of compliance with the approved rules and regulations for reclaimed water users. The discharger/producer shall implement the inspection program upon its approval by the Regional Board Executive Officer.

5. Reclaimed water shall not be supplied to parties who use, transport, or store such water in a manner which causes a pollution, contamination or nuisance, as defined by Section 13050 of the California Water Code.

6. Prior to delivering reclaimed water to any new user within the Valley Center Municipal Water District service area, the discharger shall submit a report to this Regional Board and the County of San Diego Department of Health Services discussing the delivering system, the use and the hydrologic Subareas where reclaimed water will be delivered.

E. STANDARD PROVISIONS

1. *DUTY TO COMPLY*

The discharger must comply with all conditions of this Order. Any noncompliance with this Order constitutes a violation of the California Water Code and is grounds for (a) enforcement action; (b) termination, revocation and reissuance, or modification of this Order; or (c) denial of a report of waste discharge in application for new or revised waste discharge requirements.

2. *ENTRY AND INSPECTION*

The discharger shall allow the Regional Board, or an authorized representative upon the presentation of credentials and other documents as may be required by law, to:

(a) Enter upon the discharger's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this Order;

(b) Have access to and copy, at reasonable times, any records that must be kept under the conditions of this Order;

(c) Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this Order; and

(d) Sample or monitor at reasonable times, for the purposes of assuring compliance with this Order or as otherwise authorized by the California Water Code, any substances or parameters at any location.

3. *CIVIL MONETARY REMEDIES*

The California Water Code provides that any person who intentionally or negligently violates any waste discharge requirements issued, reissued, or amended by this Regional Board is subject to a civil monetary remedy of up to 20 dollars per gallon of waste discharged or, if a cleanup and abatement order is issued, up to 15,000 dollars per day of violation or some combination thereof.

4. *PENALTIES FOR INVESTIGATION, MONITORING OR INSPECTION VIOLATIONS*

The California Water Code provides that any person failing or refusing to furnish technical or monitoring program reports, as required under this Order, or falsifying any information provided in the monitoring reports is guilty of a misdemeanor and is subject to a civil liability of up to 5,000 dollars for each day in which the violation occurs.

5. *ENDANGERMENT OF HEALTH AND ENVIRONMENT*

The discharger shall report any noncompliance which may endanger health or the environment. Any such information shall be provided orally to the Executive Officer within 24 hours from the time the discharger becomes aware of the circumstances. A written submission shall also be provided within 5 days of the time the discharger becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected; the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance. The Executive Officer, or an authorized representative, may waive the written report on a case-by-case basis if the oral report has been received within 24 hours. The following occurrence(s) must be reported to the Executive Officer within 24 hours:

(a) Any bypass from any portion of the treatment facility.

(b) Any discharge of treated or untreated wastewater resulting from sewer line breaks, obstruction, surcharge or any other circumstances.

(c) Any treatment plant upset which causes the effluent limitations of this Order to be exceeded.

6. *PRIOR NOTICE OF BYPASS*

If a need for a discharge bypass is known in advance, the discharger shall submit prior notice and, if at all possible, such notice shall be submitted at least 10 days prior to the date of the bypass.

7. *CORRECTIVE ACTION*

The discharger shall take all reasonable steps to minimize or correct any adverse impact on the environment resulting from noncompliance with this Order, including such accelerated or additional monitoring as may be necessary to determine the nature and impact of the noncompliance.

8. *TREATMENT FAILURE*

In an enforcement action, it shall not be a defense for the discharger that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with this Order. Upon reduction, loss, or failure of the treatment facility, the discharger shall, to the extent necessary to maintain compliance with this Order, control production or all discharges, or both, until the facility is restored or an alternative method of treatment is provided. This provision applies for example, when the primary source of power of the treatment facility is failed, reduced, or lost.

9. HAZARDOUS RELEASES

Except for a discharge which is in compliance with these waste discharge requirements, any person who, without regard to intent or negligence, causes or permits any hazardous substance or sewage to be discharged in or on any waters of the State, shall as soon as (a) that person has knowledge of the discharge, (b) notification is possible, and (c) notification can be provided without substantially impeding cleanup or other emergency measures, immediately notify the Director of Environmental Health Services, County of San Diego in accordance with California Health and Safety Code Section 5411.5 and the Office of Emergency Services of the discharge in accordance with the spill reporting provision of the State toxic disaster contingency plan adopted pursuant to Article 3.7 (commencing with Section 8574.7) of Chapter 7 of Division 1 of Title 2 of the Government Code, and immediately notify the State Board or the appropriate Regional Board of the discharge. This provision does not require reporting of any discharge of less than a reportable quantity as provided for under subdivisions (f) and (g) of Section 13271 of the Water Code unless the discharger is in violation of a prohibition in the applicable Water Quality Control Plan.

10. *PETROLEUM RELEASES*

Except for a discharge which is in compliance with these waste discharge requirements, any person who without regard to intent or negligence, causes or permits any oil or petroleum product to be discharged in or on any waters of the State, or discharged or deposited where it is, or probably will be, discharged in or on any waters of the State, shall, as soon as (a) such person has knowledge of the discharge, (b) notification is possible, and (c) notification can be provided without substantially impeding cleanup or other emergency measures, immediately notify the Office of Emergency Services of the discharge in accordance with the spill reporting provision of the State oil spill contingency plan adopted pursuant to Article 3.5 (commencing with Section 8574.1) of Chapter 7 of Division 1 of Title 2 of the Government Code. This requirement does not require reporting of any discharge of less than 42 gallons unless the discharge is also required to be reported pursuant to Section 311 of the Clean Water Act or the discharge is in violation of a prohibition in the applicable Water Quality Control Plan.

F. REPORTING AND RECORD KEEPING REQUIREMENTS

1. *PERMIT REPOSITORY*

A copy of this Order shall be maintained at the discharger's facility and shall be available to operating personnel at all times.

2. *GENERAL REPORTING REQUIREMENT*

The discharger shall furnish to the Executive Officer of this Regional Board, within a reasonable time, any information which the Executive Officer may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this Order. The discharger shall also furnish to the Executive Officer, upon request, copies of records required to be kept by this Order.

3. *RETENTION OF RECORDS*

The discharger shall retain records of all monitoring information, including all calibration and maintenance records, copies of all reports required by this Order, and records of all data used to complete the application for this Order. Records shall be maintained for a minimum of five years from the date of the sample, measurement, report, or application. This period may be extended during the course of any unresolved litigation regarding this discharge or when requested by the Regional Board Executive Officer.

4. *PERMIT REVISION*

This Order may be modified, revoked and reissued, or terminated for cause including, but not limited to, the following:

(a) Violation of any terms or conditions of this Order;

(b) Obtaining this Order by misrepresentation or failure to disclose fully all relevant facts; or

(c) A change in any condition that requires either a temporary or permanent reduction or elimination of the authorized discharge.

The filing of a request by the discharger for the modification, revocation and reissuance, or termination of this Order, or notification of planned changes or anticipated noncompliance does not stay any condition of this Order.

5. *CHANGE IN DISCHARGE*

The discharger shall file a new Report of Waste Discharge at least 120 days prior to the following:

(a) Addition of a major industrial waste discharge to a discharge of essentially domestic sewage, or the addition of a new process or product by an industrial facility resulting in a change in the character of the wastes.

(b) Significant change in the treatment or disposal method (e.g., change in the method of treatment which would significantly alter the nature of the waste.)

(c) Change in the disposal area from that described in the findings of this Order.

(d) Increase in flow beyond that specified in this Order.

(e) Other circumstances which result in a material change in character, amount, or location of the waste discharge.

(f) Any planned change in the regulated facility or activity which may result in noncompliance with this Order.

6. *CHANGE IN OWNERSHIP*

This Order is not transferrable to any person except after notice to the Executive Officer. The discharger shall submit this notice in writing at least 30 days in advance of any proposed transfer. The notice must include a written agreement between the existing and new discharger containing a specific date for the transfer of this Order's responsibility and coverage between the current discharger and the new discharger. This agreement shall include an acknowledgement that the existing discharger is liable for violations up to the transfer date and that the new discharger is liable from the transfer date on. The Regional Board may require modification or revocation and reissuance of this Order to change the name of the discharger and incorporate such other requirements as may be necessary under the California Water Code.

7. *INCOMPLETE REPORTS*

Where the discharger becomes aware that it failed to submit any relevant facts in a Report of Waste Discharge or submitted incorrect information in a Report of Waste Discharge or in any report to the Regional Board, it shall promptly submit such facts or information.

8. *REPORT DECLARATION*

All applications, reports, or information submitted to the Executive Officer shall be signed and certified as follows:

(a) The Report of Waste Discharge shall be signed as follows:

(1) For a corporation - by a principal executive officer of at least the level of vice-president.

(2) For a partnership or sole proprietorship - by a general partner or the proprietor, respectively.

(3) For a municipality, state, federal or other public agency - by either a principal executive officer or ranking elected official.

(b) All other reports required by this Order and other information required by the Executive Officer shall be signed by a person designated in paragraph (a) of this provision, or by a duly authorized representative of that person. An individual is a duly authorized representative only if:

(1) The authorization is made in writing by a person described in paragraph (a) of this provision;

(2) The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity; and

(3) The written authorization is submitted to the Executive Officer.

(c) Any person signing a document under this Section shall make the following certification:

"I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment."

9. *REGIONAL BOARD ADDRESS*

The discharger shall submit reports required under this Order, or other information required by the Executive Officer, to:

Groundwater Unit
California Regional Water Quality Control Board, San Diego Region
9771 Clairemont Mesa Blvd, Suite B
San Diego, California 92124-1331

G. NOTIFICATIONS

1. *VESTED RIGHTS*

This Order does not convey any property rights of any sort or any exclusive privileges. The requirements prescribed herein do not authorize the commission of any act causing injury to persons or property, nor protect the discharger from liability under federal, state or local laws, nor create a vested right for the discharger to continue the waste discharge.

2. *U.S. EPA REVIEW*

These requirements have not been officially reviewed by the United States Environmental Protection Agency and are not issued pursuant to Section 402 of the Clean Water Act.

3. *SEVERABILITY*

The provisions of this Order are severable, and if any provision of this Order, or the application of any provision of this Order to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this Order, shall not be affected thereby.

4. *ORDER NO. 84-46*

This Order supersedes Order No. 84-46, "Waste Discharge Requirements for the Valley Center Municipal Water District, Lower Moosa Canyon Reclamation Facility, San Diego County". This Order becomes effective on the date of adoption by the Regional Board.

I, Arthur L. Coe, Executive Officer, do hereby certify the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, San Diego Region, on February 9, 1995

Arthur L. Coe
Executive Officer

STANDARD PROVISIONS
FOR
RULES AND REGULATIONS

(Attachment No. 1 to Order No. 95-32)

a. Provisions implementing Title 22, Division 4, Chapter 3, **Wastewater Reclamation Criteria**, and Title 17, Division 1, Chapter 5, Group 4, Article 1 & 2, of the California Code of Regulations;

b. Provisions implementing the State Department of Health Services (DOHS) **Guidelines For Use of Reclaimed Water** and **Guidelines for Use of Reclaimed Water for Construction Purposes** and measures that are deemed necessary for protection of public health, such as the American Water Works Association (AWWA) California/Nevada Section, **Guidelines for the Distribution of Non-Potable Water** or alternate measures, acceptable to DOHS, providing equivalent protection of public health;

c. Provisions authorizing the Regional Board, the discharger/producer, or an authorized representative of these parties, upon presentation of proper credentials, to inspect the facilities of any reclaimed water user to ascertain whether the user is complying with the discharger/producer's rules and regulations;

d. Provision for written notification, in a timely manner, to the discharger/producer by the reclaimed water user of any material change or proposed change in the character of the use of reclaimed water;

e. Provision for submission of a preconstruction report to the discharger/producer by the reclaimed water user in order to enable the discharger/producer to determine whether the user will be in compliance with the discharger/producer's rules and regulations;

f. Provision requiring reclaimed water users to designate a reclaimed water supervisor responsible for the reclaimed water system at each use area under the user's control. Reclaimed water supervisors should be responsible for the installation, operation, and maintenance of the irrigation system, enforcement of the discharger/producer's reclaimed water user rules and regulations, prevention of potential hazards, and maintenance of the reclaimed water distribution system plans in "as built" form;

g. Provision authorizing the discharger/producer to cease supplying reclaimed water to any person who uses, transports, or stores such water in violation of the discharger/producer's rules and regulations;

h. Provision requiring notification and concurrence of the State Department of Health Services and the San Diego County Department of Health Services, Environmental Health Services for new reclaimed water users. The notification of Environmental Health Services shall include a site distribution plan for new and retrofit facilities and a cross-connection control inspection plan for sites containing both potable and reclaimed water distribution lines;

i. Provision requiring all windblown spray and surface runoff of reclaimed water applied for irrigation onto property not owned or controlled by the discharger or reclaimed water user shall be prevented by implementation of best management practices;

j. Provision requiring all reclaimed water storage facilities owned and/or operated by reclaimed water users to be protected against erosion, overland runoff, and other impacts resulting from a 100-year, 24 hour frequency storm unless the Regional Board Executive Officer approves relaxed storm protection measures for the facility;

k. Provision requiring all reclaimed water storage facilities owned and/or operated by reclaimed water users to be protected against 100 - year frequency peak stream flows as defined by the Riverside County flood control agency unless the Regional Board Executive Officer approves relaxed storm protection measures for the facility;

l. Provision for notification to reclaimed water users that the Regional Board may initiate enforcement action against any reclaimed water user who discharges reclaimed water in violation of any applicable discharge prohibitions prescribed by the Regional Board or in a manner which creates, or threatens to create conditions of pollution, contamination, or nuisance, as defined in Water Code Section 13050; and

m. Provision for notification to reclaimed water users that the Regional Board may initiate enforcement action against the discharger/producer, which may result in the termination of the reclaimed water supply, if any person uses, transports, or stores such water in violation of the discharger/producer's rules and regulations or in a manner which creates, or threatens to create conditions of pollution, contamination, or nuisance, as defined in Water Code Section 13050.

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN DIEGO REGION

MONITORING AND REPORTING PROGRAM NO. 95-32
FOR
VALLEY CENTER MUNICIPAL WATER DISTRICT
LOWER MOOSA CANYON RECLAMATION FACILITY

A. MONITORING PROVISIONS

1. Samples and measurements taken as required herein shall be representative of the volume and nature of the monitored discharge. All samples shall be taken at the monitoring points specified in this Order and, unless otherwise specified, before the effluent joins or is diluted by any other waste stream, body of water or substance. Monitoring points shall not be changed without notification to and the approval of the Executive Officer.

2. Appropriate flow measurement devices and methods consistent with accepted scientific practices shall be selected and used to ensure the accuracy and reliability of measurements of the volume of monitored discharges. The devices shall be installed, calibrated and maintained to ensure that the accuracy of the measurements are consistent with the accepted capability of that type of device. Devices selected shall be capable of measuring flows with a maximum deviation of less than +5 percent from true discharge rates throughout the range of expected discharge volumes. Guidance in selection, installation, calibration and operation of acceptable flow measurement devices can be obtained from the following references:

   (a) "A Guide to Methods and Standards for the Measurement of Water Flow," U. S. Department of Commerce, National Bureau of Standards, NBS Special Publication 421, May 1975, 97 pp. (Available from the U.S. Government Printing Office, Washington, D.C. 20402. Order by SD Catalog No. C13.10:421.)

   (b) "Water Measurement Manual," U.S. Department of Interior, Bureau of Reclamation, Second Edition, Revised Reprint, 1974, 327 pp. (Available from the U.S. Government Printing Office, Washington D.C. 20402. Order by Catalog No. 127,19/2:W29/2, Stock No. S/N 24003-0027.)

   (c) "Flow Measurement in Open Channels and Closed Conduits," U.S. Department of Commerce, National Bureau of Standards, NBS Special Publication 484, October 1977, 982 pp. (Available in paper copy or microfiche from National Technical Information Service (NTIS) Springfield, VA 22151. Order by NTIS No. PB-273-535/5ST.)

(d) "NPDES Compliance Sampling Manual," U.S. Environmental Protection Agency, Office of Water Enforcement. Publication MCD-51, 1977, 140 pp. (Available from the General Services Administration (8FFS), Centralized Mailing Lists Services, Building 41, Denver Federal Center, Denver, CO 80225.)

3. Monitoring must be conducted according to United States Environmental Protection Agency test procedures approved under Title 40, Code of Federal Regulations (CFR), Part 136, "Guidelines Establishing Test Procedures for Analysis of Pollutants Under the Clean Water Act" as amended, unless other test procedures have been specified in this Order.

4. All analyses shall be performed in a laboratory certified to perform such analyses by the California Department of Health Services or a laboratory approved by the Executive Officer.

5. Monitoring results must be reported on discharge monitoring report forms approved by the Executive Officer.

6. If the discharger monitors any pollutants more frequently than required by this Order, using test procedures approved under 40 CFR, Part 136, or as specified in this Order, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the discharger's monitoring report. The increased frequency of monitoring shall also be reported.

7. The discharger shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this Order, and records of all data used to complete the application for this Order. Records shall be maintained for a minimum of five years from the date of the sample, measurement, report or application. This period may be extended during the course of any unresolved litigation regarding this discharge or when requested by the Regional Board Executive Officer.

8. Records of monitoring information shall include:

   (a) The date, exact place, and time of sampling or measurements;
   (b) The individual(s) who performed the sampling or measurements;
   (c) The date(s) analyses were performed;
   (d) The individual(s) who performed the analyses;
   (e) The analytical techniques or method used; and
   (f) The results of such analyses.

9. All monitoring instruments and devices which are used by the discharger to fulfill the prescribed monitoring program shall be properly maintained and calibrated as necessary to ensure their continued accuracy.

10. The discharger shall report all instances of noncompliance not reported under Provision D.5 of this Order at the time monitoring reports are submitted. The reports shall contain the information listed in Provision D.5.

11. The monitoring reports shall be signed by an authorized person as required by Report and Record Keeping Requirement E.9.

12. A composite sample is defined as a combination of at least eight sample aliquot of at least 100 milliliters, collected at periodic intervals during the operating hours of a facility over a 24 hour period. For volatile pollutants, aliquot must be combined in the laboratory immediately before analysis. The composite must be flow proportional; either the time interval between each aliquot or the volume of each aliquot must be proportional to either the stream flow at the time of sampling or the total stream flow since the collection of the previous aliquot. Aliquot may be collected manually or automatically.

13. A grab sample is an individual sample of at least 100 milliliters collected at a randomly selected time over a period not exceeding 15 minutes.

14. Sampling and analysis shall, at a minimum, shall be conducted in accordance with Article 6 of California Code of Regulations, Title 22, Division 4, Chapter 3 (Reclamation Criteria).

B. EFFLUENT MONITORING

1. Representative samples of the effluent discharged from the Lower Moosa Canyon Reclamation Facility shall be collected in accordance with the following criteria:

CONSTITUENT	UNIT	TYPE OF SAMPLE	SAMPLING FREQUENCY	REPORTING FREQUENCY
FLOW RATE	MGD	Continuous	Continuous	Quarterly
Biochemical Oxygen Demand (BOD_5 @ 20°C)	mg/l	Composite	Weekly	Quarterly
Total Suspended Solids	mg/l	Composite	Weekly	Quarterly
Volatile Suspended Solids	mg/l	Composite	Weekly	Quarterly
Total Dissolved Solids	mg/l	Composite	Quarterly[1]	Quarterly
Chloride	mg/l	Composite	Quarterly[1]	Quarterly
Sulfate	mg/l	Composite	Quarterly[1]	Quarterly
Fluoride	mg/l	Composite	Quarterly[1]	Quarterly
Boron	mg/l	Composite	Quarterly[1]	Quarterly
Percent Sodium	%	Composite	Quarterly	Quarterly
Iron	mg/l	Composite	Quarterly	Quarterly
Manganese	mg/l	Composite	Quarterly	Quarterly
Nitrate	mg/l	Composite	Quarterly	Quarterly
pH	Unit	Grab	Weekly	Quarterly
Adjusted Sodium Adsorption Ratio[2]	—	Composite	Quarterly	Quarterly
Methylene Blue Active Substances	mg/l	Composite	Quarterly	Quarterly
Turbidity[3]	NTU	Continuous	*	Monthly
Chlorine Residual[3]	mg/l	Continuous	**	Monthly
Settleable Solids[3]	ml/l	Grab	***	Monthly
Coliform[3]	MPN/100ml	Grab	***	Monthly
Aluminum	mg/l	Composite	Annually	Annually
Arsenic	mg/l	Composite	Annually	Annually
Barium	mg/l	Composite	Annually	Annually
Cadmium	mg/l	Composite	Annually	Annually
Chromium	mg/l	Composite	Annually	Annually
Copper	mg/l	Composite	Annually	Annually
Lead	mg/l	Composite	Annually	Annually
Zinc	mg/l	Composite	Annually	Annually
Mercury	mg/l	Composite	Annually	Annually

Selenium	mg/l	Composite	Annually	Annually
Silver	mg/l	Composite	Annually	Annually

Notes: MPN/100 ml = Most Probable Number per 100 milliliters
ml/l = milliliters per liter
mg/l = milligrams per liter
NTU = Nephelometric Turbidity Units

1 The discharger shall increase the sampling frequency from quarterly to monthly for any noted constituent that exceeds the limit specified by Discharger Specification B.1 of this Order. The monthly monitoring shall continue until the discharger achieves compliance with the limitations for two consecutive months. After compliance is achieved, the discharger shall resume sampling at the quarterly frequency.

2 The adjusted sodium adsorption ratio is calculated as follows:

Adjusted Sodium Adsorption Ratio (Adj. SAR): $\frac{Na}{(Ca_x + Mg)/2}$, where Na and Mg are in milliequivalent per liter (me/l)

Ca_x is a modified Ca value calculated using Table 3-2 contained in "Irrigation with Reclaimed Municipal Wastewater, A Guidance Manual."

3 The discharger is required to test for these constituents when there is a direct use of reclaimed water.

* Turbidity analysis shall be performed by a continuous recording turbidimeter. From the continuous recording turbidimeter, the discharger shall report on a daily log, whether the estimated average value is above or below 2 NTU's of each day. If the turbidity value exceeds 5 NTU's at any time, its duration shall also be reported on a daily log.

** Chlorine residual analysis shall be performed by a continuous recording meter. The average value of each day shall be estimated from the flow chart and shall be reported monthly.

*** Samples for settleable solids and coliform bacteria shall be collected at least daily and at a time when wastewater characteristics are most demanding on the treatment facilities and disinfection procedures.

C. SEWAGE SOLIDS

A log of the type, quantity, and manner of disposal of solids removed in the course of sewage treatment shall be maintained and submitted quarterly to this Regional Board containing monitoring results and vector attraction reduction requirements in accordance with 40 CFR, Part 503. Additionally, the District shall include any sludge test data generated from sludge sampling.

D. GROUND WATERS

Representative ground water samples shall be collected from the following well locations and in accordance with the following schedule. The method of sample collection shall be included with each report.

MONITORING WELLS

WELL NO.	APPROXIMATE LOCATION	GROUND WATER QUALITY
1	500 feet east of percolation ponds	upgradient of ponds
2	center of western percolation ponds dike	at ponds
3	750 to 1000 feet west of percolation ponds	downgradient of ponds
SAMPLING OF FUTURE WELLS SHALL OCCUR AS THEY ARE INSTALLED		

SAMPLING PROGRAM

CONSTITUENT	UNIT	TYPE OF SAMPLE	SAMPLING FREQUENCY	REPORTING FREQUENCY
Total Dissolved Solids	mg/l	Grab	Semiannual	Semiannual
Nitrate as NO_3	mg/l	Grab	Semiannual	Semiannual
Chloride	mg/l	Grab	Semiannual	Semiannual
Sulfate	mg/l	Grab	Semiannual	Semiannual
Sodium	mg/l	Grab	Semiannual	Semiannual
Iron	mg/l	Grab	Semiannual	Semiannual
Manganese	mg/l	Grab	Semiannual	Semiannual
Fluoride	mg/l	Grab	Semiannual	Semiannual
Boron	mg/l	Grab	Semiannual	Semiannual

E. RECLAIMED WATER USERS SUMMARY REPORT

A reclaimed water users summary report shall be submitted quarterly containing the following information:

1. **Reclaimed water use site summary information**

The following information shall be submitted for each reclaimed water use site.

a. Name of the reclaimed water reuse site
b. Owner of the reclaimed water use facility
c. Address of the reuse site
d. Name of the reclaimed water user supervisor
e. Phone number of the on-site water user supervisor
f. Mailing address, if different from site address
g. Basin Plan name of ground water basin underlying the reuse site
h. Volume of reclaimed water delivered to the reuse site on a monthly basis

2. **Reclaimed Water Use Summary Information**

a. Total gallons of reclaimed water supplied to all reclaimed water users for each month of the reporting period.

b. Total number of reclaimed water user sites.

3. **Reclaimed water user site inspections**

Number of reclaimed water reuse site inspections conducted by discharger/producer staff and identification of sites inspected for the reporting period.

4. **Reclaimed water user violations of the discharger/producer's rules and regulations.**

The discharger/producer shall identify all reclaimed water users known by the discharger/producer to be in violation of the discharger/producer's rules and regulations for reclaimed water users. The report shall include a description of the noncompliance and its cause, including the period of noncompliance, and if the noncompliance has not been corrected; the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance.

F. ANNUAL SUMMARY OF MONITORING DATA

By January 30 of each year, the discharger shall submit an annual report to the Executive Officer. The report shall contain both tabular and graphical summaries of the monitoring data obtained during the previous year. In addition, the discharger shall discuss the compliance record and the corrective actions taken or planned which may be needed to bring the discharge into full compliance with the waste discharge requirements of this Order.

G. REPORT SCHEDULE

Monitoring reports shall be submitted to the Executive Officer in accordance with the following schedule:

Reporting Frequency	Report Period	Report Due
Monthly	January, February, March, April, May, June, July, August, September, October, November, December	By the 30th day of the following month
Quarterly	January - March April - June July - September October - December	April 30th July 30th, October 30th January 30th
Semiannual	January - June July - December	July 30th January 30th
Annually	January-December	January 31st

Monitoring reports shall be submitted to:

California Regional Water Quality Control Board
San Diego Region
9771 Clairemont Mesa Blvd., Suite B
San Diego, CA 92124-1331

Ordered by _____
ARTHUR L. COE
Executive Officer

APPENDIX F
CULTURAL RESOURCE SURVEY REPORT

County Application #

FORM NO. 1

CULTURAL RESOURCE SURVEY REPORT FORM

COUNTY OF SAN DIEGO

(All responses must be typed. Attach additional sheets if necessary. All graphics must meet American Antiquity Standards.)

Completed by:

Richard L. Carrico, SOPA	Richard L. Carrico	February 22, 1996
Name	**Signature**	**Date**

Date of initial SOPA registration: 4/78

General Information

A. Name of Applicant: Valley Center Municipal Water District

Address: 29300 Valley Center Road
City: Valley Center **State:** CA **Zip:** 92082
Phone Number: (619) 749-1600

B. Name of Organization/Individual completing this form:

Brian F. Mooney Associates and Robert Case
Address: 9903-B Businesspark Avenue
City: San Diego **State:** CA **Zip:** 92131
Phone Number: (619) 578-8964

C. Project Location

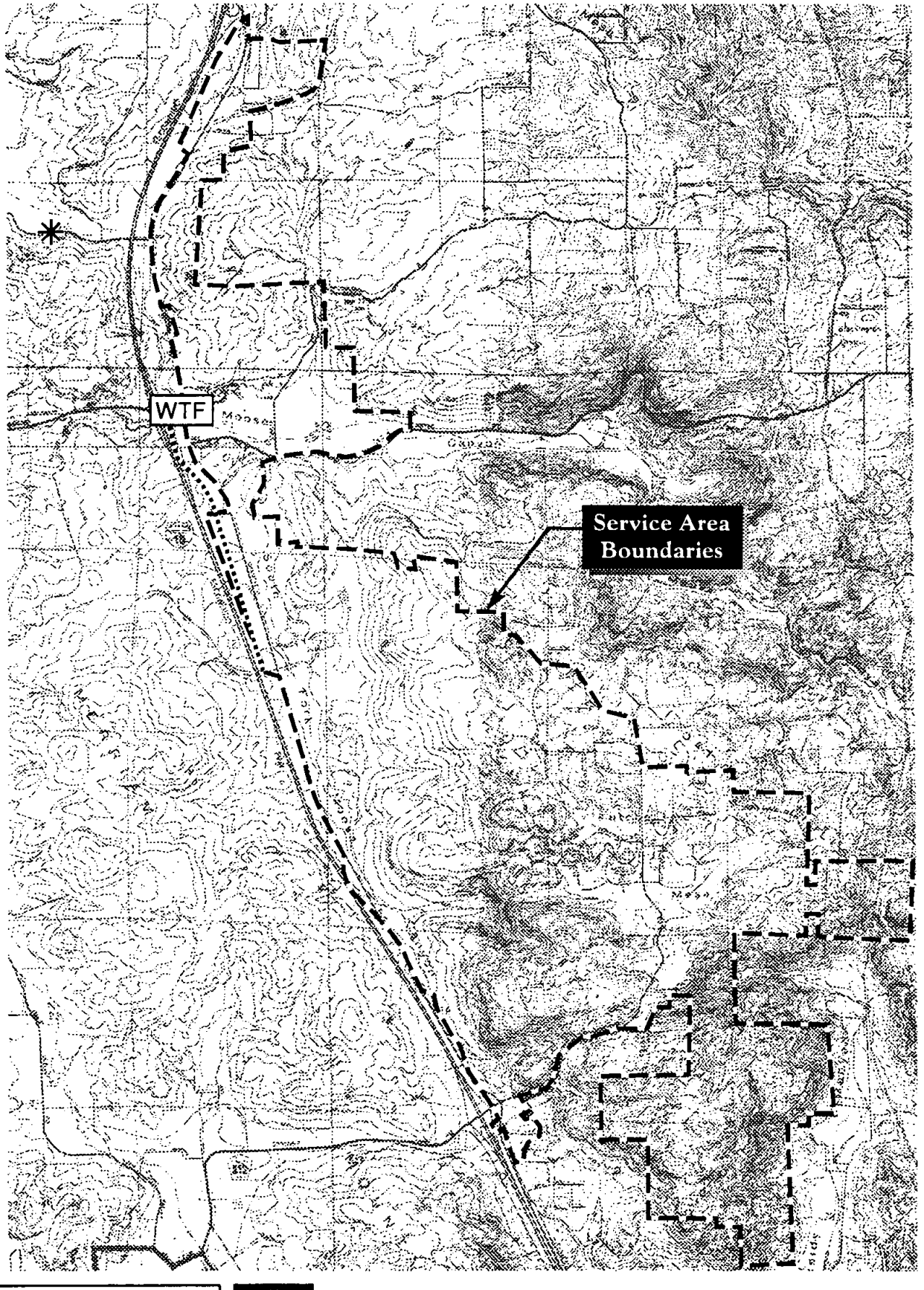
1. **The Property is located primarily on the** N S E W **(circle one) side of** Interstate 15 **between** Protea Gardens Road on the south, Alps Way on the east, **and** Palos Verdes Drive on the north.

   Street address (if any): Not applicable.

2. **Complete assessors parcel reference:** Not applicable.

   Book: **Page:** **Parcel(s):**

3. **Attach a current U.S.G.S. quadrangle map showing the project boundaries accurately plotted.** See Figure 1.



Brian F. Mooney Associates

N

0 2000' 4000'

Figure 1
Project Boundaries

SOURCE: USGS 7.5' Quad Maps (San Marcos, Valley Center, Bonsall & Pala)

Project Description

A. **Describe in detail the main features of the project. This description should adequately reflect the ultimate use of the site in terms of all construction and development, verifiable by submitted drawings/plans. If the project will be phased, the anticipated phasing schedule should be described.** The proposed project consists of the annexation of two small contiguous areas between I-15 and SR-395 combined with implementation of phased upgrades and expansion of the existing Lower Moosa Canyon Wastewater Treatment Plant (LMCWTP) to 1.0 mgd, installation of sewer collection and trunklines, and reclaimed water distribution lines.

B. **Proposed site use:** Facility improvements are proposed in areas currently developed with the existing treatment plant facilities, roadways, residential, commercial, and recreational uses. Trunk and collector sewer lines and reclaimed water distribution lines will be placed within existing right-of-ways. Plant facility improvements will be located on the existing LMCWTP site.

1. **Total area acres** Not applicable - primarily a corridor survey.

2. **Number of buildings** Not applicable.

C. **Topography and grading**

1. **Percent of area previously graded:** 100%

2. **Slope Classification:** Not applicable - previously graded.

	Existing
0-15%:	%
16-25%:	%
Over 25%:	%

3. **Area to be graded if archaeological resources could be impacted:** Not applicable.

D. **Describe all off-site improvements necessary to implement the project, and their points of access or connection to the project site. These improvements include: new streets, street widening, extension of gas, electric, sewer, and water lines, cut and fill slopes, and pedestrian and bicycle paths.**

None, all improvements will affect only existing facilities and right-of-ways.

E. Additional Information

1. **Use:** Since the project area includes most of the water district, applicable uses will be marked with an "X".

   Project relationship to adjacent areas: give compass direction in blanks as appropriate:

Private dwellings: X	**Multiple dwellings:** X
Commercial: X	**Industrial:**
Mobile Home: X	**Vacant:** X
Agriculture:	**Indian Reservation:**

2. **Environmental setting:**

   Does the project site contain any of the following physical features?

   Rock Outcrops: Yes **Streams:** Yes **Oak Groves:** Yes

3. **Briefly describe the biological setting (note Community, Barlious and Major, 1980):** The project area is characterized by steep broken foothills. Numerous rock outcroppings and dense chaparral blanket the steep slopes. Various native tree species including oaks, sycamore, and cottonwood, thrive along the South Fork Moosa Canyon creek and its tributaries.

4. **What is the distance from the central portion of the property to the nearest water source:** variable

   Describe water source: Annual and perennial streams

5. **Briefly describe the geologic setting:** Portions of the property consists of Mesozoic granitic rock of the southern California batholith together with Mesozoic basic intrusive rock. Also occurring in the project area are outcrops of Jurassic/Triassic metavolcanic rocks while recent alluviums are found in the major floodplains.

Survey Description

Date of Survey: February 8-9, 1996
Institution/individual responsible: Brian F. Mooney Associates/Richard L. Carrico

Individual in charge: Robert Case

Person hours required to complete field work:

Number of acres surveyed: Not applicable - primarily a corridor survey.

1. **Intensity of Survey (Describe transect technique or submit survey route maps):** Intensive systematic survey using transects at 5 to 10 intervals, with special attention given to bedrock outcrops in those areas deemed to have any potential for intact cultural resources. Completely developed residential and commercial areas were not surveyed due to extensive previous disturbances and prior mitigative measures taken (refer to **Previous Studies** listed below).

2. **If area surveyed is different from project area explain:**

Number of resources found: (ATTACH A COPY OF THE RESOURCE FORM FOR EACH RESOURCE INDICATED)

Isolates: None.

Prehistoric sites: None.

Historic sites: None.

Other resources (Specify): None.

Background research (Previous Studies within one mile):

Author	Title	Results (No. and type of Sites)
Olsen, Richard	Archaeological Investigation of Deer Springs Estates, Twin Oaks Valley, San Diego County	No resources
Berryman, J	Archaeological Test Program for Sites SDI-5190, SDI-5191, and SDI-11053 Phase II Test Results	(3) sites evaluated
Berryman, S	Mountain Meadow Road	No resources
Berryman, S	Untitled report for Bruce Cain	No resources
Bowden, C	Significance Assessment of SDI-11463 and SDI-11464 for the Bressa Del Mar Development, San Diego County	(2) sites evaluated

Author	Title	Results (No. and type of Sites)
Banks, T	An Archaeological Survey of the Escajeda Property Near Moosa Canyon, San Diego County	No resources
Carrico, R	Archaeological Survey of the Teleklew Productions Property (southern section)	Bedrock milling site
Carrico, R	Archaeological Survey of Indian Hill Lot Split, W-459	(1) site evaluated
Carrico, R	Phase I Archaeological Investigation at Rancho Viejo, Escondido, California	(20+) sites evaluated
Carrico, R	Archaeological Survey of Indian Hill Lot Split, W-459	(1) site evaluated
Cook, R	Final Report, Archaeological Test Excavations in Moosa Canyon, San Diego County	(3) sites evaluated
Cook, R	Preliminary Report: Archaeological Test Excavations at 4-SDI-4558, 4562, and 4562 A	(2) sites evaluated
Corum, J	An Archaeological Survey Report for a Portion of Proposed Interstate 15	No resources
Cupples, S	An Archaeological Survey Report for Proposed Construction of Interstate 15	(3) sites evaluated
Cupples, S	Archaeological Survey Report for a Portion of Proposed Interstate 15	(5) sites evaluated
Gallegos, D	Archaeological Testing for Site Significance for Site SDI-4806, All Seasons Campground, Escondido, California	(1) site evaluated
Gallegos, D	Cultural Resource Inventory for Proposed Pipeline 2/2A Alternative Alignments, San Diego County	No resources
Gross, T	Cultural Resource Inventory: Mountain Meadow Road Realignment, Valley Center, San Diego County	(2) sites evaluated
Hatley, M	Cultural Resources Impact Mitigation Report for Circle R Ranch	(8) sites evaluated
McCoy, L	Archaeological Survey of the Barron Ranch	No resources
Kyle, C	Cultural Resource Survey of Moosa Canyon Recreation Park, San Diego County	No resources

Author	Title	Results (No. and type of Sites)
Owen, D	Negative Archaeological Survey Report	No resources
Smith, B	An Archaeological Survey of the 40-acre Bell Lot Split, County of San Diego	(1) site evaluated
SRS, Inc.	Archaeological Resource Assessment for the Jesmond Dene Development Project, San Diego County	(2) sites evaluated
Walker, C	A Cultural Resource Study of Proposed Access Roads Between the Escondido Substation and the Proposed Substation Site at Rainbow	(3) sites evaluated
White, C	Addendum Phase I Archaeological Survey Report for a Proposed Left-Turn Pocket on Existing Route 15 at Gopher Canyon Road	(2) sites evaluated
Lettieri-McI	Extended Initial Study for Cedar Ranch	(1+) sites evaluated
NHPC, Inc.	Draft Environmental Impact Report, Sullins Technology Park	(2) sites evaluated
Brian Mooney	Extended Initial Studies for the Circle R Specific Plan Amendment	(1) site evaluated
PRC Toups	Draft Environmental Impact Report: Hidden Meadow (Final Phase)	Unknown
Westec Inc.	Monte Cerno Draft Environmental Impact Report, Valley Center	Unknown
Westec, Inc.	Appendices: Monte Cerno Draft Environmental Impact Report, Valley Center	Unknown

List repositories from which record checks and/or historical documents were obtained and attach copies of the results.

South Coastal Information Center at SDSU
San Diego Museum of Man

List conditions that may have affected the accuracy of the survey results.

Surface visibility was good to excellent throughout most of the property. The few areas of dense vegetation did not affect the overall survey results.

MEMO February 14, 1996

To: Valley Center Municipal Water District
From: Richard L. Carrico, Brian F. Mooney Associates

Subj: Cultural Resources Survey for the Lower Moosa Canyon Wastewater Treatment Plant and Pipeline Upgrade Project

A cultural resources survey has been conducted by Brian F. Mooney Associates of the Lower Moosa Canyon Wastewater Treatment Plant and associated pipeline upgrades for the Valley Center Municipal Water District. A two stage approach was used to accomplish the work. First, a site record search was conducted at both the South Coastal Information Center (SCIC) at San Diego State University and at the San Diego Museum of Man to identify cultural resources on or near the sewer treatment facility or the pipeline right-of-ways. Secondly, physical survey was performed in those areas where it appeared that the proposed project might impact a known recorded resource. The following paragraphs discuss the methods and results obtained from this cultural resources survey.

The field portion of this study was carried out between February 7 and 13, 1996 by Robert Case and Don Bignell. All segments of pipeline route were driven to establish whether there was adjacent open space or instead was built out with curbs, sidewalks, etc. Only those segments with open space were checked and two of these were intensively surveyed due to the presence of previously recorded sites. These segments occurred along Old Highway 395 between Old Castle Road and the All Seasons Campground. The segment near the All Seasons Campground consists of a roadcut which is already below the site level and therefore additional trenching will have no impact. Most of the second segment is raised roadbed. In this circumstance, trenching could potentially reach native soils and thus disrupt portions of the site. Previous researchers felt that there was a strong possibility of encountering prehistoric human remains and it is therefore recommended that all trenching in this segment be closely monitored by a qualified archaeologist.

In addition to the pipeline corridor, the existing treatment plant and adjacent area was surveyed. In particular, the eastern and southeastern boundary of the existing facility and the proposed forebay addition were examined due to their proximity to a previously recorded site. The survey was negative; the area of the previously recorded site has since been developed into homes while the proposed southerly addition comprises the lowest terrace and streambed of an intermittent stream which flows into Moosa Creek. Given the nature of the improvements proposed in the developed areas of the existing facility and the absence of cultural resources in the proposed southern addition, no further mitigative measures are recommended.

APPENDIX G
ENVIRONMENTAL CHECKLIST

ENVIRONMENTAL CHECKLIST FORM

1. **Project Title:** Lower Moosa Canyon Wastewater Reclamation Facility

2. **Lead Agency Name and Address:** Valley Center Municipal Water District

3. **Contact Person and Phone Number:** Wally Grabbe (619) 749-1600

4. **Project Location:** Reclamation Facility: 8711 Circle R Drive, Escondido CA 92026
   Percolation Ponds: East of I-15 on Camino del Rey
   Pipelines: Western limit of VCMWD boundaries within the I-15 Corridor

5. **Project Sponsor's Name and Address:** Valley Center Municipal Water District
   29300 Valley Center Road
   P.O. Box 67
   Valley Center, CA 92082

6. **General Plan Designation:**
   Treatment Plant: 17 Estate
   Percolation Ponds: 24 Impact Sensitive
   Pipelines: Multiple Designations/includes - 1, 2 Residential; 13 General Commercial; 17 Estate; 18 Multiple Rural Use; 21 SPA; 24 Impact Sensitive; 26 Visitor Serving Commercial

7. **Zoning:**
   Treatment Plant: RV2 Variable Family Residential (2 du/acre)
   Percolation Ponds: A70 Limited Agriculture
   Pipelines: Multiple Zones/includes - RV2, RV6, RR.5, A70, C36, C40, S88

8. **Description of Project:** *(Describe the whole action involved, including but not limited to later phases of the project, and any secondary, support, or off-site features necessary for its implementation. Attach additional sheets if necessary.)*

   The proposed project consists of the following actions and facility improvements:

   - **Annexation of small islands located adjacent to the service area which would be logically served by the District and creation of assessment district boundaries** to include all property within a 1.0 mgd plant service area. Annexation will only occur if existing district provider and LAFCO agree.

   - **Certification of the Moosa Canyon Sewage Treatment Plant Expansion EIR.**

   - **Wastewater treatment facility and percolation pond improvements.**

     Phase I (0.25-0.43 mgd capacity) includes solids handling, odor control, chlorination and other facility improvements at the Treatment Plant which will allow the plant to process up to 0.43 mgd of secondary treated effluent. Flows are limited to less than the 0.5 mgd allowed by an existing MUP due to groundwater basin limitations and Title 22 waste discharge requirements. RWQCB Orders 95-32 and Addendum allow treatment of up to 1.0 mgd. Improvements will provide service to an estimated 435 additional EDUs above the 1,720 currently being served.

Phase II allows improvements which provide from 0.44 mgd to 0.63 mgd flow capacity and includes: flow equalization and tertiary treatment facilities, a control building, generator, and other incidental improvements at the Treatment Plant site. Phase II also includes construction of reclaimed water distribution lines to the Castle Creek and Lawrence Welk Golf Courses, groundwater extraction wells and pumpback facilities to transport water from the percolation pond site for distribution. Improvements will increase service capacity by 995 EDUs, allowing a total of 3,150 EDUs to be served.

Phase III Treatment Plant improvements (0.63-0.75 mgd capacity) include the addition of an aeration blower, modification of the RAS/WAS pump station, and a second flow equalization tank. One of the three existing percolation ponds will be lined to provide seasonal storage of tertiary treated water to allow discharge of up to 0.75 mgd. Flows in excess of 0.75 will require the District to pursue an "Intermittent Live Stream Discharge" permit from the RWQCB. Approval will eliminate the need to create additional seasonal storage capacity or provide nutrient removal facilities necessary for continuous live stream discharge. Improvements will increase service capacity by an additional 600 EDUs above that provided by Phase II improvements, serving a total of 3,800 EDUs.

Phase IV ((0.75-1.0 mgd capacity). Treatment Plant improvements include an additional RAS pump, filter and ultraviolet disinfection equipment. Nutrient removal facilities may be required in anticipation of meeting intermittent live stream discharge permit requirements. Unit processors will be sized to provide an ultimate 1.0 mgd capacity.

- **Construction of sewer trunk and collector pipelines:** All sewer collection lines will be constructed in existing roadway right-of ways and will be designed and constructed in accordance with the requirements of Title 22, Division 4 of the California Code of Regulations with a minimum cover of 36 inches. The District will extend a gravity feed line from the Moosa Canyon Plant to the Castle Creek Golf Course and a pressure pipeline from the forebay effluent pump station to the Lawrence Welk Golf Course.

- **Construction of reclaimed water distribution pipelines:** Phase II - lines will be constructed to deliver reclaimed water to existing reservoirs (open ponds) at the Castle Creek and Lawrence Welk Golf Courses.

9. **Surrounding Land Uses and Setting:** *(Briefly describe the project's surroundings.)*

The project will serve a generally rural area within the unincorporated portion of northern San Diego County. The project site, including the wastewater reclamation facility, percolation ponds, and all pipelines, is located in the I-15 corridor, north of the City of Escondido, in an area characterized by steep broken foothills, numerous rock outcroppings, and steep slope areas covered by a dense chaparral. Drainage within the service area is primarily into the South Fork Moosa Canyon. A small portion of the service area just north of the Hidden Meadows development drains into the main fork of Moosa Canyon. Various native tree species including oak, sycamore, and cottonwood thrive in the South Fork Moosa Canyon Creek drainage area and its tributaries.

Development within the service area has occurred primarily within specific planning areas. Visitor serving commercial uses are located adjacent to the I-15, as are resort communities. Residential uses occupying large lots are customary, with the exception of the Hidden Meadows specific planning area. Land use designations in the area include 13-General Commercial, 17-Estate, 18-Multiple Rural

Use, 21-SPA, 24-Impact Sensitive, and 26-Visitor Serving Commercial. The percolation ponds are located in a 24-Impact Sensitive area, as designated by the Bonsall Community Plan map, within an 11-acre site having a collective volume of approximately 60 acre-feet.

The existing Treatment Plant is located on Circle R Drive, bounded on the east and south by the Castle Creek Resort and Golf Course, on the west by a fire station and I-15, and on the north by Circle R Drive and steeply sloping, undeveloped hillsides.

10. **Other agencies whose approval is required:** *(e.g., permits, financing approval, or participation agreement.)*

- County of San Diego approval to modify the existing Major Use Permit (MUP) for the Lower Moosa Canyon Water Reclamation Facility;
- California Department of Fish and Game (CDFG) 1603 Streamcourse Alteration permits; and
- LAFCO approval to extend the Valley Center Municipal Water District boundaries to provide services to limited areas located between highways I-15 and SR-395. These areas are adjacent to existing and proposed improvements.

Environmental Factors Potentially Affected:

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact" as indicated by the checklist on the following pages.

X Land Use and Planning	☐ Transportation/Circulation	☐ Public Services
☐ Population and Housing	X Biological Resources	☐ Utilities and Service Systems
☐ Geological Problems	X Energy and Mineral Resources	X Visual/Aesthetics
X Water	☐ Hazards	X Cultural Resources
☐ Air Quality	☐ Noise	☐ Recreation
X Public Health and Safety	X Mandatory Findings of Significance	X Odor
X Hydrology	X Growth Inducement	

Determination:

Potentially Significant Impacts Requiring Analysis

Biological Resources because direct or indirect impacts may occur as a result of construction of the forebay in an area containing willow riparian/oak riparian woodland habitat and noise impacts could occur to sensitive bird species during construction of pipelines though areas containing sage scrub. Indirect impacts from siltation and runoff into blueline streams could also occur during pipeline installation.

Odor associated with the operation of the Treatment Plant has been a source of community concern and the District has received complaints from adjacent property owners and residents.

Hydrology impacts could occur during construction of the forebay which preliminary design plans show to abut the 100-year floodway of Moosa Creek. Any construction within the mapped 100-year floodplain is inconsistent with the San Diego County Conservation Element Policies and Resource Protection Ordinance which protects sensitive resources such as floodplains and wetlands.

Land Use - A modification of an existing Major Use Permit is required to complete Treatment Plant improvements. If the project conflicts with existing environmental or community plans and goals, significant impacts could result.

Visual/Aesthetics - Adjacent property owners have expressed concern regarding the potential for visual impacts as a result of Treatment Plant improvements. The EIR will discuss potential impacts within the I-15 corridor and to views from adjacent properties.

Public Health/Safety - The existing treatment plant requires the use and storage of chlorine gas; generates extremely low levels of hydrogen sulfide, ammonia and other organic and inorganic volatile substances during daily operations; and processes and disposes of dried sludge with no adverse effect on human health. The project will be evaluated to determine if treatment plant improvements could: result in an increased health and safety risk, increase the use or disposal of materials which pose a hazard, or interfere with emergency response or evacuation plans.

Water Quality may be affected during the construction of the Treatment Plant or pipelines. The project will incrementally increase the total area of impervious surfaces at the Treatment Plant, proportionately increasing the amount of surface runoff to Moosa Creek. Buildout of the project may require the District to pursue an "Intermittent Live Stream Discharge" Permit from the RWQCB.

Cultural Resources are located throughout the District's service area and could be affected by treatment plant expansion to the south of existing facilities or pipeline construction.

Energy consumption will increase with Treatment Plant improvements. Appendices F and G of the CEQA Guidelines provide guidance in examining potentially significant energy implications. Guidelines recommend that the project be evaluated to determine if implementation will substantially increase the consumption of fuel or energy, increase demands upon existing sources of energy, or require the development of new sources of energy.

Growth Inducement. The project proposes a long range plan to construct treatment plant facilities, sewage collection lines and reclaimed water distribution lines which will accommodate growth as allowed by the San Diego County General Plan.

Impacts found to be not significant include: noise, traffic, and vector control.

Noise: The expansion and operation of the existing treatment plant, pipeline collection system and seasonal storage pond will not result in significant noise impacts. Project design includes features to reduce or eliminate sources of noise at the treatment plant. Facility operation will not require any additional employees nor will it generate additional traffic-related noise.

Traffic: Traffic volumes generated by the expanded reclamation plant and pump stations will not increase above existing levels.

Vector Control: Improvements to the existing treatment plant include features to control odors and, as a consequence, serve to control areas where insects could breed. Standard housekeeping practices such as daily washing of areas where particles of unstable organic material may accumulate, further aid in the control of insects.

On the basis of this initial evaluation:

It is found that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared. ☐

It is found that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because the mitigation measures described on an attached sheet have been added to the project. A NEGATIVE DECLARATION will be prepared. ☐

It is found that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required. X

It is found that the proposed project MAY have a significant effect(s) on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets, if the effect is a "potentially significant impact" or "potentially significant unless mitigated." An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed. ☐

It is found that although the proposed project could have a significant effect on the environment, there WILL NOT be a significant effect in this case because all potentially significant effects (a) have been

analyzed adequately in an earlier EIR pursuant to applicable standards and (b) have been avoided or mitigated pursuant to that earlier EIR, including revisions or mitigation measures that are imposed upon the proposed project. □

Evaluation of Environmental Impacts:

1) A brief explanation is required for all answers except "No Impact" answers that are adequately supported by the information sources a lead agency cites in the parentheses following each question. A "No Impact" answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g. the project falls outside a fault rupture zone). A "No Impact" answer should be explained where it is based on project-specific factors as well as general standards (e.g. the project will not expose sensitive receptors to pollutants, based on a project-specific screening analysis).

2) All answers must take account of the whole action involved, including off-site as well as on-site, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.

3) "Potentially Significant Impact" is appropriate if there is substantial evidence that an effect is significant. If there are one or more "Potentially Significant Impact" entries when the determination is made, an EIR is required.

4) "Potentially Significant Unless Mitigation Incorporated" applies where the incorporation of mitigation measures has reduced an effect from "Potentially Significant Impact" to a "Less than Significant Impact." The lead agency must describe the mitigation measures, and briefly explain how they reduce the effect to a less than significant level (mitigation measures from Section XVII, "Earlier Analyses," may be cross-referenced).

5) Earlier analyses may be used where, pursuant to the tiering, program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR or negative declaration per Section 15063(c)(3)(D). Earlier analyses are discussed in Section XVII at the end of the checklist.

6) Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g., general plans, zoning ordinances). Reference to a previously prepared or outside document should, where appropriate, include a reference to the page or pages where the statement is substantiated. See the sample question below. A source list should be attached, and other sources used or individuals contacted should be cited in the discussion.

7) This is only a suggested form, and lead agencies are free to use different ones.

Issues (and Supporting Information Sources):	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the proposal result in potential impacts involving:				
Landslides or mudslides? (1,6) *(Attached source list explains that 1 is the general plan, and 6 is a USGS topo map. This answer would probably not need further explanation.)*	☐	☐	☐	X
I. LAND USE AND PLANNING. Would the proposal:				
a) Conflict with general plan designation or zoning? (1,2,4)	☐	☐	☐	X
b) Conflict with applicable environmental plans or policies adopted by agencies with jurisdiction over the project? (1,7,8)	☐	☐	☐	X
c) Be incompatible with existing land uses in the vicinity? (see Land Use)	X	☐	☐	☐

Issues (and Supporting Information Sources):	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
d) Affect agricultural resources or operations (e.g., impacts to soils or farmlands, or impacts from incompatible land uses)? (1)	☐	☐	☐	X
e) Disrupt or divide the physical arrangement of an established community (including a low-income or minority community)? (1)	☐	☐	☐	X
II. POPULATION AND HOUSING. Would the proposal:				
a) Cumulatively exceed official regional or local population projections? (1,4,11)	☐	☐	☐	X
b) Induce substantial growth in an area either directly or indirectly (e.g., through projects in an undeveloped area or extension of major infrastructure)? (see Growth Inducement)	X	☐	☐	☐
c) Displace existing housing, especially affordable housing? (1)	☐	☐	☐	X
III. GEOLOGIC PROBLEMS. Would the proposal result in or expose people to potential impacts involving:				
a) Fault rupture? (1,10)	☐	☐	☐	X
b) Seismic ground shaking? (1,10)	☐	☐	☐	X
c) Seismic ground failure, including liquefaction? (1,9,10)	☐	☐	☐	X
d) Seiche, tsunami, or volcanic hazard? (1)	☐	☐	☐	X
e) Landslides or mudflows? (1,9)	☐	☐	☐	X
f) Erosion, changes in topography or unstable soil conditions from excavation, grading, or fill? (12	☐	X	☐	☐
g) Subsidence of the land? (12,14)	☐	☐	☐	X
h) Expansive soils? (14)	☐	☐	☐	X
i) Unique geologic or physical features? (2)	☐	☐	X	☐
IV. WATER. Would the proposal result in:				
a) Changes in absorption rates, drainage patterns, or the rate and amount of surface runoff? (12,15)	☐	X	☐	☐
b) Exposure of people or property to water related hazards such as flooding? (6)	☐	☐	☐	X
c) Discharge into surface waters or other alteration of surface water quality (e.g., temperature, dissolved oxygen or turbidity)? (see Water Quality & Hydrology)	X	☐	☐	☐
d) Changes in the amount of surface water in any water body? (12,15)	☐	X	☐	☐
e) Changes in currents, or the course of direction of water movements? (6,12)	☐	☐	☐	X
f) Change in the quantity of ground waters, either through direct additions or withdrawals, or through interception of an aquifer by cuts or excavations, or through substantial loss of groundwater recharge capability? (8,12,15)	☐	X	☐	☐

Issues (and Supporting Information Sources):	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
g) Altered direction or rate of flow of groundwater? (8,15)	☐	☐	X	☐
h) Impacts to groundwater quality? (see Water Quality)	X	☐	☐	☐
i) Substantial reduction in the amount of groundwater otherwise available for public water supplies? (8)	☐	X	☐	☐
V. AIR QUALITY. Would the proposal:				
a) Violate any air quality standard or contribute to an existing or projected air quality violation? (16)	☐	X	☐	☐
b) Expose sensitive receptors to pollutants? (12)	☐	X	☐	☐
c) Alter air movement, moisture, or temperature, or cause any change in climate? (12)	☐	☐	☐	X
d) Create objectionable odors? (see Odor)	☐	X	☐	☐
VI. TRANSPORTATION/CIRCULATION. Would the proposal result in:				
a) Increased vehicle trips or traffic congestion? ( )	☐	☐	☐	X
b) Hazards to safety from design features (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)? ( )	☐	☐	☐	X
c) Inadequate emergency access or access to nearby uses? ( )	☐	☐	☐	X
d) Insufficient parking capacity on-site or off-site? ( )	☐	☐	☐	X
e) Hazards or barriers for pedestrians or bicyclists? ( )	☐	☐	☐	X
f) Conflicts with adopted policies supporting alternative transportation (e.g., bus turnouts, bicycle racks)? ( )	☐	☐	☐	X
g) Rail, waterborne or air traffic impacts? ( )	☐	☐	☐	X
VII. BIOLOGICAL RESOURCES. Would the proposal result in impacts to:				
a) Endangered, threatened, or rare species or their habitats (including but not limited to plants, fish, insects, animals, and birds)? (see Bio. Resources)	X	☐	☐	☐
b) Locally designated species (e.g., heritage trees)? ( )	☐	☐	☐	X
c) Locally designated natural communities (e.g., oak forest, coastal habitat, etc.)? (see Bio. Resources)	X	☐	☐	☐
d) Wetland habitat (e.g., marsh, riparian, and vernal pool)? (see Bio. Resources)	X	☐	☐	☐
e) Wildlife dispersal or migration corridors? ( )	☐	☐	☐	X
VIII. ENERGY AND MINERAL RESOURCES. Would the proposal:				
a) Conflict with adopted energy conservation plans? ( )	☐	☐	☐	X
b) Use non-renewable resources in a wasteful and inefficient manner? ( )	☐	☐	☐	X
c) Result in the loss of availability of a known mineral resource that would be of future value to the region and the residents of the State? (Energy)	X	☐	☐	☐

Issues (and Supporting Information Sources):	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
IX. HAZARDS. Would the proposal involve:				
a) A risk of accidental explosion or release of hazardous substances (including, but not limited to: oil, pesticides, chemicals, or radiation)? (see Public Health & Safety)	X	☐	☐	☐
b) Possible interference with an emergency response plan or emergency evacuation plan? ( )	☐	☐	☐	X
c) The creation of any health hazard or potential health hazard? ( )	☐	X	☐	☐
d) Exposure of people to existing sources of potential health hazards? (see Public Health & Safety)	X	☐	☐	☐
e) Increased fire hazard in areas with flammable brush, grass, or trees? ( )	☐	☐	☐	X
X. NOISE. Will the proposal result in:				
a) Increases in existing noise levels? (3,12)	☐	X	☐	☐
b) Exposure of people to severe noise levels? ( )	☐	☐	☐	X
XI. PUBLIC SERVICES. Will the proposal have an effect upon, or result in a need for new or altered government services in any of the following areas:				
a) Fire protection? ( )	☐	☐	☐	X
b) Police protection? ( )	☐	☐	☐	X
c) Schools? ( )	☐	☐	☐	X
d) Maintenance of public facilities, including roads? ( )	☐	☐	☐	X
e) Other governmental services? ( )	☐	☐	☐	X
XII. UTILITIES AND SERVICE SYSTEMS. Would the proposal result in a need for new systems or supplies, or substantial alterations to the following utilities:				
a) Power or natural gas? ( )	☐	☐	☐	X
b) Communications systems? ( )	☐	☐	☐	X
c) Local or regional water treatment or distribution facilities? (12)	☐	☐	X	☐
d) Sewer or septic tanks? ( )	☐	☐	☐	X
e) Storm water drainage? ( )	☐	☐	☐	X
f) Solid waste disposal? (12)	☐	☐	X	☐
g) Local or regional water supplies? ( )	☐	☐	☐	X
XIII. AESTHETICS. Would the proposal:				
a) Affect a scenic vista or scenic highway? (1,2)	X	☐	☐	☐
b) Have a demonstrable negative aesthetic effect? (see Visual Aesthetics)	X	☐	☐	☐
c) Create light or glare? ( )	☐	☐	☐	X

Issues (and Supporting Information Sources):	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
XIV. CULTURAL RESOURCES. Would the proposal:				
a) Disturb paleontological resources? ( )	☐	☐	☐	X
b) Disturb archaeological resources? (see Cultural Resources)	X	☐	☐	☐
c) Affect historical resources? ( )	☐	☐	☐	X
d) Have the potential to cause a physical change which would affect unique ethnic cultural values? ( )	☐	☐	☐	X
e) Restrict existing religious or sacred uses within the potential impact area? ( )	☐	☐	☐	X
XV. RECREATION. Would the proposal:				
a) Increase the demand for neighborhood or regional parks or other recreational facilities? ( )	☐	☐	☐	X
b) Affect existing recreational opportunities? ( )	☐	☐	☐	X
XVI. MANDATORY FINDINGS OF SIGNIFICANCE.				
a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory?	X	☐	☐	☐
b) Does the project have impacts which are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)	☐	X	☐	☐
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	X	☐	☐	☐

XVII. EARLIER ANALYSES.

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 per Section 15063(c)(3)(D). In this case a discussion should identify the following on attached sheets:

a) **Earlier analyses used.** Identify earlier analyses and state where they are available for review.
b) **Impacts adequately addressed.** Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards, and state whether such effects were addressed by mitigation measures based on the earlier analysis.
c) **Mitigation measures.** For effects that are "Less than Significant with Mitigation Incorporated," describe the mitigation measures which were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the project.

Explanation of Answers:

A brief explanation is required for all answers except "No Impact" answers that are adequately supported by the information sources a lead agency cites in the parentheses following each question.

Supporting Information Sources:

Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g., general plans, zoning ordinances). Reference to a previously prepared or outside document should, where appropriate, include a reference to the page or pages where the statement is substantiated. See the sample question below. A source list should be attached, and other sources used or individuals contacted should be cited in the discussion.

1 County of San Diego General Plan/Community Plans for Valley Center and North County Metropolitan Subregion
2 I-15 Corridor Plan
3 County of San Diego Noise Ordinance
4 County Zoning Ordinance
5 CEQA/Guidelines
6 San Diego County Flood Control Map
7 Multiple Habitat Conservation Plan
8 Groundwater Basin Management Plan for the Lower Moosa Canyon
9 County of San Diego - Landslides Map
10 County of San Diego - Faults and Epicenters Map
11 SANDAG Series VIII Population and Household Forecasts for the North County Metro and Valley Center Community Plan Areas
12 *Engineering Report for the Moosa Canyon Reclamation Facilities*, NBS Lowry 1993
13 NPDES Permit Requirements
14 USGS Soils Maps
15 Regional Water Quality Control Board - Order No. 84-46
16 Regional Air Quality Strategies

APPENDIX H
MITIGATION MONITORING PROGRAM

MITIGATION MONITORING PROGRAM
FOR THE
LOWER MOOSA CANYON WATER RECLAMATION FACILITY
(SCH# 95121009; MUP# 73-18W[1])

Prepared for:

Valley Center Municipal Water District
29300 Valley Center Road
Valley Center, CA 92082

Prepared by:

Brian F. Mooney Associates
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San Diego, California 92131
(619) 578-8964

May 6, 1996

MITIGATION MONITORING PROGRAM

Mitigation measures which would reduce or eliminate potential environmental impacts of the proposed project have been identified throughout this report. The project proponent is required to implement adopted mitigation measures. In order to ensure compliance, the following mitigation monitoring program has been formulated. This program consists of a checklist followed by a detailed description of the mitigation measures.

The Mitigation Monitoring program is intended to be administered by the Valley Center Municipal Water District (District) for all actions. The County of San Diego Department of Planning and Land Use (DPLU) is responsible for monitoring mitigation measures that are incorporated into the conditions of approval for the Major Use Permit (MUP) Modification which allow expansion of the Treatment Plant site.

The following checklist is intended to be used by the District and DPLU as the appointed monitoring entities. Information contained within the checklist clearly identifies the mitigation measure, delineates the monitoring schedule and defines the conditions required to verify compliance. Following is an explanation of the six columns which constitute the checklist.

Column 1 — Mitigation Measure: An inventory of each mitigation measure is provided with a brief description. The monitor should refer to the corresponding number within the mitigation text for a more detailed description of requirements.

Column 2 — Type: Each mitigation measure is classified as either Project Design Mitigation (PD), Ongoing Mitigation (OM), or Cumulative Mitigation (CM) based upon the following definitions:

- Project Design Mitigation - mitigation which has been incorporated into the project design (e.g., acoustical barriers, road improvements);
- Ongoing Mitigation - mitigation associated with a project over a period of time (e.g., dust control, landscape maintenance);
- Cumulative Mitigation - mitigation which requires monitoring over a greater period of time (e.g., progressive reclamation of mining site).

Column 3 — Monitor: Identifies the agency or department which is responsible for determining compliance with the mitigation measure and informing the responsible agency regarding compliance.

Column 4 — Schedule: As scheduling is dependent upon the progression of the overall project, specific dates are not used within the "Schedule" column. Instead, scheduling

describes a logical succession of events (e.g., prior to occupancy, annual) and if necessary, delineates a follow-up program.

Column 5 — Compliance Criteria: The monitor can easily determine a mitigation measure's completion by referring to "Compliance Criteria". Upon satisfaction of the requirement listed in this column, the mitigation measure is considered complete.

Column 6 — Verification of Compliance: The monitor verifies completion of the particular mitigation measure by initialing and dating in this column. Where the "Schedule" column indicates annual or other ongoing mitigation measures, verification of compliance may not occur until completion of the project. Provision of all required signatures within the Verification of Compliance column signifies conclusion of the monitoring program.

Column 7 — Remarks: The status of ongoing and cumulative mitigation measures is to be documented during each visit. If the space provided is inadequate, the monitoring date and reference to a progress report would be provided in this column. Information provided within progress reports will be helpful in the development of future mitigation programs.

This program is to be adopted by the lead and responsible agencies upon formulation of findings in order to comply with the requirements set forth by Assembly Bill 3180 (Public Resources Code Section 21081.6).

Mitigation Monitoring Checklist

Mitigation Measure		Type	Monitor	Schedule	Compliance Criteria	Verification of Compliance		
						Initials	Date	Remarks
Biology								
A-1	Monitor wetland changes. Obtain Streambed Alteration/ACOE Permits if wetlands impacted at forebay site.	PD	District/DPLU	Prior to forebay construction	Sign-off by qualified biologist no more than one year prior to forebay construction. Obtain Streambed Alteration Agreement/ACOE Permit if impacts to wetlands occur.			
A-2	Monitor forebay site for sensitive species.	PD	District/DPLU	Prior to forebay construction.	Sign-off by qualified biologist no more than one year prior to forebay construction.			
			District	Prior to pipeline construction through areas where species may occur.				
A-3	Monitor Boulder Pass wetlands. Obtain Streambed Alteration/ACOE Permits if wetlands impacted during pipeline installation.	PD	District	Prior to pipeline construction in Boulder Pass	Sign-off by qualified biologist no more than one year prior to forebay construction.			
A-4	Lotus Pond Lane Gnatcatcher Monitoring	PD	District	Prior to pipeline construction on Lotus Pond Lane	Sign-off by qualified biologist no more than one year prior to pipeline construction in Lotus Pond Lane.			
A-5	Avoid/eliminate noise impacts to sensitive bird species	OM	District/DPLU	During construction near sensitive species	Sign-off by qualified biologist			
A-6	Protect wetlands/Treatment Plant Area: Identify erosion control methods to prevent soil, silt, runoff, and sand erosion with the potential to impact wetlands during forebay construction.	OM	District/DPLU	Prior/during construction and revegetation program	Sign-off by qualified biologist to avoid impacts to wetland habitat			
A-7	Protect wetlands/Pipelines: Identify erosion control methods to prevent soil, silt, runoff, and sand erosion with the potential to impact wetlands during pipeline construction.	OM	District	Prior/during construction	Sign-off by qualified biologist to avoid impacts to wetland habitat			

Mitigation Monitoring Checklist

Mitigation Measure		Type	Monitor	Schedule	Compliance Criteria	Verification of Compliance		
						Initials	Date	Remarks
A-8	Construction monitoring of Forebay/Treatment Plant & Pipeline	OM	District/DPLU	During all construction near riparian habitat and sage scrub	Construction easement marked, crews informed of resources, monitor measures for effectiveness, monthly reporting and sign-off by qualified biologist			
Odor								
B-1	Phase I: Cover aerated grit removal facilities and then exhaust air to odor control facility	PD OM	District/DPLU	Prior to Phase II	Covers installed and odor control facility constructed			
B-2	Phase I: Construct/install aerobic digester, solids dewatering building, centrifuge, sludge bin	PD OM	District/DPLU	Prior to Phase II	Improvements constructed and operational			
B-3	Phase I: Construct packed bed scrubbing facility	PD OM	District/DPLU	Prior to Phase II	Facility constructed and operational			
B-4	Phase I: Replace coarse bubble aerators in existing tank with fine bubble aeration system	PD	District/DPLU	Prior to Phase II	Fine bubble aeration system installed and operational			
B-5	Phase II: Replace existing emergency generator to allow ultimate 1.0 mgd	PD	District/DPLU	Prior to Phase III	Generator installed and operational			
B-6	Phase II: Install second covered aerobic digester and route air to packed bed scrubber.	PD	District/DPLU	Prior to Phase III	Aerobic digesters covered and packed bed scrubber operational			
Hydrology								
C-1	Avoid Floodway Impacts	PD	District/DPLU	Design and construction phase	Elevate facilities and buildings above mapped floodway. Sign-off by qualified engineer.			
C-2	Construct "natural" appearing slopes	PD	District/DPLU	Design and construction phase	Use of concrete or riprap will be avoided in construction of slopes in floodplain. Sign-off by qualified engineer			
C-3	Mapped floodway/floodplain on final engineering plans	PD	District/DPLU	Project design phase	Final plans will locate floodplain in relation to location of flow equalization basin and forebay. Sign-off by qualified engineer.			
Cultural Resources								

Mitigation Monitoring Checklist

Mitigation Measure	Type	Monitor	Schedule	Compliance Criteria	Verification of Compliance		
					Initials	Date	Remarks
H-1 Construction monitoring of pipeline	OM	District	Prior to construction of pipeline in raised roadbed through recorded site	Sign-off by qualified archaeologist			

A. List of Mitigation Measures

The following provides a more detailed description of the mitigation measures presented in the checklist.

Issue

Biology

A-1. A qualified biologist shall monitor delineation changes to the wetland area during development of the engineering plans for the forebay and within one year prior to construction. Replacement ratios will range from 3:1 to 1:1 depending upon the quality of habitat lost and final approval of the resource agencies. Any impact to wetland habitat within the drainage swales in the vicinity of the proposed forebay will require a Streambed Alteration Agreement issued by CDFG and an ACOE permit.

A-2. A qualified biologist shall monitor the forebay site for sensitive species within one year prior to construction of the forebay.

A-3. A qualified biologist shall monitor the Boulder Pass site for delineation changes to the wetland area within one year prior to construction. Any impact to wetland habitat within the drainage swale in the vicinity of the proposed Boulder Pass crossing will require a Streambed Alteration Agreement issued by CDFG and an ACOE permit.

A-4. Monitoring by a qualified biologist for the California gnatcatcher shall occur within one year prior to the installation of any pipeline in Lotus Pond Lane.

A-5. Measures to avoid or eliminate noise impacts to sensitive bird species (such as the establishment of construction windows) will be implemented in those areas where the presence of the species has been confirmed or established as likely by the monitoring biologist.

A-6. Techniques to prevent soil, silt, runoff, and sand erosion during the construction and re-establishment phase in the area of the forebay shall be identified by the monitoring biologist. Measure shall include, as warranted, placement of sandbags or erosion barriers along those areas of wetland habitat within the area of the forebay, control of dust from earth moving or blasting and continued exposure during revegetation.

A-7. Techniques to prevent soil, silt, runoff, and sand erosion during the construction of pipelines along the vicinity of sensitive habitats shall include, as warranted, sandbags, erosion barriers and dust control.

A-8. Construction activities adjacent to riparian habitat and sage scrub shall be monitored by a biologist. This monitoring will consist of the following measures which are intended to avoid any inadvertent intrusion beyond the proposed action into these habitats:

a. The edge of the construction easement will be conspicuously marked.
b. The biologist will discuss the sensitivity of these areas and the need to prevent any direct construction impact to them with the construction superintendent.
c. The project biologist will establish a schedule of visits to the construction site to monitor compliance based on the circumstances of construction in relationship to resources.
d. As part of these visits, the project biologist will evaluate the effectiveness of the erosion control measures.
e. Monthly reports on the monitoring will be submitted to the District and the resource agencies for the entire project and, where construction is subject to the County's Major Use Permit Modification, the Department of Planning and Land Use. Any problem areas, however, will be discussed immediately with the resident engineer.

Odor

Phase I:

Covers. The aerated grit-removal facilities, centrifuge and dewatering sludge holding bins, and existing and proposed aerobic digesters will be enclosed to permit potentially odorous air from these facilities to be collected and routed to a scrubber.

B-1. Install and cover aerated grit removal facilities; and then exhaust collected air from facilities to odor control facility.

B-2. Construct aerobic digester, solids dewatering building, sludge centrifuge unit, and dewatered sludge bin to eliminate the need (except for emergency or maintenance purposes) for the sludge drying beds and reduce odors associated with the processing of sludge.

B-3. Construct packed bed scrubbing facility to remove odors from the solids handling building and aerobic digesters.

B-4. Install fine bubble aeration system to minimize the potential for anaerobic conditions to develop, especially during warm summer months.

Phase II:

B-5. Install standby generator to reduce the potential for mechanical or electrical failure to result in the release of odors to the atmosphere.

B-6. Install second covered aerobic digester and route air to packed bed scrubber.

Hydrology

C-1. Buildings and facilities shown on final plans shall be elevated above the mapped floodway elevation.

C-2. Constructed slopes shall be natural and not covered with concrete or riprap.

C-3. Final engineering plans shall provide the location of the mapped floodplain and floodway in relation to the location of the flow equalization basin and the forebay.

Cultural Resources

H-1. No mitigation measures are necessary because no significant impacts have been identified. However, it is recommended that an archaeologist be present during initial trenching in the area of known archaeological deposits.

FINDINGS CONCERNING MITIGATION OF SIGNIFICANT EFFECTS
Lower Moosa Canyon Water Reclamation Facility Expansion

Pursuant to Section 21081 of the California Environmental Quality Act (CEQA), the following findings are made for each of the significant effects identified in the Environmental Impact Report (EIR) for the Lower Moosa Canyon Water Reclamation Facility expansion project:

1. BIOLOGICAL RESOURCES

Significant Effect: Construction of the forebay, Phase II, will directly impact willow riparian and oak woodland riparian habitat. These impacts are discussed on Pages 23 through 36 of the draft EIR.

Finding: Changes or alterations have been required in, or incorporated into the project which avoid or substantially lessen this effect.

Rationale: The following mitigation conditions have been included in the project: Conditions C.1. through C.6. of the Form of Decision of the Major Use Permit address biological impacts and mitigation measures.

These conditions will reduce any potential impacts to hydrology to an insignificant level because the requirement for a monitoring plan, Condition C.1., will re-evaluate the site's sensitive biological resources and the grading and building plans prior to grading. The plan will specifically quantify impacts based on final grading and building plans. This will ensure that conditions at the site, closer to the time of construction, will be considered in the implementing mitigation measures. The plan will also ensure that changes to the habitat, such as improved habitat quality or the presence of new sensitive species, are considered and mitigated. If sensitive species are present during construction, noise from construction may significantly impact these species. Condition C.4. directs that grading and building plans include measures to avoid or eliminate noise impacts to sensitive bird species.

The monitoring plan will also determine the need for construction monitoring based on the presence or absence of sensitive species and will provide mitigation should sensitive species become established before construction and should these species be expected to be significantly impacted by construction, Condition C.1.a. The plan will also include criteria that will allow the monitoring biologist to stop construction, Condition C.1.a., ensuring that construction will not create new impacts to identified sensitive species. The follow-up monitoring report, Condition D.1., will report on the success of the monitoring plan, and allow the County to ensure that all mitigation measures included in the monitoring plan have been successfully implemented.

Direct losses of riparian habitat will be replaced through revegetation, that will be guaranteed through bonding, Condition C.2. This will ensure no net loss of wetlands or sensitive habitat. Indirect impacts from runoff will be mitigated by including preventative measures recommended by the biologist in the grading and building plans, Condition C.3.

Implementation of these measures will reduce potential biological impacts to below a level of significance.

2. ODOR

Significant Effect: The present facility receives two to three formal odor complaints per year. Also, numerous complaints were recently received when rainy weather caused wet sludge to remain in drying beds much longer than normal. This is of special concern since residential homes (Castle Creek Resort and Golf Course) are located immediately to the east of the facility. These areas are typically downwind of the facility from late morning until early evening. A discussion of this issue is given on Pages 37 through 44 of the draft EIR.

Finding: Changes or alterations have been required in, or incorporated into the project which avoid or substantially lessen this effect.

Rationale: The following measures have been implemented in the design and construction of the project to address odor impacts: Conditions M. through O.2. of the Form of Decision of the Major Use Permit address odor impacts.

These conditions will reduce any potential impacts to hydrology to an insignificant level because the proposed facilities will construct new facilities to address odor impacts, Conditions M., N., and O. These new facilities in Phase I include: a) covering the grit removal facilities; b) a solids dewatering building and sludge centrifuge unit which will eliminate the need for the sludge drying beds; 3) constructing a packed bed odor scrubbing facility to remove odors from the solids handling building and aerobic digesters; and 4) installation of a fine bubble aeration system to minimize the potential for anaerobic conditions. In Phase II construction, a new standby generator will be installed to reduce the potential for mechanical or electrical failure as a result of a power failure and a second covered aerobic digester will be built.

These new facilities will collect air from odor producing activities and route the degraded air to the packed bed odor scrubbing facility, Condition O.1. The open air sludge drying beds will be used only for emergency or maintenance purposes, Condition O.2. Instead of the open air sludge drying beds, the solids dewatering building, the sludge centrifuge unit, and the dewatered sludge bin will be employed, Conditions M.2. and 3. These facilities will greatly decrease the source of odors from the handling of wet sludge because the wet sludge will not have any open air releases.

These design and operational measures will substantially lessen the impact of odor to below a level of significance.

3. HYDROLOGY

Significant Effect: The impacts to hydrology are significant because construction of the forebay will encroach into the floodplain and floodway of Moosa Creek. These impacts are discussed on Pages 45 through 53 of the draft EIR.

Finding: Changes or alterations have been required in, or incorporated into the project which avoid or substantially lessen this effect.

Rationale: The following measures have been included within the project to mitigate hydrology impacts: Condition C.7. of the Form of Decision of the Major Use Permit address hydrology impacts.

These conditions will reduce any potential impacts to hydrology to an insignificant level because all facilities will be elevated above the mapped floodway elevation, Condition C.7.c.(1), and the constructed slopes will be natural and not covered with concrete or riprap, Condition C.7.c.(1). Condition C.7.a. will ensure that modification of the floodway and floodplain as a result of the project will be considered when reviewing future development activity for the area.

These mitigation measures comply with San Diego County Flood Prevention Ordinance #8334 and ensure that hydrology impacts will be decreased to below a level of significance.

EIRS\P73018.FND;dld

PLANNING REPORT

COUNTY OF SAN DIEGO

05-0001

MEETING DATE: November 8, 1996

TO: Planning Commission

FROM: Department of Planning and Land Use

SUBJECT: Hearing on:
Valley Center Municipal Water District; Major Use Permit Modification, P73-018W[1], Valley Center Planning Area

SUPV. DIST.: 5

DESCRIPTION:

Proposed Modification to an existing Major Use Permit, P73-018, for a sewage treatment plant (Lower Moosa Canyon Water Reclamation Facility). The application proposes an expansion of the facility from 500,000 gallons per day to 1,000,000 gallons per day. RV2 Use Regulations.

REFERRAL/
PREVIOUS ACTIONS:

On January 19, 1973, the Planning Commission approved Major Use Permit P73-018 for a sewage treatment plant.

DEPARTMENT RECOMMENDATION:

1. **Consider the "Environmental Impact Report for the Lower Moosa Canyon Water Reclamation Facility", dated May 1996, and make the California Environmental Quality Act findings (attached) as required by Public Resources Code Section 15091.**

2. **Grant Major Use Permit Modification P73-018W[1] which makes the appropriate findings and includes those requirements and conditions necessary to ensure that the project is implemented in a manner consistent with The Zoning Ordinance and State law.**

MAJOR ISSUES:

- **No major issues have been identified.**

BACKGROUND/REASONS FOR HEARING:

Major Use Permit P73-018 was granted by the Planning Commission on January 19, 1973 for a sewage treatment plant, known as the Moosa Canyon Reclamation Facility. The site contains approximately five acres with an existing sewer plant and is located on the south side of Circle R Drive in the Valley Center/Interstate 15 Corridor area, approximately one-quarter mile east of

Interstate 15. A fire station is located to the westerly side and single-family dwellings are located to the easterly side (Circle R Lane). The property to the north and south is vacant. The project site is located below the grade level of Circle R Drive and Circle R Lane with mature existing landscaping. Consequently, the facility is not readily visible from the contiguous roadways.

The existing facility has a current capacity of 0.25 million gallons per day and an approved capacity of 0.5 million gallons per day under the 1973 use permit. This Modification proposes an expansion to 1.0 million gallons per day. Improvements will include an aerated grit removal chamber, chemical feed, solid handling facilities, filtration facilities, odor scrubbing systems, an additional clarifier, new aerobic digester, nutrient removal facilities, and a forebay. A portion of the reclaimed water will be delivered to the Castle Creek Golf Course and to the Lawrence Welk Golf Club.

The application lists five purposes/objectives for this project to improve these facilities:

1. Expand wastewater sewer collection facilities to serve already approved and planned development in the Lower Moosa Canyon service area.

2. Provide reclaimed water for non-potable uses to meet district and San Diego County Water Authority goals. Reclaimed water will be supplied to the two golf courses in the area, Castle Creek and Lawrence Welk.

3. Provide wastewater treatment and reclamation facilities which meet all Federal, State, and local requirements.

4. Protect the Moosa and Bonsall hydrologic subareas.

   Secondary level wastewater treatment facilities will be upgraded to meet San Diego Region of the California Water Quality Control Board Order No. 95-32 which sets minimal standards for the discharge of reclaimed water.

5. Provide a cost effective wastewater collection and treatment system for the Lower Moosa Canyon water reclamation facility service area.

Environmental Impact Report

This project is in somewhat of an unusual situation where the Valley Center Municipal Water District is the project proponent and also acts as the "lead agency" for the project under the California Environmental Quality Act. The County is a "responsible agency" under the California Environmental Quality Act because of the required discretionary action on the Major Use Permit Modification application. As the lead agency, the District had the responsibility for preparing the Environmental Impact Report and then certifying that the completed Environmental Impact Report complies with the California Environmental Quality Act. The County is only required to participate in the review of the Environmental Impact Report, consider the

Environmental Impact Report, and make findings pursuant to Section 15091 of the California Environmental Quality Act. Unlike the lead agency, the County is not required to certify that the Environmental Impact Report is adequate and completed in conformance with the California Environmental Quality Act.

DISCUSSION OF MAJOR ISSUES AND RESPONSES:

- **NO MAJOR ISSUES HAVE BEEN IDENTIFIED.**

PLANNING GROUP/PUBLIC STATEMENTS:

The Valley Center Community Planning Group considered this application at the Planning Group meeting of March 25, 1996 and a vote of 13-0-0 approved a motion to recommend approval of the project. The Interstate 15 Design Review Board considered the application on May 16, 1996 and recommended approval of the project. In addition, the Hidden Meadows Sponsor Group unanimously recommended approval providing reasonable effort is made to control odors. Improvements for odor control are a part of this application.

DEPARTMENT REASONS FOR RECOMMENDATION:

1. The project as proposed is consistent with the General Plan and Valley Center Community Plan because it proposes a use supportive of residential development, a sewage treatment plant expansion, in an area designated as (17) Estate.

2. The project as proposed is consistent with existing zoning because a sewage treatment plant is allowed in the RV2 Residential Land Use Regulation with the granting of a Major Use Permit.

3. The project as proposed does comply with all required findings of a Major Use Permit pursuant to Section 7358 of The Zoning Ordinance as described and incorporated in the attached Form of Decision.

4. The project as proposed does comply with the California Environmental Quality Act and State and County Guidelines because the project has a certified Environmental Impact Report.

5. The improvements to this existing sewage treatment plant will improve the quality of the operation, provide water for golf course use, and meet future community needs for sewer services.

BOARD POLICY APPLICABLE: N/A	CONCURRENCES: N/A
APPROVED BY COUNTY COUNSEL AS TO LEGALITY: N/A	CAO OR AUTHORIZED REPRESENTATIVE:

DEPARTMENT AUTHORIZED REPRESENTATIVE
GARY L. PRYOR, DIRECTOR

CONTACT PERSON

DAVE LASSALINE

(0650) 694-3806

ATTACHMENTS

Attachment A - Planning Documentation
Attachment B - Environmental Documentation
Attachment C - Public Documentation

cc: Valley Center Municipal Water District, 29300 Valley Center Road, Valley Center, CA 92082
Barrett Consulting Group, 9675 Businesspark Avenue, San Diego, CA 92131
Sonja Itson, Brian F. Mooney Associates, 9903-B Businesspark Avenue, San Diego, CA 92131

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