SECTION 4.0

ENVIRONMENTAL SETTING, IMPACTS, AND MITIGATION MEASURES

CHAPTER 4.0

ENVIRONMENTAL SETTING, IMPACTS, AND MITIGATION MEASURES

4.1 LAND USE AND RESOURCE PLANNING

This section of the EIR addresses land use and resource plans adopted for the project area. Regional and local plans addressed include general plans and resource management plans that include local goals for water resource management. General plans define goals, objectives, and policies to protect and enhance the respective agencies' sphere of influence. General plans typically include surface and groundwater quality objectives for development within the agencies' sphere of influence. Local management plans define objectives and criteria to meet the objectives to ensure adequate water quality and quantity in the management area. This section describes the relevant land use and resource plans, the existing land use setting, the Proposed Project's consistency with regional and local plans, and the Proposed Project's compatibility with surrounding land uses.

4.1.1 REGULATORY SETTING

STATE

WATER QUALITY CONTROL PLAN FOR THE CENTRAL COASTAL BASIN

The project area lies within the jurisdiction of the Central Coast Regional Water Quality Control Board (CCRWQCB). The CCRWQCB's jurisdiction covers California's central coast area including Santa Cruz, San Benito, Monterey, San Luis Obispo, and Santa Barbara Counties. The CCRWQCB is responsible for the protection of beneficial uses of water resources within the Central Coast Region. The CCRWQCB uses planning, permitting, and enforcement authorities to meet this responsibility. The Water Quality Control Plan for the Central Coast Area (Basin Plan) is the CCRWQCB's master policy document containing descriptions of the legal, technical, and programmatic basis of water quality regulation in the region. The Basin Plan was prepared in 1994 in compliance with the Federal CWA, and the State Porter-Cologne Water Quality Control Act and has been amended several times. The Basin Plan establishes beneficial uses for major surface waters and their tributaries, water quality objectives that are intended to protect the beneficial uses, and implementation programs to meet stated objectives. Beneficial uses are the desired resources, services, and qualities of the aquatic system that are supported by achieving and protecting high water quality. Beneficial uses are specific to the water body and can vary from water body to water body.

The Basin Plan outlines three categories of water quality objectives to prevent groundwater quality degradation within the jurisdiction of the CCRWQCB. The antidegradation objectives include general objectives for all groundwater resources and specific objectives for municipal, domestic and agricultural groundwater resources. The CCRWQCB has established certain water quality objectives for selected groundwater resources to provide a water quality baseline for evaluating groundwater quality management for the basin.

- General Groundwater Objectives
  - Groundwaters shall not contain taste or odors that adversely affect beneficial uses; and
  - Groundwater shall not contain radionuclides.

- Municipal and Domestic Groundwater Supply Objectives
  - Median concentration of coliform bacteria shall be less than 2.2 colonies per 100 mL of water over a seven-day sampling period;
  - Groundwater shall not contain organic chemicals in concentrations that exceed the standards set forth in California's Primary Drinking Water Standards for Organic Chemicals (CCR, Title 22, Division 4, Chapter 15, Article 5.5, Section 64444.5, Table 5 and listed in Table 3-1); and
  - Groundwater shall not contain chemical constituents in concentrations that exceed the standards set fourth in California's Primary Drinking Water Standards for Inorganic Chemicals (CCR, Title 22, Division 4, Chapter 15, Article 4, Section 64435, Tables 2 and 3).

- Agricultural Supply Objectives
  - Groundwater shall not contain concentrations of chemical constituents listed in Table 3-3 of the Basin Plan in concentrations that could adversely affect beneficial use for agriculture. Groundwater used for irrigation and livestock watering shall not exceed concentrations for: aluminum, arsenic, beryllium, boron, cadmium, chromium, cobalt, copper, fluoride, iron, lead, lithium, manganese, mercury, molybdenum, nickel, nitrate, nitrite, selenium, vanadium, and zinc (Source: Basin Plan, Table 3-3 Guidelines for Interpretation of Quality of Water for Irrigation).

- Specific Objectives

  The following specific median groundwater objectives are identified for the Hollister sub-area of the Pajaro River sub-basin:

TDS	1,200 mg/L
Chlorine	150 mg/L
Sulfite	250 mg/L
Boron	1.0 mg/L
Sodium	200 mg/L
Nitrogen	5 mg/L

  (Source: Basin Plan, Table 3-8 Median Groundwater Objectives)

REGIONAL

GROUNDWATER MANAGEMENT PLAN

The Groundwater Management Plan (GWMP) for the San Benito County Part of the Gilroy-Hollister Groundwater Basin is the principal plan for the management of groundwater in the region. The GWMP was prepared in 1998 for a consortium of agencies within the area. Thereafter, the Water Resources Association (WRASBC) of San Benito County was formed. The WRASBC is a multi-agency association formed by the City of Hollister, the City of San Juan Bautista, the San Benito County Water District, and the Sunnyslope County water District. The GWMP was updated by the WRASBC in 2004 (SBCWD & WRASBC, 2004a) and a programmatic EIR was certified for the update (SBCWD & WRASBC, 2004b). The GWMP identifies existing groundwater quantity and quality concerns and presents a range of alternative methods to address them. Groundwater issues addressed in the GWMP include the imbalance of areas of high and low groundwater, inadequate disposal of wastewater, and the accumulation of salts and nitrates in the basin.

The GWMP includes a list of water quantity and quality criteria and objectives that can be used by the various agencies to water management goals. The criteria and subsequent objectives are summarized below:

Water Quantity

Objective 1: Maintain a reliable water supply for present and future users.

Criterion 1-1: Deliver 100% of agricultural and M&I (municipal and industrial) supply in normal and dry years, and in the first critically dry year of a drought.

Criterion 1-2: Deliver at least 85% of M&I demands and 75% of agricultural demands in the second and subsequent critically dry years of a drought.

Objective 2: Integrate the management of groundwater, surface water, and imported water, according to the following criteria:

Criterion 2-1: Maximize efficient use of water supply by implementing water conservation programs for both M&I and agricultural uses. For existing M&I uses, it is assumed that over the next 20 years, water demand will decrease by 1 percent per year for existing and residential dwelling units. Conservation will reduce demand from an estimated 420 gpd/du (gallons per day/dwelling unit) to 344 gpd/du. New development is assumed to have a demand of 312 gpd/du. Based on CVP guidelines, agricultural irrigation is assumed to be at 85 percent efficiency.

Criterion 2-2: Provide new M&I water supplies to support planned growth within established urban (service) areas, in accordance with approved growth projections contained in the General Plans for San Benito County and the cities of Hollister and San Juan Bautista.

Criterion 2-3: Manage groundwater levels to maintain groundwater storage for the protection of the water rights of the overlaying landowners and for emergency storage, limiting drawdown to the historic low levels of about 1977 to preclude and/or minimize the potential for ground settlement. Maintain groundwater levels, where practical, no higher than 20 to 30 feet below ground surface. In portions of Bolsa, Pacheco, Hollister East and San Juan Bautista it will be impractical to achieve these groundwater levels and subsurface drainage

systems and other means of providing improved drainage conditions for the overlying uses will be required. In addition, higher groundwater levels will occur in areas adjacent to streams and where artificial percolation occurs outside of natural streams, such as in the vicinity of the percolation ponds of wastewater treatment plants, septic systems, and off-stream groundwater recharge ponds.

Criterion 2-4: Optimize the use of groundwater storage.

Water Quality

Objective 1: Provide water quality to meet both the needs of end users and the established objectives as described in the criteria below.

Criterion 1-1: Manage water resources to minimize imported salts and long-term levels of groundwater salinity to protect beneficial uses as set forth in the applicable revisions of the Regional Water Quality Control Board Basin Plan.

Criterion 1-2: Protect groundwater resources from infiltration of nitrates and salts, as well as other substances that could adversely affect groundwater quality.

Criterion 1-3: Deliver M&I water meeting primary and secondary drinking water quality objectives, with emphasis on achieving the "DHS's Recommended Limit for Consumer Acceptance" of not more than 500 mg/L of TDS and hardness of no greater than 120 mg/L as $CaCO_3$ (calcium carbonate). {It should be noted that there are no secondary standards for hardness; soft waters are typically considered to have 0-60 mg/L of hardness, moderately hard waters have 61-120 mg/L, hard waters have 121-180 mg/L, and very hard waters have over 180 mg/L of hardness.}

Criterion 1-4: Deliver agricultural water meeting established quality parameters. In order to optimize crop yield based on the available water sources, salinity (as measured by TDS), sodium hazard (as measured by Sodium Adsorption Ratio, or SAR); and boron have been selected as key indicator parameters. The following water quality objectives for these three water quality parameters have been developed:

Salinity: < 700 mg/L TDS

SAR: <6.5

Boron: <0.5 mg/L

TDS: Levels that range from 480 to 1920 mg/L are considered marginal for irrigation, per Regional Water Quality Control Board Basin Plan.

Objective 2: Manage water resources to meet Regional Water Quality Control Board Basin Plan and Department of Health Services water quality objectives.

The GWMP also includes the following regional criteria:

Regional Criterion 1: The programs and projects of the groundwater management plan should be coordinated with regional water supply planning and project the extent that it is practical and feasible to do so.

Regional Criterion 2: The major programs and projects of the groundwater management plan related to water quality and stream flows of the San Benito and Pajaro Rivers should be coordinated with local government and resources agencies in adjacent and downstream areas of the Pajaro River

Watershed in Santa Clara, Monterey and Santa Cruz Counties and with the California Department of Fish and Game, National Marine Fisheries Service and U.S. Fish and Wildlife Service.

HOLLISTER URBAN AREA WATER AND WASTEWATER MASTER PLAN

In 2004, the City of Hollister, the San Benito County Water District, and San Benito County entered into a Memorandum of Understanding (MOU) for the development of the Hollister Urban Area Water and Wastewater Master Plan (Master Plan). The Master Plan will identify specific programs and projects to address a range of water resource management issues to support the attainment of goals and objectives of the City of Hollister and San Benito County General Plans. The Master Plan will address water quality, water supply reliability, water and wastewater system improvements and the regional balance of water resources. While the Master Plan is not expected to be complete until 2007, the MOU identifies principles that the Master Plan will be based on. The following principles are relevant to the Proposed Project:

2.1.1 The Hollister Domestic Wastewater Treatment Plant is the primary wastewater treatment plant for the Hollister Urban Area including areas within the County that are designated to be served by that facility.

2.1.2 The standards for the quality of the wastewater to be discharged (percolated, reused or discharged to surface water) shall be developed and agreed to by the City Hollister, San Benito County and the San Benito County Water District and shall include appropriate consideration of regional issues. These standards shall be the most stringent of local standards, state or federal regulations and shall include careful consideration of anticipated future regulation.

2.1.3 The selection of wastewater treatment processes and disposal methods shall include careful consideration of future wastewater disposal requirements and provision for maximum reuse of wastewater. The selection of wastewater disposal options and sites shall be agreed to by the City of Hollister, San Benito County and San Benito County Water District provided that disposal shall not:

a. Impact drinking water supplies or negatively impact adjacent land uses or property values unless fully mitigated to the satisfaction to the City of Hollister, San Benito County and San Benito County Water District, or

b. Be inconsistent with applicable General Plans or Policies including preservation of agricultural land, or

c. Be or result in conditions inconsistent with the quantity, quality, or groundwater levels objectives of groundwater management plans for the area of disposal.

2.1.4 Urban water supply including as appropriate blending of treated surface water and groundwater, removal of hardness and other minerals from groundwater to provide urban water users with uniform water quality, shall minimize the need for water softeners, assure reliability of the urban water supply and support direct use of urban wastewater. The urban water supply shall include provision(s) for drinking water service to areas in and adjacent to Hollister Urban Area where Health and Safety issues exist.

2.1.5 Surface water and groundwater supplies shall be managed to sustain the area water supply and manage groundwater levels to avoid negative impacts on overlying land uses.

2.1.6 The standards for the quality of potable (drinking) water delivered to urban users shall be developed and agreed to by the City of Hollister, San Benito County and the San Benito County

Water District and shall include appropriate consideration of regional issues while focusing on economic and health impacts. These standards shall be the most stringent of local standards, state and federal regulations and shall include careful consideration of anticipated future regulation.

2.1.7 The impacts of water supply and treatment and wastewater treatment and disposal including reclamation on the culture, economy and environment of the City of Hollister and San Benito County shall be carefully evaluated and negative impacts minimized. The impacts considered shall include, but not be limited to, impacts on air quality, surface water and groundwater quality and quantity, rates and charges including connection/impact fees, property values, industry and business, preservation of agriculture and agricultural land, and aesthetics.

2.1.8 Water and wastewater management to protect and sustain the local surface and groundwater supplies of San Benito County.

2.2.1 The urban water supply (surface and groundwater) and water system for the Hollister Urban Area shall be capable of meeting 100% of the demands during wet, above normal, normal and dry years and in the first year of a critically dry period. That supply shall be consistent with meeting 100% of the San Benito County Water District Zone 3 and Zone 6 demands under the same conditions. During the second and subsequent years of multi-year droughts/water shortages the water supplies (surface and groundwater) shall be capable of meeting 85% of the Municipal and Industrial demands and 75% of the agricultural demands.

2.2.2 Drinking water shall have a TDS concentration of not greater than 500 mg/L and a hardness of not greater than 120 mg/L (Calcium Carbonate).

2.2.3 Recycled wastewater shall have a target TDS of 500 mg/L and shall not exceed 700 mg/L TDS. To meet this objective, the wastewater treatment plant(s) shall include provision(s) for demineralization. This objective shall be met first by rigorous source control including, but not limited to, the elimination of on-site regenerating water softeners and second by demineralization. Blending recycled water with San Felipe water is ONLY an interim measure for achieving recycled wastewater quality objectives. The recycled wastewater objective shall be met by two measures identified above and the objectives of Section 2.2.2 as soon as practical and not later than by 2015.

2.2.4 Within the Hollister Urban Area all wastewater shall be treated at a central wastewater treatment plant and City and County General Plans and supporting public service plans and implementing Ordinances/ Regulations shall be consistent with that requirement. This provision shall not preclude satellite wastewater separation plants for the recovery of water for recycling.

2.2.5 Within the Hollister Urban Area reliable and sustainable water supply shall be provided and maintained. The water conservation goals of the Groundwater Management Plan Update for the San Benito County Portion of the Gilroy-Hollister Groundwater Basin shall be used as the basis for all water and wastewater Demand/flow projects. Water supply, treatment, transmission, storage (fire suppression, emergency and operational), and distribution facilities shall meet water industry and regulatory standards for service and reliability. The MASTER PLAN shall include an evaluation of the current systems service and reliability levels. The MASTER PLAN shall include an evaluation of the Hollister Urban Area water supply meeting California Urban Water Management Plan requirements including Chapters 642 and 643, Statutes of 2001 (Senate Bill 221 and 610 respectively). It is the intent of the parties that these evaluations be used to determine and define the ability of the Hollister Area water systems to service additional customers and that these evaluations will be the basis for General Plans and supporting policies and plans including input to LAFCO determinations and that the Master Plan be updated at seven (7) to ten (10) year intervals.

2.2.7 Centralized wastewater treatment including specialize treatment as required to produce reclaimed water for agricultural purposes and disposal by means other than reclamation shall be the responsibility of the City of Hollister.

LOCAL

As shown in **Figure 4.1-1**, the project site is located partially within the City of Hollister General Plan Planning Area and partially within the unincorporated area of San Benito County. The applicable general plan policies of both the City and the County are discussed below.

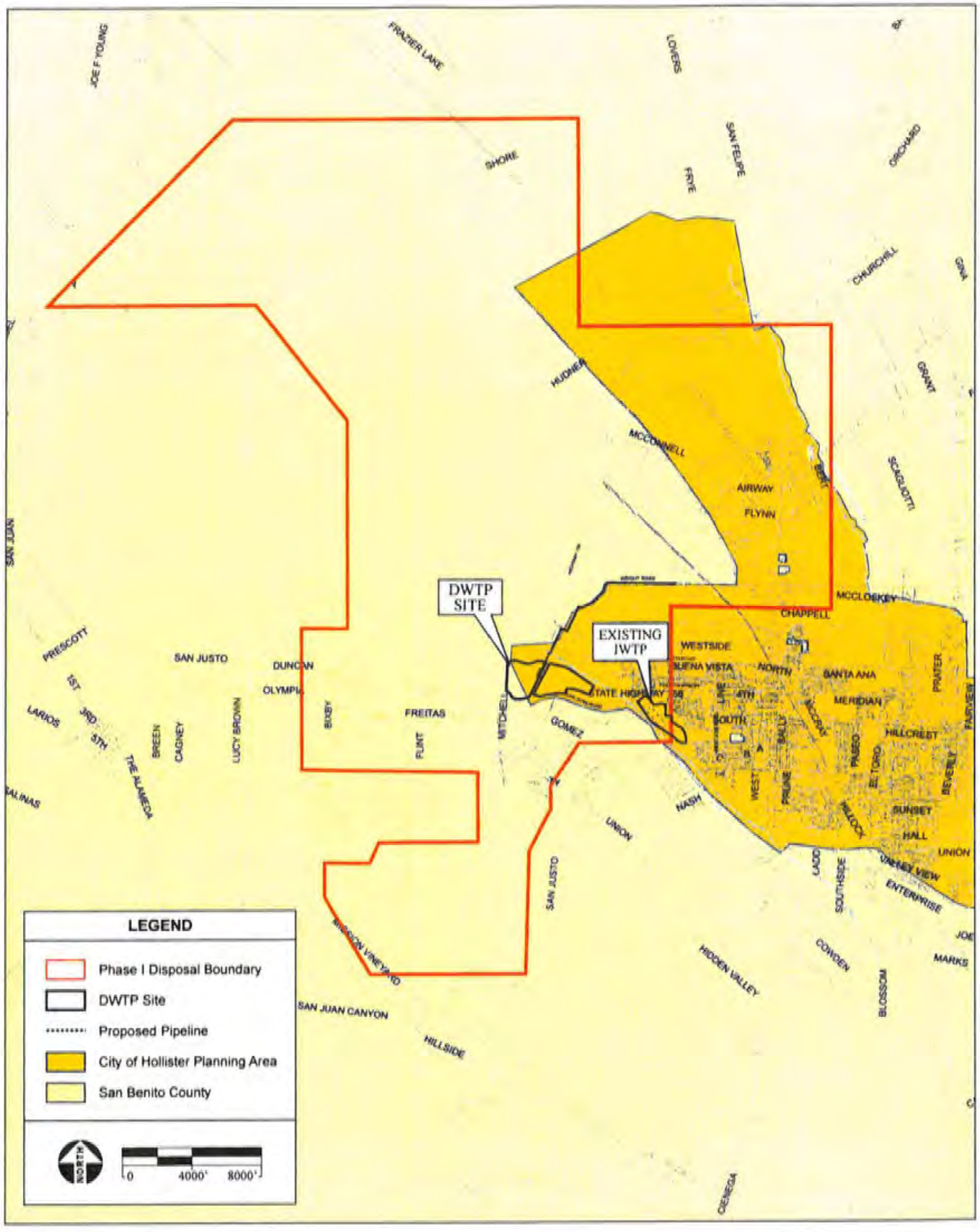
CITY OF HOLLISTER

General Plan

The recently updated 2005 Hollister General Plan provides goals and policies meant to guide land use and growth management of the City through the horizon year of 2023. The updated General Plan was adopted in December of 2005, following the General Plan EIR certification in October. The City of Hollister Planning Area consists of 9,423 acres. This area encompasses the City limits, the sphere of influence, and unincorporated land that bears a close relationship with the City. Unincorporated land within the planning area that is beyond the sphere of influence has been identified for future annexation into the sphere of influence. The San Benito County Local Agency Formation Commission (LAFCO) determines the sphere of influence (SOI) boundaries for the City of Hollister. The City is responsible for providing services to all lands encompassed within the sphere of influence (SOI). The sphere of influence includes incorporated and unincorporated lands that the City of Hollister expects to annex and provide services. The San Benito County General Plan Land Use Element Policy 18 calls for the protection of lands within the Sphere of Influence of Hollister for future urban densities and coordinated development.

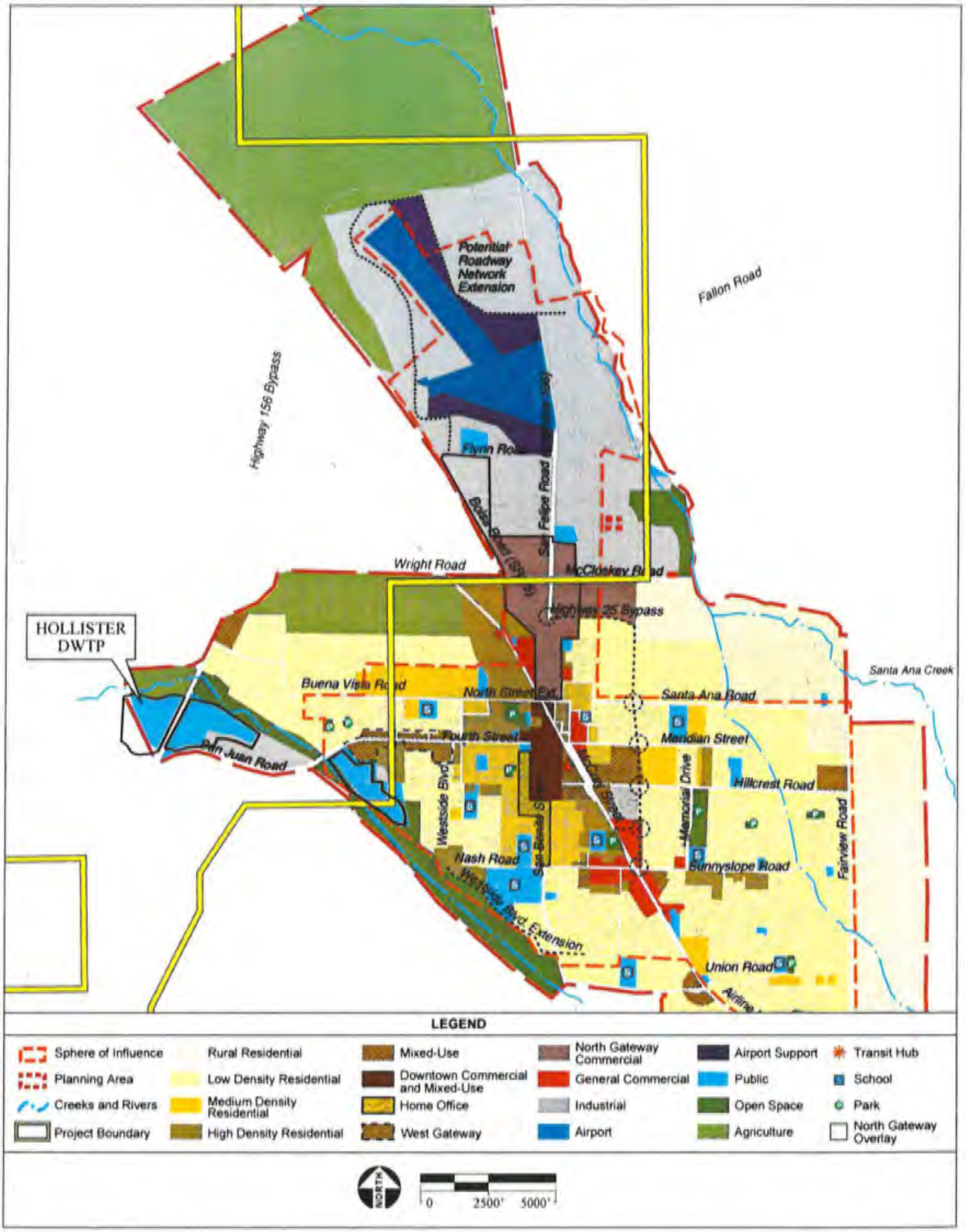
The Hollister General Plan includes maps delineating the designated land uses within the City's Planning Area boundaries. Land use designations established within the planning area provide for the concentration of development within the core of the City, while preserving open space and agricultural areas along the perimeter. Infill development is encouraged as an alternative to "urban sprawl."

The 2005 General Plan land use map of the project site and surrounding areas is provided in **Figure 4.1-2**. As shown in this figure, the existing DWTP and IWTP are located within the planning area and are designated as Public, which specifically provides for the location of wastewater treatment plants. Designated land uses surrounding the existing DWTP include Parks and Open Space to the northeast along the San Benito River, Industrial to the east, and Agriculture to the north. The DWTP is separated from a low-density residential area to the north of the San Benito River by areas designated for agricultural and open space. Land uses to the south and west are beyond the boundary of the City's planning area and therefore are not designated by the City General Plan.



SOURCE: City of Hollister Community Development Dept. 1995, 2004; AES, 2006

Figure 4.1-1
Land Use Jurisdictions



SOURCE: City of Hollister Community Development Dept. 2004; AES, 2006

Figure 4.1-2

City of Hollister General Plan Land Use Designations

The entire project area extends beyond the boundaries of the existing DWTP to include 875 acres of land being considered for future disposal sprayfields and irrigation projects. As seen in **Figure 4.1-2**, this portion of the project area that is within the City's planning area consists of mainly of industrial and agricultural land use designations. The following list provides the City of Hollister land use designations encompassed within the project area:

Public: This designation is applied to publicly and privately owned lands used for utilities, schools, and other City of Hollister, county, state or federal facilities.

Agriculture: The Agriculture designation encompasses lands with continuing commercial agriculture potential. The intent of this category is to retain primary agricultural use to the greatest extent practical. These areas should be kept free of any urban-type development and annexations. Allowed uses include orchards, row crops, nurseries, grazing lands, open space, farm services and parks.

Industrial: This designation provides for a range of uses, from business and research parks, large individual corporate establishments, professional and administrative offices and industrial complexes. Examples of allowed uses in this category are computer software companies, research laboratories, copying services, printing companies, warehousing, offices, equipment manufacturing and repair and trucking operations. Other permitted uses include limited commercial uses that serve industrial and employment centers. Industrial areas that fall in the North Gateway Overlay district, will also allow limited commercial uses with frontage along Highway 25 to serve passing motorists. This area is centered around the Highway 25 Bypass in the northern portion of the City that is south of the airport.

Airport: The Airport designation is applied to publicly owned lands of the Hollister Municipal Airport. Uses include airport operations and support facilities as well as limited commercial and industrial uses incidental to and in support of the airport.

Airport Support: This designation allows industrial or commercial development on those areas that are adjacent to and have direct access to the Hollister Municipal Airport. Development may include industrial, commercial or recreational uses that provide support to the airport and are compatible with both airport operations and adjacent uses.

Open Space: This designation is applied to public and privately owned lands used for low-intensity, open space activities such as hiking, walking or picnicking. The designation also highlights environmentally sensitive areas such as rivers and creeks, habitats, City parks and recreation facilities.

Mixed Use: The Mixed Use designation is intended to promote a vertical or horizontal combination of residential and commercial uses within a single building or site.

West Gateway (Mixed Use): The West Gateway Mixed Use designation is intended for foster an attractive entry at the west entry to Hollister with a combination of community shopping, retail and offices with residential uses.

Rural Residential (1 unit/5 net acres): The Rural category of residential land uses is intended for single-family, residential units on large lots. The Rural Residential category only occurs in long-range phased areas outside of Hollister's city limits and Sphere of Influence (but is within the Planning Area). Rural Residential land uses are intended to provide sites for larger, distinctive residences in areas that the City does not provide public infrastructure.

Low Density Residential (1 to 8 units/net acre): The Low Density category of residential land uses is intended to promote and protect single-family neighborhoods. Low Density Residential land uses are intended to provide sites for single-family detached units, zero lot-line single-family units, and Planned Unit Development (PUD) units (City of Hollister, 2005).

Medium Density Residential: This residential land use category is intended to provide more diversity in the housing stock with densities ranging from eight to 12 dwelling units per net acre.

High Density Residential: This residential land use designation is intended to provide opportunities for multiple-family residential development at densities of 12 to 35 units per net acre.

The Land Use Element of the 2005 City of Hollister General Plan includes the following goals and policies relevant to the Proposed Project:

Goal LU2 Ensure that public utilities and infrastructure adequately meet the demand for services placed on them by existing and future commercial and residential users.

Goal LU6 Promote orderly and balanced growth within Hollister's planning area boundaries.

Policy LU6.2 Limit future development in accordance with the phasing concept to allow the logical extension of water services and other infrastructure improvements.

Goal LU9 Encourage development patterns that promote energy efficiency and conservation of natural resources.

The Open Space and Conservation Element of the 2005 City of Hollister General Plan includes the following goals, policies, and implementation measures relevant to the Proposed Project:

Policy OS1.1 Open Space Preservation. Retain and protect open space areas whenever practical through the protection of prime farmlands, the prevention of new development in areas subject to natural hazards, that serve as wildlife habitat or as visual assets for the community, and where the development of additional parks and trails is possible. Open space areas can also function as connections between neighborhoods, for example with the creation of pathways in environmentally appropriate areas.

Policy OS2.1 Premature Conversion of Prime Farmland. Whenever possible, minimize the premature conversion of prime farmland to non-agricultural land uses by directing urban growth toward portions of the Hollister Planning Area which have not been identified as prime farmland.

Policy OS2.2 Coordination with San Benito County to Preserve Prime Farmlands. Encourage the County of San Benito to maintain existing County land use policies that discourage urban development in rural areas within the County as a way to ensure continuing agricultural operations within portions of the Hollister Planning Area. Coordinate with the County of San Benito in efforts to maintain prime farmlands in active agricultural use whenever possible and in all efforts to maintain the continued economic viability of agriculture within the Hollister Planning Area.

Measure OS.I Restrict Utilities in open space. Use zoning ordinance provisions and the design and environmental review processes to evaluate the location and design of public utilities.

City of Hollister Growth Management Program

The Growth Management Program (Ordinance 959) was adopted as Chapter 16.64 of the City of Hollister Municipal Code by the City Council in August 2001 to implement the policies and objectives of the General Plan. The purpose of the program is to encourage a rate of residential growth that will not exceed the City's ability to provide adequate and efficient public services, including sewer and water, or the

ability of the local economy to support such growth. Implementation of the program occurs through housing goals and annual growth limits that are established every five years. The criteria for establishing five year growth limits includes consideration of the City's regional fair share housing needs, and public facility and service constraints, including adequate sewage treatment capacity. The initial five-year period was defined to begin on January 1, 2004, or when the DWTP is available to accept additional flows. Since the existing DWTP is at capacity, the beginning of the first five-year period would begin at such time that the Proposed Project would be operational. The annual growth limit established by the Growth Management Program for the initial five-year period is 244 residential units per year. This number is based upon 2.25 percent of the City's population as established by the 2000 census, and the State of California estimate of 3.168 persons per housing unit.

Growth Cap Initiative

In November 2002, voters in the City enacted a Growth Cap Initiative (Measure U) which amended the Growth Management Program by requiring voter approval for new residential developments. Previously, residential developments were approved by the City Council. All other aspects of the Growth Management Program were maintained through the initiative, including the annual growth rate of 244 units per year. The measure will take effect with the completion of the City's long term waste management program and terminate five years later.

Building Moratorium Ordinance

The Building Moratorium Ordinance (Ordinance 974) was adopted in May 2002 to address inadequate wastewater treatment capacity at the DWTP. At present, the Building Moratorium Ordinance provides that no building permits shall be granted for the following:

1. The construction of new commercial, residential or industrial buildings which require connection to the City sewer system;
2. The construction of a new dwelling unit;
3. A building addition that includes the installation of a new plumbing fixture unit.

Additionally, the moratorium stipulates that no properties located beyond the City's jurisdictional limits are allowed to connect with the City's DWTP. The moratorium will not be lifted until the Proposed Project or other improvements are completed to the satisfaction of the RWQCB, and as a result additional treatment capacity is provided.

SAN BENITO COUNTY

General Plan

The Land Use Element of the San Benito County General Plan was updated in 1992, with six subsequent amendments approved by 2002. This element of the General Plan is intended to determine how and where future growth in the County will occur. San Benito County is comprised of 889,024 acres.

Approximately 99 percent of this land is unincorporated and approximately 95 percent of that land is used for agricultural or open space purposes. The County's General Plan encourages cities to annex any land required for growing urban needs, thereby minimizing the amount of high and medium density development within the unincorporated areas of the County.

The 1993 land use designation map (as amended by General Plan Amendment 00-21 and 00-22) provides land use designations for portions of the project site and surrounding area (**Figure 4.1-3**). As shown in **Figure 4.1-3**, the existing DWTP percolation beds west of Highway 156 are located within a portion of the unincorporated County designated as Agricultural Productive.

In addition to sites proposed for the DWTP improvements, the project area includes surrounding lands in San Benito County being considered for future disposal sprayfields and irrigation projects. As seen in **Figure 4.1-3**, this area consists primarily of lands designated as Agricultural Productive and Agricultural Rangeland. These designations comprise the Agricultural category of land use identified in the San Benito County General Plan. This category generally provides for agriculture, grazing and land in its natural state, but also specifically provides for uses that, by their nature, must be located in undeveloped areas. Conditional uses include institutional land uses. In addition, several areas are designated as Industrial to the south and east of the existing DWTP site. The Wright & Buena Vista area of Hollister and the San Juan Valley consists primarily of lands designated as Agricultural Productive. Unincorporated County land that is within the City of Hollister SOI is designated as an urban reserve for the City.

The San Benito County General Plan Land Use Element provides the following goals and policies applicable to the Proposed Project:

Goal 1 To maintain the County's rural atmosphere.

Objectives

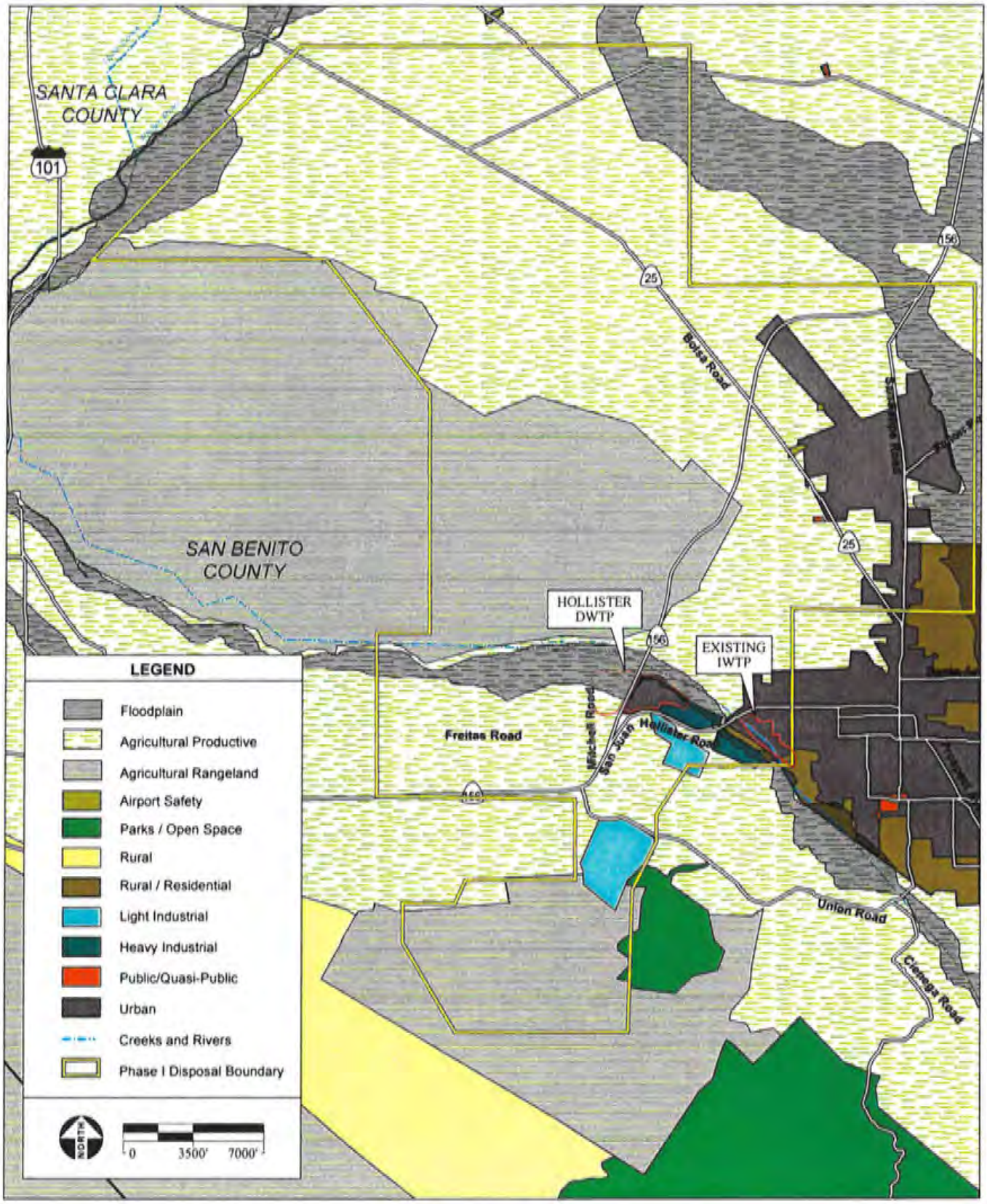
a) To protect prime agricultural areas in order to preserve them for the present and future agricultural production vital to the county.

b) To direct future County growth to areas which are neither environmentally sensitive nor of substantial agricultural importance.

c) To protect hillsides and grazing lands with grades over 30%.

d) To utilize agricultural and open space lands to help define urban and rural residential areas.

Goal 6 To establish a working relationship with the Cities of San Juan Bautista and Hollister in order to encourage the cooperative planning efforts for all jurisdictions involved.



SOURCE: San Benito County, 1993; AES, 2006

Figure 4.1-3
San Benito County General Plan Land Use Designations

The San Benito County General Plan Land Use Element provides the following applicable policies for the Agriculture designated area in which the proposed facilities would be developed.

Policy 2 The type of uses allowed within the agriculturally designated areas shall be related to the suitability of the soil resources, climate and water supply. The types of uses allowed on most agriculturally designated areas within the County include agriculture, agricultural processing, grazing, land in its natural state, wildlife refuges, and low intensity residential. Uses subject to use permit approval include low intensity recreational facilities, mineral extraction and processing, and also institutional uses and uses, that, by their nature, should be located in undeveloped areas.

Policy 3 Grade 1 soils as defined in the Soils Survey of San Benito County shall be the highest priority for protection of soil resources.

Action

a) Development proposals in the following locations will be exempt from Policy 3.

   i. Grade 1 soils located within the Sphere-of-Influence of a public sewer and water district.

Policy 4 Development proposals adjacent to Grade 1 agricultural lands and soils suitable for the production of row crops, flowers, or orchards shall be required to mitigate potential land use conflicts with agricultural operations.

Action

a) Development proposals shall provide a non-development buffer beginning at the property line of the proposed development.

b) Development proposals shall not be allowed to increase the volume or velocity of stormwater runoff to adjoining agricultural lands.

c) Landscaping plans for the non-development buffer areas shall be reviewed to ensure that vegetation will not create intrusive shade, a habitat for pests, or other nuisance to the agricultural operator.

Policy 32 Specific development sites shall be free from the hazards identified within the Open Space and Conservation Element Maps (e.g. faults, landslides, hillsides over 30% slope, flood plains). The site shall also be on soil suitable for building and maintaining well and septic systems (i.e. avoid impervious soils, high percolation or high groundwater areas, set back from creeks). Absent adequate mitigation, development shall not be located on environmentally sensitive lands (wetlands, erodable soil, archaeological resources, important plant and animal communities).

Policy 33 Specific development sites shall avoid, when possible, locating in an environmentally sensitive area (wetlands, erodable soils, important plant and animal communities, archaeological resources).

The San Benito County General Plan Open Space and Conservation Element (1995) provides the following applicable goals and policies:

Goal 3 To provide for the conservation, development, and utilization of natural resources, including water and its hydraulic force, water quality, forests, soils, rivers and other waters, fisheries, wildlife, minerals, energy and other natural resources.

Objective

15. To direct land uses that could contribute to the degradation of water quality to alternative locations.

Policy 25 Wastewater treatment systems shall be designed to ensure the long-term protection of groundwater resources in San Benito County.... Domestic wastewater treatment systems shall be required to use tertiary wastewater treatment as defined by Title 22.

Policy 35 Maintain viable sizes for agriculture: It shall be the policy of the County to assure that units of land which are suitable for agricultural purposes are maintained.

Action

1) In areas of Agricultural zoning, The County will establish lot sizes appropriate to the land use and the soil resources.

2) Discourage the subdivision of agricultural lands suitable for the production of fruit, nut and row crops to parcel sizes that are ineligible for inclusion in the Williamson Act contracts.

San Benito County Growth Management System

San Benito County was one of the fastest-growing counties in California during the 1990s. The County's ten-year growth rate between 1990 to 2000 was 40.3%. According to the California Department of Finance, the average annual growth rate between 1995 and 2000 was 3.4%, more than double the state average of 1.5% during the same time period. The Department of Finance projects that the growth rate of San Benito County will continue to be double the states growth rate over the next 40 years. In an effort to control growth in unincorporated areas, the Board of Supervisors approved amendments to the County's Growth Management System that limited lot creation, or "new land division," in unincorporated areas to 1% per year. Through these amendments, the County recognized the need to limit growth in rural areas in order to protect agricultural lands, and maintain adequate public services. The Growth Management System is intended to preserve natural resources, and protect the health, safety and welfare of the residents of San Benito County by encouraging a rate of growth that will not exceed the County's ability to provide essential public services (San Benito County, 2002). The annual population growth goal of 1% is attempted by limiting the number of building permits that can be issued on new lots. However, existing lots are exempt from this restriction making it difficult to predict the number of new dwellings that could be built under the County's Growth Management System.

Agricultural Land Protection

Farmland Mapping and Monitoring Program

The California Farmland Mapping and Monitoring Program identifies and inventories important farmlands in California. This program uses definitions developed in cooperation with the U.S. Department of Agriculture, Natural Resources Conservation Service (formerly Soil Conservation Service) to delineate Prime Farmland, Farmland of Statewide Importance, Unique Farmland, Farmland of Local Importance, and Grazing Land, as described below.

As defined by the Farmland Mapping and Monitoring Program, Prime Farmland is land that has the best combination of physical and chemical characteristics for producing crops. It has the soil quality, growing season, and moisture supply needed to produce sustained high yields of crops when treated and managed, including water management, according to current farming methods.

Farmland of Statewide Importance is land other than Prime Farmland that has a good combination of physical and chemical characteristics for the production of crops. Unique Farmland is farmland that does not meet the criteria for Prime and Statewide Importance, however has the potential to be used for the production of high quality and high yield crops when managed according to current farming methods. The California Farmland Mapping and Monitoring Program also considers whether the land has been used for the production of irrigated crops at some time during its last two mapping cycles (approximately four to five years) (SBCWD & WRASBC, 2004a). Prime Farmland, Unique Farmland and Farmland of Statewide Importance in the project area are shown in **Figure 4.1-4**.

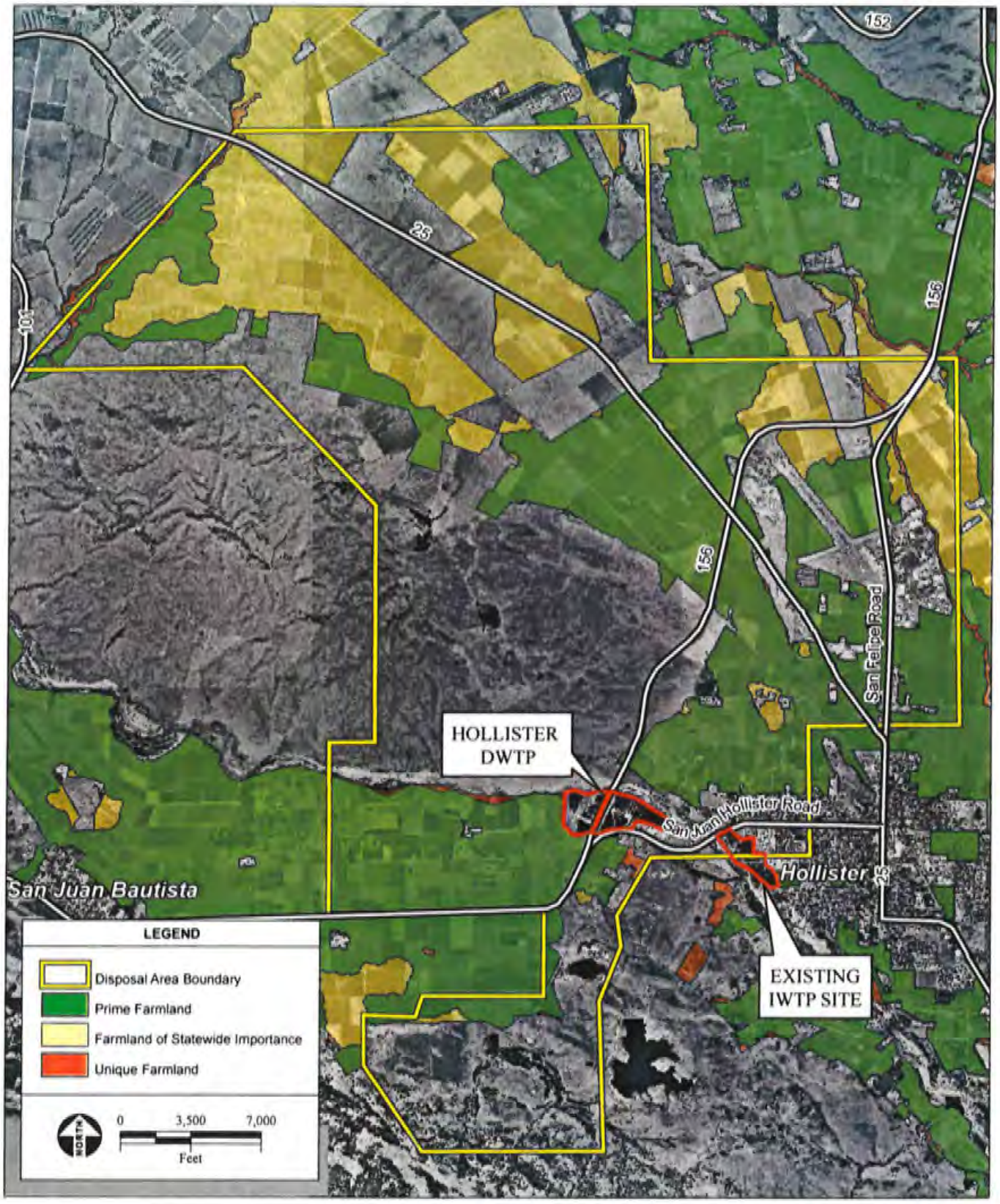
STORIE INDEX

The San Benito County General Plan also uses another soil resource classification, the Storie Index. The Storie Index ratings express numerically the relative degree of suitability, or value, of a soil for agriculture. Four factors are considered in the index rating: profile characteristics, surface texture, slope, and other conditions such as erosion, alkali and low fertility. The Storie Index ranges from 1 to 100; the corresponding soil grades range from 1 to 6. A Storie Index rating of 80 to 100 is equivalent to Grade 1, which represents no limitations. A rating of 60 to 79 is equivalent to Grade 2, wherein the soil is suitable for most crops, even though it may have minor limitations.

Grade 1 soils mapped in the project area generally include those in the Sorrento-Yolo-Mocho Association and some of the Pacheco and Metz soils in the Clear Lake-Pacheco-Willows Association. Land Use Policy 3 of the County of San Benito County General Plan states that Grade 1 soils are given the highest priority for protection. Within the project area, Grade 1 soils are generally found in the western portion of the Hollister Valley and the east portion of the San Juan Valley (SBCWD & WRASBC, 2003).

CALIFORNIA LAND CONSERVATION ACT (WILLIAMSON ACT)

In 1965, the State legislature created the Land Conservation Act (LCA) or Williamson Act. The LCA authorizes counties to establish agricultural preserves by entering into contracts with landowners. Under LCA contracts, properties are committed to agricultural or other compatible uses for a minimum of ten years and, in exchange, the landowner receives property tax advantages. The contract is self-renewing and the landowner may notify the county at any time of intent to withdraw the land from its preserve status. Withdrawal involves a ten-year period of tax adjustment to full market value before protected open space can be converted to urban uses. Consequently, land under a Williamson Act contract can be in either a renewal status or a non-renewal status. Lands with a non-renewal status indicate the farmer has withdrawn from a Williamson Act contract and is waiting for a period of tax adjustment for the land



SOURCE: RMC Water and Environment, 2005; San Benito County Water District, 2005; City of Hollister, 2005; USGS Aerial Maps; AES, 2006

Figure 4.1-4
Farmland Resources

to reach its full market value. Non-renewal lands are candidates for potential urbanization within the next ten years. The stated purposes of the LCA are to maintain the agricultural economy of the state and to prevent premature and unnecessary conversion of land from agricultural uses. There are approximately 584,331 acres in San Benito County under LCA contracts (DOC, 2006). Williamson Act lands within the project area are shown in **Figure 4.1-5**.

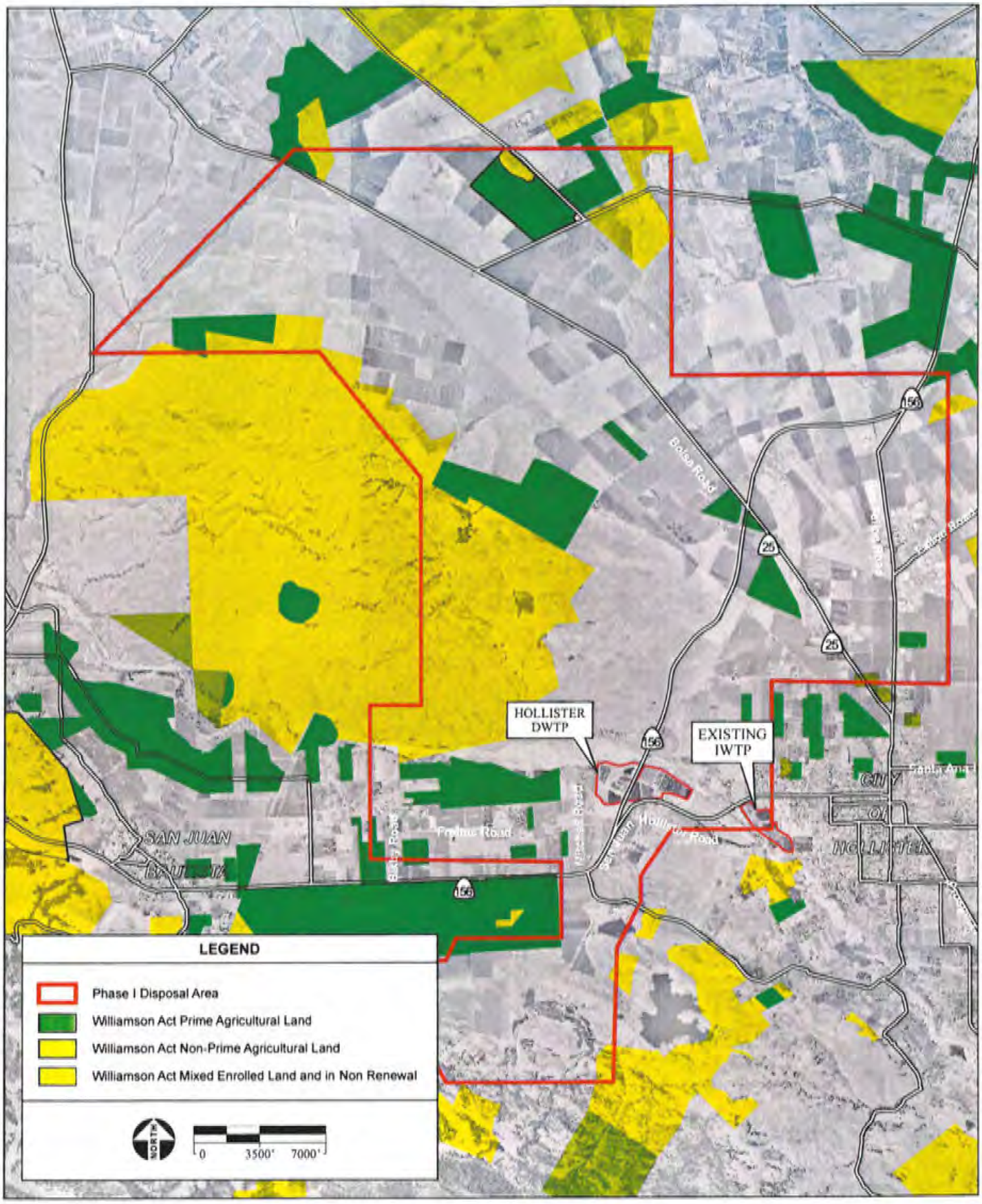
4.1.2 ENVIRONMENTAL SETTING

REGIONAL SETTING

The City of Hollister is located in northern San Benito County within the inland agricultural region near the north end of California's Central Coast Region, approximately six miles east of the City of San Juan Bautista. Agricultural land uses surrounding the City include irrigated row crops, orchards, and rangeland. Rural residential uses occur within the agricultural areas. Although agricultural operations and related activities continue in the region, the pattern of urban development in the area has resulted in the incremental loss of agricultural land.

As previously mentioned, San Benito County was one the fastest-growing counties in California during the 1990's. Most of that growth was concentrated in Hollister resulting in an annual growth rate of 6% between 1990 and 2000. Currently, approximately 65 percent of the population of San Benito County resides in the City of Hollister. Population data for 2005 estimates the City's population at approximately 37,183 (CDOF, 2006). Development pressure has begun to change the rural character of the region as people who work in the greater Bay Area buy homes in relatively rural parts of San Benito County. This demographic shift has resulted in agricultural activities becoming less integral to the local economy. This growth has strained the City's existing infrastructure. Recently, several actions by the City Council and local voters have demonstrated an interest in preserving qualities that are generally valued in smaller, more rural communities. The recently updated General Plan would result in a reduced population growth rate compared to projections provided for in the previous 1995 General Plan. Buildout of the current General Plan would result in a population of 55,000 in the year 2023, and consequently a 2.6 percent growth rate for housing and population over the next 18 years. This reduced growth rate is in part a result of the Building Moratorium Ordinance passed in response to wastewater treatment deficiencies at the DWTP, and the Growth Management Program, which sets the maximum housing growth per year at 244 units for the 5 year period following implementation of the Proposed Project. These growth management policies are discussed in detail in **Section 4.1.1**.

According to the Department of Finance, in the year 2001, the population residing in unincorporated areas of San Benito County was 18,000. The maximum amount of development allowable under the county's existing land use designations for unincorporated areas would result in a total of 50,113 dwelling units. The General Plan estimates that the maximum buildout of existing land use designations would result in a population of 159,361 in the unincorporated area of San Benito County. This is approximately 9 times



SOURCE: RMC Water and Environment, 2005; San Benito County Water District, 2005; City of Hollister, 2005; USGS Aerial Maps; AES, 2006

Figure 4.1-5
Williamson Act Parcels

the population in the year 2001. However, the annual growth rate is limited to 1 percent annually by the County's Growth Management System. This policy is described in detail in **Section 4.1.1** above.

EXISTING LAND USES

Existing land uses in the area include irrigated agriculture, rangeland, rural residential, urban residential, commercial, industrial, public/quasi public, recreation and open-space. Irrigated agriculture and rural residential are the dominant forms of land use in the project area.

Land uses in the City of Hollister include low-, medium-, and high-density residential in the southern half of the City. Light industrial and agricultural uses are concentrated in the northern part of the city, in central Hollister near the railroad, and small areas east and west of the city center. Commercial uses are concentrated downtown and are also located south and west of downtown along major roadways. Agricultural lands are located in the northern part of the City between downtown and the airport, in unincorporated pockets and the western portion of Hollister's Planning Area between Wright Road and Buena Vista Road.

Beyond the urban center, pockets of residential development occur at a golf course development, and on flatter lands and at the bases of foothills. A plan to expand the existing San Juan Oaks Golf Club (located 2-3 miles south of the DWTP near the intersection of State Route 156 and Union Road) was approved by the County Board of Supervisors in 2004. This project added approximately 2,000 acres to the existing club and included expansion of the existing golf course and the addition of new commercial and residential areas.

PROJECT AREA

The DWTP site is located at the intersection of State Route 156 and San Juan Hollister Road. State Route 156 bisects the DWTP site. The DWTP consist of treatment, storage and percolation ponds, headworks and an operations building. Land uses surrounding the DWTP consist of open space, agricultural, industrial and residential development. The DWTP is bordered on the north by the San Benito River floodplain, which is a broad vegetated area with a narrow river channel. To the east and south of the DWTP is an industrial area that consists of a variety of business and a few residential uses along the north side of San Juan Road. Businesses located in this area include VK Manufacturing, S&K Foods Etc., A Tool Shed, Five Star Limousines, Hell Bent Custom Manufacturing, San Juan Woodworks, a piano refinishing business, Hollister Transmission Repair, Hawkins Auto Repairs, San Benito Sand & Bead Blasting, Hollister Landscape Supply, MiniMax Storage and RV parking, Eagle Recycling, and other businesses. Several single-family homes are also located on San Juan Road. To the south of the DWTP are industrial and residential uses. On the south side of San Juan Road, east of San Juan Hollister Road is Pacific Scientific, a manufacturer of ordnances. West of San Juan Hollister Road, just south of San Juan Road are several single-family homes that continue along south. An agricultural area with several homes is located south of the San Benito River. Land uses in the San Juan Valley directly west of the DWTP are

also mainly agricultural, with scattered rural residences. The Pacific Sod Farm is located north of Freitas Road near the San Benito River.

Existing land uses in the portion of the project area that is identified for potential pipeline routes, disposal sprayfields, and future irrigation projects, consists primarily of agriculture and single-family homes (**Figure 3-3**). The potential locations of the pipelines routes, disposal sprayfields, and future irrigation projects have been generalized into four separate segments of the project area that are characterized by common land uses. These segments are described below:

Southern Hollister Valley

This segment comprises the northern portion of the project area and is located between 4 to 7 miles north of the existing DWTP. Land uses consist primarily of low intensity agriculture with scattered rural residences.

Flint Hills

The Flint Hills are located immediately northwest of the DWTP. This area consists primarily on non-irrigated, undeveloped rural lands used for cattle grazing. A clustering of residential housing is located at the base of the hills approximately .75 miles from the DWTP.

Airport and Vicinity

The Hollister Airport is located west of State Route 156, approximately three miles from the DWTP in the northern portion of the City of Hollister. Land uses within the airport include the airport terminal, runway, garage, a variety of light industrial uses, and surrounding non-cultivated fields consisting primarily of native vegetation. Land uses in the vicinity of the airport are mostly industrial east of SR-156 with agricultural fields located to the west.

Wright & Buena Vista Area of Hollister and San Juan Valley

Existing land uses in the Wright & Buena Vista area of Hollister and the San Juan Valley consist primarily of irrigated agriculture, pockets of five-acre ranchettes, and green houses for seed companies. There are two sand and gravel operations in the floodplain of the San Benito River in the San Juan Valley. Some of the most common vegetable crops grown in this region include lettuce, bell peppers, onions, celery, broccoli, and turf. Common orchard crops are walnuts, grapes, apricots, and apples (SBCWD & WRASBC, 2003). The San Juan Valley is located south and west of the DWTP while the Wright and Buena Vista area is located to the northeast.

The San Juan Oaks Golf Club is located in the hills along the southeastern base of San Juan Valley. Existing land uses on the golf course property include the San Juan Oaks Golf Club and associated facilities, several man made ponds, grazing lands, permanent wildlife habitat areas, and a planted row crop area in the northeast portion of the site.

4.1.3 IMPACTS AND MITIGATION MEASURES

METHODS AND ASSUMPTIONS

Under Sections 53091 and 53096 of the California Government Code, the location or construction of facilities for the production, generation, storage, treatment, or transmission of water are exempt from application of local zoning ordinances. Therefore, a review of local zoning designations and an assessment of potential inconsistencies of the Proposed Project components have not been included in this impact assessment.

Certain types of impacts involving conversion of an existing land use or potential incompatibilities with adjacent land uses are addressed in other chapters of this EIR. Impacts related to potential nuisances to or temporary conflicts with adjacent land uses during project construction phases are addressed in **Section 4.9**, Transportation and Traffic. Nuisance impacts related to noise or generation of objectionable odors during project operation are addressed in **Section 4.8**, Air Quality. Growth-related land use impacts are addressed in **Section 5.1**, CEQA Required Sections.

Existing land uses were identified using various maps and visits to the project site and vicinity. Local planning departments provided detail on existing and proposed land uses, and on relevant local planning issues.

SIGNIFICANCE CRITERIA

The criteria used for determining the significance of an impact on existing or planned land uses, or on relevant plans and policies, are based on the CEQA Guidelines and professional standards and practices. An impact on land use is considered significant if implementation of the Proposed Project would:

- Result in a substantial inconsistency with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project adopted for the purpose of avoiding or mitigating an environmental effect;
- Conflict with any applicable habitat conservation plan, natural community conservation plan, or Williamson Act contract;
- Disrupt or divide the physical arrangement of an established community;
- Require removal or relocation of structures or facilities used for residential, commercial, or industrial purposes; or
- Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use; or
- Result in permanent incompatibilities with existing or proposed land uses.

IMPACT STATEMENTS AND MITIGATION MEASURES

Impact

4.1.1 The Proposed Project may be inconsistent with the programs and objectives identified in the Groundwater Management Plan. This impact is considered less than significant.

The Proposed Project implements several programs that were identified in the GWMP. Components of the Proposed Project that are identified in the GWMP include wastewater effluent recycling, salinity education, a water softener ordinance, industrial salt control, and groundwater treatment and concentrate disposal. Other components of the Proposed Project, including the proposed MBR facility and the proposed storage reservoir, are identified to facilitate recycled water use. As a result, the Proposed Project is generally consistent with the GWMP. The only component that is not identified by the GWMP is the development of disposal sprayfields during Phase I. Sprayfields have been identified as an interim disposal method only until recycled water use is expanded (**Figure 3-4**). The use of sprayfields would be reduced and eventually eliminated as improvements to the water quality of DWTP effluent allow for irrigation of more salt-sensitive crops. As a result the development of sprayfields as a disposal method is not considered to conflict with the GWMP, as it would not limit the implementation of recycled water use.

Mitigation Measure

4.1.1 None required.

Impact

4.1.2 The Proposed Project may be inconsistent with objectives of the Hollister Urban Area Water and Wastewater Master Plan MOU. This impact is considered less than significant.

The MOU for the Master Plan identifies objectives for the management of water resources. Key objectives are summarized in **Section 4.1.1** above. Of these objectives, the Proposed Project has the potential to conflict with sections 2.2.3 and 2.2.5.

Section 2.2.3 of the MOU states that recycled wastewater shall have a target TDS level of 500 mg/L and a not exceed to exceed level of 700 mg/L TDS as soon as practical but not later than by 2015. Currently, wastewater TDS levels average approximately 1,200 mg/L and range from 1,100 to 1,400 mg/L. While proposed MBR facility would improve the effluent quality provided by the DWTP, salinity levels would remain near existing levels. To address salinity levels, the Salt Management Program has been identified. During Phase I, reductions would be achieved by instituting source control programs for municipal and industrial users including the elimination of on-site regenerating water softeners. These programs are expected to reduce salinity levels, but not to MOU target levels. To achieve the target levels, demineralization of groundwater or DWTP effluent through reverse osmosis treatment or electro-dialysis reversal is identified as Phase II of the Salt Management Program. As identified in the project description (**Section 3.4.2**), demineralization would be implemented prior to 2015. As a result, the Proposed Project would be consistent with this objective.

Section 2.2.5 of the MOU states that the water conservation goals of the GWMP shall be used as the basis for all water and wastewater demand/flow projects. The GWMP identifies a municipal and industrial water conservation program (Section 5.3.1) to reduce residential water demand from an estimated rate of 420 GPD per dwelling unit in 2002 to 344 GPD per dwelling unit in 2022. Achievement of this goal is expected to occur by requiring xeriscape landscaping and other water conservation measures (SBCWD & WRASBC, 2004a). As a consequence of this program, wastewater flows could be reduced below the estimated wastewater flow projections utilized to size the DWTP. As identified in **Section 2.5.3**, future wastewater flows utilized to estimate necessary treatment capacity are based on existing flows and estimated growth rates. The wastewater flow projections therefore are based on existing water use rates and do not take into account reductions from water conservation measures. The GWMP does not include analysis on how specific water conservation measures would reduce use making it difficult to estimate impacts on wastewater flows. Not all water conservation measures would affect wastewater flows. For instance, restrictions in landscaping irrigation would not change wastewater flows. However, because measures requiring more efficient toilets and fixtures would affect wastewater flows, it can be assumed that the water conservation program identified in the GWMP would reduce flows to the DWTP to some degree. As a result, the assumptions for capacity design of the DWTP are likely somewhat conservative as actual flows may be less than estimated. The effect of additional water conservation measures is a potential extension of the date at which the DWTP would require secondary expansion to 5.0 MGD. This is considered to be a minor inconsistency because water conservation reductions are currently unknown.

Mitigation Measure

4.1.2 None required.

Impact

4.1.3 The Proposed Project may be inconsistent with objectives of the Water Quality Control Plan for the Central Coastal Basin. This impact is considered less than significant.

The Basin Plan provides water quality objectives to serve as a water quality baseline for evaluating water quality management in the basin. The primary focus of the groundwater objectives is to protect beneficial uses of groundwater, in particular municipal and domestic supply and agricultural supply. The CCRWQCB implements the Basin Plan by issuing and enforcing waste discharge requirements for dischargers whose waste can affect water quality. The current treatment plant meets all existing waste discharge requirements; however, new nitrate limits have been established in the Basin Plan. The existing treatment plant is not capable of meeting this nitrate requirement. Additionally, the CCRWQCB has identified the need for implementing the Long-Term Wastewater Management Program (LTWMP) to achieve a properly functioning DWTP. The Proposed Project is the implementation of the LTWMP. As such, the Proposed Project has been identified to comply with CCRWQCB requirements in implementing the Basin Plan. The CCRWQCB's process to issue waste discharge requirements will address specific constituent levels.

As shown in **Table 4.1-1**, the initial quality of effluent during Phase I would meet Basin Plan groundwater quality objectives for nitrogen and boron. The MBR facility is designed to meet a 5 mg/L effluent nitrate limit. While not an existing limit in the current WDR, it is expected

that this limitation may be imposed in the future to meet the sub-area groundwater objective. Boron is present at low levels in Hollister's water supply and therefore boron levels in effluent are expected to remain at levels below the objective.

However, while the MBR facility would reduce nitrates, levels of salt constituents in effluent would remain near existing levels. While overall TDS levels in effluent would equal the Basin Plan objective, particular salt constituents – sodium, chloride, and sulfate – would approach or exceed Basin Plan objectives. The exceedance of these constituent levels would occur for approximately seven years until demineralization is implemented. Demineralization would occur by 2015, reducing TDS levels to a target level of 500 mg/L. Achievement of this target level would also reduce sodium, chloride, and sulfate to levels lower than the Basin Plan objectives. As a result, in the short term, the effluent quality produced by the Proposed Project would not facilitate attainment of the median groundwater objectives. However, because the Proposed Project would facilitate recycled water use by meeting Title 22 criteria, would reduce nitrate levels, and would have elevated levels of salt constituents for only a period of approximately seven years, conflicts with the Basin Plan are considered to be less than significant. In the long term, demineralization would significantly improve effluent quality by removing salt constituents. This would facilitate attainment of the median groundwater objectives consistent with the Basin Plan. For more detailed discussion of impacts to groundwater quality, please refer to **Section 4.3**.

TABLE 4.1-1
BASIN PLAN GROUNDWATER OBJECTIVES AND EXPECTED EFFLUENT QUALITY

Constituent	Basin Plan Median Groundwater Objective[1]	Phase I Expected Effluent Concentration	Phase II Expected Effluent Concentration
Total Dissolved Solids (TDS)	1,200 mg/L	1,204 mg/L[2]	500 mg/L
Chloride	150 mg/L	287 mg/L[2]	121 mg/L[3]
Sulfate	250 mg/L	252 mg/L[2]	85 mg/L[3]
Boron	1.0 mg/L	0.7 mg/L[4]	0.7 mg/L[4]
Sodium	200 mg/L	253 mg/L[2]	121 mg/L[3]
Nitrate	5 mg/L (Nitrogen)	< 5 mg/L	< 5 mg/L

Notes: 1. Basin Plan, Table 3-8 Median Groundwater Objective for Hollister Sub-Area.
2. Based on existing DWTP effluent quality; average 2005 levels.
3. Based on achievable reduction efficiencies of reverse osmosis process for a target TDS level of 500 mg/L.
4. Based on average boron levels reported for the Hollister water system (City of Hollister, 2006).

Source: RMC, 2006; AES, 2006.

Mitigation Measure

4.1.3 None required.

Impact

4.1.4 Proposed project facilities may conflict with City and County General Plan designations. The impact is considered less than significant.

DWTP Improvements

The existing DWTP and IWTP sites are located in an area within the City of Hollister designated as "Public" which specifically provides for the location of wastewater treatment plants. The western portion of the existing DWTP site is located within the San Benito County Agricultural Productive designation, which provides for uses that by their nature must be located in undeveloped areas. Wastewater treatment facilities are typically located in undeveloped areas to avoid compatibility impacts with sensitive receptors. Therefore, the proposed improvements at these locations are considered to be consistent with the City and County General Plan designations.

Sprayfield Projects

The proposed use of recycled water for agricultural and landscape irrigation at San Juan Oaks, the Airport, Pacific Sod Farm and other locations in the City of Hollister and San Benito County (**Figure 3-3**), would not result in a change of land use. Implementation of the sprayfield projects would change the source of water supply at the project locations, however existing land uses would remain the same. Therefore, the proposed sprayfield and irrigation projects would not conflict with City and County General Plan designations.

Off-site development: Pipelines, Storage Basin, and Evaporation Ponds

The use of recycled wastewater would require the off-site extension of pipelines. All pipelines would be located underground and would not result in a change of land use. Additionally, Phase II of the Proposed Project could potentially include the off-site development of a storage basin, and up to 400 acres of evaporation ponds. The future storage basin and evaporation ponds would be located in an undeveloped area. This location would most likely occur within San Benito County's jurisdiction, in an area designated as Agricultural Productive or Agricultural Rangeland. These designations provide for uses that by their nature must be located in undeveloped areas. The location of the storage basin and evaporation ponds in an area designated by the County as agricultural is considered to be consistent with General Plan designations.

Mitigation Measure

4.1.4 None required.

Impact

4.1.5 Proposed project facilities may conflict with City and County General Plan goals and policies. The impact is considered less than significant.

DWTP Improvements

Improvements to the DWTP would be consistent with City of Hollister and San Benito County General Plan policies, goals, and measures intended to ensure coordination with other

existing and planned land uses. Implementation of the DWTP improvements would ultimately expand the treatment capacity of the plant. This would be consistent with the City's General Plan Goal LU2 to "ensure that public utilities and infrastructure adequately meet the demand for services placed on them." DWTP improvements would enable the city to meet the demands for services created by future commercial and residential users.

Consistent with Policy 25 of the San Benito County General Plan, the MBR facility would treat water to be used for reuse and irrigation to a tertiary level as defined by Title 22. In addition, implementation of the Salt Management Program would reduce the level of salts present in the treated wastewater, which would further reduce impacts to groundwater quality. This is consistent with City and County goals to encourage the conservation of natural resources and ensure the long-term protection of groundwater resources.

The conversion of the percolation beds west of Highway 156 to three unlined storage basins presents the only change in land use that would result from the proposed DWTP improvements. As discussed under **Impact 4.3-8**, groundwater levels are expected to decrease by 1-2 feet as a result of this conversion. However, this decrease would be limited to the immediate vicinity of the west beds. Additionally, there would be a slight increase in salinity levels near the west beds as there would be less treated wastewater percolation to dilute percolation from nearby agriculture fields that are irrigated with groundwater high in total dissolved solids (TDS). However, as discussed under **Impact 4.3.3**, this increase would also be limited to the immediate vicinity of the western beds, and would be equal or less than equal to the typical concentration of TDS in nearby agricultural fields. Consistent with San Benito County land-use goals and policies, the storage basins would not conflict with adjacent agricultural operations, and would not require a substantial buffer to mitigate potential land use impacts.

Sprayfields/Irrigation Projects

Implementation of the sprayfield projects would also be consistent with City and County general plan goals and policies intended to ensure coordination with other existing and planned land uses.

Changes to existing land uses at San Juan Oaks, the Airport, Pacific Sod Farm, and other potential sites for sprayfield projects would not occur. The use of tertiary treated wastewater would supplement the existing water supplies used for irrigation at these locations. This is consistent with City and County goals and policies that emphasize the conservation of natural resources. Additionally, the supplemental irrigation source would aid in the agricultural use of land, which is consistent with County goals to maintain the rural atmosphere of the land and to preserve prime agricultural areas for "present and future agricultural production vital to the county."

Off-site development: Pipelines, Storage Basin, and Evaporation Ponds

The development of pipelines, off-site storage basin, and off-site evaporation ponds would also be consistent with City and County goals and policies intended to ensure coordination with other existing and planned land uses.

The development of an off-site storage basin and evaporation ponds in Phase II of the project would result in a change to existing land uses. The exact location of the off-site facilities has

not yet been identified, however it is likely that the development would be located on agricultural lands. This would result in the removal of land from agricultural production. Potential sites identified for the future storage basin and evaporation ponds may contain Grade 1 soils (as defined by the San Benito County General Plan). Several goals and policies of the San Benito County General Plan emphasize the conservation of agricultural lands containing Grade 1 soils. According to Land Use Element Policy 3 of the San Benito County General Plan, Grade 1 soils are to be given the highest level of protection for soil resources. However, because the site would be utilized by a public wastewater treatment district, the use would be exempt in accordance with the provisions of the policy. Consistent with San Benito County Agricultural land-use goals and policies, the storage basin and evaporation ponds would not conflict with adjacent agricultural operations, and would not require a substantial buffer to mitigate potential land use impacts.

Mitigation Measure

4.1.5 None required.

Impact

4.1.6 Land Use Compatibility Impacts. Potential conflicts with existing land uses related to construction of ancillary facilities at the existing City DWTP. The impact is considered less than significant.

The proposed project includes construction of new buildings to support system improvements at the existing DWTP. These improvements will be implemented within the current boundaries of the existing wastewater treatment plant. Existing emergency storage basins at the DWTP may be used for soil stockpiling and storage during pre-construction and construction. The conversion of the peculation beds on the western portion of the DWTP to three treated wastewater storage basins would not conflict with adjacent agricultural operations, and would not require a substantial buffer to mitigate potential land use impacts. Additionally, the new facilities will be consistent with ongoing uses at the plant site and the improvements at the existing site are not expected to result in conflicts with existing land uses. Therefore, less than significant land use compatibility impacts would occur as a result of DWTP improvements.

Mitigation Measure

4.1.6 None required.

Impact

4.1.7 Land Use Compatibility Impacts. Potential conflicts with existing land uses related to implementation of sprayfield projects. This impact is considered ~~less than~~ potentially significant.

The Proposed Project includes the distribution and application of recycled water to urban and agricultural water markets. Sprayfield and irrigation projects would involve the use of recycled wastewater on agricultural land, golf courses, and landscaped areas. Irrigation projects would be limited to landscaped areas and specific crops that would be compatible with the salt levels of the treated effluent. As salt levels of the treated effluent improve with

the implementation of the Salt Management Program in Phase II, the irrigation projects may be extended to a larger number of crops. Recycled water would be used in accordance with state and federal regulations, including California Department of Health Services requirements under Title 22. Through conformance with these adopted laws and regulations, impacts to existing agricultural resources resulting from the use of recycled wastewater would ~~result in less than significant land use compatibility impacts~~be minimized to the extent feasible. However, the elevated concentration of TDS levels in the irrigation water could lead to the accumulation of constituents on the soil and potentially reduce the suitability of the land for production of certain crops. This would be considered a potentially significant impact.

Mitigation Measure

4.1.7 ~~None required.~~

To reduce impacts associated with reduced soil productivity as a result of irrigation with high salinity treated effluent, implement Mitigation Measure 4.2.5.

Impact

4.1.8 **Land Use Compatibility Impacts. Potential conflicts with existing land uses related to construction and operation of pipelines, an off-site storage basin, and off-site evaporation ponds. This impact is considered potentially significant.**

Pipelines

The use of recycled water would require the installation of new pipelines to convey recycled water from the DWTP. These pipelines would be located underground and would not conflict with existing land uses.

Off-site Storage Basin

Phase II of the Proposed Project could potentially include the development of an off-site storage basin to hold water during the winter months when water demand at irrigation and sprayfield areas is reduced. The off-site storage basin would most be located in a rural area. The storage basin would not significantly conflict with adjacent land uses, as it would not present significant noise, or odor impacts to adjacent users.

Evaporation Ponds

A component of the Salt Management Program that would be implemented in Phase II of the Proposed Project could include the development of up to 400 acres of off-site evaporation ponds. These ponds would be used to evaporate the highly concentrated salt solution, referred to as brine, which is generated by the groundwater treatment process. During the evaporation process, a crust forms over the top layer of the salts that would prevent the wind-borne dust from occurring. However, the collection and trucking of evaporated salts could result in dust generation when salts are collected for off-site disposal. This blowing dust caused by the removal of salts could be a nuisance to down-wind sensitive receptors, such as residential housing, or commercial areas. It is anticipated that during a seven month dry season, an estimated 300 truck trips, or approximately two truck a day would be required to

haul the evaporated salts to disposal facilities (SBCWD & WRASBC, 2004b). The dust generated from collection of evaporated salt concentrate could result in significant land use compatibility impacts.

Additionally, the noise generated by truck traffic required for the export of concentrate, and the operation of equipment could adversely affect nearby receptors. This is also considered a potentially significant land use compatibility impact. The following mitigation measures are consistent with measures identified in the EIR completed for the 2004 GWMP Update (SBCWD & WRASBC, 2004b, pg.V-43, 166).

Mitigation Measures

4.1.8 **(a) To reduce impacts associated with dust from collection of concentrate solids, implement Mitigation Measure 4.8.10.**

(b) To reduce impacts associated with noise from the operation of pumps at evaporation ponds, implement Mitigation Measure 4.10.4.

(c) To reduce noise impacts associate with truck traffic at evaporation ponds, implement Mitigation Measure 4.10.5.

Significance After Mitigation

Less than significant.

Impact

4.1.9 **Proposed facilities may convert Prime Farmland, Unique Farmland and Farmland of Statewide Importance to non-agricultural use. The impact is considered potentially significant.**

The use of recycled water would require the installation of new pipelines to convey recycled water from the DWTP and potentially an off-site storage basin and evaporation ponds to hold water during the winter months when demand is reduced. Pipelines would be located underground and would not result in farmland conversion. However, the potential 670 acre-foot storage basin and up to 400 acres of evaporation ponds could be located within areas mapped as Prime Farmland, Unique Farmland or Farmland of Statewide Importance as shown in **Figure 4.1-4**. Assuming a depth of 15 feet for the storage basin and that land evaporation techniques are implemented (as opposed to fueled evaporation which would require less area) this could result in the conversion of approximately 445 acres of Prime Farmland, Unique Farmland or Farmland of Statewide Importance to non-agricultural use. This would not be consistent with goals and policies included in the Open Space and Conservation elements of the City of Hollister and San Benito County's general plans. While it is possible that the storage basin and evaporation ponds could be re-graded in the future to allow for the resumption of agriculture, this is considered a potentially significant impact. The following mitigation measure is generally consistent with measures identified in the EIR completed for the 2004 GWMP Update (SBCWD & WRASBC, 2004b, pg.V-43); however it has been expanded to include Unique Farmland as loss of this resource would also be considered a significant impact.

Mitigation Measure

4.1.9 The siting of off-site facilities, including storage basins and evaporation ponds, shall avoid Prime Farmland, Unique Farmland and or Farmland of Statewide Importance.

Significance After Mitigation

Less than significant.

Impact

4.1.10 Proposed project facilities may conflict with a Williamson Act contract. The impact is considered ~~less than~~ potentially significant.

DWTP Improvements

DWTP improvements would take place on the existing property, which is not subject to a Williamson Act contract.

Sprayfields/Irrigation Projects

As shown in **Figure 4.1-5**, sprayfield and irrigation projects may occur on locations protected under Williamson Act contracts. However these projects would not result in a change of land use. Existing land uses would continue as allowed under the Williamson Act contracts.

Pipelines and Off-site Storage Basin

The potential off-site storage basin and evaporation ponds could be located on parcels protected under a Williamson Act contract. However, the proposed use may be found to be consistent with the Williamson Act contract, or the City of Hollister may remove the property from the Williamson Act by right of eminent domain without penalty when the City purchases the parcel. ~~If this is necessary, the City's ability to exercise its rights under eminent domain would reduce impacts to a less than significant level.~~ Nevertheless, although the City may follow statuary requirements in terminating a contract, the impact of the termination is not reduced. Therefore, as the development of a storage basin and evaporation ponds could result in the termination of Williamson Act contracts, this would be considered a potentially significant impact.

Mitigation Measure

4.1.10 ~~None required.~~

The siting of off-site facilities, including storage basins and evaporation ponds, shall avoid parcels under Williamson Act contracts.

Significance After Mitigation

Less than significant.

4.2 GEOLOGY AND SOILS

4.2.1 REGULATORY SETTING

The City of Hollister and San Benito County have policies and guidelines concerning grading, erosion control, geologic stability, and seismic hazards. The general plan identifies the following applicable goals and policies.

CITY OF HOLLISTER GENERAL PLAN

HEALTH AND SAFETY

GOAL HS 1.4 - Seismic Hazards

a) Assure new structures are designed to protect people and property from seismic hazards;
b) Review all development proposals for compliance with the Alquist-Priolo Earthquake Fault Zoning Act and the Uniform Building Code.

GOAL HS 1.6 - Engineering Tests for Geologic Conditions

a) Engineering tests for those developments that may be exposed to impacts associated with expansive soils, so that building foundation footings, utility lines, roadways, and sidewalks can be designed to accept the estimated degree of soil shrink and swell according to the standards of the Uniform Building Code.

COMMUNITY SERVICES AND FACILITIES

GOAL 3.2 - Erosion and Sediment Control

a) Require project developers to implement suitable erosion control measures.

SAN BENITO COUNTY GENERAL PLAN

LAND USE ELEMENT OVERALL COUNTY

Policy 32 - Specific development sites shall be free from the hazards identified within the Open Space and Conservation Element Maps (e.g. faults, landslides, hillsides over 30% slope, flood plains). The site shall also be on soil suitable for building and maintaining well and septic systems (i.e. avoid impervious soils, high percolation or high groundwater areas, set back from creeks). Absent adequate mitigation, development shall not be located on environmentally sensitive lands (wetlands, erodable soil, archaeological resources, important plant and animal communities).

Policy 33 - Specific development sites shall avoid, when possible, locating in an environmentally sensitive area (wetlands, erodable soils, important plant and animal communities, archaeological resources).

ALQUIST-PRIOLO EARTHQUAKE FAULT ZONING ACT

The act highlights earthquake fault zones around the surface traces of active faults. Local agencies must regulate most development projects within the zones. Projects include all land divisions and most structures for human occupancy. Before a project can be permitted, cities and counties must require a geologic investigation to demonstrate that proposed buildings will not be constructed across active faults. An evaluation and written report of a specific site must be prepared by a licensed geologist. If an active fault is found, a structure for human occupancy cannot be placed over the trace of the fault and must be set back from the fault (generally 50 feet).

STATE WATER RESOURCES CONTROL BOARD AND REGIONAL WATER QUALITY CONTROL BOARD

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) GENERAL PERMIT FOR STORM WATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITY – WATER QUALITY ORDER 99-08-DWQ

Typically, General Construction Storm Water NPDES permits are issued by the RWQCB for grading and earth-moving construction activities. The General Permit is required for construction activities that disturb one or more acres. The General Permit requires development and implementation of a Storm Water Pollution Prevention Plan (SWPPP), which specifies practices that include prevention of all construction pollutants from contacting stormwater with the intent of keeping all products of erosion from moving off site into receiving waters. Typically, NPDES permits are issued for a five-year term. NPDES general permits require adherence to Best Management Practices (BMPs) including:

- "Site Planning Considerations" such as preservation of existing vegetation.
- "Vegetation Stabilization" through methods such as seeding and planting.
- "Physical Stabilization" through use of dust control and stabilization measures.
- "Diversion of Runoff" by utilizing earth dikes and temporary drains and swales.
- "Velocity Reduction" through measures such as slope roughening/terracing.
- "Sediment Trapping/Filtering" through use of silt fences, straw bale and sand bag filters, and sediment traps and basins.

4.2.2 ENVIRONMENTAL SETTING

GEOLOGY AND SOILS

REGIONAL

The project area is located in the Hollister and San Juan Valleys, which are part of the Coast Range geomorphic province of California. The valleys are bordered by the Diablo Range to the east and the Gabilan Range to the west. The elevation of the area ranges from approximately 140 to 1,540 feet above mean sea level (msl). The valley floors are nearly flat and comprised of unconsolidated to poorly consolidated alluvial and lake deposits. Younger terrace deposits are prevalent along the east side of Hollister Valley, and channel deposits exist along the San Benito River, which cuts through the valleys. The floor gives way to low foothills in the east and west, where deposits are older and have been locally

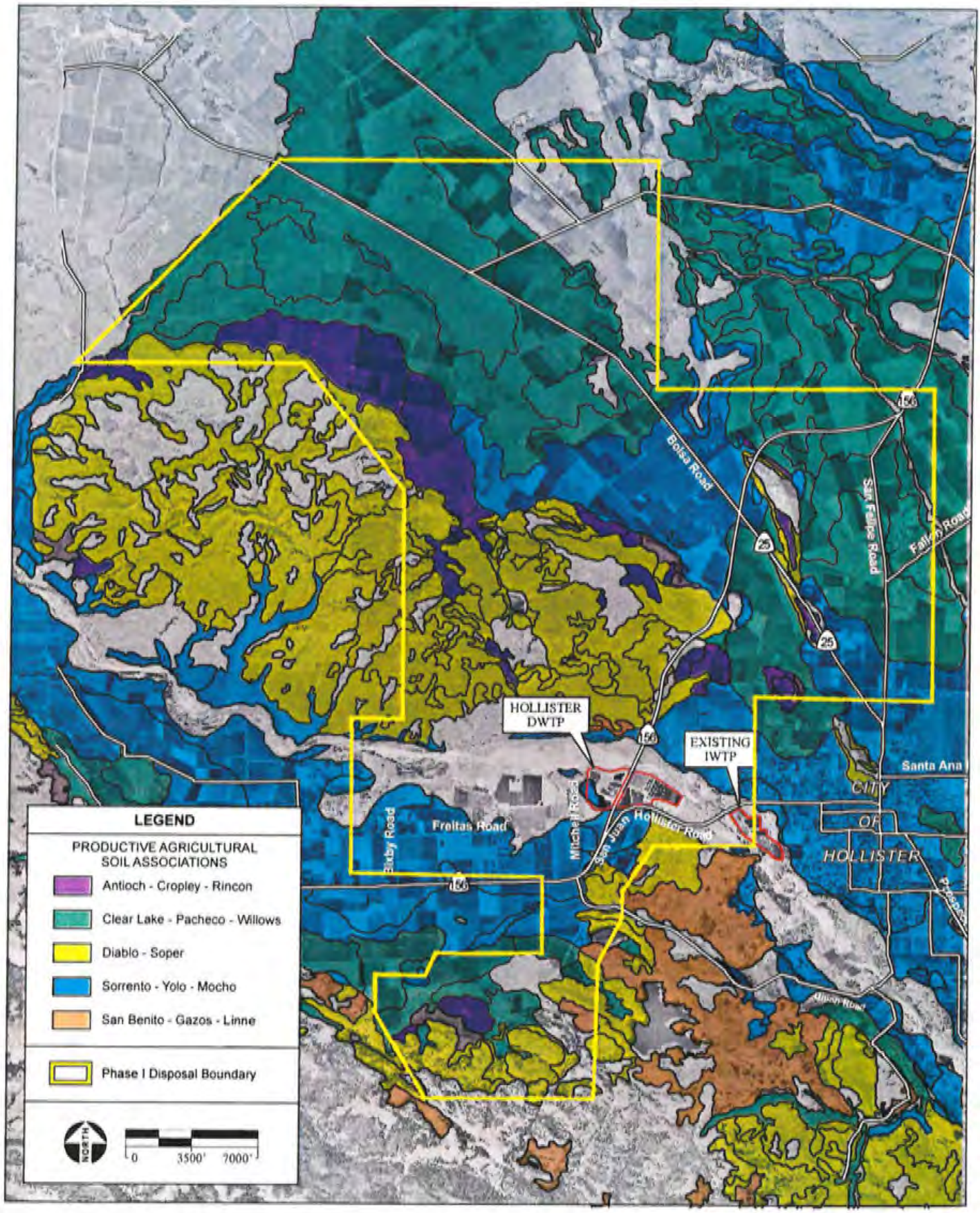
modified by renewed surface erosion, and are underlain by sedimentary rocks. Hillside areas located to the south and east of the San Juan Valley are underlain by continental mudstone. The higher and steeper mountain areas of the Diablo and Gabilan mountain ranges are underlain by a variety of semi-consolidated bedrock materials. Sediment deposits within the project area from the surface to the depth limits of exploratory borings can be described as freshwater lake, marsh, stream channel, floodplain, and related non-marine sediments (SBCWD, 2003).

Productive agricultural soils in the area can be categorized into three general classifications. The Sorrento-Yolo-Mocho association consists of soils that are nearly level to sloping, well-drained, medium-textured, loamy to clayey, and found on floodplains and alluvial fans. The Clear Lake-Pacheco-Willows association consists of soils that are nearly level to gently sloping, poorly drained to somewhat poorly drained, loamy and clayey, and found on floodplains and basins in the northern Hollister Valley. The Rincon-Antioch-Cropley association consists of soils that are nearly level to strongly sloping, well drained to moderately well drained, medium to fine textured soils, and found on alluvial fans and terraces in the eastern portion of the Hollister Valley. Two other soil associations, the Diablo-Soper and San Benito-Gazos-Linne associations, are found in upland areas bordering the Hollister and San Juan Valleys. These soils are found on rolling to very steep hillsides and are shallower, coarser soils that are well drained and fine-textured. Erosion and landslide potential is high to severe in these areas (SBCWD, 2003). **Figure 4.2-1** provides a composite drawing showing the productive agricultural soils of the region.

SEISMICITY

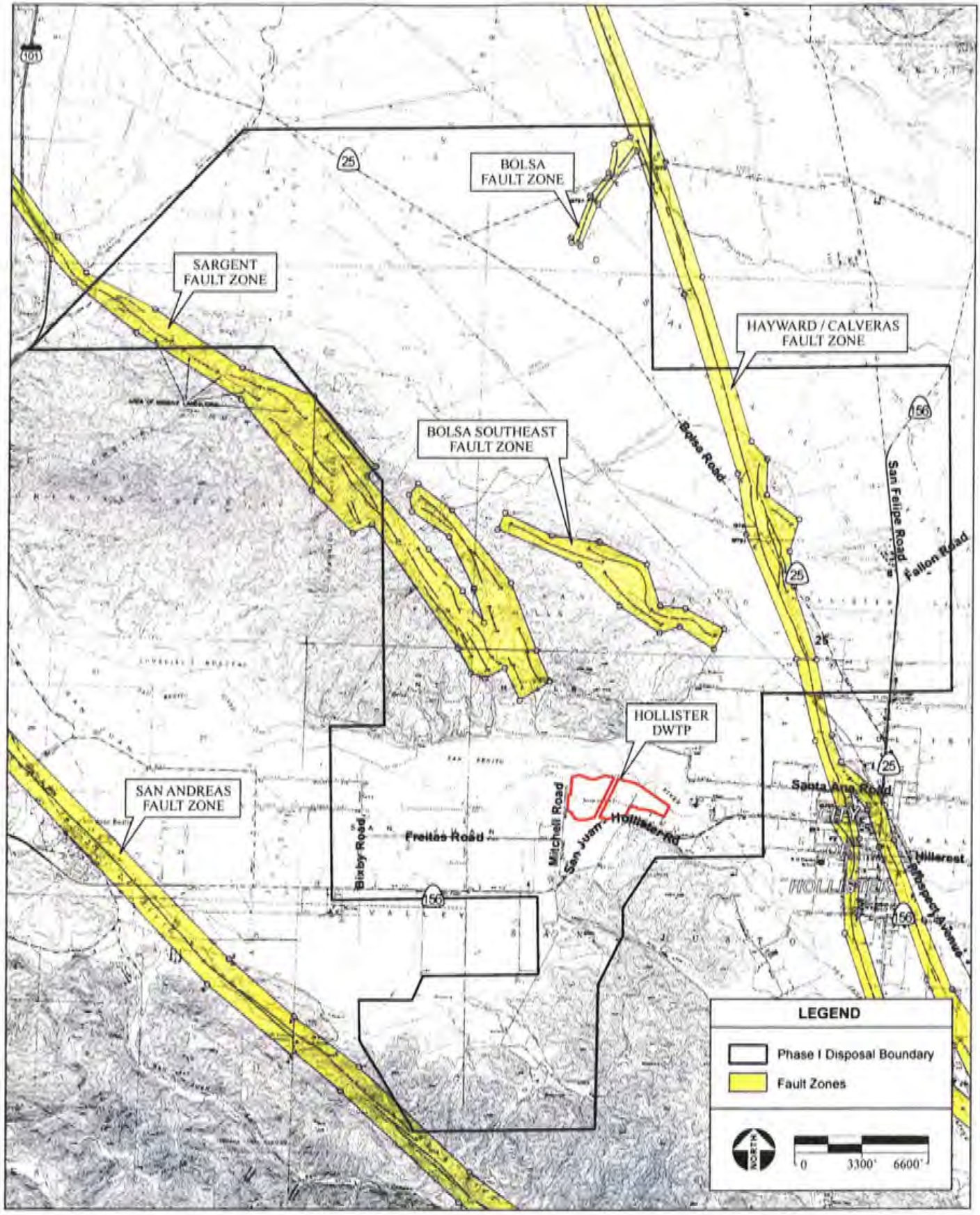
The Alquist-Priolo Earthquake Fault Zoning Act designates the project area as being within the San Andreas Rift Zone, which consists of several major parallel, northwest trending faults or rupture areas. **Figure 4.2-2** shows the San Andreas Fault, which is located 2.5 miles west of the city of Hollister, the Hayward/Calaveras Fault, which runs through the downtown area of the City of Hollister; the Sargent Fault, which runs through the Flint Hills, and the small Bolsa and Bolsa Southeast faults, which run east of the Sargent fault. The areas designated in **Figure 4.2-2** are Alquist-Priolo Earthquake Fault Zones, where development is regulated. Also within proximity of the project area are the Ausaymas Fault, which runs just northeast of the project site, and the Tres Pinos Fault, which runs southeast of the project site and the City of Hollister. Recent geological movement along faults of the project area has uplifted and exposed some of the deeper, more consolidated basin fill deposits, resulting in hills including Lomerias Muertas and the Flint Hills (SBCWD, 2003).

There is a moderate to high probability of a strong earthquake on the San Andreas Fault in the general area during the next 50 to 100 years, similar to the magnitude 7.1 Loma Prieta earthquake in 1989. Hazards associated with earthquake faults include ground rupture, ground shaking and liquefaction. The Hollister area has been historically susceptible to all three hazards with ground rupture the primary hazard of concern.



SOURCE: RMC Water and Environment, 2005; San Benito County Water District, 2005; City of Hollister, 2005; USGS Aerial Maps; AES, 2006

Figure 4.2-1
Productive Agricultural Soil Associations



SOURCE: California Department of Conservation, 1982/1986; AES, 2006

Figure 4.2-2
Faults

GROUND RUPTURE

Ground rupture from an earthquake is regarded as more likely to occur in the zone immediately around a fault. A rupture is a manifestation of the fault displacement at the ground surface. The amount of displacement can range up to several feet or more, depending on the earthquake magnitude and other factors. As **Figure 4.2-2** shows, areas immediately affected by faults within the project area are the Flint Hills, the northeast portion north of the downtown area of Hollister; and the northwest and far northeast corners, and far southwest corner of the project site.

GROUND SHAKING

Earthquake-generated ground shaking is the greatest cause of widespread damage in an earthquake. Ground shaking may occur many miles from a fault from the ground motion components of wave velocity and acceleration. The velocity, acceleration, and duration of ground shaking at a particular area are dependent upon the distance of the area from the fault, the magnitude of the earthquake, and the type of bedrock, alluvium, and soil through which waves travel. Areas underlain by thick, saturated, unconsolidated sediments will experience greater shaking motion than areas underlain by firm bedrock. Groundwater conditions fluctuate locally and will strongly influence the intensity of ground shaking. Where ground water is shallow, the alluvial materials will be saturated and respond to earthquakes with greater ground shaking. Any seismic event on the local faults would produce some extent of ground shaking in the project area because of the proximity of the site to the faults. However, greater ground shaking would occur at the Hollister and San Juan Valley floor portions of the project area because they are underlain by poorly consolidated or unconsolidated deposits, whereas the mountain areas are underlain by semi consolidated bedrock. Those areas with perched groundwater would also be expected to experience greater ground shaking.

LIQUEFACTION POTENTIAL

Soil liquefaction is a process in which sandy, saturated soils become "liquefied" and loose their bearing capacity during seismic ground shaking. Liquefaction potential is dependent on such factors as soil type, depth to groundwater, degree of seismic shaking, and the relative density of the soil. Soils most susceptible to liquefaction are saturated, clean, loose, uniformly graded, fine-grained sands. Areas of perched groundwater are most vulnerable to liquefaction because of their saturation. In San Benito County, areas of perched groundwater exist close to the surface of creek beds and soils with open faces nearby, particularly within the floodplain around the San Benito River.

EXPANSIVE SOILS

Expansive soils are soils that shrink when dry and expand (swell) when saturated. When dry, soils may develop large cracks, when wet they may expand beyond typical levels. These changes can cause shifting and cracking to the foundations of building structures. The regionally categorized soil associates, Sorrento-Yolo-Mocho and Clear Lake-Pacheco-Willows, have a low to moderate shrink-swell (expansive) potential, and the Rincon-Antioch-Cropley soil association has a moderate to high shrink-

swell potential. The surface soils at the DWTP site have a low to moderate shrink-swell potential (Geocon, 2004).

Erosion Potential

Soil erosion is the removal of soil by water and wind. The rate of erosion is estimated from four soil properties: texture, organic matter content, soil structure, and permeability. Other factors that influence erosion potential include the amount of rainfall and wind, the length and steepness of the slope, and the amount and type of vegetative cover. The erosion potential throughout the valley, including the project area, has been classified as low (SBCWD & WRASBC, 2004b). However, during periods of heavy rainfall, erosion from runoff could occur. At the lower slopes on the hills along the east and west sides of the valley and at stream banks, moderate erosion potential exists.

Landslide Potential/Slope Stability

Landslides result when the driving forces that act on a slope (i.e. the weight of the slope material, and the weight of objects placed on it) are greater than the slope's natural resisting forces (i.e., the shear strength of the slope material). Earthquake-induced landslides will occur generally in the same areas as landslides induced by other natural forces. However, the addition of earthquake energy may induce landslides that otherwise might not have occurred. Landslides are due to the failure of either surficial material or, in some cases, bedrock. Failures usually result from a combination of factors including unstable or weak rock and soil materials, adversely oriented geologic structures, insufficient vegetative cover, high water content, over steepened slopes, or high slope angles. The valleys in the project area have a low landslide potential because of their nearly flat surface. Landslide potential exists in the foothills and mountains to the east and west of the valleys because of slopes, but events would be expected to be infrequent because of the underlying somewhat consolidated bedrock. The Flint Hills area presents an elevated risk because of expected higher ground shaking and rupture from a seismic event along the Sargent Fault.

Mineral Resources

The northern San Benito County area includes areas mapped as significant sources of aggregate by the State of California under the Surface Mining and Reclamation Act (SMRA). The purpose of the mapping program under SMRA is to ensure that significant mineral resources can be protected from premature and/or incompatible development and will be available for extraction. Within the project area, mineral resource zones are found along the San Benito River and near Hollister Municipal Airport, and principal economic minerals identified are sand and gravel deposits of the San Benito River and along the San Andreas Fault (SBCWD & WRASBC, 2004b).

The DWTP site is relatively flat and elevation ranges from approximately 270 feet to 280 feet above msl. Located directly to the south are the foothills of the Gabilan Range and to the west are the Flint Hills. The surface soils at DWTP site are described below:

Reiff Sandy Loam, 0 to 2 percent slopes, low to moderate shrink swell potential, Permeability 0.8 to 2.5 inches per hour at and below 42 inches below ground surface.

Metz Sandy Loam, 0 to 2 percent slopes, low shrink swell potential, Permeability 2.5 to greater than 10 inches per hour.

Sandy Alluvial Land, 1 to 4 percent slopes. Soil properties not given, assumed properties based on field observations: low shrink swell potential, Permeability 2.5 to greater than 5.0 inches per hour inches per hour.

As part of a hydrogeologic study of the DWTP area, several soil bores were completed. The levees separating the ponds generally consist of three to eight feet of sandy gravel fill, that overlaid interbedded layers of sandy and silty clay, silty sand, and clayey sand. An apparently continuous clay layer was observed at an average depth of approximately 28 to 31 feet below ground surface (bgs) of the DWTP percolation pond area east of State Route 156. At shallower depths, at the western portion of the DWTP site, clay layers appeared more prevalent. In sediments 15 to 28 feet bgs to the west of State Route 156, several clay layers were observed, and at 28 to 31 feet bgs, an apparently continuous clay layer was observed (Geocon, 2004).

4.2.3 Impacts and Mitigation Measures

Significance Criteria

The significance criteria listed below are utilized to determine the magnitude of soils, geology, and seismicity impacts. Impacts are considered significant if the Proposed Project would:

- Substantially alter the existing topographic features of the project site;
- Pose a constraint to potential mineral extraction activities;
- Be limited, constrained or potentially damaged as a result of seismic hazards within the project area;
- Result in increased erosion during construction and operation; and
- Be limited or constrained as a result of soils and geologic conditions in the project area.

Analysis Methodology

This section identifies any impacts that the Proposed Project and alternatives may have on geologic resources or hazards identified in previous sections. If significant impacts are likely to occur, mitigation measures are included to increase the compatibility and safety of the Proposed Project and reduce impacts to less-than-significant levels.

Impact Statements and Mitigation Measures

DWTP Improvements

Impact

4.2.1 Construction and excavation activities would remove vegetative cover and would expose soils to the effects of wind, rain, and surface flow, increasing the potential for erosion. The impact is considered potentially significant.

Construction and excavation activities for new DWTP facilities would occur at the existing DWTP plant. Therefore, vegetation cover removal would be minimal. Some soils during the development process would be exposed to natural elements and some extent of erosion would occur. Summer construction would increase soil exposure to winds and wind erosion and winter grading activities would increase soil exposure to rains and potential surface runoff. The mitigation measures identified below are consistent with the measures identified in the EIR completed for the 2004 GWMP Update, which addressed construction related impacts (SBCWD & WRASBC, 2004b, pg.V-91).

Mitigation Measures

4.2.1 The City will be required to comply with the State's NPDES General Permit for Discharges of Storm Water Runoff Associated with Construction Activity. The CCRWQCB requires that all construction sites have adequate control measures to prevent the discharge of sediment and other pollutants to streams or rivers. To comply with the permit, the City will file a Notice of Intent with the CCRWQCB and prepare a SWPPP prior to construction. A copy of the SWPPP must be current and remain on the project site. Control measures are required prior to and throughout the rainy season. Water quality control measures identified in the SWPPP could include but not be limited to the following:

- **Temporary erosion control measures (such as silt fences, staked straw bales, and temporary revegetation) shall be employed for disturbed areas. No disturbed surfaces will be left without erosion control measures in place during the winter and spring months.**
- **Sediment shall be retained onsite by a system of sediment basins, traps, or other appropriate measures.**
- **A spill prevention and countermeasure plan shall be developed that will identify proper storage, collection, and disposal measures for potential pollutants (such as fuel, fertilizers, pesticides, etc.) used onsite. The plan will also require the proper storage, handling, use, and disposal of petroleum products.**
- **Construction activities shall be scheduled to minimize land disturbance during peak runoff periods and to the immediate area required for construction. Soil conservation practices shall be completed during the fall or late winter to reduce erosion during spring runoff. Existing vegetation will be retained where possible. To the extent feasible, grading activities shall be limited to the immediate area required for construction.**
- **Surface water runoff shall be controlled by directing flowing water away from critical areas and by reducing runoff velocity. Diversion structures such as terraces, dikes, and ditches shall collect and direct runoff water around vulnerable areas to prepared drainage outlets. Surface roughening, berms,**

check dams, hay bales, or similar devices shall be used to reduce runoff velocity and erosion.

- **Sediment shall be contained when conditions are too extreme for treatment by surface protection. Temporary sediment traps, filter fabric fences, inlet protectors, vegetative filters and buffers, or settling basins shall be used to detain runoff water long enough for sediment particles to settle out. Store, cover, and isolate construction materials, including topsoil and chemicals, to prevent runoff losses and contamination of groundwater.**
- **Topsoil removed during construction shall be carefully stored and treated as an important resource. Berms shall be placed around topsoil stockpiles to prevent runoff during storm events.**
- **Establish fuel and vehicle maintenance areas away from all drainage courses and design these areas to control runoff.**
- **Disturbed areas will be re-vegetated after completion of construction activities.**
- **All necessary permits and approvals shall be obtained.**
- **Provide sanitary facilities for construction workers.**

Significance After Mitigation

Less than significant.

Impact

4.2.2 Possible ground rupture and liquefaction from seismic events or expansive soils could occur at the proposed DWTP site causing structural damage. The impact is considered less than significant.

Surface soils at the DWTP site have been assessed as having low to moderate shrink swell potential. Therefore, expansive soils are not anticipated to be a significant hazard. Structural damage hazards exist from earthquake events and potentially unstable soils at the DWTP site. The DWTP site does not lie in the immediate zone of any of the identified faults and therefore should not be susceptible to significant ground rupture. However, a seismic event along any of the faults within proximity to the project area could result in ground shaking at the DWTP site. The impact of ground shaking on structures of the DWTP site is dependent on whether soils undergo liquefaction. The occurrence of liquefaction from a seismic event can cause building foundations to sink or tilt several feet into the underlying soil.

A detailed site-specific comprehensive geotechnical investigation was undertaken by Earth Systems Pacific (2004). The investigation concluded that structural considerations for liquefaction are necessary. Recommendations identified in the investigation have been incorporated into the facility design. As a result, all facilities to produce a fully treated effluent would be supported on columns or piles to ensure structural stability. These facilities would include the pretreatment facility, MBR process tanks, MBR tanks, MBR/Electrical building, chemical building, and operations building. These measures would reduce the potential from substantial structural damage. Additionally, all structures would be designed with flexible pipe connections to minimize potential damage and differential settlement caused by a major earthquake. In the case of an emergency, the MBR influent distribution structure would be designed to overflow to a sludge stabilization basin that would provide

approximately 16 million gallons of emergency storage capacity. When the facility is restored to operation, the contents of the sludge stabilization basin would be pumped back to the pretreatment facility for processing through the plant.

Mitigation Measures

None required.

Significance After Mitigation

Less than significant.

Impact

4.2.3 Possible ground rupture and liquefaction from seismic events or expansive soils could occur at the seasonal storage reservoir site causing structural damage. The impact is less than significant.

Structural damage hazards exist from earthquake events and potentially unstable soils at the seasonal storage reservoir site. The seasonal storage reservoir site does not lie in the immediate zone of any of the faults and therefore should not be susceptible to significant ground rupture. However, a seismic event along any of the faults identified within proximity to the project area could result in ground shaking would be expected at the seasonal storage reservoir site. The impact of ground shaking on structures of the seasonal storage reservoir site is dependent on the ability of soils to withstand liquefaction.

In 2003 Earth Systems Pacific undertook a geotechnical engineering report for two of the seasonal storage ponds located on the western side of State Route 156. The ponds would be included in the area proposed for the seasonal storage reservoir of the new DWTP. The ponds are underlain by interbedded sand, silt and clay deposits typical of a river environment, which was expected because of the DWTPs location within the San Benito River flood plain. From the study concluded that a major seismic could cause 1 to 4 inches of liquefaction-induced settlement, but that there is a low-probability that the pond embankments would fail or be excessively damaged.

The California Water Code regulates the construction of wastewater storage reservoirs. Based upon final design that incorporates a detailed analysis of groundwater elevations and soil balance, the reservoir may fall under the jurisdiction and requirements of the California Division of Safety of Dams (DSOD). Under the California Water Code, wastewater ponds less than 15 feet high (above grade) and which have a maximum capacity of 1,500 acre-feet or less are exempt from State jurisdiction. The final dam design may exceed 15 feet in height above grade in order to reduce the amount of soil excavated. If the reservoir does exceed the classifications for exemption, the City would need to apply for and obtain DSOD approval of plans and specifications. DSOD would require the City to comply with certain requirements for design and construction of the reservoir including DSOD certification of the treated wastewater impoundment. Once constructed, DSOD would inspect the final dam specifications and the completed dam. DSOD will issue a certificate only if it finds that the dam or reservoir is safe to impound water within the limitations prescribed in the certificate.

If the reservoir is exempt from State jurisdiction, construction of the reservoir will still need to comply with provisions of the California Water Code. Specifically, California Water Code, Division 3, Part 1, Chapter 2, Section 6025 contains the following conditions:

Section 6025.5(b) – Requires the City to adopt a resolution which finds that the ponds have been constructed and operated to standards adequate to protect life and property, and provides that the City shall supervise and regulate the design, construction, operation, enlargement, replacement, and removal of the ponds after the effective date of the resolution.

Section 6025.5(c) – Requires that the seasonal storage reservoirs be designed by, and constructed under the supervision of a registered civil engineer, and that the location of the reservoirs not cross a stream channel or watercourse.

Section 6025.6 – Requires the City to comply with the requirements of Section 8589.5 of the California Government Code, preparation of inundation maps, and to employ a civil engineer registered in California to supervise the reservoirs for the protection of life and property for the full operating life of the reservoirs. The City is required to submit the name, business address, and telephone number of the reservoir supervising civil engineer to the Department of Water Resources.

Based upon compliance with the provisions of the California Water Code, the potential for structural failure to occur as the result of a seismic event or soil instability is considered to be less than significant.

Mitigation Measures

None required.

SPRAYFIELDS AND RECYCLED WATER USE

Impact

4.2.4 Reuse of recycled water at spray fields or irrigation sites on saturated soils would increase potential for erosion from surface flows of partially treated recycled water. This would be a potentially significant impact.

The application of recycled water to spray fields or irrigation sites that are saturated could lead to surface runoff of wastewater effluent. Erosion from surface runoff could lead to increased sediment loading to stormwater systems and surface waters. The application of recycled water to slopes presents the greatest erosion hazard, because saturated soils on slopes flow downhill very easily, carrying sediment to stormwater systems or surface waters. This could impact the quality of surface waters.

Mitigation Measures

4.2.4 Irrigation with reclaimed water would be subject to Waste Discharge Requirements issued by the RWQCB, which would restrict application of reclaimed water to prevent off-site runoff. The City of Hollister and/or the SBCWD shall implement measures required by the CCRWQCB, which could include but are not necessary limited to the following measures:

- **No reclaimed water shall be applied to irrigation areas during periods when soils are saturated. Irrigation schedules shall be defined by evapotranspiration rates of crops, available soil moisture, and rainfall. Soil moisture levels shall be monitored by the development of at least four monitoring locations at each sprayfield/irrigation site utilizing tensiometers, electrical resistance blocks, or other measuring devices.**
- **Reclaimed water shall not be allowed to escape from the designated use area(s) as surface flow that would either pond and/or enter waters of the State. Irrigation schedules and methods shall be utilized to avoid surface runoff from irrigation sites. Methods shall include the use buffers, berms, and ditches to control runoff.**
- **Incidental discharge of recycled water to waters of the State shall be minimized through the use of buffers, berms, and ditches to control runoff. ~~not unreasonably affect present and anticipated beneficial uses of water and shall not result in water quality less than that prescribed in water quality control plans or policies.~~**

Significance After Mitigation

Less than significant.

Impact

4.2.5 Accumulation of salt in sprayfield site soils from elevated salinity levels in recycled water could result in degradation of soil quality. This would be a ~~less than~~ potentially significant impact.

~~During Phase I, recycled water would have salinity levels of approximately 1,200 mg/L TDS. For comparison, the City of Hollister and SBCWD have identified a salinity target for recycled water of 500 mg/L TDS. This target is intended to protect all beneficial uses of groundwater, including its use as a public drinking water supply. The elevated salinity levels also have the potential to affect surface soils. Operation of sprayfields utilizes evapotranspiration for disposal. Approximately 90% of the water applied leaves the soil through evaporation and crop transpiration; this leaves most of the salts behind, which results in an approximately 10 fold increase in the concentration of salts in soil water. Salt levels in the soil would increase during the summer when application occurs. However, rainfall in the winter then dilutes the salt concentration in the soil and transports salts downward past the crop root zone. This annual cycle would limit the salt accumulation in surface soils. Additionally, the Proposed Project includes a Salt Management Program, which has identified a target level of 500 mg/L TDS and a not to exceed level of 700 mg/L TDS. These targets have been adopted by the City of Hollister, SBCWD, and San Benito County in the Hollister Urban Area Water and Wastewater Master Plan MOU. As identified in the MOU, these targets should be met no later than 2015. As a result, it is expected that high salinity water would be applied for up to eight years. After this time, salinity levels in recycled water would not have the potential to elevate surface soil salt concentrations. Due to the reduction in salt concentration expected in the short term due to winter rainfall, and the long term improvements to recycle water salinity levels, salinity impacts to surface soils are expected to be less than significant.~~

During Phase I, sprayfields would be utilized to dispose of treated effluent from the DWTP. Salt ions present in irrigation water such as sodium, chloride, sulfate, calcium and magnesium have the potential to accumulate in soils. Salt ions can accumulate over time as water is

applied. Through surface evaporation and the transpiration of plants, water is taken up, leaving some of the salts behind to gradually build up in surface soils. Increased salt levels in the rootzone of soils can change the chemistry of the soil and lead to reduced plant growth. If uncontrolled, plants that are sensitive to salt cannot be productively grown on affected soils. This could change the affected soil's crop capability potentially impacting valuable agricultural land including Prime Farmland, Farmland of Statewide Importance, and Unique Farmland.

Impacts to soils from irrigation water salinity could occur from high levels of soluble salts. The level of soluble salts is expressed in TDS and electrical conductivity (ECw). Based on the analysis of existing effluent quality, it is expected that treated effluent used to irrigate sprayfields would have salinity levels of approximately 1,200 mg/L TDS and an ECw of approximately 2.2 millimhos per centimeter (mmhos/cm). Based on general guidelines for the use of municipal wastewater for agricultural irrigation, the treated effluent presents slight to moderate restrictions on use[1]. This salinity level in irrigation water indicates that special practices may be required if full production is to be achieved for salt-sensitive crops (Westcot and Ayers, 1984). Long-term use of the treated effluent with Phase I salinity levels for irrigation of common row crops could reduce crop yields. For instance, based on the expected effluent quality, the yield of spinach would be less than 90% of yield potential, lettuce and onion crops would be less than 75% of yield potential, and yields of strawberry crops would be less than 50% of their potential (Grattan, 2002). However, during Phase I, agricultural irrigation would not occur unless recycled water is blended to achieve lower salinity levels; instead, sprayfields would primarily be utilized. Sprayfields would be planted with grass varieties that are much more salt-tolerant, and as a result, the salinity level of the treated effluent would not limit the growth potential of the selected grasses. A variety of California turfgrass species have the ability to tolerate soil salinity values of 10 mmhos/cm and above (Harivandi, 1999).

In Phase II, when the implementation of demineralization improves water quality, resulting in the expansion of agricultural use of recycled effluent, some or all sprayfields would be eliminated. The crop capability of affected soils at sprayfield sites could be reduced due to residual soil salinity levels. While the development of sprayfields will generally not occur on prime agricultural soils due to high land costs, it is possible that short-term impacts to productive soils could occur. To manage soil salinity with elevated irrigation water salinity, the fraction of irrigation water allowed to pass through rootzone to deeper soils is increased. In this process, referred to as leaching, water is applied in sufficient quantities to saturate the rootzone. The water infiltrates lower soil levels, carrying salt ions beyond the reach of plants. Increasing the leaching fraction can significantly reduce soil salinity. Based on general relationships between salinity in irrigation water and rootzone salinity, the salinity in the top one foot of the rootzone can be reduced 80 to 90 percent by intermittently applying one AF of water per acre of land (Grattan, 2002).

In addition to the overall salinity levels that affect plant growth, the ratio of specific salt ions can affect the structure of soils. High sodium content can cause soil clay particles to break down, reducing soil aeration and water infiltration and percolation. The potential for sodium to affect soil structure is indicated by a water's Sodium Adsorption Ratio (SAR) in combination with the overall salinity level. SAR is the ratio of the concentration of sodium ions to the concentration of calcium and magnesium ions. Based on existing concentrations

[1] Based on "slight to moderate" range of 0.7 to 3.0 mmhos/cm ECw and 450-2,000 mg/L TDS identified in Westcot and Ayers, 1984.

of sodium, calcium and magnesium in DWTP effluent, it is estimated that the recycled water would have a SAR of approximately 5.4. A SAR of 5.4 does not present a management issue for soil structure problems because the high overall salinity levels generally offset a high sodium ratio (Harivandi, 1999). This is because high overall salinity levels improve infiltration and percolation.

While the overall salinity and SAR of the effluent is not expected to present substantial soil structure management concerns, specific soil conditions at sprayfield sites could present management challenges. If high sodium ratios exist at a particular site, the use of recycled water could increase the likelihood of soil structure problems. High sodium ratios can be addressed by increasing the ratios of other salt ions. Applying gypsum to either the irrigation water or soil (or sulfuric acid to irrigation water) results in the formation of calcium ions that displace the sodium ions adsorbed onto the negatively charged clay particles, thereby enhancing the aggregation of soil particles, improving soil structure, and increasing the infiltration rate (Grattan, 2002).

The final potential impact to soils is from the toxicity of specific ions. Some plants are sensitive to elevated levels of boron, sodium, and chloride. Boron levels in the existing wastewater effluent are at 0.7 mg/L, lower than the general level (1-2 mg/L[2]) at which boron impacts plant growth. Sodium and chloride are salt ions that contribute to overall salinity levels. Based on existing effluent quality, sodium and chloride levels are expected to be in the range of 253 mg/L to 287 mg/L. These levels represent a management concern as the accumulation of sodium and chloride can affect plant growth as discussed previously. Elevated levels of sodium and chloride and other salt ions are therefore considered to be a potentially significant impact. Mitigation measures are presented below to ensure that adverse impacts to soils and crops do not occur.

Mitigation Measures

4.2.5 A sprayfield management plan shall be developed by the City of Hollister in cooperation with the San Benito County Water District. The sprayfield management plan shall identify agricultural best management practices (BMPs) that ensure that sprayfields do not adversely impact structure and crop capability of soils. The sprayfield management plan shall be reviewed and updated annually. The plan shall include but not be limited to the following BMPs:

(a) Quantification of recycled water quality, including electrical conductivity (ECw), sodium adsorption ratio (SAR), and levels of sodium, chloride, boron, sulfate, calcium, magnesium, and bicarbonate (HCO_3). Sampling and quantification shall be conducted quarterly.

(b) Soil sampling and analysis shall be conducted for individual sprayfields sites to determine the baseline rootzone salinity.

(c) Establishment of leaching fraction. Based on the recycled water quality and baseline rootzone salinity, the leaching requirement necessary to maintain rootzone

[2] Based on "slight to moderate" range of 1 to 2 mg/L of boron identified in Westcot and Ayers, 1984.

salinity shall be estimated. Methodology for establishing the maintenance rootzone salinity is provided in Hanson, *et al.*, 1999[3].

(d) Establishment of water or soil amendment requirements. Based on the recycled water quality and baseline rootzone salinity, water or soil amendments necessary to address sodium and/or bicarbonate levels shall be estimated. Application of gypsum or sulfuric acid shall be managed to minimize increases in total salinity.

(e) Sprayfield management and monitoring. Soil moisture readings shall be conducted at least once every two days while establishing irrigation schedules, and at least once every week to monitor irrigation. At least four monitoring locations shall be established in each sprayfield, utilizing tensiometers, electrical resistance blocks, or other measuring devices. Soil sampling and analysis shall be conducted on at least a monthly basis for the first year of operation and on at least a quarterly basis for subsequent years. The irrigation schedule and leaching fraction shall be adjusted to maintain optimum plant growth and to maintain rootzone salinity.

(f) Sprayfield abandonment. Prior to sprayfield abandonment, the most recent soil analysis results shall be compared to the baseline soil analysis and soil salinity requirements of likely future crops. Soil salinity shall be returned to baseline conditions or conditions suitable for likely future crops through the use of reclamation leaching.

Significance After Mitigation

Less than significant.

Impact

4.2.6 The development of sprayfields sites could conflict with the extraction of mineral resources in the project area. This would be a less than significant impact.

Areas along the San Benito River have been identified as significant sources of aggregate and designated as mineral resource zones. These areas are located with the Phase I disposal boundary and could feasibly be developed with sprayfields. The development of sprayfields could be incompatible with mineral extraction. However, the development of sprayfield would be dependent upon landowner interest and therefore any plans the landowner has for mineral extraction could be incorporated into land use plans for specific areas. It is possible that recycled water could be used for rehabilitation of mineral resource zones after extraction is completed. It should also be noted that sprayfield development would be limited in duration and would not preclude future mineral extraction.

Mitigation Measures

None required.

[3] Agricultural salinity and drainage. University of California Agricultural and Natural Resources Publication 3375. Blaine R. Hanson, Stephen R. Grattan, Allan Fulton. University of California Irrigation Program, University of California, Davis. 1999.

PIPELINES AND OFF-DWTP SITE STORAGE BASIN AND EVAPORATION PONDS

Impact

4.2.7 Construction and excavation activities for new pipelines and the potential Phase II seasonal storage basin and evaporation ponds would remove vegetative cover and would expose soils to the effects of wind, rain, and surface flow, increasing the potential for erosion, and could cause landslides at the base of slopes. The impact is considered potentially significant.

During pipeline construction and excavation activities, surface soils would be exposed to natural elements from vegetation removal. Summer construction would increase soil exposure to winds and wind erosion and winter grading activities would increase soil exposure to rains and potential surface runoff. Possible landslide hazards also exist from slope failure associated with pipeline excavation activities at the base of slopes of foothills.

Mitigation Measures

4.2.7 (a) Implement Mitigation Measure 4.2.1 to comply with the State's NPDES General Permit for Discharges of Storm Water Runoff Associated with Construction Activity.

(b) A geologic hazard evaluation of pipeline routes shall be conducted by a certified engineering geologist to map areas of instable slopes that have weak clay beds, bedding-plane shears, and adversely-orientated joints and/or bedding, and slopes greater than 30%.

~~**Appropriate considerations shall be made to assess site-specific slopes. Development of pipelines should be avoided in areas of weak slopes and those greater than 30%.**~~

(c) Development of pipelines should be avoided in areas of instable slopes defined in the geologic hazard evaluation.

Significance After Mitigation

Less than significant.

4.3 HYDROLOGY AND WATER QUALITY

4.3.1 REGULATORY SETTING

The management and protection of water resources involves Federal, State, and local regulatory oversight. In many instances, the Federal Environmental Protection Agency (EPA) has delegated jurisdiction to the State for administration of water pollution control and water quality functions including planning, permitting, and enforcement activities. Local agencies often develop general plans and water resource management plans, which include local goals for water resource management. General plans define goals, objectives, and policies to protect and enhance the respective agencies' sphere of influence. General plans typically include surface and groundwater quality objectives for development within the agencies' sphere of influence. Local management plans define objectives and criteria to meet the objectives to ensure adequate water quality and quantity in the management area.

FEDERAL

CLEAN WATER ACT

The Clean Water Act (CWA) (33 USC 1251-1376), as amended by the Water Quality Act of 1987, is the major Federal legislation governing water quality. The objective of the CWA is "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters." Important sections of the Act are as follows:

- Sections 303 and 304 provide for water quality standards, criteria, and guidelines. Section 303(d) requires States to identify impaired water bodies and develop total maximum daily loads (TMDLs) for the contaminant(s) of concern.

- Section 401 (Water Quality Certification) requires an applicant for any federal permit that proposes an activity which may result in a discharge to waters of the United States to obtain certification from the state that the discharge will comply with other provisions of the Act.

- Section 402 establishes the National Pollutant Discharge Elimination System (NPDES), a permitting system for the discharge of any pollutant (except for dredged or fill material) into waters of the United States. This permit program is administered by the State Water Resources Control Board (SWRCB) and is discussed in detail below.

ANTIDEGRADATION POLICY

Federal policy (40 CFR 131.6) specifies that each State must develop, adopt, and retain an antidegradation policy to protect the minimum level of surface water quality necessary to support existing uses. Each state must also develop procedures to implement the antidegradation policy through water

quality management processes. Each state antidegradation program shall include policy and implementation methods consistent with the provisions outlined in 40 CFR 131.12 *(US EPA Water Quality Standards Handbook, Second Edition August 1994).*

FLOOD CONTROL MANAGEMENT

San Benito County is a participant in the National Flood Insurance Program (NFIP), a Federal program administered by the Federal Emergency Management Agency (FEMA). Participants in the NFIP must satisfy certain mandated floodplain management criteria. The National Flood Insurance Act of 1968 adopted a desired level of protection that would protect developments from floodwater damage associated with an Intermediate Regional Flood (IRF), a flood which is defined as a flood having an average frequency of occurrence on the order of once in 100 years, although such a flood may occur in any given year.

STATE

PORTER-COLOGNE WATER QUALITY CONTROL ACT

The Porter-Cologne Water Quality Control Act (Division 7 of the California Water Code) provides the basis for surface water and groundwater quality regulation within California. The Act established the authority of the SWRCB and the nine Regional Water Quality Control Boards (RWQCBs). The SWRCB administers water rights, water pollution control, and water quality functions throughout the State, while the RWQCBs conduct planning, permitting, and enforcement activities within their designated regions.

The Act requires the State, through the SWRCB and the RWQCBs, to designate beneficial uses of surface waters and groundwaters, and specify water quality objectives designed to protect those uses. These water quality objectives are presented in the *Regional Water Quality Control Plans* (Basin Plans).

Anyone who is discharging waste or proposing to discharge waste that could affect the quality of the State's waters must file a "report of waste discharge" (RWD) with the RWQCB. The RWQCB staff analyzes the discharge and prepares draft "waste discharge requirements" (WDR), which constitute a permit for the discharge. Publicly owned treatment works must acquire a WDR prior to discharging treated effluent to land. The WDR will contain operational requirements, effluent limitations, and monitoring requirements for discharges and receiving waters.

STATE WATER RESOURCES CONTROL BOARD AND REGIONAL WATER QUALITY CONTROL BOARD

The SWRCB administers water rights, water pollution control, and water quality functions throughout the State, while the RWQCBs conduct planning, permitting, and enforcement activities. The project area lies within the jurisdiction of the Central Coast (CC) RWQCB. The CCRWQCB's jurisdiction covers California's central coast area including Santa Cruz, San Benito, Monterey, San Luis Obispo, and Santa Barbara Counties.

The CCRWQCB is responsible for the protection of beneficial uses of water resources within the Central Coast Region. Beneficial uses are the desired resources, services, and qualities of the aquatic system that are supported by achieving and protecting high water quality. Beneficial uses are specific to the water body and can vary from water body to water body. Where beneficial uses have not been assigned to a specific water body, the tributary rule applies. The tributary rule applies the beneficial uses of the nearest downstream water body.

The CCRWQCB uses planning, permitting, and enforcement authorities to meet this responsibility. The Water Quality Control Plan for the Central Coast Area (Basin Plan) is the CCRWQCB's master policy document containing descriptions of the legal, technical, and programmatic basis of water quality regulation in the region. The Basin Plan was prepared in 1994 in compliance with the Federal CWA, and the State Porter-Cologne Water Quality Control Act and has been amended several times. The Basin Plan establishes beneficial uses for major surface waters and their tributaries, water quality objectives that are intended to protect the beneficial uses, and implementation programs to meet stated objectives.

CCRWQCB's Antidegradation Policy

Surface Water

In the Basin Plan, the CCRWQCB states that water quality objectives are necessary to protect and maintain present and future uses of surface water bodies within the region. Complying with 40 CFR 131.6, the CCRWQCB has established water quality objectives for all inland surface waters as a component of their antidegradation policy:

Color	Waters shall be free of coloration that causes nuisance or adversely affects beneficial uses. Materials of waste origin shall not contribute to coloration greater than 15 units or 10 percent above natural background color, whichever is greater.
Tastes and odors	An undesirable taste or odor shall not be imparted to fish flesh or other edible products of aquatic origin or cause nuisance that affect beneficial uses.
Floating materials	Floating materials should not be found in concentrations that cause nuisance or adversely affect beneficial uses.
Suspended materials	Suspended materials should not be found in concentrations that cause nuisance or adversely affect beneficial uses.
Settleable materials	Settleable materials shall not deposit materials causing nuisance or affecting beneficial uses.
Oil and grease	Oils, greases, and related materials should not result in a visible film or coating on the surface of the water, or objects within the water body, that causes nuisance, or adversely affects beneficial uses.
Biostimulatory substances	Substances should not promote aquatic growth that creates a nuisance or adversely affects beneficial uses.
Surfactants	Methylene blue activated substances (surfactants) concentrations should not be greater than 0.2 mg/L.

Sediment	Suspended sediment load and discharge rate should not be altered in such a manner as to create a nuisance or adversely impact beneficial uses.
Turbidity	Turbidity should not be altered in such a manner as to create a nuisance or adversely impact beneficial uses.
pH	The pH value shall be within the range of 7.0 to 8.5.
Dissolved oxygen	DO should not fall below 5.0 mg/L.
Temperature	Temperature should not be altered unless it can be shown that any change would not adversely impact aquatic life, create a nuisance, or adversely impact the beneficial uses of the water body.
Toxicity	Toxic substance should not be discharged into surface water causing concentrations that would be toxic to human, plant, animal, or aquatic life.

Furthermore, if existing water quality is higher than the above objectives, the existing higher quality shall be maintained as a stipulation of the antidegradation policy until it has been demonstrated to the State that any change is deemed to provide a maximum benefit to people of the State through economic or social growth and will not unreasonably affect present and anticipated beneficial uses and will not result in water quality less than the above objectives.

Groundwater

The Basin Plan outlines three categories of water quality objectives to prevent groundwater quality degradation within the jurisdiction of the CCRWQCB. The antidegradation objectives include general objectives for all groundwater resources and specific objectives for municipal, domestic and agricultural groundwater resources. The CCRWQCB has established certain water quality objectives for selected groundwater resources to provide a water quality baseline for evaluating groundwater quality management for the basin.

- General Groundwater Objectives
  - Groundwaters shall not contain taste or odors that adversely affect beneficial uses; and
  - Groundwater shall not contain radionuclides.

- Municipal and Domestic Groundwater Supply Objectives
  - Median concentration of coliform bacteria shall be less than 2.2 colonies per 100 mL of water over a seven-day sampling period;
  - Groundwater shall not contain organic chemicals in concentrations that exceed the standards set forth in California's Primary Drinking Water Standards for Organic Chemicals (CCR, Title 22, Division 4, Chapter 15, Article 5.5, Section 64444.5, Table 5 and listed in Table 3-1); and
  - Groundwater shall not contain chemical constituents in concentrations that exceed the standards set fourth in California's Primary Drinking Water Standards for Inorganic Chemicals (CCR, Title 22, Division 4, Chapter 15, Article 4, Section 64435, Tables 2 and 3).

- Agricultural Supply Objectives
  - Groundwater shall not contain concentrations of chemical constituents listed in Table 3-3 of the Basin Plan in concentrations that could adversely affect beneficial use for agriculture. Groundwater used for irrigation and livestock watering shall not exceed concentrations for: aluminum, arsenic, beryllium, boron, cadmium, chromium, cobalt, copper, fluoride, iron, lead, lithium, manganese, mercury, molybdenum, nickel, nitrate, nitrite, selenium, vanadium, and zinc (Source: Basin Plan, Table 3-3 Guidelines for Interpretation of Quality of Water for Irrigation).

- Specific Objectives

  The following specific median groundwater objectives are identified for the Hollister sub-area of the Pajaro River sub-basin:

TDS	1,200 mg/L
Chloride	150 mg/L
Sulfate	250 mg/L
Boron	1.0 mg/L
Sodium	200 mg/L
Nitrogen	5 mg/L

(Source: Basin Plan, Table 3-8 Median Groundwater Objectives)

Construction Storm Water General NPDES Permit

Created as an amendment to the CWA in 1972, the NPDES was established as a permit program to control water pollution by regulating the discharge of pollutants into waters of the United States. Initially, the NPDES program permits focused on regulating point source pollution. In the early 1970s an amendment to the CWA directed the NPDES program to address non-point source pollution through a phased approach.

The NPDES is federally mandated but enforced locally. Applicants with construction projects disturbing 1 or more acres of soil are required to file for coverage under the SWRCB, Order No. 99-08-DWQ, NPDES General Permit No. CAS000002 for Discharges of Storm Water Runoff Associated with Construction Activity (General Permit). Construction activities include clearing, grading, excavation, stockpiling, and reconstruction of existing facilities involving removal and replacement.

Project owners are required to submit a complete Notice of Intent (NOI) package to the SWRCB. A complete NOI package consists of an NOI form, site map, and fee. The General Permit also requires the development and implementation of a Storm Water Pollution Prevention Plan (SWPPP). The SWPPP should contain a site map that shows the construction site perimeter, existing and proposed buildings, lots, roadways, stormwater collection and discharge points, general topography both before and after construction, and drainage patterns across the project. The SWPPP must list Best Management Practices

(BMPs) the discharger will use to protect stormwater runoff and the placement of the BMPs. The BMPs consist of the following:

- "Site Planning Considerations" such as preservation of existing vegetation.
- "Vegetation Stabilization" through methods such as seeding and planting.
- "Physical Stabilization" through use of dust control and stabilization measures.
- "Diversion of Runoff" by utilizing earth dikes and temporary drains and swales.
- "Velocity Reduction" through measures such as slope roughening/terracing.
- "Sediment Trapping/Filtering" through use of silt fences, straw bales and sand bag filters, and sediment traps and basins.

RECYCLED WATER MANAGEMENT

California Water Code

The California Water Code (Water Code) specifies the California Department of Health Services as the lead agency responsible for developing uniform statewide recycling criteria for each type of use of recycled water for the protection of public health. The Water Code requires any entity proposing to recycle water or use recycled water to file a RWD to the corresponding RWQCB. Projects throughout the state are encouraged to develop recycled water facilities and use recycled water throughout the State of California. The water code further states that the use of potable water for non-potable uses (e.g., irrigation of greenbelt areas, such as cemeteries, golf courses, parks, and highway landscaped areas and industrial uses) is a waste and an unreasonable use under the California State Constitution when suitable reclaimed water is available at a reasonable cost and the development of facilities to recycle water is in the interest of the people of the State to supplement existing surface and groundwater supplies.

The California Department of Health Services and the SWRCB, through its subdivisions, the RWQCBs, are directed under the Water Code to regulate recycled water production and use. The California Department of Health Services is charged with the responsibility of establishing uniform statewide recycled water criteria to ensure that the use of recycled water will not be detrimental to public health. It has jurisdiction over the production of recycled water and the enforcement of Title 22 for recycled water criteria. The RWQCB is responsible for issuing recycled water use requirements (including discharge prohibitions and monitoring and reporting programs) and user requirements associated with the implementation of recycled water projects.

Title 22, Division 4, Chapter 3 – Water Recycling Criteria

This section of the California Code of Regulations, commonly referred to as Title 22, establishes the acceptable uses of recycled water, wastewater treatment requirements for each use, use area requirements, engineering report requirements, reporting and record keeping requirements, and design requirements for operational reliability of treatment. The regulations establish acceptable levels of constituents in recycled water for a range of uses and prescribe means for assurance of reliability in the production of recycled

water. Criteria for the production of recycled water include water quality standards, treatment process requirements, operational requirements, and treatment reliability requirements. The intent of the regulations is to ensure the protection of public health associated with the use of recycled water. Title 22 recycled water regulations for a specific reuse category are based on the expected degree of contact with the recycled water.

Since the adoption of Title 22 in 1978, the use of recycled water for non-potable purposes has expanded throughout the State and is projected to continue to grow over the next several decades. In addition, technical and health effects studies have been conducted, and treatment technology has improved since 1978. As a result, the safe use of recycled water for non-potable purposes has continued, while public health and environmental protection has been maintained. Under Title 22, the highest level of wastewater treatment, identified as "disinfected tertiary recycled water," may be used for the full range of non-potable uses, including irrigation of food crops, parks and playgrounds, school yards, residential landscaping, golf courses and cemeteries. Under certain conditions, disinfected tertiary recycled water has been determined to be suitable for non-restricted recreational impoundments.

The CCRWQCB has published in the Basin plan the following policy on recycled water use:

- Water quality management systems throughout the basin shall provide for eventual wastewater reclamation, but may discharge wastes to the aquatic environment (with appropriate discharge requirements) when processing costs or lack of demand for reusable water precludes wastewater reclamation.
- The number of waste sources and independent treatment facilities shall be minimized and the consolidated systems shall maximize their capacities for wastewater reclamation, to assure efficient management of, and meet potential demand for recycled water.

REGIONAL/LOCAL

SAN BENITO COUNTY

General Plan

The San Benito County General Plan (General Plan) defines the goals, objectives, and policies used to protect and enhance the character and composition of San Benito County. Policies within the General Plan guide future land use development within unincorporated areas of the County. The Open Space and Conservation Element of the General Plan includes a range of goals and policies designed to protect and preserve natural resources and avoid environmental hazards within the County.

Open Space and Conservation Element

Policy 9: Water quality improvement. It is the policy of the County to cooperate with the Regional Water Quality Control Board to improve water quality problems identified for the County, to maintain

water quality on all drainage, and to develop policies and programs for the protection and enhancement of habitat for fish on major tributaries to the Pajaro River (San Benito River, Pacheco Creek) and of water quality in the Silver Creek watershed.

Policy 25: Wastewater Treatment. Wastewater treatment systems shall be designed to ensure the long-term protection of groundwater resources in San Benito County. Septic systems shall be limited to areas where sewer services are not available and where it can be demonstrated that septic systems will not contaminate groundwater. Every effort should be made in developing and existing developed areas to reduce the use of septic systems in favor of domestic wastewater treatment. Domestic wastewater treatment systems shall be required to use [*sic*] tertiary wastewater treatment as defined by Title 22.

Policy 41: Flood Hazard. One of the County's prime responsibilities is for the health, safety and welfare of its citizens and property. Because the County recognizes the inherent dangers of construction or development within a flood-prone area, it shall be the County's policy to discourage development within areas identified as potential flood hazard areas. Furthermore, it is the County's policy to protect and preserve the 100-year floodplain on the most recently adopted FEMA maps or other maps as wetland resources, watersheds, and tributaries, and as natural resources for water supply, groundwater recharge, riparian habitat, and fishes.

WATER RESOURCES ASSOCIATION OF SAN BENITO COUNTY

Groundwater Management Plan

In 1998, the Groundwater Management Plan for the San Benito County Part of the Gilroy-Hollister Groundwater Basin (GWMP) was prepared for a consortium of agencies within the area. Thereafter, the Water Resources Association (WRASBC) of San Benito County was formed. The WRASBC is a multi-agency association formed by the City of Hollister, the City of San Juan Bautista, the San Benito County Water District, and the Sunnyslope County water District. The GWMP was updated by the WRASBC in 2004.

Together, the 1998 GWMP and its 2004 update provide detailed information about hydrogeology, current and projected water quality, and water levels. In addition, the GWMP includes a plan for managing water resources in the basin to address various problem statements regarding the quantity and quality of water in San Benito County:

Water Quantity

- Imbalance of groundwater levels with some areas with high groundwater tables and some areas with low groundwater tables;
- Future imbalance of supply and demand to sustain planned growth in the County;
- Current and future inability to adequately dispose of wastewater; and
- Lower quality supplies of local resources in conjunction with frequent reduction of long-term imported water supplies.

Water Quality

- Salt accumulation in the basin leading to use constraints;
- Water hardness in urban supplies which results in the need for water softeners, which in turn leads to additional salts added to the basin;
- Accumulation of nitrates leading to use constraints; and
- Lack of effective water quality protection.

The GWMP includes a list of water quantity and quality criteria and objectives that can be used by the various agencies to water management goals. The criteria and subsequent objectives are summarized below:

Water Quantity

Objective 1: Maintain a reliable water supply for present and future users.

Criterion 1-1: Deliver 100% of agricultural and M&I (municipal and industrial) supply in normal and dry years, and in the first critically dry year of a drought.

Criterion 1-2: Deliver at least 85% of M&I demands and 75% of agricultural demands in the second and subsequent critically dry years of a drought.

Objective 2: Integrate the management of groundwater, surface water, and imported water, according to the following criteria:

Criterion 2-1: Maximize efficient use of water supply by implementing water conservation programs for both M&I and agricultural uses. For existing M&I uses, it is assumed that over the next 20 years, water demand will decrease by 1 percent per year for existing and residential dwelling units. Conservation will reduce demand from an estimated 420 gpd/du (gallons per day/dwelling unit) to 344 gpd/du. New development is assumed to have a demand of 312 gpd/du. Based on CVP guidelines, agricultural irrigation is assumed to be at 85 percent efficiency.

Criterion 2-2: Provide new M&I water supplies to support planned growth within established urban (service) areas, in accordance with approved growth projections contained in the General Plans for San Benito County and the cities of Hollister and San Juan Bautista..

Criterion 2-3: Manage groundwater levels to maintain groundwater storage for the protection of the water rights of the overlaying landowners and for emergency storage, limiting drawdown to the historic low levels of about 1977 to preclude and/or minimize the potential for ground settlement. Maintain groundwater levels, where practical, no higher than 20 to 30 feet below ground surface. In portions of Bolsa, Pacheco, Hollister East and San Juan Bautista it will be impractical to achieve these groundwater levels and subsurface drainage systems and other means of providing improved drainage conditions for the overlying uses will be required. In addition, higher groundwater levels will occur in areas adjacent to streams and where artificial percolation occurs outside of natural streams, such as in the vicinity of the percolation ponds of wastewater treatment plants, septic systems, and off-stream groundwater recharge ponds.

Criterion 2-4: Optimize the use of groundwater storage.

Water Quality

Objective 1: Provide water quality to meet both the needs of end users and the established objectives as described in the criteria below.

Criterion 1-1: Manage water resources to minimize imported salts and long-term levels of groundwater salinity to protect beneficial uses as set forth in the applicable revisions of the Regional Water Quality Control Board Basin Plan.

Criterion 1-2: Protect groundwater resources from infiltration of nitrates and salts, as well as other substances that could adversely affect groundwater quality.

Criterion 1-3: Deliver M&I water meeting primary and secondary drinking water quality objectives, with emphasis on achieving the "DHS's Recommended Limit for Consumer Acceptance" of not more than 500 mg/L of TDS and hardness of no greater than 120 mg/L as $CaCO_3$ (calcium carbonate). (It should be noted that there are no secondary standards for hardness; soft waters are typically considered to have 0-60 mg/L of hardness, moderately hard waters have 61-120 mg/L, hard waters have 121-180 mg/L, and very hard waters have over 180 mg/L of hardness.)

Criterion 1-4: Deliver agricultural water meeting established quality parameters. In order to optimize crop yield based on the available water sources, salinity (as measured by TDS), sodium hazard (as measured by Sodium Adsorption Ratio, or SAR); and boron have been selected as key indicator parameters. The following water quality objectives for these three water quality parameters have been developed:

Salinity: < 700 mg/L TDS

SAR: <6.5

Boron: <0.5 mg/L

TDS: Levels that range from 480 to 1920 mg/L are considered marginal for irrigation, per Regional Water Quality Control Board Basin Plan.

Objective 2: Manage water resources to meet Regional Water Quality Control Board Basin Plan and Department of Health Services water quality objectives.

SAN BENITO COUNTY WATER DISTRICT

The San Benito County Water District (SBCWD) has jurisdiction throughout San Benito County to support surface water management and groundwater replenishment activities as well as to collect and evaluate data related to water management. SBCWD manages all groundwater and surface water resources in the area surrounding Hollister including management and distribution of surface water supplies to agricultural users. This water is imported from the US Bureau of Reclamation Central Valley Project. The SBCWD has also initiated on behalf of the WRASBC several studies to address groundwater management and recycled water issues. Annually, the SBCWD issues a Groundwater Report that describes groundwater conditions in northern San Benito County.

CITY OF HOLLISTER

General Plan

The City of Hollister addresses water quality and flood control management through its development/land use powers. The City of Hollister General Plan was updated in 2005 and includes the following policies relevant to the Proposed Project:

Community Services and Facilities Element

Goals and Policies

Goal: Coordinate with other agencies and plan for the provisions of adequate infrastructure, facilities, and services.

Policy CSF1.1: Ensure that future growth does note exceed the capabilities and capacity of local public services such as wastewater collection and treatment (and other public services) and ensure that public services meet Federal and State standards and are available in a timely fashion.

Policy CSF1.4: Cooperate and coordinate with the County of San Benito, LAFCO and other local agencies in the provisions of infrastructure and services within the Hollister Planning Area.

Goal: Plan for adequate sewer and water facilities.

Policy CSF2.1: Coordinate with responsible districts and agencies to assure that sewer and water facility expansion and/or improvements meet Federal and State standards and occur in a timely manner.

Policy CSF2.2: Reserve sanitary sewerage capacity for future commercial and industrial uses.

Policy CSF2.7: Encourage water-conserving practices and features in the design of structures and landscaping, and in the operation of businesses, homes and institutions, and increase the use of recycled water.

Goal: Provide adequate drainage facilities, limit erosion and maintain clean water.

Policy CSF3.2: Require project developers to implement suitable erosion control measures.

Policy CSF3.3: Continue to comply with local, State and Federal standards for water quality.

Policy CSF3.6: Support public education regarding water pollution prevention and mitigation programs.

Implementation Measures

2-Year Time Frame

CSF.D: Adopt a performance standards ordinance. Adequate sanitary sewer capacity and treatment capability can be provided to service the proposed development.

CSF.I: Establish requirements for water conservation in new development. Identify, evaluate and establish requirements for project developers to incorporate water-conserving plumbing fixtures, plant drought-resistant landscaping, include dual water lines for residential projects (one for clear water and the other for recirculation of gray water), and reduce golf course irrigation requirements (if applicable) to prevent further groundwater drawdown relative to existing agricultural operations.

CSF.M: Provide information on water conserving landscaping. Make available to property managers, designers and homeowners information about water-conserving landscaping and water-recycling methods and resources.

3-Year Time Frame

CSF.Q: Identify opportunities for water recycling. Support the extension of recycled water distribution infrastructure, and identify opportunities for the use of recycled water where available.

5-Year Time Frame

CSF.T: Conduct water quality education programs. Develop a public information and education program to enhance water quality. Such a program may include storm drain stenciling, presentations to schools and community groups and watershed planning efforts..

CSF.Z: Implement plans for a regional wastewater treatment facility. Implement plans for a regional Wastewater Treatment facility based upon projections consistent with the Hollister General Plan through the year 2023. Consider the following as plans are finalized and implemented:

1. Conduct design and environmental review of the proposed facility in a timely manner consistent with mandates.
2. Construct the Wastewater Treatment Plant to handle a minimum average flow of 4.76 million gallons per day (MGD) to appropriately handle flow through the planning horizon of 2023.
3. Include potential requests form outside agencies who may contribute wastewater flow.
4. Construct the plant in a phased process.

CSF.EE: Monitor water quality at the DWTP. Monitor wastewater treatment plant to ensure that nitrate levels stay within legal limits.

HOLLISTER URBAN AREA WATER AND WASTEWATER MASTER PLAN

The City of Hollister, San Benito County, and the San Benito County Water District (SBCWD) have entered into a Memorandum of Understanding for the development of a Hollister Urban Area Water and Wastewater Master Plan (MOU). The MOU outlines goals and objectives for water and wastewater treatment, supply and quality. These are summarized as follows:

- The Hollister Domestic Wastewater Treatment Plant is the primary wastewater treatment plant for the Hollister Urban Area including areas in the County that are designated to be served by that facility (Section 2.1.1).
- Standards for the quality of wastewater to be discharged shall be developed and agreed to by the City of Hollister, San Benito County and the San Benito County Water District and shall include appropriate consideration of regional issues. These standards shall be the most stringent of local standards, state regulations or federal regulations and shall include careful consideration of anticipated future regulation (Section 2.1.2).
- Wastewater treatment processes and disposal methods shall include careful consideration of future wastewater disposal requirement, shall provide for maximum reuse of wastewater, and shall be agreed to by the City of Hollister, San Benito County and the San Benito County Water District (Section 2.1.3).

- Disposal options and sites shall not:
  - Impact drinking water supplies or negatively impact adjacent land uses or values unless fully mitigated to the satisfaction of the City of Hollister, San Benito County and the San Benito County Water District.
  - Be inconsistent with applicable General Plans or Policies including preservation of agricultural land.
  - Be or result in conditions inconsistent with the quantity, quality or groundwater levels objectives of groundwater management plans for the area of disposal (Section 2.1.3).
- Water and wastewater management shall protect and sustain the local surface and groundwater supplies of San Benito County (Section 2.1.5).
- Drinking water shall have a TDS concentration of not greater than 500 mg/L and a hardness of not greater than 120 mg/L (Section 2.2.2).
- Recycled wastewater shall have a target TDS of 500 mg/L and shall not exceed 700 mg/L. This objective shall first be met by rigorous source control and second by demineralization. Blending recycled water with San Felipe water shall only be used as an interim measure to meet these water quality objectives. These objectives shall be met by the measures identified above and the reduction of TDS concentrations in drinking water as soon as practical, and not later than 2015 (Section 2.2.3).
- Within the Hollister Urban Area all wastewater shall be treated at a central wastewater treatment plant and City and County general plans and supporting public service plans and implementing Ordinances/Regulations shall be consistent with that requirement. This provision shall not preclude wastewater satellite treatment plants for the recovery of water for local recycling (Section 2.2.4).
- The water conservation goals of the Groundwater Management Plan Update for the San Benito County Portion of the Gilroy-Hollister Groundwater Basin shall be used as the basis for all water and wastewater Demand/flow projects (Section 2.2.5).

The MOU establishes the guidelines for completion of an Urban Water and Wastewater Master Plan (Master Plan). The Master Plan will consider water and wastewater resource management, in terms of quality, quantity, and groundwater levels. The Master Plan will provide consistency with the City of Hollister and San Benito County General Plans and is scheduled for completion in January 2007.

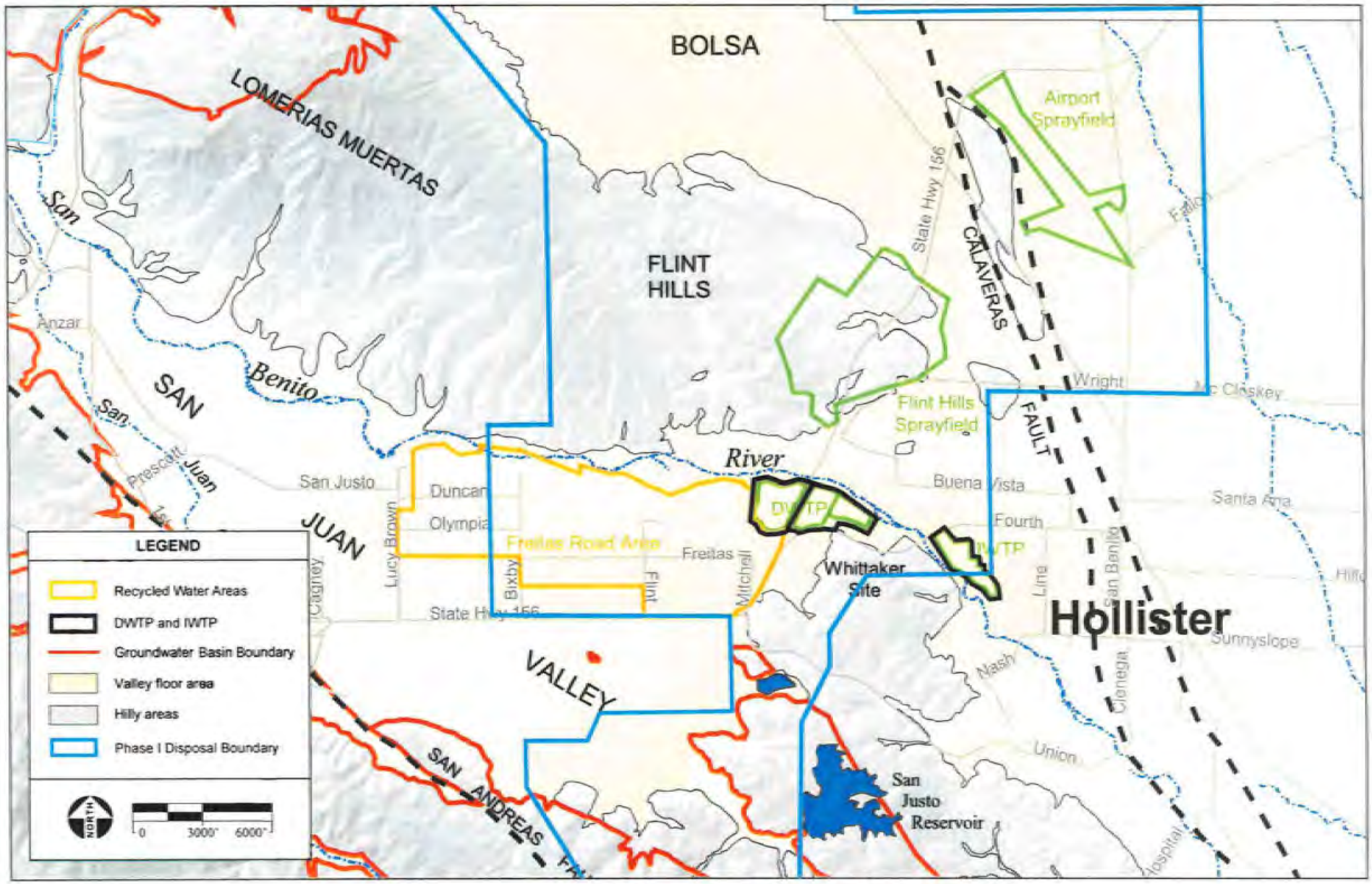
4.3.2 ENVIRONMENTAL SETTING

SURFACE WATER

The San Benito River runs through the City and passes by the DWTP and the IWTP. The San Benito River is not proposed for disposal of treated effluent, but could potentially be impacted by construction activities. The San Benito River is the largest tributary of the Pajaro River watershed with a drainage area of approximately 661 square miles. The San Benito River flows from the southeast to the northwest through the southern portion of the City of Hollister. The river forms the northern boundary of the DWTP property (**Figure 4.3-1**). It begins near the peak of the San Benito Mountains and flows northerly into the Pajaro River. Flow within the San Benito River near the DWTP is seasonal. However, in 2005 rainfall was 127% of normal in Hollister. The above-average year resulted in 203 days of flow of the San Benito River above 10 cubic-feet per second (cfs) and 77 days with greater than 50 cfs. The annual flow for 2005 ranked in the 82nd percentile for annual flows since monitoring began in the 1940's (SBCWD, *Annual Groundwater Report*, 2005).

The CCRWQCB designates beneficial uses for water bodies within its jurisdiction. The beneficial uses for the San Benito River have been designated by the RWQCB as follows:

Agricultural Supply	Includes crops, orchard and pasture irrigation, support of vegetation for grazing, and all uses in support of farming and ranching operations.
Commercial and Sport Fishing	Uses of water for commercial or recreational collection of fish, shellfish, or other organisms.
Freshwater Replenishment	Uses of water for natural or artificial maintenance of surface water quantity or quality (e.g., salinity) which includes a water body that supplies water to a different type of water body, such as streams that supply reservoirs and lakes, or estuaries, or reservoirs and lakes that supply streams.
Ground Water Recharge	Uses of water for natural or artificial recharge of ground water for purposes of future extraction, maintenance of water quality, or halting of saltwater intrusion into freshwater aquifers.
Industrial Service Supply	Uses of water for industrial activities that do not depend primarily on water quality.
Municipal and Domestic Supply	Includes usual uses in community or military water systems and domestic uses from individual water systems.
Water Contact Recreation	Includes all recreational uses involving actual body contact with water, and all other uses where ingestion of water is reasonably possible.
Non-Contact Water Recreation	Includes recreational uses that involve the presence of water but do not require contact with water.
Fish Spawning	Provides a high-quality aquatic habitat especially suitable for fish spawning.
Warm Freshwater Habitat	Provides a warm water habitat to sustain aquatic resources.
Wildlife Habitat	Provides a water supply and vegetative habitat for the maintenance of wildlife.



SOURCE: Gus Yates, 2006; AES, 2006

Figure 4.3-1
Water Resources

GROUNDWATER

The City of Hollister's Domestic and Industrial Wastewater Treatment Plants (DWTP and IWTP) both dispose of wastewater by percolating it into a groundwater basin that underlies most of northern San Benito County and extends northwest beneath the Pajaro River into Santa Clara County. The basin consists of unconsolidated alluvial sediments of varying texture that are hundreds of feet thick and locally deformed by folding and faulting. These structural features divide the groundwater flow system into subbasins with different water level patterns and flow characteristics. The DWTP and IWTP are adjacent to the San Benito River where it flows from the Hollister West Subbasin into the San Juan Subbasin, the latter coinciding with the San Juan Valley. Agencies and hydrogeologic investigators have used different basin and subbasin boundaries over many years. **Figure 4.3-1** shows updated boundaries developed in February 2006 by the SBCWD and submitted to the California Department of Water Resources for inclusion in its official statewide database of groundwater basins (Bulletin 118) and to the CCRWQCB for use in its basin planning activities.

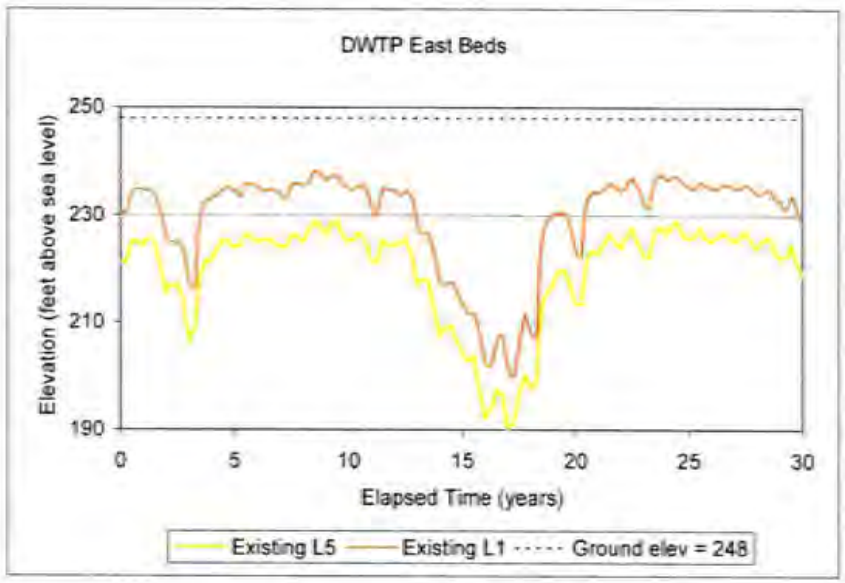
Most previous studies of groundwater conditions have focused on the valley floor areas, where almost all wells are located. The valley floor areas are covered by relatively young and permeable alluvium. However, most of the thickness of the groundwater basin consists of older, slightly consolidated sediments of Pliocene age that were originally considered to be the Purisima Formation (Taliafero, 1945; Kilburn, 1972) but have more recently been mapped as simply marine and non-marine sediments of Pliocene age (Dibblee, 1975) or Pliocene continental mudstone (Wagner *et al*, 2002). Of primary importance to this environmental impact analysis is that these deposits are folded upward to create the hills that border the San Juan Valley and that deposits of marine origin have groundwater with higher salinity than deposits of continental origin. The hills separating the San Juan Valley from the Bolsa area to the north are the Lomerias Muertas and Flint Hills, which rise to an elevation 750 feet above the floor of the San Juan Valley. The hills along the south side of the San Juan Valley and immediately south of the DWTP are the lower slopes of the Gabilan Range but are colloquially known as the Hollister Hills. Limited water level data from a few wells in the Hollister Hills confirm that average subsurface permeability is lower and the water table slope is steeper than in the valley floor area. The same condition probably exists in the Lomerias Muertas/Flint Hills. This permeability contrast affects the rate and direction of groundwater flow at the east end of the Flint Hills and near a plume of contaminated groundwater emanating from the former Whittaker ordnance facility located in the Hollister Hills 1,000 to 2,000 feet south of the DWTP.

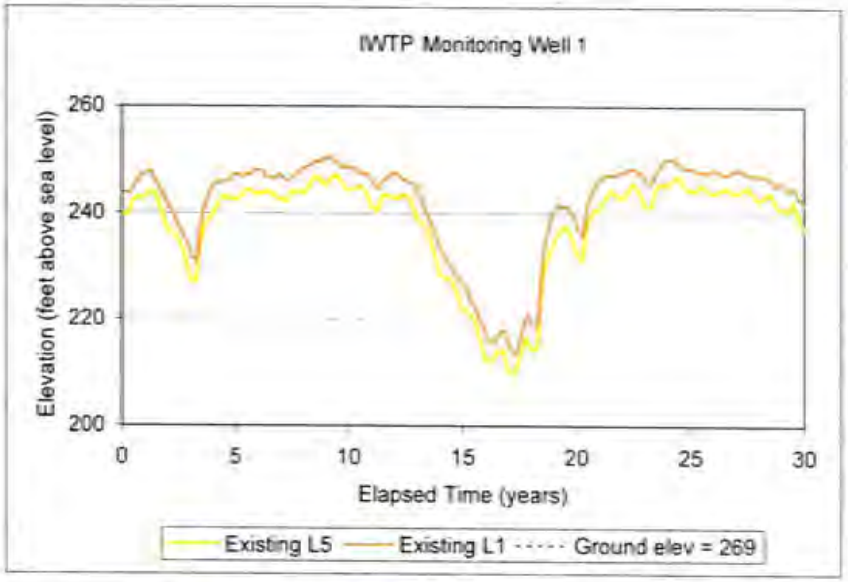
The San Andreas Fault cuts across the southwestern corner of the San Juan Valley. It is a partial barrier to groundwater flow and the area southwest of the fault near San Juan Bautista is classified as a separate groundwater basin (the San Juan Creek basin). The Calaveras fault is also a partial barrier to groundwater flow and crosses through the middle of the Gilroy-Hollister basin near Hollister, separating the Gilroy subbasin from the Hollister subbasin.

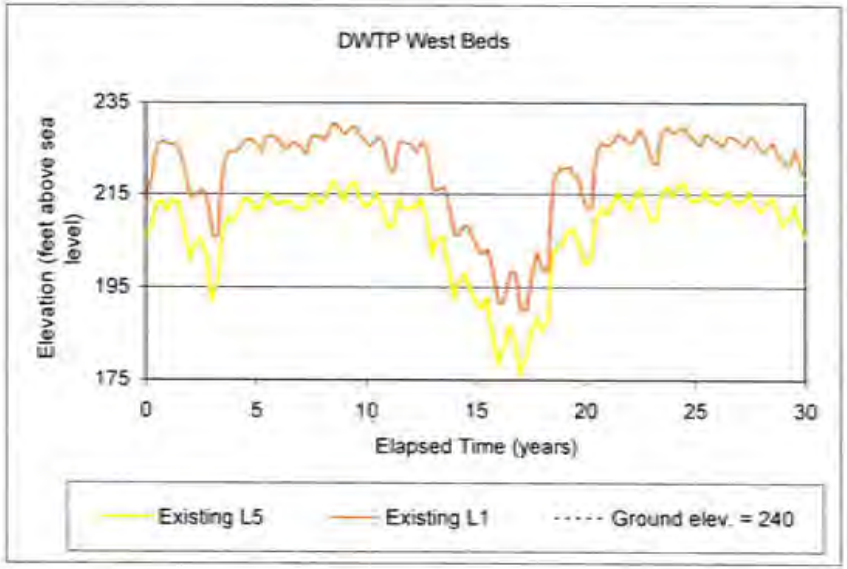
The sediments that comprise the groundwater basin consist of discontinuous layers of sand, silt, clay and gravel. Individual layers generally cannot be correlated between wells except over short distances. In general, clayey sediments are relatively abundant at the western end of the San Juan Valley, and sands and gravels are relatively common beneath the San Benito River channel. Almost all water supply wells in the area are 100 to 500 feet deep. Although the basin deposits extend to greater depths, groundwater more than about 700 feet below the ground surface is not actively involved in the groundwater flow system tapped by the wells.

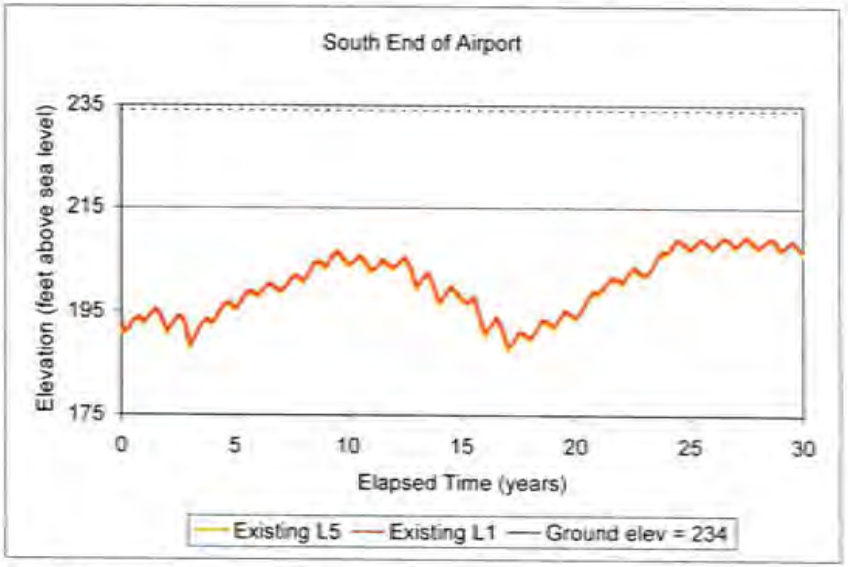
The water level history of the basin illustrates how the basin responds to long-term changes in water balance and how it interacts with surface waterways. The first scientific study of groundwater conditions was in 1913, prior to the period when large quantities of groundwater were extracted from the basin (Clarke, 1924). At that time, the basin was essentially full, and in a few low-lying places wells would flow without pumps. These locations included a small area near Prescott and San Justo Roads in the western part of the San Juan Valley (**Figure 4.3-1**) and throughout most of the Bolsa area north and west of the Flint Hills and the Airport. Groundwater extractions increased rapidly in the 1930s and 1940s, initiating a half-century of groundwater overdraft characterized by declining water levels.

Recovery from historical overdraft is now almost complete. Long-term water-level rises are still continuing in the area east of the Flint Hills and near the Airport, although at a more gradual rate than in recent years. Importation of CVP water has substantially changed the water balance of the basin and has created a relatively new "existing condition" for groundwater levels. This condition can be more clearly characterized by simulations using a groundwater model than by discussion of historical measured water levels. **Figure 4.3-2** shows hydrographs of simulated groundwater levels with existing patterns of land and water use over a 30-year hydrologic period represented by water years 1975-2004. The model is described below in the Methodology section. The hydrographs are for selected locations that would potentially be affected by the project and show groundwater elevation in shallow aquifers (Model Layer 1, or "L1") and deep aquifers (Model Layer 5, or "L5"). The most obvious patterns are seasonal fluctuations caused by increased pumping for irrigation in summer and multi-year periods of water-level decline during droughts and recovery during wet periods. In many of the hydrographs, the lowest water levels occurred in simulation year 16 corresponding to 1990 and the highest water levels occurred in simulation year 24 corresponding to 1998. These years provide useful reference conditions for evaluating potential impacts associated with groundwater levels that are too low or too high. **Figure 4.3-3** shows contours of groundwater elevation and depth to water in shallow aquifers in December 1990 and March 1998. The contours of groundwater elevation indicate the direction of groundwater flow (downhill, perpendicular to the contours), and the color-flooded contours of depth to groundwater reveal locations where shallow groundwater causes soil drainage problems, particularly in wet years. The map for March 1998 shows that shallow groundwater problems are present near San Juan Bautista in the western end of the San Juan Valley and also in a broad swath northeast of the airport. The apparent zone of shallow groundwater along the southern edge of the San Juan Valley is speculative, because few data were available for model





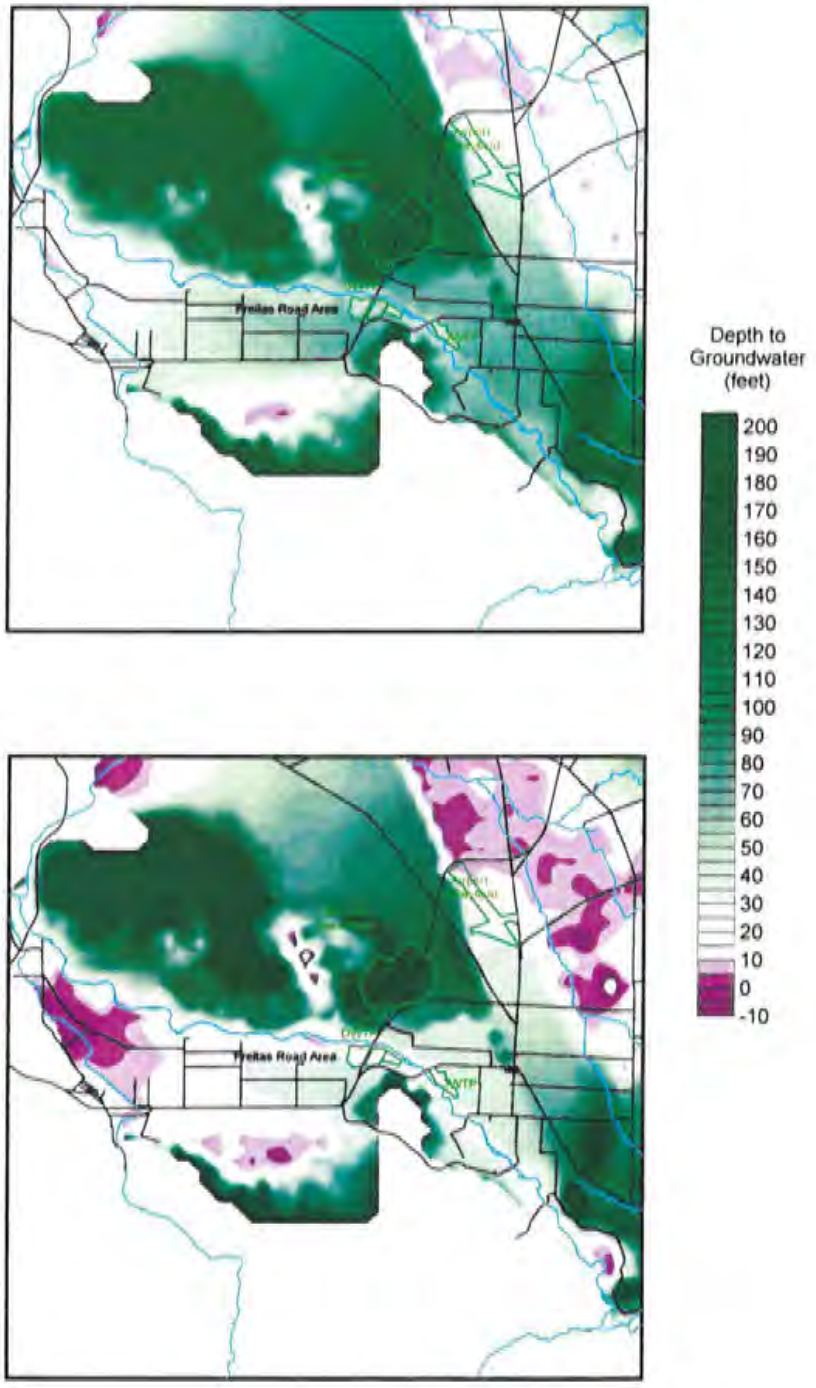




NOTE: L1 = Model Layer 1 L5 = Model Layer 5

SOURCE: Geo Yates, 2006; AES, 2006

Figure 4.3-2
Hydrographs of Simulated Groundwater Elevation in Potentially Affected Locations



SOURCE: Gus Yates, 2006; AES, 2006

Figure 4.3-3
Simulated Contours of Depth to Water in
Shallow Aquifers in December 1990 and March 1998

calibration in that area. The other locations indicating shallow groundwater conditions have a similar lack of calibration data and uncertainty in local hydraulic conductivity. Additional field data would be needed to confirm whether the water table is in fact shallow at those locations, and if not, to recalibrate local model parameters accordingly.

The parts of the basin that recovered most rapidly from historical overdraft are along creeks and rivers that have a permeable connection to the groundwater system, such as Pacheco Creek in the northern part of the basin and the San Benito River corridor. In those areas, groundwater levels have stabilized at a more or less "full" level. Additional rainfall recharge simply drains out to nearby streams and does not substantially increase basin storage. By the same token, when groundwater levels are high, recharge from creeks and rivers are limited by the lack of vacant groundwater storage space. Consequently, recharge is "rejected" and the water remains in the stream.

An advantage of high groundwater levels is that groundwater now drains into the lower ends of local surface waterways, including San Juan Creek and the San Benito River, creating a pathway by which salts can leave the basin. In the absence of an exit pathway, a closed basin condition would be present and groundwater would become increasingly salty, as water is repeatedly lost to evaporation during irrigation.

Groundwater levels vary with depth and location in the basin, revealing a three-dimensional pattern of groundwater flow. Along the San Benito River corridor, horizontal groundwater is generally parallel to the river. In the San Juan Valley, there is also a northwestward gradient from the southern edge of the valley toward the river. Vertical gradients are downward except in the western part of the valley. Downward gradients mean that shallow wells have higher water levels than deep wells in the same vicinity, so that groundwater flows vertically from shallow aquifers to deep aquifers in addition to the horizontal flow patterns just described. Vertical gradients are a common condition in alluvial groundwater basins where recharge enters at the basin surface and wells withdraw water from deep within the basin, setting up a downward component of groundwater flow. This condition is present throughout most of the groundwater basin, and downward gradients are particularly large near the DWTP and IWTP where recharge rates are high (see **Figure 4.3.2**). There are exceptions in two areas, where water levels in deep aquifers are higher than water levels in shallow aquifers. In those areas, there is a small amount of upward groundwater flow within the basin in addition to the prevailing horizontal flow. Upward gradients typically occur where horizontal groundwater flow encounters a decrease in subsurface permeability. If the upward gradient is strong enough, deep wells will passively discharge water at the ground surface, without a pump. One of the two areas with flowing wells is near Prescott Road in the western part of the San Juan Valley, and the other is near Lover's Lane and San Felipe Lake. The latter area has been gradually expanding southward as the basin recovers from historical overdraft, and flowing wells are now present as close as 1 mile north of the Airport.

PUBLIC AND PRIVATE WATER SUPPLIES

The Central Valley Project, San Felipe (CVP) distribution system was constructed in the mid 1980's to meet water supply needs and water quality objectives necessary to maintain the local economy. The SBCWD purchases CVP water from the US Bureau of Reclamation for agricultural, municipal, and industrial use. This water is imported through the Hollister Conduit from the San Luis Reservoir, part of the San Felipe unit of the CVP. Ultimate sources of the CVP water supply include Shasta Lake, Whiskeytown Reservoir, Clair Engel Lake, Folsom Lake, New Melones Reservoir, Millerton Lake, the Delta-Mendota Canal, and San Luis Reservoir. Areas that do not presently receive CVP water include the Freitas Road area and the Bolsa area. Groundwater withdrawals have diminished as users shifted to this new source. In addition, some of the imported water has been actively percolated in local creek channels during the summer months to accelerate the recovery from historical overdraft. These two changes in the groundwater budget combined with several wet years in the mid 1990s resulted in very rapid recovery of groundwater levels, to the point that in 1999 wells began passively flowing in the same areas where flowing wells had first been observed in 1913.

Three water purveyors serve the Hollister Planning Area: the SBCWD, the Sunnyslope County Water District (SCWD), and the City of Hollister. SBCWD is charged with the wholesale supply of CVP surface water in the Hollister Valley from the San Felipe Project and operates San Justo Reservoir for storage of San Felipe water. SBCWD is responsible for groundwater management in all of San Benito County, including the monitoring of groundwater pumping quantities and groundwater storage levels. SBCWD also operates the Hernandez and Paicines reservoirs, which collect and store excess runoff from rainfall and deliver surface water to agricultural users and for groundwater recharge in the San Benito River basin (City of Hollister, 2005).

SCWD and the City of Hollister supply retail water primarily to municipal and industrial (M&I) customers within the Hollister Planning Area. In general, the City water service area includes the west side of Hollister, north Hollister, and a portion of the Cienega Valley. The SCWD service area includes most of the east side of the City, the Fairview area, and other unincorporated land to the east of Hollister. Water supplies come from both groundwater sources and surface water through the newly built Lassalt treatment plant, which treats CVP water for use as domestic water supply. It should be noted that the purpose of the Lassalt treatment plant is to reduce the minerals and salts being reintroduced to the groundwater via the sewer systems' percolation ponds. The Lassalt treatment plant replaces groundwater use with treated surface water and as a result only allows for a minimal increase in water supply. As such, the Lassalt treatment plant does not provide for new development (City of Hollister, 2000).

Both the City of Hollister and the SCWD operate their own wells, distribution systems, and storage systems. The City operates eight wells, including two wells in the Cienega Valley that provide limited supplies of water. Total well production in 2004 was approximately 3.7 MGD. The two nearest wells to

the DWTP are located approximately 1.75 miles to the southeast. The City is currently preparing a Source Water Assessment Plan which will define the zone of influence for each public well.

FLOOD ZONES

FEMA oversees the delineation of flood zones and the provision of disaster assistance. FEMA manages the NFIP and publishes the Flood Insurance Rate Maps, which show the expected frequency and severity of flooding by area, typically for the existing land use and type of drainage/flood control facilities present. The current flood maps for the project area (Map Numbers 06069C0060C and 06069C0070C) show that portions of the existing DWTP are located within the 100-year floodplain. However, these flood maps are general in nature. Caltrans prepared a detailed flood study for construction of the State Route 156 bridge over the San Benito River; the bridge directly adjacent to the DWTP site. Caltrans determined that the 100-year flood stage at the bridge is at elevation 237. The existing berms around the DWTP are at elevation 250. It is therefore concluded that the existing DWTP site is out of the 100-year floodplain.

WATER QUALITY

SURFACE WATER

San Benito River

Agricultural, domestic, and industrial activities have had an adverse impact on water quality within the Pajaro River watershed. Crop fertilization has led to elevated levels of nitrates and nitrogenous compounds in surfaces waters within the watershed. Grazing practices have introduced pathogens and elevated levels of nutrients into river tributaries. Urban development and increased groundwater pumping have contributed to loss of riparian habitat, leading to accelerated erosion and sedimentation. Mining activities have lead to an increase in erosion and sedimentation from altering the geomorphology of the riverbeds in the watershed. Abandoned mines have also been a source of heavy metal contamination, including mercury (SBCWD & WRASBC, 2004b).

Limited water quality sampling by the SBCWD indicates an average total dissolved solids (TDS) level of 1,400 mg/L for the lower portion of the river (with the highest reading collected just upstream from Highway 101) (SBCWD & WRASBC, 2004b). Magnesium and sodium were the dominant dissolved solid cations detected. Mercury has been detected in the San Benito River from historical mining in the upper portions of the watershed. The CCRWQCB has established quantitative surface water quality objectives for the San Benito River regarding TDS and chlorides. TDS and chloride level annual mean averages should not exceed 1,400 mg/L and 200 mg/L, respectively.

The San Benito River (as part of the Pajaro River watershed) is listed on California's 303(d) list for impaired water bodies. The San Benito River was listed as a medium priority for sedimentation/siltation due to increased channel erosion and upward migration of streams and tributaries. Mining operations have caused sediment starvation, acceleration of down-cutting and an increase in headwater incision. The impacted area covers 86 linear miles. A TMDL was approved by the CCRWQCB in December of 2005,

requiring the implementation of activities to achieve sediment load reductions to meet established targets. The TMDL establishes qualitative requirements to reduce sedimentation loading for a variety of land use activities including crop and orchard lands, pasture and range lands, urban lands, roads, and sand and gravel mining operations. The TMDL also requires San Benito County to address stream bank erosion and submit either a Nonpoint Source Pollution Control Implementation Program or documentation that there is no significant activity that may cause soil, silt, or earthen material to pass into water.

The river was listed as low priority for fecal coliform levels over an estimated 86-mile area. The development of a TMDL is currently in the planning stages.

Central Valley Project (San Felipe)

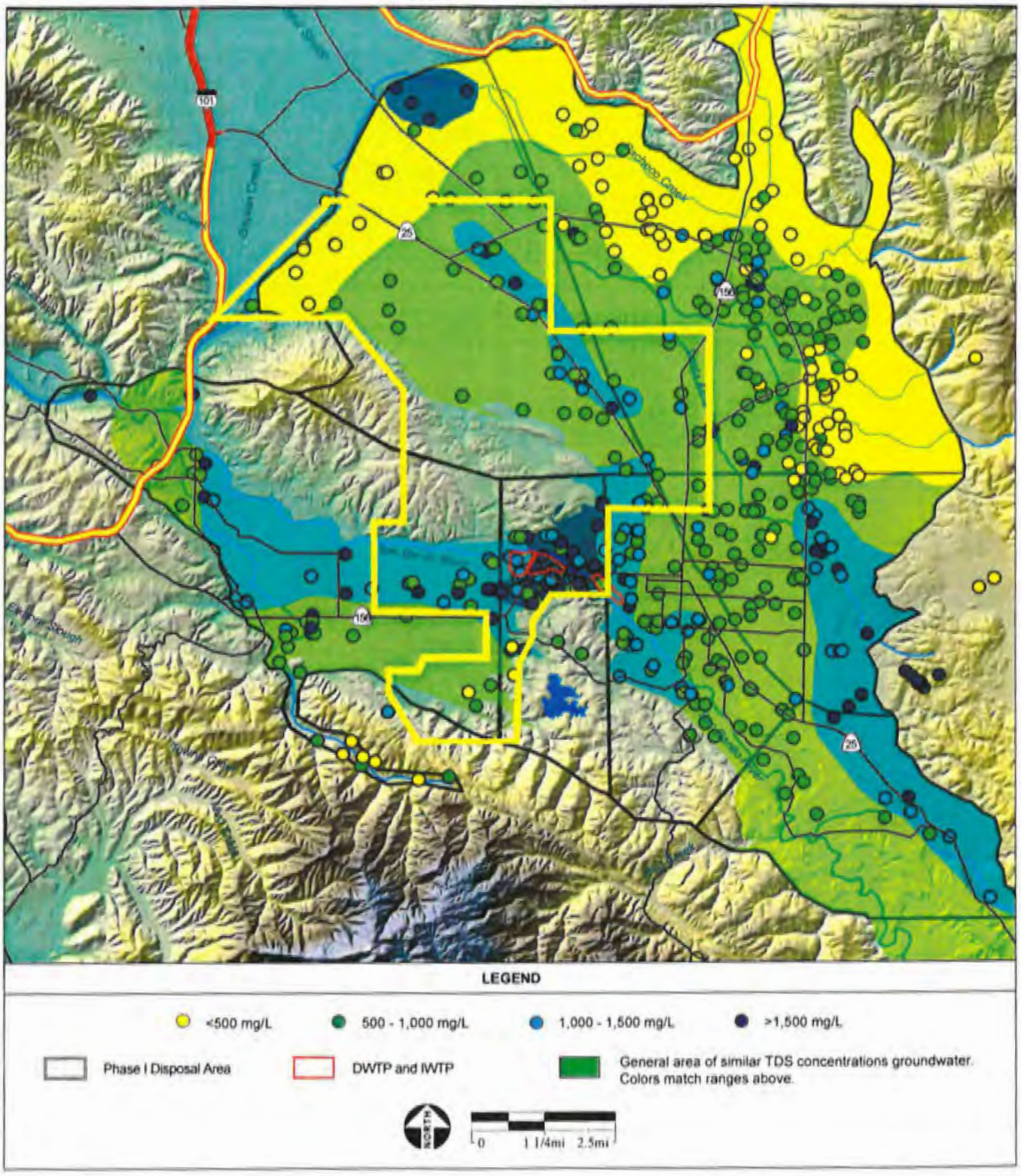
Imported surface water has generally better quality than the groundwater in the local basin. However, consistent with the importation of any surface water supply, it results in the addition of salts to the groundwater basin. Approximately 1 MGD of CVP water is treated at the 3-MGD Lessalt Surface Water Treatment Plant (City of Hollister, *2004 Annual Drinking Water Quality Report*). The Lessalt plant is a joint venture between City of Hollister and the SCWD. The plant began treating CVP water in January 2003. CVP water meets the water quality guidelines for unrestricted agricultural uses, and is also suitable for municipal and industrial use following treatment.

GROUNDWATER

Regional groundwater quality is reported by the SBCWD through Annual Groundwater Reports. These reports include information on groundwater quantity and quality including specific information on specific issues of concern. Groundwater resources within the project area are characterized as having high levels of TDS (salts).

Salinity (TDS)

Salinity refers to the total concentration of dissolved minerals, which are commonly referred to as salts. TDS is a measure of the combined content of a number of constituents, the most common of which are calcium, phosphates, nitrates, sodium, potassium and chloride. Most of these minerals derive from dissolution of aquifer materials, but others are added by human activities. Groundwater salinity varies locally, but some regional patterns are apparent. **Figure ~~4.3-2~~ 4.3-4** is reproduced from a comprehensive groundwater quality study (Todd Engineers, 2004) and shows the average concentration of TDS in wells in the basin. A band of relatively low salinity (less than 500 mg/L) crosses the northern edge of the basin and is associated with recharge from Pacheco Creek. The San Juan Valley in general and the DWTP/IWTP area in particular are characterized by relatively high TDS concentrations (generally more than 1,000 mg/L and in some wells over 1,500 mg/L). In addition to these horizontal variations in salinity in water wells, there is a distinct difference in salinity between shallow and deep groundwater. The average TDS concentration (estimated from electrical conductivity) of groundwater in ten shallow monitoring wells installed throughout the San Juan Valley in 2002 was 2,570 mg/L, and the average concentration in seven agricultural drains was 2,440 mg/L. These data demonstrate how evaporative



SOURCE: Gus Yates, 2006; AES, 2006

Figure 4.3-4
Existing Groundwater Salinity (TDS)

concentration of salts in irrigation water elevates the salinity of soil water, which recharges shallow aquifers, which in turn recharge deep aquifers. Thus, groundwater quality is in a state of change in which deep groundwater salinity is expected to gradually increase over the coming decades.

Other Chemical Contaminants

Sources of groundwater contamination are known to be located in the project area, and could potentially be affected by proposed disposal activities. A former munitions and explosives manufacturing facility (former Whittaker ordnance facility) is responsible for a groundwater contamination plume consisting of volatile organic compounds (VOCs), hexavalent chromium, Freon 113, and perchlorate. The plume is located southeast of the DWTP. The plume is stable and is not migrating toward the San Benito River. The concentrations are still considered high by the CCRWQCB, and remediation is currently underway.

Existing Groundwater Quality in the DWTP/IWTP Area

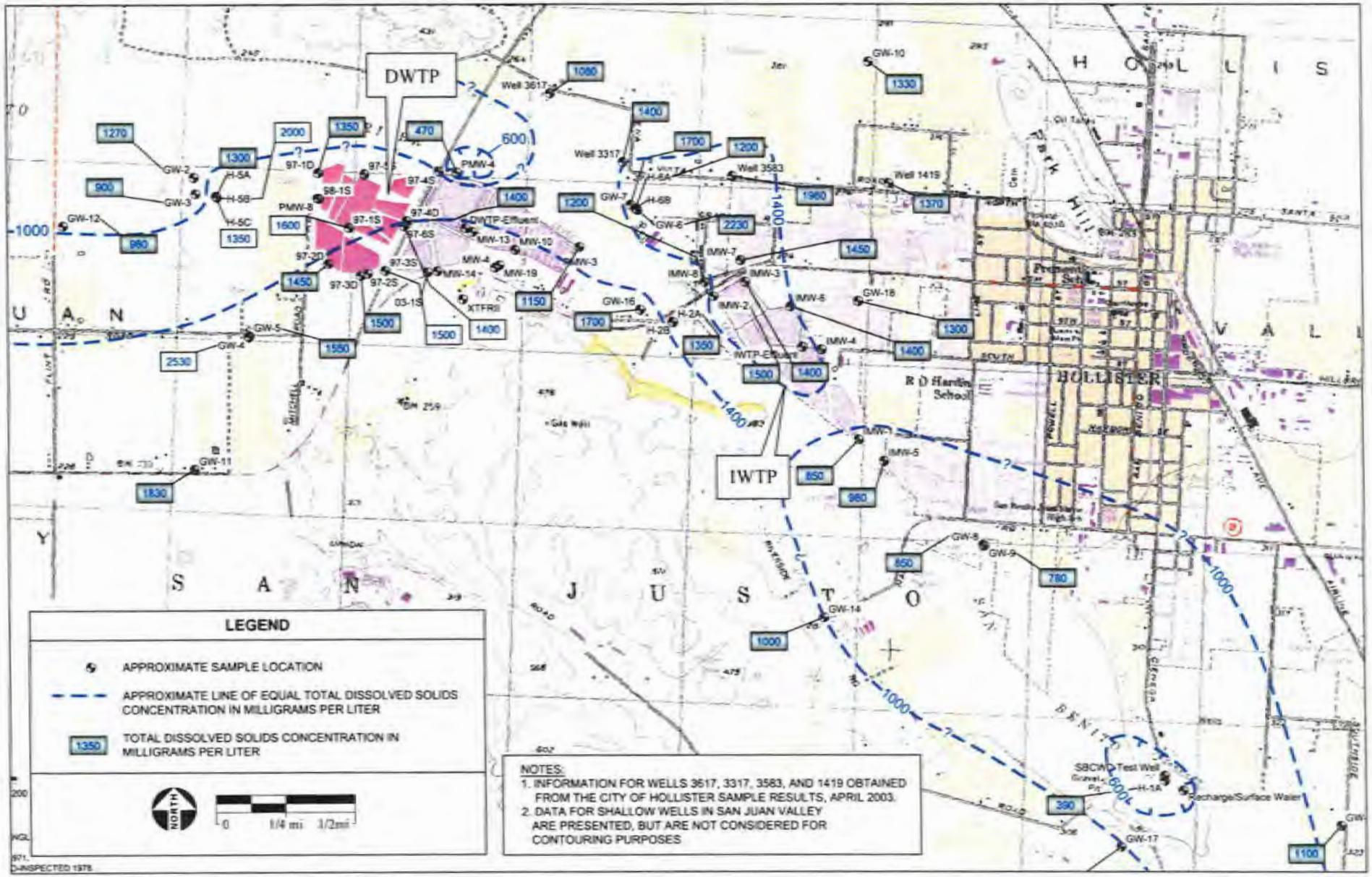
Groundwater quality in the DWTP/IWTP area was analyzed in a hydrogeologic study completed for the City of Hollister, SBCWD, and San Benito County (Geomatrix, 2004). This study evaluated water quality data from groundwater wells in the DWTP/IWTP area and the surrounding area to determine the extent of impacts from wastewater percolation at the DWTP and IWTP.

The study identified that the groundwater quality in the area is generally poor. The study mapped TDS concentrations in the area; this map is included as **Figure 4.3-5**. Groundwater flow in the area is generally from the southeast to the west following the San Benito River channel. The contours shown on the map indicate that TDS concentrations increase away from the San Benito River in the San Juan Valley. Shallow groundwater is shown to have higher TDS concentrations than deeper groundwater[1]. The study attributes the high TDS concentrations in shallow groundwater in the San Juan Valley to the effects of agricultural irrigation, which concentrates salts through evapotranspiration and the application of soil amendments such as gypsum.

The hydrogeologic study did reveal impacts on TDS concentrations attributable to the DWTP/IWTP. As shown in **Figure 4.3-5**, there are higher TDS concentrations at the DWTP/IWTP sites than in upgradient wells. The study concluded that the percolation of wastewater has caused groundwater impacts at the DWTP and IWTP. Impacts identified include rising groundwater levels and addition of salts to groundwater. The primary salts identified in groundwater were sodium, chloride, potassium, and TDS.

The hydrogeologic study also analyzed impacts from the DWTP and IWTP by comparing relative concentrations of constituents and the areal distributions of potassium and ratios of chloride to sulfate. The study mapped potassium concentrations along with chloride-to-sulfate ratios. Based on chloride-to-sulfate ratios, groundwater impacts by percolation of wastewater at the DWTP were identified

[1] In Figure 4.3-A, TDS concentrations in shallow wells are shown in un-shaded boxes.



SOURCE: Geomatrix 2004; AES, 2006

Figure 4.3-5
Average Salinity Concentrations Near DWTP and IWTP

approximately 2,500 feet southwest of the DWTP (Mitchell Road area). Analysis of chloride-to-sulfate ratios identified impacts from the IWTP percolation approximately 1,500 feet to the northeast (between the IWTP and DWTP). Looking further downgradient into the San Juan Valley, the study showed that highest concentrations of groundwater salts are in the Freitas Road/Mitchell Road area. This increase in salt concentrations was attributed to reduced dilution (from San Benito River recharge) and leaching of minerals from the finer-grained soils naturally present in the San Juan Valley and due to application of fertilizers and soil amendments from agricultural practices.

4.3.3 IMPACTS AND MITIGATION MEASURES

This section focuses on the following potential hydrology and water quality issues: increased erosion caused by construction activities; stormwater runoff water quality; potential impacts to groundwater resulting from disposal of treated effluent and the use of recycled water; and potential impacts to surface water quality from the use of recycled water.

METHODOLOGY

GROUNDWATER

The primary tool used to evaluate potential impacts on groundwater was a groundwater flow and solute transport model developed by SBCWD and San Benito County. The model was first developed and documented in 2001 (Yates and Zhang, 2001) but has evolved since then, including modifications implemented specifically to better evaluate impacts of the wastewater project. The model is regional in extent, covering the entire San Benito County part of the Gilroy-Hollister groundwater basin. The groundwater flow component of the model uses the MODFLOW2000 computer program developed by the U.S. Geological Survey (Harbaugh *et al.*, 2000). Groundwater salinity is simulated using the solute transport program MT3DMS (Zheng and Wang, 1999), which functions as an extension to MODFLOW2000. Numerous spreadsheets, geographic information system (GIS) maps and Fortran utility programs were also developed to prepare input data sets for the models and to extract and display selected simulation results.

The finite difference model grid includes five layers to enable simulation of vertical differences in groundwater levels and salt concentration. Grid cells are 250 x 250 feet near the DWTP and IWTP and increase to 1000 x 1000 feet in the rest of the basin. The model uses quarterly stress periods and was calibrated to measured groundwater levels and stream-aquifer fluxes during 1993-2003. Calibration of the flow component of the model is good, particularly in the San Juan and Hollister West subbasins.

The ability of the solute transport component of the model to correctly simulate existing TDS concentration at any point in the basin is limited. Salinity data are fairly sparse, especially for shallow aquifers. Available data show considerable spatial variability geographically and with depth. Because of this variability, contoured initial concentrations for deep aquifers (model layers two through five) are not highly reliable except near the measurement wells. There were too few points to allow contouring of salinity in shallow aquifers (Model Layer 1), and an initial concentration equal to the average of all

available measurements was used throughout the basin. Furthermore, all salt load sources other than irrigation water were lumped into a single background mass load term that was calibrated using an assumption that existing shallow groundwater salinity is in equilibrium with recharge salinity. Because of these simplifying assumptions, the solute transport component of the model is primarily useful for comparing relative differences among alternatives rather than predicting absolute TDS concentrations.

Model Scenarios

Impacts of the Proposed Project were evaluated by comparing the results of a with-project simulation with a simulation representing existing (or no-project) conditions. ~~All~~ Both of the simulations were for a 30-year hydrologic period represented by rainfall and streamflow conditions during water years 1975-2004. This period includes two droughts and two sequences of wet years. For the simulation of existing conditions, urban and agricultural land use was assumed to remain in their present (2005) configurations throughout the simulation. Water demand also remained the same, although the model includes year-to-year variations in irrigation related to current rainfall amounts and also adjusts groundwater production to compensate for dry-year reductions in CVP deliveries. The assumption of no urban growth for the no-project scenario is justified by the current building moratorium imposed due to insufficient wastewater treatment capacity. ~~Impacts of the Proposed Project were evaluated by comparing the results of several simulations representing existing conditions and various configurations of Phases I and II.~~

The simulation of the Proposed Project included all aspects of the project and of urban growth expected to occur during the 16-year planning horizon for the Project. The first year of the simulation was assumed to correspond to water year 2008, when Phase I facilities are expected to come on-line. During Phase I, wastewater percolation at the DWTP and IWTP was assumed to continue at their respective capacities (2,240 and 750 AFY). Excess wastewater was applied to 161 acres of sprayfield (pasture) and 73 acres of turf in and adjacent to the municipal airport on the northern outskirts of Hollister (**Figure 4.3-1**). The annual volumes of wastewater percolation, recycling and disposal during 2008-2023 are listed in Table 1 (**Appendix F**). During 2014-2016 (model years 7-9), Phase I was assumed to transition to Phase II, during which sprayfield disposal and almost all percolation at the IWTP and DWTP were phased out in favor of wastewater recycling for irrigation use. The recycled water was assumed to replace groundwater use in the Freitas Road area west of the DWTP. By 2023, recycled water would replace essentially all of the groundwater pumping for irrigation in that area (4,200 AFY). Recycling during Phase II will be made possible by decreases in wastewater salinity achieved by importing additional CVP water or demineralizing groundwater. For the simulations, future increases in demand were assumed to be supplied by demineralized groundwater. The TDS concentration of treated effluent was assumed to decrease from an average of 1,250 mg/l in Phase I to 600 mg/l in Phase II.

Land use in the Hollister area was assumed to change in accordance with the City's recently updated general plan. Changes introduced in 2010, 2015 and 2020 consisted of residential, commercial and industrial infill and expansion, including substantial commercial and industrial development around the airport. These land use changes affected the simulated rates of recharge from deep percolation of rainfall

and irrigation water. Agricultural wells in newly urbanized areas were assumed to cease pumping, and municipal pumping was increased at the same percentage as projected population growth (2.6% in the Hollister service area and 2% in SCWD's service area). Municipal pumping was allocated among existing wells in proportion to their production rates in gallons per minute. A new municipal well located in the future industrial park south of the airport was added in 2015, when demand surpassed the annual volume that the existing wells could produce operating 50% of the time. An expansion well for SCWD was similarly added along the south edge of the Ridgemark development in 2010.

Two additional changes in agricultural pumping were included in the simulation. Approximately half of the land in Zone 6 east of Fairview Road between Highway 25 and Lone Tree Road was assumed to become irrigated by 2010. The primary supply was assumed to be CVP water, but three hypothetical wells were included to provide supplemental water during periods of CVP delivery cutbacks. Finally, groundwater pumping at all irrigation wells in the Freitas Road area was gradually decreased to balance the amount of recycled water use.

Simulating all aspects of the evolving hydrologic system concurrently complicates the interpretation of simulation results. Effects of wastewater percolation, recycling and sprayfields are superimposed on effects of land-use-related changes in recharge, increases in municipal groundwater pumping, increases and decreases in agricultural pumping, and the particular sequence of wet and dry cycles that happened to occur during 1975-2004. Fortunately, the locations and timing of changes in simulated water levels and salinity generally allow the changes to be attributed to a particular cause.

~~each of these scenarios, water use and wastewater disposal practices were held constant and allowed to operate over a 30 year period of variable hydrologic conditions. That is, the model does not simulate the gradual transition from existing to Phase I and Phase II conditions over a period of 20 years, because variations in natural hydrologic conditions during that period could obscure the effects of the project. For example, if a drought happened to occur during Phase I but conditions were wet during Phase II, it would be difficult to isolate the impacts of the project from the effects of climatic conditions. Also, simulating each scenario over a 30 year period reveals whether the impacts of a given scenario would be particularly severe during droughts or wet periods.~~

~~The Phase I simulation corresponds to the years 2008-2013, with municipal water use and wastewater generation estimated by assuming they both grow at 2.6% per annum in the City of Hollister (Hollister) service area and by 2% per annum in the SCWD service area during 2005-2013. Municipal water use and wastewater generation are assumed to continue growing at the rates assumed for Phase I. In the simulations, each disposal site is assumed to operate at its maximum capacity to receive wastewater. The combined capacity of the off-site disposal areas under Phase I is 5,755 acre-feet per year (AFY), while the off-site disposal need amounts to only 1,750 to 2,590 AFY depending on which DWTP beds are used for percolation. Thus, the simulated impact at each disposal location is the maximum impact that would occur at that location, and in most cases the actual impact would be smaller.~~

Phase II corresponds to the year 2014-2023, and the Phase II simulations represent conditions at the end of that period. The maximum off-site disposal capacity under Phase II is 8,300 AFY, whereas the disposal requirement is at most 3,900 AFY (assuming only the east beds are used for percolation at the DWTP). In Phase II, each disposal area is assumed to receive its maximum feasible amount of wastewater, which corresponds to the maximum local impact. In practice, the Flint Hills and Airport sprayfields would likely not be used, which reduces off-site disposal capacity to 3,980 AFY, or almost exactly the required amount.

Under Phases I and II, all domestic wastewater flows would be treated at the DWTP. However, during Phase I, up to 796 AFY of DWTP treated effluent would be conveyed to the IWTP for percolation. This represents a continuation of current practice. In recent years, Hollister has diverted 662 to 951 AFY of wastewater from the DWTP to the IWTP for treatment and percolation[2]. The exact amount of the diversion under Phase I could increase or decrease depending on the availability of other off-site disposal options (sprayfield and recycled water uses). As shown in **Figure 3-4**, percolation at the IWTP would be first disposal option to be phased out as recycled water use increases. The largest potential decrease in IWTP percolation would be if transfers from the DWTP were eliminated entirely, leaving only inflows of stormwater and cannery effluent. This is the assumption used for the Phase I and II simulations. The potential impacts of possibly increases in transfers from the DWTP were extrapolated from the results of those simulations.

The following are summaries of the model scenarios:

Existing conditions	Domestic wastewater percolation occurs at the IWTP and the east and west percolation beds at the existing DWTP. Municipal water is supplied from groundwater and by CVP water after treatment from the Lessall facility.
Phase I east bed scenario	Percolation of domestic wastewater at the IWTP is assumed to be discontinued, and percolation at the DWTP is limited to the east beds only. Excess wastewater is disposed of by irrigation at San Juan Oaks Golf Club, at selected forage crop fields in the Pacific Sod Farm area, in the Flint Hills area, at Hollister Municipal Airport, and at an agricultural demonstration project in the Freitas Road area where vegetable crops would be irrigated. It is assumed that future increases in municipal water demand will be supplied entirely by CVP water, and that the Lessall treatment plant will be expanded or supplemented with an additional facility.
Phase I west bed scenario	This scenario is the same as the Phase I east bed scenario except that percolation at the DWTP is limited to the west beds only, instead of the east beds.

[2] The CCRWQCB has authorized the diversion of domestic wastewater to the IWTP to continue until October 15, 2005 (CDO R3-2002-0105). The CCRWQCB intended allow this diversion to continue until December 31, 2007 when it adopted Order No. R3-2005-0142, however this did not occur. The City of Hollister is currently working with CCRWQCB to resolve this inconsistency with the Waste Discharge Requirements.

~~**Phase I municipal groundwater use scenario**~~ ~~This scenario is the same as the Phase I east bed scenario except that all future increases in municipal water demand beyond the 3,000 AFY capacity of the Locatt treatment plant would be obtained from groundwater. Although this would likely involve the installation of new wells, specific well locations have not been identified. As a surrogate, pumping at all Hollister and Sunnyslope municipal supply wells was assumed to increase by a uniform percentage to meet the indicated demand level.~~

~~**Phase II east bed scenario**~~ ~~The default assumptions for Phase II are generally the same as for Phase I and are represented by this scenario. A major difference is that the salinity of wastewater is assumed to be 600 mg/L, versus the concentration of 1,300 mg/L used for existing conditions and Phase I. The target salinity for Phase II is 500 mg/L and the maximum would be 700 mg/L. The average of these two endpoints was used in the Phase II simulations. As a result of the lower salinity, disposal of wastewater at the sprayfields would be phased out in favor of using the water for irrigation of agricultural crops. The exact location of this recycling use has not been specified. For the purpose of simulating potential impacts, it is assumed to occur in the Freitas Road area. This area presently uses groundwater for irrigation and domestic supply.~~

~~**Phase II municipal groundwater use scenario**~~ ~~This scenario is the same as the Phase II east bed scenario, except that it is assumes that future increases in municipal water use would be supplied by groundwater rather than CVP water (analogous to the municipal groundwater use scenario for Phase I).~~

~~The specifications for key variables in each scenario are listed in **Table 1 in Appendix F.**~~

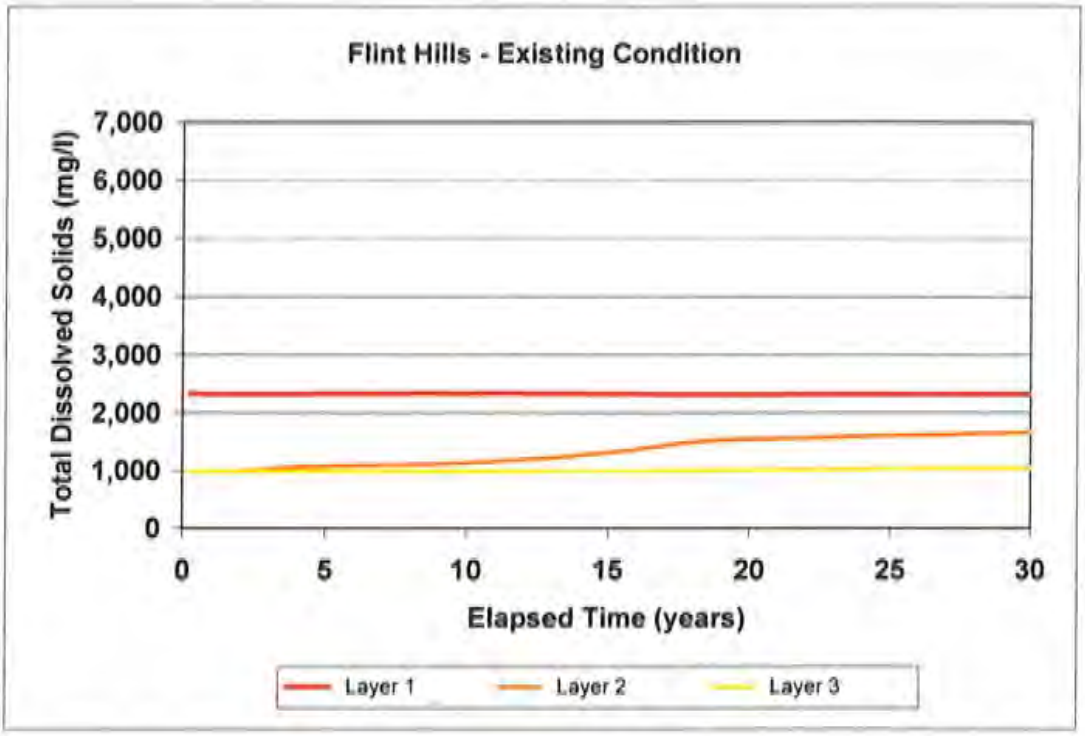
WATER QUALITY

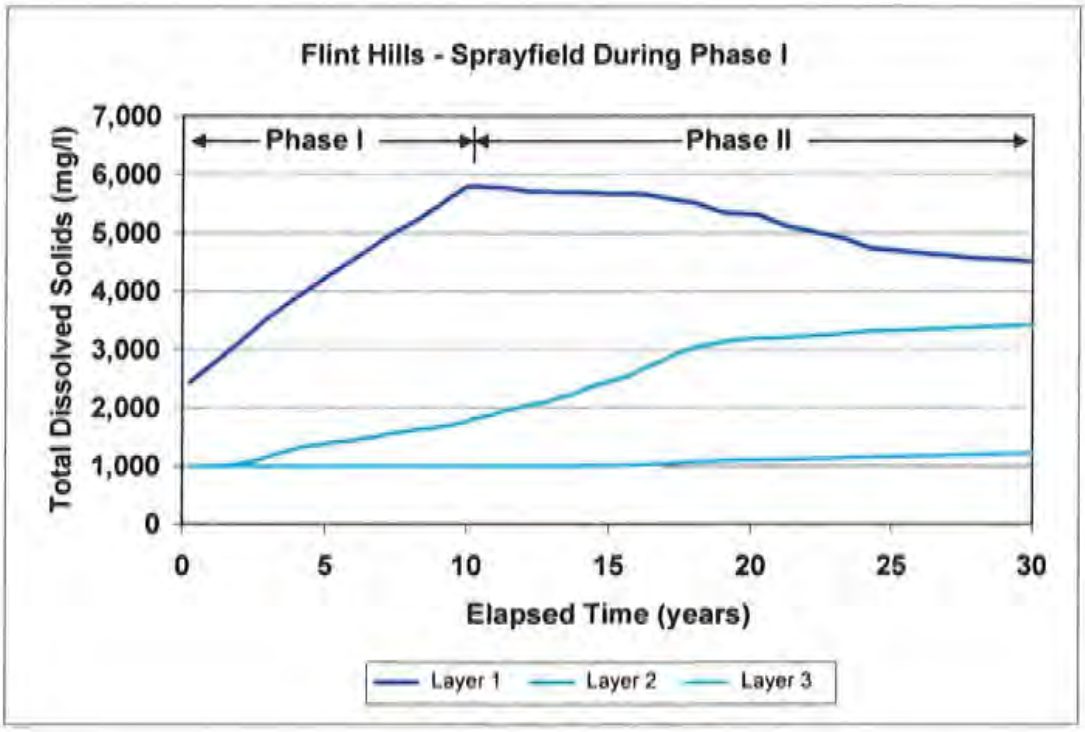
Based on available information, a review of potential impacts to surface and groundwater quality was conducted. Effects of treated effluent disposal have been evaluated on the basis of their potential to affect groundwater flow and levels. Groundwater quality impacts have been reviewed based on how changes in effluent quality from current practices could affect groundwater resources. Potential impacts to municipal, industrial and agricultural activities have also been reviewed based on how recycled water quality may change water supplies.

Groundwater Salinity

To evaluate groundwater salinity, it is essential to differentiate between the *concentration* of salinity (expressed in milligrams per liter of water) and the total amount or *mass* of salts (expressed in pounds or tons). Salinity problems are directly related to the TDS concentration. Increasing the mass of salt load entering the basin indirectly creates problems because it tends to increase TDS concentrations in the long run. Salt loading from a basin-wide perspective is discussed below as a separate impact. The present discussion of impacts on shallow groundwater salinity focuses on TDS concentrations.

The impacts of the project must be evaluated in the context of: 1) current groundwater salinity, 2) the effects of irrigated agriculture on shallow groundwater salinity, and 3) the effects of irrigation water quality on shallow groundwater salinity. All water used for irrigation contains some dissolved solids. As shown in **Figure ~~4.3-3~~ 4.3-6**, approximately 90% of the applied water leaves the soil through evaporation and crop transpiration, leaving all of the salts behind. By itself, this would result in a 10-fold increase in the concentration of salts in soil water. Fortunately, rainfall in winter dilutes the salt concentration in the soil. Some soil moisture percolates downward past the crop root zone and becomes groundwater

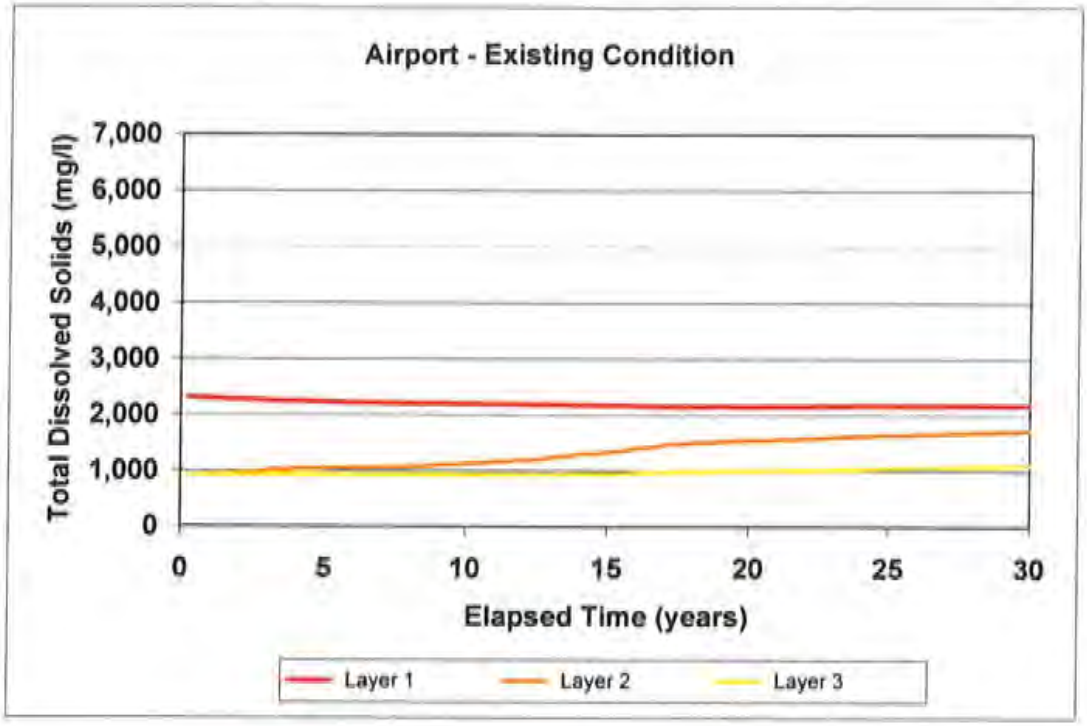


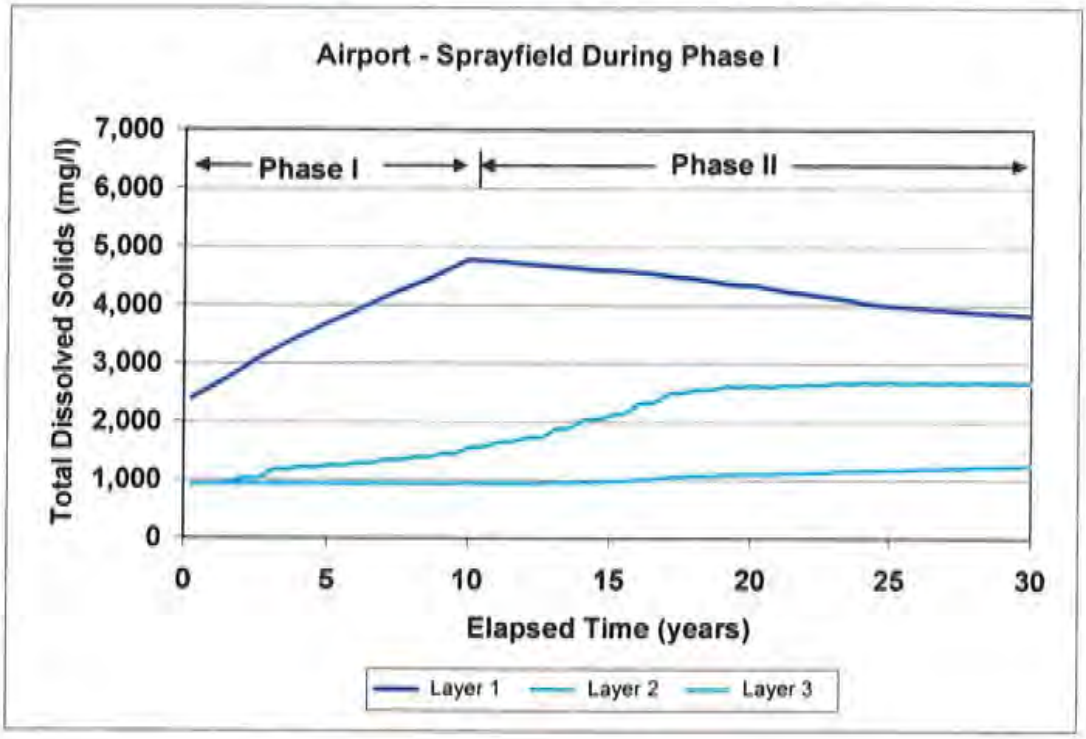


SOURCE: Gus Yates, 2006; AES, 2006

Figure 4.3-6a

Simulated TDS Concentrations at Flint Hills and Airport Sprayfield Areas





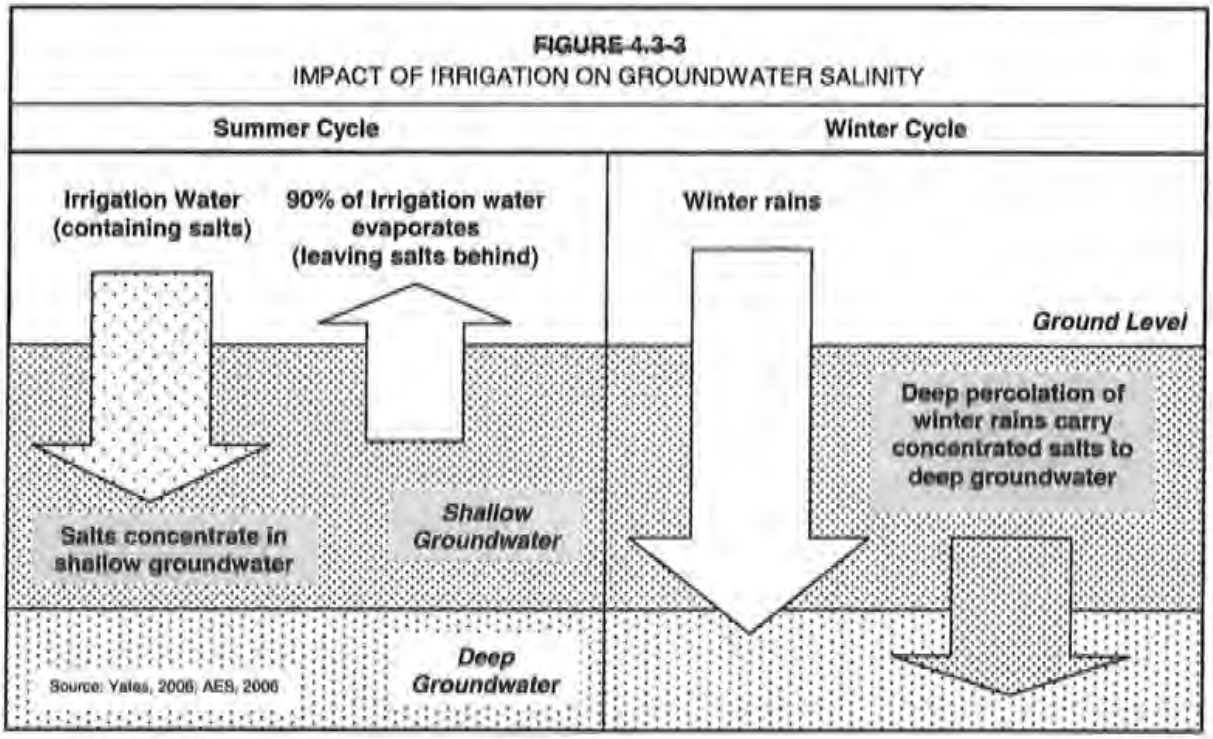
SOURCE: Gus Yates, 2006; AES, 2006

Figure 4.3-6b

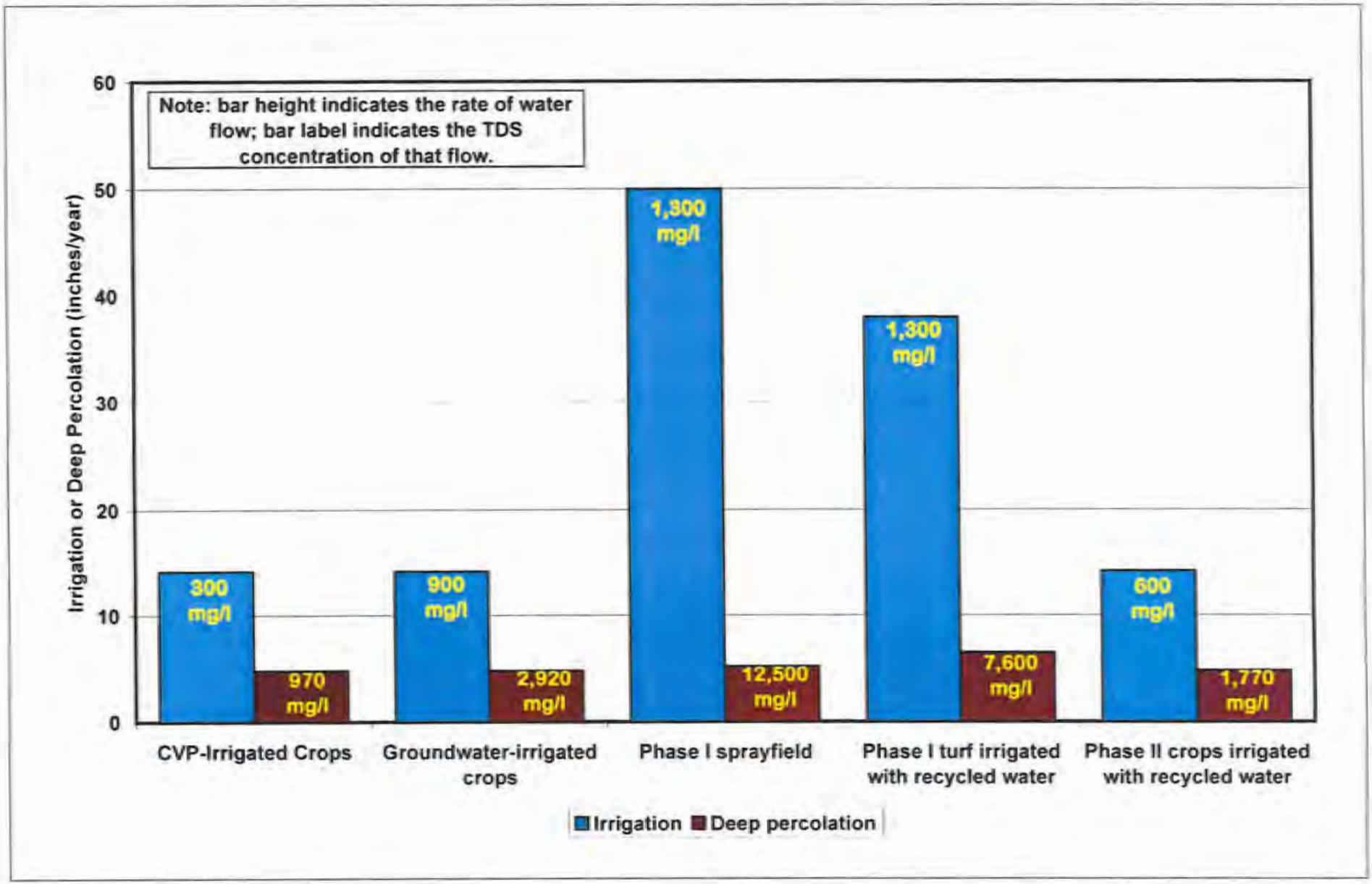
Simulated TDS Concentrations at Flint Hills and Airport Sprayfield Areas (Continued)

recharge. The TDS concentration in deep percolation water can be estimated from the concentration in irrigation water and the ratio of deep percolation rate to irrigation rate, which determines the net amount of evaporative concentration of the salts. ~~**Figure 4.3-4**~~ The diagram below compares these factors for three conditions: crops irrigated with CVP water, crops irrigated with groundwater, and a sprayfield irrigated with wastewater. ~~The deep percolation rates are long-term averages obtained by simulating daily soil moisture budgets for the root zone over a 30-year period for a variety of soil types, crops and irrigation practices. These calculations were performed to develop recharge inputs for the groundwater model described below under "Methodology."~~

~~**FIGURE 4.3-3**~~
IMPACT OF IRRIGATION ON GROUNDWATER SALINITY



The values shown in **Figure ~~4.3-4~~ 4.3-7** for cropped areas reflect average soil texture and well water salinity; variations in those factors result in somewhat different deep percolation rates and salinities. The irrigation and deep percolation rates for CVP-irrigated and groundwater-irrigated crops are the same and indicate a 3.3-fold increase in salinity due to evaporative concentration. The TDS concentration of CVP water is about one-third the typical concentration in groundwater in the San Juan Valley, and the estimated TDS concentration of deep percolation beneath CVP-irrigated fields is consequently also smaller by a factor of three. The estimated TDS concentration of deep percolation is approximately 970 mg/L for the CVP-irrigated field and 2,920 mg/L for the groundwater-irrigated field. It is important to note that these calculations ignore additional salt loading from soil amendments (principally gypsum), fertilizers, atmospheric deposition, and other sources, all of which would increase the TDS concentration in deep percolation.



SOURCE: Geo Yates, 2006; AES, 2006

Figure 4.3-7
Evaporative Concentration of TDS in Applied Irrigation Water

At sprayfields, the TDS concentration of irrigation water and the irrigation application rates would both be substantially greater than for other crops. As shown in **Figure ~~4.3-4~~ 4.3-7**, it is estimated that approximately 50 inches of water would be applied annually. This water would have a TDS concentration of 1,300 mg/L. Over the irrigation season, evaporation and crop transpiration would concentrate TDS levels in the shallow groundwater, leading to an approximately 10-fold evaporative concentration factor. As a result, when winter rains saturate soils, waters percolating to the deep aquifer would have a salinity of about 12,500 mg/L. It should be noted that only about 5 inches of deep percolation would occur each year, so that while the concentration of salts in percolating water is high, the amount of salts entering the deep aquifer is limited. Because the limited amount of percolation is diluted by the larger volume of existing groundwater, it takes a much longer time for the impacts of irrigation to affect the TDS concentration in the deep aquifer.

In Phase II, treated wastewater salinity would be decreased to approximately 600 mg/L TDS. Once the treated wastewater reaches this TDS level, sprayfields would be phased out and recycled water would be used predominately for crop irrigation. This would reduce the amount of water applied, from about 50 inches per year for sprayfields to about 14 inches per year for crops. This would reduce the evaporative concentration factor and would reduce the salinity of waters percolating to the deep aquifer to about 1,770 mg/L TDS.

For most land use zones, the salinity of deep percolation was calculated as a long-term average obtained by simulating daily soil moisture budgets for the rootzone over a 30-year period for a variety of soil types, crops and irrigation practices. For sprayfields, agricultural fields irrigated with recycled water and urban areas, the salinity of deep percolation was updated annually as the proportions of the three irrigation sources and the salinity of municipal irrigation water evolved during implementation of Phases I and II of the Proposed Project. These calculations were performed to develop recharge inputs for the groundwater model.

The impacts of deep percolation salinity depend on the existing TDS of shallow groundwater. Measurements from ten shallow monitoring wells located throughout the San Juan Valley average about 2,330 mg/L. This fairly high concentration is the cumulative result of decades of evaporative concentration of irrigation water. Any change in the salinity of deep percolation salinity will gradually shift the salinity of shallow groundwater, which in turn eventually commingles with deep groundwater. Consequently, any irrigation situation that produces a deep percolation salinity less than 2,330 mg/L will generally have a beneficial impact on groundwater quality, and any situation with higher salinity will generally have an adverse impact.

SIGNIFICANCE CRITERIA

The significance of each impact is judged on the basis of whether its magnitude or intensity exceeds a specified threshold. Thresholds of significance have been selected in the context of current conditions

and commonplace activities. For example, all groundwater users sharing a basin adversely impact one another by lowering water levels at each other's wells and competing for the safe yield of the basin. Similarly, irrigated agriculture increases the long-term salinity of groundwater through evaporative concentration of dissolved minerals in the irrigation water and leaching those salts downward into the basin.

Appropriate significance thresholds neither sanction the adverse impacts of others nor assign the project an unfair share of responsibility for a common problem.

FLOODING

A hydrologic or flooding impact of the Proposed Project would be considered significant if it met any of the following criteria adapted from the California Environmental Quality Act (CEQA) *Guidelines*:

- Generate substantial storm water runoff;
- Cause substantial flooding;
- Expose people or structures to flood hazards;
- Significantly alter the course, direction, or volume of surface water runoff;
- Alter groundwater flows; or
- Interfere substantially with groundwater recharge.

WATER QUALITY

A surface water or groundwater quality impact of the Proposed Project would be considered significant if it directly or indirectly results in any violations of any water quality standards or waste discharge requirements, or otherwise substantially degrades water quality. Water quality would also be considered significantly impacted if the Proposed Project substantially altered the existing drainage pattern of the site or area in a manner that would result in substantial erosion or siltation on or off site, or substantially degraded the existing surface and groundwater quality due to erosion and siltation.

Quantitative water-quality standards have been developed by state and local agencies (see "Regulatory Setting" above). These are all expressed in terms of concentrations of certain water-quality constituents and apply only to certain waters and types of uses. The primary water-quality impact of the Proposed Project is evaporative concentration of minerals in water that incidentally percolates beneath wastewater disposal sprayfields. This water recharges shallow aquifers that are not directly used for any purpose. Therefore, it may be inappropriate to apply standards for potable supply water and irrigation water. The Basin Plan standards for ambient groundwater quality in this basin are based on data for water wells, which represent quality in deep aquifers, not shallow ones. The objective for TDS in deep groundwater, for example, is a concentration less than 1,200 mg/L.

Existing deep groundwater quality does not meet the Basin Plan objectives in many locations, and shallow groundwater quality is even worse. As shown in **Figure 4.3-5**, the area surrounding the DWTP has salinity levels that exceed the Basin Plan objective of 1,200 mg/L TDS. The San Juan Valley has a

concentration range of 1,000 to 1,500 mg/L. The average salinity in ten shallow monitoring wells in the San Juan Valley is approximately 2,300 mg/L and only one of the wells has a salinity that meets the Basin Plan objective for TDS. This illustrates how salts concentrated by evaporation of irrigation water elevate the salinity of soil water, which recharges shallow aquifers, which in turn recharge deep aquifers.

Given that deep groundwater fails to meet the Basin Plan objective at many locations and that deep groundwater is derived largely from shallow groundwater, one could conclude that any increase in shallow groundwater salinity is a significant adverse impact. For quantitative calculations in the impact analysis later in this chapter, shallow groundwater salinity is assumed to have a TDS concentration of 2,300 mg/L unless more exact local data are available.

The anti-degradation policy contained in the Basin Plan is perhaps the best source of guidance for evaluating impacts in situations where any increase in concentration is potentially significant. This policy originated as Order 68-16 of the State Water Resources Control Board and states that existing water quality that is better than required under water-quality standards will be maintained unless 1) the change will be consistent with maximum benefit to the people of the State, 2) will not unreasonably affect present and anticipated beneficial use of such water, and 3) the change would not violate water-quality standards. Furthermore, Order 68-16 requires all discharges to "existing high quality waters" to implement the best practicable treatment or control of the discharge to minimize water-quality degradation. The basis for judging the significance of salinity impacts in this EIR is whether the project overall appears to be consistent with Order 68-16.

It should be noted that water quality standards have been identified for other constituents that could reach problematic concentrations as a result of evaporative concentration. These include chloride, sulfate, boron, sodium, sodium adsorption ratio, nitrogen and hardness. Average concentrations of these constituents in the 19 wells regularly monitored by SBCWD are very close to or slightly exceed their respective quantitative objectives in the Basin Plan. Therefore, the evaporative concentration of TDS is a reasonable indicator of potential adverse impacts for each of the other constituents.

~~The existing groundwater quality in the project area is impacted by high salinity levels. As shown in **Figure 4.3-2**, the area surround the DWTP has salinity levels that exceed the median Basin Plan objective of 1,500 mg/L TDS. The San Juan Valley has salinity levels of 1,000 to 1,500 mg/L TDS, however, shallow groundwater is considerably higher approximately with an average 2,570 mg/L TDS from ten shallow wells. This illustrates how salts in irrigation water elevate the salinity of soil water, which recharges shallow aquifers, which in turn recharge deep aquifers. In light of the existing groundwater quality additional significance criteria are identified for shallow groundwater salinity and the overall basin salt budget.~~

~~*Shallow Groundwater Salinity*~~

~~The adverse impact of increased groundwater salinity is primarily that it limits its beneficial uses for irrigation and potable water supply. Shallow groundwater is by and large already too salty for all but a few uses and is generally not used directly. Shallow groundwater is a major source of recharge to deep aquifers; however, any increase in shallow groundwater salinity will eventually accelerate or exacerbate the degradation of deep groundwater quality. Near the San Benito River, shallow groundwater may be substantially diluted by river percolation before it reaches deep aquifers. There are no similar sources of dilution near the proposed Airport and Flint Hills sprayfield sites or near San Juan Oaks Golf Club, however.~~

~~Increasing the salinity of deep percolation is considered significant if the TDS concentration exceeds the concentration of deep percolation beneath a groundwater irrigated field at that location. This can vary depending on site conditions but averages about 3,000 mg/L. The presence of nearby sources of dilution may be considered in determining the significance of the impact.~~

Groundwater Basin Salt Budget

Many human activities add salts to the groundwater basin. In addition to evaporative concentration of existing dissolved minerals when groundwater is used for irrigation, salt is added from soil amendments and fertilizers applied to fields, percolation of municipal wastewater, septic systems at rural residences, and percolation of agricultural or industrial processing water. Even the importation and use of CVP water adds salt to the basin, although it arrives in low concentrations. Salts are also added from natural processes such as percolation of creek and river water, and dissolution of minerals in soils and aquifers. Salts are removed from the basin primarily by groundwater discharge into creeks and rivers. If total salt inputs exceed total salt removal, groundwater salinity will gradually increase.

A salt budget for the groundwater basin has been estimated in recent annual groundwater reports prepared by SBCWD (for example, Yates, 2005). Although the estimates of individual terms in the budget are approximate, the budget indicates that annual salt inputs are three to nine times greater than salt outputs. This imbalance and the evaporative concentration of salts in applied irrigation water eventually increase groundwater salinity, but the process is gradual because of the large volume of water in the groundwater basin.

Because groundwater salinity in many parts of the basin already exceeds the Basin Plan objectives, any net increase in the basinwide salt budget is a potentially significant adverse impact. As with impacts on TDS concentrations at specific locations, overall compliance of the project with the nondegradation policy in Order 68-16 will be used to judge the significance of salt budget impacts.

~~Groundwater salinity in almost all parts of the basin already exceeds the recommended MCL for drinking water of 500 mg/L and in some parts exceeds the maximum short term MCL of 1,000 mg/L. Salinity is also high enough to impact the growth of sensitive crops (Pettygrove and Asano, 1985). In light of these~~

~~existing impairments of beneficial uses, any addition of salt to the basin is an adverse impact. There is no obvious quantitative threshold at which salt loading becomes significant. For the present analysis, a change in basin wide salt balance is considered significant if it would likely result in a statistically detectable increase in average groundwater salinity over a period of several decades.~~

SHALLOW GROUNDWATER LEVELS

Groundwater levels in shallow aquifers adversely affect plant growth if they rise up into the root zone. The depth of the root zone varies by crop, but a water table depth of 8 feet or more is generally adequate even for tree crops. Shallow groundwater levels can also impact building and structures because saturated soils are less stabile. Shallow saturated soils can result in differential settling and increase the risk of structural failure due to seismic events. Increases in the elevation of shallow groundwater are considered a significant adverse impact if they elevate the water table to within 8 feet of the ground surface.

DEEP GROUNDWATER LEVELS

In deeper aquifers tapped by agricultural, domestic, and municipal supply wells, lower groundwater levels increase pumping costs. The incremental cost of lifting groundwater a few additional feet is a small percentage of the overall cost of pumping water, especially if sprinklers are used, as is common in northern San Benito County. Under typical groundwater and irrigation conditions in that area, lowering the static groundwater level by 10 feet would increase pumping costs by roughly 5%, or approximately $5 per acre per year. This is negligible in the context of production costs amounting to many hundreds of dollars per acre per year. For this reason, the impacts of small decreases (less than 20 feet) on deep groundwater levels are not considered a significant impact.

Lowering of deep groundwater levels is also considered significant if the water levels would fall below historical minimum levels. Much more serious and expensive impacts would commence at that point: well pumps may need to be lowered, well screens might become dewatered and corrode, and well yields could decline. Also, land subsidence would become a concern, although it was not reported during previous periods of low water levels.

Raising deep groundwater levels is beneficial with respect to pumping costs but could create adverse effects if the water levels approach or exceed the land surface elevation. High water levels in deep aquifers promote high water levels in shallow aquifers and associated soil drainage problems. Flowing wells are also a nuisance for farm operations. An appropriate threshold of significance for adverse impacts of raising deep groundwater levels is the same threshold used for shallow aquifers; if water levels rise to less than 8 feet below the ground surface, the impact is considered significant.

WHITTAKER PLUME MOVEMENT

A shift in the direction or rate of movement of the Whittaker contaminant plume is considered significantly adverse if the plume would affect different or additional wells over a 30-year period, within the accuracy limitations of the groundwater model.

IMPACT STATEMENTS AND MITIGATION MEASURES

IMPACTS TO WATER QUALITY

Impact

4.3.1 Implementation of the Proposed Project could alter the basin-wide salt balance. This impact is considered ~~potentially~~ less than significant.

The proposed MBR facility would improve the quality of effluent produced at the DWTP, thereby allowing for the disposal of effluent through sprayfields and irrigation projects. As shown in **Table 4.3-1**, the initial quality of effluent during Phase I would meet Basin Plan groundwater quality objectives for nitrogen and boron. Nitrates would be removed by the MBR process, and remaining levels would be expected to be further reduced by uptake from the vegetation being irrigated. Boron is present at low levels in Hollister's water supply, however boron levels in effluent are expected to remain at levels below the Basin Plan objective. The salinity of the effluent would not be changed initially by the Proposed Project. While overall TDS levels in effluent would equal the Basin Plan objective, particular salt constituents – sodium, chloride, and sulfate – would approach or exceed Basin Plan objectives. The exceedance of these constituent levels would occur for approximately seven years until demineralization is implemented. Demineralization would occur by 2015, reducing TDS levels to a target level of 500 mg/L. Achievement of this target level would also reduce sodium, chloride, and sulfate to levels lower than the Basin Plan objectives. Based on expected Phase I and Phase II effluent quality, elevated salt levels in Phase I are identified as the primary groundwater quality concern.

It should be noted that the application of groundwater water objectives is made in the context of the actual groundwater naturally present. As described previously, groundwater in the region has elevated salinity levels ranging from 500 to over 1,500 mg/L. Most of the salts derive from dissolution of aquifer materials, but others are added by human activities. These activities include agriculture, primarily through the evaporative concentration of salts in irrigation water, and the disposal of treated wastewater at the DWTP and IWTP. Localized impacts to groundwater salinity are addressed under Impacts 4.3-2 through 4.3-7.

TABLE 4.3-1
BASIN PLAN GROUNDWATER OBJECTIVES AND EXPECTED EFFLUENT QUALITY

Constituent	Basin Plan Median Groundwater Objective[1]	Phase I Expected Effluent Concentration	Phase II Expected Effluent Concentration
TDS	1,200 mg/L	1,204 mg/L[2]	500 mg/L
Chloride	150 mg/L	287 mg/L[2]	121 mg/L[3]
Sulfate	250 mg/L	252 mg/L[2]	85 mg/L[3]
Boron	1.0 mg/L	0.7 mg/L[4]	0.7 mg/L[4]
Sodium	200 mg/L	253 mg/L[2]	121 mg/L[3]
Nitrate	5 mg/L (Nitrogen)	< 5 mg/L	< 5 mg/L

Notes:
1. Basin Plan, Table 3-8 Median Groundwater Objective for Hollister Sub-Area.
2. Based on existing DWTP effluent quality; average 2005 levels.
3. Based on achievable reduction efficiencies of reverse osmosis process for a target TDS level of 500 mg/L.
4. Based on average boron levels reported for the Hollister water system (City of Hollister, 2006).

Source: RMC, 2006; AES, 2006.

The Proposed Project would affect several salt loads associated with evaporative concentration. During Phase I, the sprayfield operation at the airport would create a new salt load. Salts in wastewater applied at the airport sprayfield would be concentrated through evaporation to levels that substantially exceed the objectives. This salt would be carried from the soil zone down to the water table by deep percolation of rainfall and applied irrigation water. From the standpoint of TDS concentrations in groundwater, evaporative concentration of irrigation water is a salt load to the groundwater basin equal in magnitude to the salt content of the evaporated water.

Urbanization will also increase during Phase I, which means irrigated cropland will be replaced by urban land uses, which would reduce the salt load at those locations. In Phase II, the salt load at the airport sprayfield will cease, demineralization will decrease the salt load associated with urban irrigation, and the salt load in the Freitas Road area will change as the irrigation supply shifts from groundwater to recycled water. Although there would be no change in evaporative concentration of wastewater percolated at the DWTP and IWTP, the wastewater salinity would decrease in Phase II, thereby decreasing the percolation salt load. Estimates of each of these salt loads under existing, Phase I and Phase II conditions are listed in Table 2, **Appendix F**. The results show that the sum of the salt loads during Phase I is slightly reduced compared to existing conditions because the effects of urbanization offset the salt load created by the sprayfield. In Phase II, the sum of the affected salt loads decreases to less than half of the existing sum. This decrease is the result of demineralization, which directly or indirectly affects the three sources that are active in Phase II. In 2023, for example, demineralization would remove approximately 4,800 tons per year of salt from municipal supply water (decreasing the TDS concentration of 8,840 AFY of groundwater by about 400 mg/L). The benefit is compounded when low-TDS water or wastewater replaces high-TDS groundwater for irrigation, because the evaporative concentration factor is applied to a smaller initial concentration. The overall basinwide salt loading in Phase II would be smaller than under existing conditions by approximately 10,000 tons per year.

When viewed from a basinwide perspective, the wastewater project and concurrent urban growth would have a less than significant impact on the basinwide salt balance during Phase I and a beneficial impact during Phase II.

~~The Proposed Project would redistribute DWTP effluent and change disposal methods through the development of irrigation projects and sprayfields and the gradual reduction of percolation. This redistribution and changes in the disposal methods could alter the basin-wide salt balance. The redistribution of the DWTP effluent was assessed within the EIR for the 2004 GWMP Update. The 2004 GWMP Update EIR found that "wastewater recycling would not remove salts from the subbasin, but rather would redistribute the salt loading over a wider geographic area; this would be considered a neutral effect, neither beneficial or adverse" (SBCWD & WRASBC, 2004b).~~

~~To assess project related impacts to overall groundwater salinity levels from the change in effluent quality and disposal methods, a basin wide salt balance was completed. The salt balance and a detailed analysis of methodology and results are included in **Appendix F**. The salt balance identifies the major components affecting salinity levels in the basin, and how the Proposed Project could alter the individual contributions of each component.~~

~~The results of the salt balance analysis (see **Appendix F**, Table 3) indicate that Phase I would increase the basin wide salt load if all future increases in municipal water demand are~~

~~supplied by CVP water and would decrease it if all future increases in municipal water demand that exceeds the capacity of the Lessalt treatment plant are met by groundwater assuming future increases in groundwater use are demineralized. The analysis considers evaporative concentration of existing salts in groundwater to be equivalent to adding salt with respect to the long term implication for salt concentrations. Evaporative concentration is the primary mechanism by which the Proposed Project would impact the basin wide salt balance. Importation of CVP water also contributes to future salt loading if it is selected to supply future increases in municipal water demand. Note that the Proposed Project makes no assumption regarding the source of future supply, so both CVP and groundwater sources were tested in the simulations.~~

~~The magnitude of the increased salt load (up to approximately 3,800 tons/yr in Phase I) is not large relative to the existing net basin wide salt load, which is on the order of 110,000 tons/yr if evaporative concentration of groundwater used for irrigation is included along with direct inputs from creek percolation, soil amendments, fertilizers, wastewater and other sources (Yates, 2005). The volume of groundwater in the basin is sufficiently large that changes in overall salt balance take decades to impact ambient salt concentrations in the basin. For example, the much larger salt load associated with agriculture and wastewater during the past 70 years has thus far generally impacted only shallow parts of the basin. The Phase I salt load impact would last for only about seven years, which is too short a period for a small increase in salt load to have a significant impact on the basin wide salt budget or ambient salt concentrations. Note that Phase I can create significant localized impacts on groundwater salt concentrations within the seven years of operation (see Impact 4.3.2) even though that period of operation is too short to significantly alter the basin wide salt mass balance and average basin wide concentration. By 2015, demineralization of groundwater or DWTP effluent would decrease the overall salt load because of the physical removal of salt. As a result, Phase II would have a beneficial impact on the salt balance of the basin.~~

~~As discussed under **Impact 4.3.2**, utilizing treated wastewater for irrigation would increase shallow groundwater salinity in localized areas near sprayfields during Phase I. Localized impacts to groundwater salinity would be mitigated by implementation of **Measure 4.3.2**. Because mitigation has been identified for localized impacts, and because the total contribution of salts from the Proposed Project to the basin would be minor and restricted to approximately seven years, impacts to the basin wide salt balance are considered to be less than significant.~~

Mitigation Measure

None required.

Impact

4.3.2 Disposal of treated effluent through sprayfields and irrigation projects could change the groundwater quality near disposal areas. The impact is considered potentially significant.

The application of effluent in sprayfields and irrigation projects could change groundwater quality as water applied leaches through the soil into the underlying groundwater. However, effluent applied as irrigation would not result in a direct discharge to groundwater. This is because approximately 90% of the recycled water would be lost through evapotranspiration, and only 10% would percolate into the groundwater. Due to the evaporative concentration of irrigation water, salts left by evaporation in shallow soils would subsequently be carried by

water percolating into the groundwater (primarily winter rains). This process would gradually elevate salinity concentrations in shallow groundwater and more gradually elevate levels in deep groundwater.

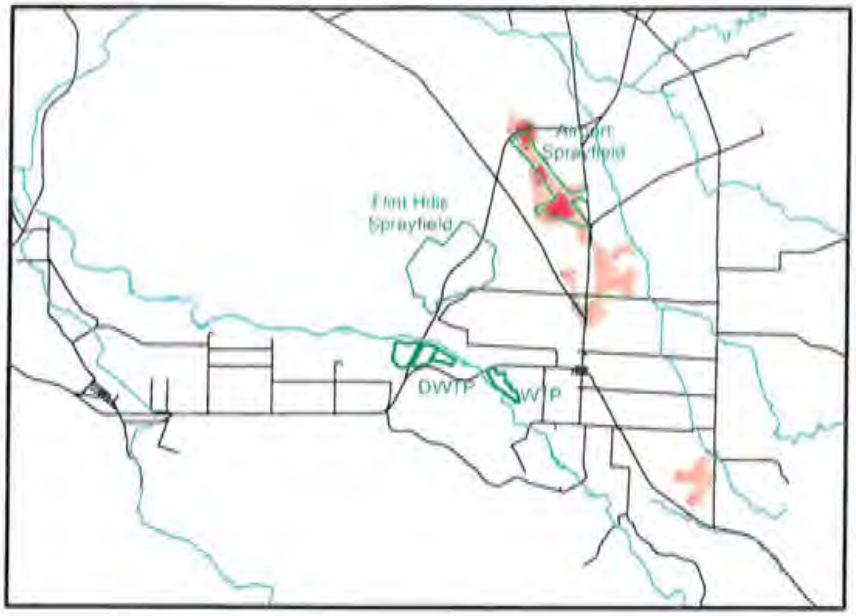
To address the localized impacts of effluent disposal at sprayfields, groundwater modeling was conducted to simulate TDS concentrations. TDS concentrations reflect the concentrations of salt components including chloride, sodium and sulfate. Two sprayfield locations are identified for Phase I of the Proposed Project. San Juan Oaks Golf Club would utilize recycled water to blend with the Golf Club's existing irrigation water (CVP water and groundwater). Recycled water would comprise up to 22% of the blended irrigation water to achieve a TDS concentration of 500 mg/L. The quality of the blended irrigation water is not expected to appreciably differ from the quality of the existing irrigation water. Recycled water would substitute either groundwater or CVP water and would not result in an increase of irrigation. Because there would be little change in irrigation water quality and quantity, impacts to groundwater quality near the San Juan Oaks Golf Club is expected to be less than significant.

The development of the airport sprayfield would result in a change in existing irrigation, which is currently limited to approximately 40 acres of row crops. Operation of the airport sprayfield would gradually increase during Phase I (2008-2013), and then be phased out between 2013 and 2015 (years 7 to 9 of the simulation). Contours of change in shallow groundwater salinity after 6 years of Phase I operation are shown in the upper plot in **Figure 4.3-8**. The change represents the difference between with-project and no-project conditions.

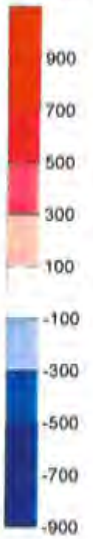
The largest increases are near the airport, where shallow groundwater salinity is approximately 600 mg/L greater than under no-project conditions and reaches a maximum concentration of approximately 3,400 mg/L. The other locations with salinity increases are where cropland irrigated primarily with CVP water was assumed to be urbanized by 2010. Urban irrigation water is 84% groundwater, which results in more saline deep percolation. Irrigated areas cover a smaller percentage of total land area in urban land use zones, and deep percolation is somewhat diluted by infiltration of rainfall runoff from adjacent paved surfaces, but these factors do not outweigh the differences in assumed irrigation water salinity. This impact reverses and becomes beneficial in Phase II, when the average TDS concentration of municipal water would decrease from about 780 to about 300 mg/l through demineralization.

The impact on salinity at the airport sprayfield site would be temporary and limited to the uppermost part of the aquifer system. Salty shallow groundwater that would accumulate beneath the airport sprayfields during Phase I would linger and move within the groundwater basin after sprayfield operations are discontinued in Phase II. **Figure 4.3-9** shows hydrographs of simulated salinity concentration in the top three model layers at selected locations for the entire 30-year simulation. The upper row of graphs shows concentration trends under existing conditions, and the lower row shows the concentrations under with-project conditions. Note that large changes in Layer 2 salinity occur even in the no-project simulation. This is because salty groundwater currently existing in shallow aquifers (Layer 1) will percolate downward and commingle with groundwater in deeper layers, gradually increasing the salinity of those layers. The slight long-term decrease in layer 1 salinity at the airport under no-project conditions is an artifact of the initial concentration. A measured value of 3,067 mg/ L was used at the north end of the airport, whereas surrounding parts of layer 1 used an assumed regional average of 2,330 mg/L. Over time, the difference dissipated.

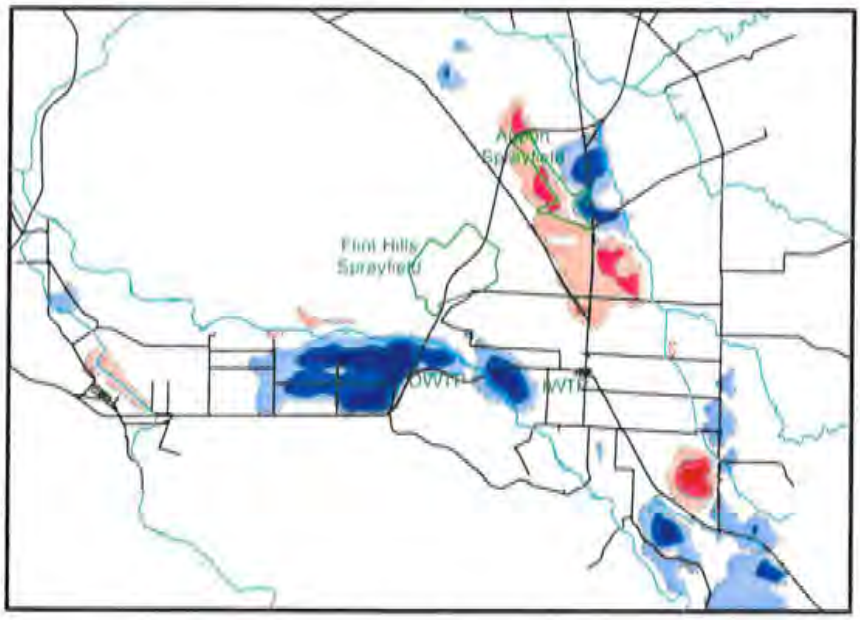
A. Change in Shallow Groundwater Salinity after 6 Years of Phase I (2013)



Change in Salinity (TDS mg/L)



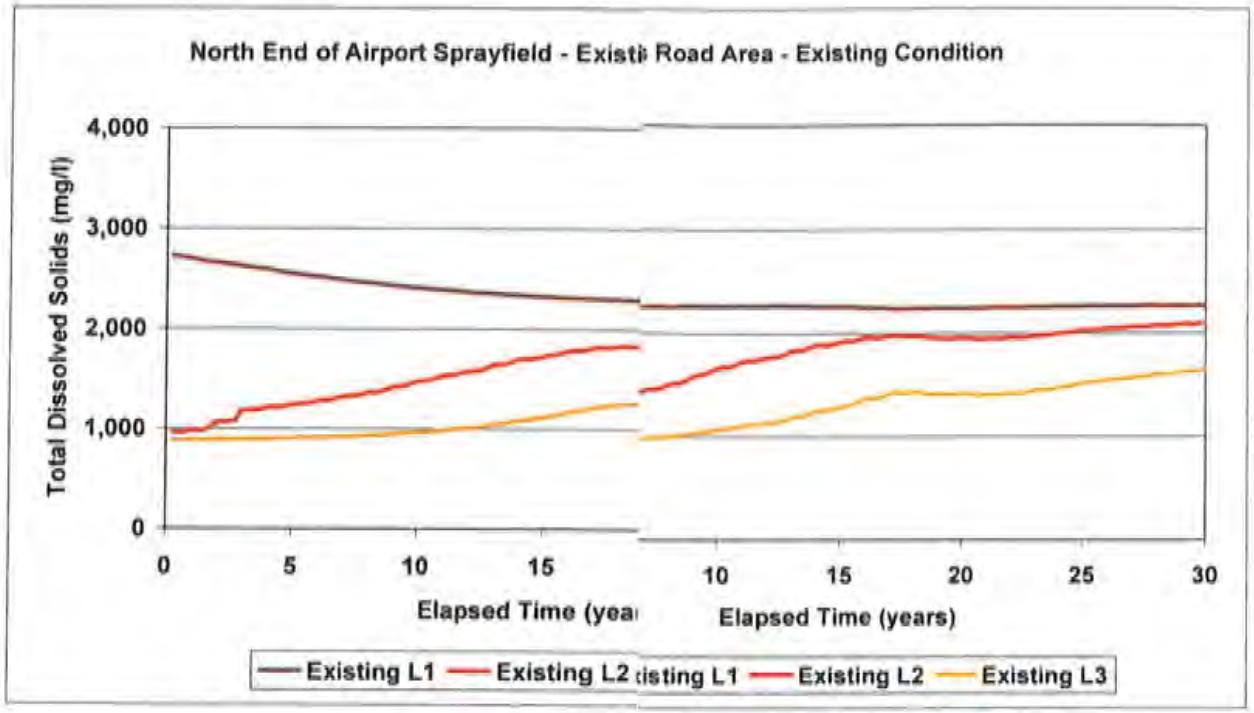
B. Change in Shallow Groundwater Salinity after 8 Years of Phase I followed by 22 Years of Phase II (2037)

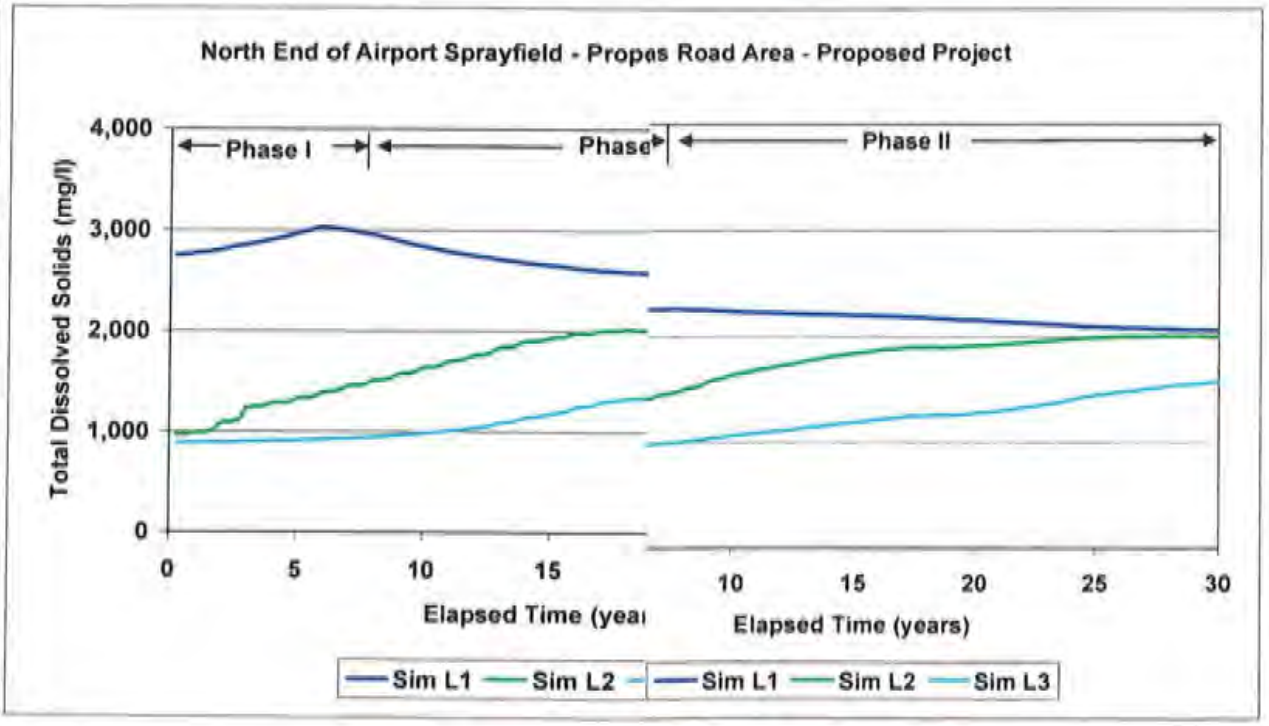


SOURCE: Gus Yates, 2006; AES, 2006

Figure 4.3-8

Contours of Cumulative Changes in Shallow Groundwater Salinity after Phase I and II





SOURCE: Gus Yates, 2006; AES, 2006

Figure 4.3-9
of Salinity With and Without the Proposed Project

With the Proposed Project, Layer 1 TDS beneath the airport sprayfield peaked around year 7 of the simulation (2013), because wastewater salinity decreased to 600 mg/L in year 8 and sprayfield operation was completely phased out by year 9. The peak value at the hydrograph location was slightly lower than the maximum peak value of 3,400 mg/L at the northeast corner of the northernmost sprayfield. By the end of the 30-year simulation (after 22 years of Phase II operation), the with-project concentration was only 210 mg/l greater than in the no-project simulation.

The effect of the Proposed Project on Layer 2 salinity is delayed and attenuated relative to the effect in Layer 1 because salt introduced into Layer 1 percolates downward gradually and commingles with Layer 2 groundwater. The maximum difference between the Layer 2 salinity hydrographs for the existing and with-project simulations occured in year 15 (2022), when with-project salinity was greater by 200 mg/l. At the end of the simulation, the difference had diminished to 60 mg/l. The impact in Layer 3 was even further delayed and attenuated. At the end of the simulation, the concentration was only 30 mg/l greater than under no-project conditions, but the difference was still increasing.

The model represents the vertical profile of groundwater salinity only in a general manner because Layer 1 is fairly thick. Most water supply wells withdraw water primarily from layers 2-5, but the tops of some well screens are shallower than the bottom of Layer 1. Consequently, the increased salinity in Layer 2 and possibly Layer 1 could affect existing wells directly, without the simulated delay and attenuation associated with percolating downward to deeper layers. However, the contaminated water reaching the top of the well screen would be diluted by water entering lower parts of the well screen, so the concentration in the produced water would be lower than the concentration in Layers 1 or 2. In spite of this dilution, any increase in TDS of the produced water could adversely impact beneficial uses because existing deep groundwater TDS near the sprayfield sites is already near the upper limit for potable supply and for irrigation of some crops.

Phase II of the Proposed Project includes the implementation of demineralization by 2015 to reduce wastewater TDS concentrations to 500-700 mg/L. Contours of the change in simulated Layer 1 groundwater salinity after 22 years under Phase II (at the end of the 30-year simulation) are shown in the lower plot in **Figure 4.3-8**. The changes are relative to existing conditions and reflect the changes in irrigation water quality, land use, wastewater percolation, and discontinued sprayfield operation in a predictable way. By the end of the simulation, the salty groundwater beneath the airport sprayfield had largely dissipated, as had localized areas of elevated salinity associated with urbanization during Phase I. Urban expansion during Phase II lowered Layer 1 salinity in locations where the existing irrigation supply had a higher salinity than Phase II municipal water. These areas appear as blue blotches east of the airport and near the Ridgemark development on Highway 25 in the lower right corner of the map. The decrease in wastewater salinity in Phase II contributed to a decrease in shallow groundwater salinity beneath the DWTP and IWTP percolation ponds. Finally, there was a decrease in salinity throughout the Freitas Road area because the recycled water used for irrigation during Phase II had a lower TDS concentration than the existing groundwater supply.

Summary

The Proposed Project would result in a temporary increase in salinity of shallow groundwater beneath the airport sprayfield. This significance of this impact is judged in comparison to the

non-degradation policy (Order 68-16) of the SWRCB, as described above in the section on "Significance Criteria". In particular, the potential increase in salinity of shallow groundwater beneath the airport sprayfield is considered less than significant because it will not unreasonably affect present and anticipated beneficial use of groundwater in the basin. The shallow aquifer that would be impacted by deep percolation beneath the sprayfield is not directly used by anyone, and future direct use of that water for potable or irrigation supply is unlikely. By the time shallow groundwater percolates down to deeper aquifers that are tapped for beneficial uses, peak concentrations are highly attenuated. Simulation results showed that salinity increases in Model Layer 3 would be gradual (over several decades) and small (on the order of 200 mg/l).

While this impact is generally considered to be less than significant, nearby water supply wells that happen to have shallow screened intervals or a relatively strong hydraulic connection to the sprayfield area via a localized permeable aquifer unit could be impacted. Construction information is not available for most wells, and local hydrogeologic variability is unknown, so this risk cannot be precisely verified. Given that deep groundwater quality near the airport is already marginal for irrigation and potable uses, any percolated salts beneath the sprayfield that enter a nearby well could noticeably impair the beneficial use of the well water. As a result impacts to wells located near sprayfields are considered to be potentially significant.

~~To address the localized impacts of effluent disposal at sprayfields and irrigation project sites, groundwater modeling was conducted to identify TDS concentrations. TDS concentrations reflect the concentrations of salt components including chloride, sodium and sulfate. The contours of change in shallow groundwater salinity after 10 years under the Phase I scenario show the cumulative effect on shallow groundwater salinity (**Figures 4.3-5 A and B**).~~

~~The significance of the evaporative concentration of salinity and localized impacts to groundwater would depend upon the existing conditions at each sprayfield/irrigation site. At areas that are already irrigated, the water application rate would remain the same but the salinity of the irrigation water would increase. At San Juan Oaks Golf Club, recycled water would be blended with CVP water as the irrigation supply to an average TDS of 500 mg/L. Currently San Juan Oaks utilizes a blend of CVP water and groundwater with an approximate TDS level of 300 mg/L. With recycled water use, the salinity of shallow groundwater beneath the golf club is estimated to increase by 500 mg/L as compared to existing conditions, with maximum concentration of approximately 2,600 mg/L. At the Pacific Sod Farm, recycled water would replace groundwater, which would increase the shallow groundwater TDS concentration by 300 600 mg/L to approximately 2,700 mg/L. The largest increase would occur at the two sprayfields (Flint Hills and the Airport) where salinity would increase by 2,800 to 3,800 mg/L to an ending concentration of as much as 5,600 mg/L.~~

~~The impact on salinity at the sprayfield sites would be temporary and limited to the uppermost part of the aquifer system. A transient model simulation was implemented to simulate the extent to which salty shallow groundwater that would accumulate beneath sprayfields would linger and move within the groundwater basin even after sprayfield operations are discontinued. **Figures 4.3-6 A and B** show hydrographs of simulated TDS concentration in shallow groundwater at the Flint Hills and Airport sprayfield sites for Phase I. The upper graph on each page shows concentration trends under existing conditions, and the lower graph shows the concentrations under with project conditions. The sprayfields are assumed to revert to non irrigated status after 10 years. The gradual increase in Layer 2 salinity at both sites under existing conditions is consistent with the downward movement of~~

poor quality water that inevitably occurs in developed groundwater basins with irrigated agriculture. The magnitude of the trend in this case is largely an artifact of assumptions regarding initial concentrations, and in fact may be exaggerated. Under with project conditions, Layer 1 TDS at the Flint Hills site peaks at approximately 5,800 mg/L in year 10 and gradually declines to 4,500 mg/L in year 30. It would continue to decline thereafter. Because shallow groundwater gradually percolates downward and commingles with deeper groundwater, the pulse of salinity is delayed and attenuated in Layer 2. At both sites, the Layer 2 concentration is approximately at its peak at the end of 30 years, although minor subsequent increases could occur before concentrations ultimately begin to decline. The simulated peak concentrations in Layer 2 were 3,400 mg/L and 2,700 mg/L at the Flint Hills and airport sites, respectively. Attenuation is even greater by the time the salt reaches Layer 3, with concentrations only 200 mg/L above the background concentration after 30 years, but still increasing.

The midpoint of model Layer 2 corresponds approximately to the depth to the top of the well screen for typical wells in the area, so the increase in salinity would likely be detected in some existing wells. The percolating water reaching the top of the well screen would be diluted by water entering lower parts of the wellscreen, so the concentration in the produced water would be lower than the Layer 2 concentration. In spite of this dilution, any increase in TDS of the produced water could adversely impact beneficial uses because existing deep groundwater TDS is already near the upper limit for potable supply and for irrigation of some crops.

Phase II of the Proposed Project includes the implementation of demineralization by 2015 to reduce TDS levels to a target of 500 mg/L. Contours of the change in simulated Layer 1 groundwater salinity after 30 years under Phase II are shown in **Figure 4.3-7**. The changes are relative to existing conditions (that is, not preceded by Phase I) and reflect the change in irrigation water quality in a predictable way. At San Juan Oaks Golf Club and at areas in the San Juan Valley currently served by CVP water, the TDS concentration of irrigation water would increase from 300 mg/L (CVP water) to 500 mg/L (recycled water), and shallow groundwater salinity would increase accordingly. The maximum increase would be about 500 mg/L, with a final concentration of approximately 2,600 mg/L. At the Pacific Sod Farm, the change is the opposite of the change under Phase I. Instead of increasing from 900 to 1,300 mg/L, the irrigation supply would decrease to approximately 600 mg/L. The result is a decrease in shallow groundwater salinity of as much as 1,200 mg/L, with ending concentrations as low as 800 mg/L. Shallow groundwater salinity throughout the Freitas Road area would improve under Phase II because the TDS concentration of irrigation water would decrease from about 900 to 600 mg/L.

Under Phase II, disposal of wastewater at the sprayfields would be largely or entirely eliminated. For comparison and contingency purposes, however, the sprayfields were retained in the Phase II scenarios. If the sprayfields were operated at full capacity in Phase II, with a recycled water TDS concentration of 600 mg/L instead of 1,300 mg/L, shallow groundwater salinity would increase by about 2,300 mg/L (Airport) to 3,200 mg/L (Flint Hills) over existing conditions. The final TDS concentrations in Layer 1 would be 4,000 to 5,300 mg/L.

The significance threshold for increases in shallow groundwater salinity is a final concentration greater than 3,000 mg/L (which is slightly greater than the average concentration beneath groundwater irrigated fields in the San Juan Valley (2,300 mg/l). The increase near San Juan Oaks Golf Club, at the Pacific Sod Farm, and areas in San Juan Valley

~~currently irrigated with CVP water is less than significant, and the salinity decrease at the Pacific Sod Farm and throughout the Freitas Road area in Phase II is beneficial. The salinity increases at the sprayfield sites exceed the significance threshold in both phases, but not by a large amount.~~

~~At the two locations where the impact to shallow groundwater is significant (Flint Hills and the Airport), the impact would be significant only under Phase I conditions, assuming use of the sprayfields would be discontinued under Phase II. The impacts to shallow groundwater would only occur in Layer 1 at the Airport and only in Layers 1 and 2 at the Flint Hills. Layer 3 at each area would see only a slight rise in salinity. In each case the salinity of Layer 3 at the end of the 30 year period would be less than 1,500 mg/L. The increase in salinity in shallow groundwater would be limited to the sprayfield sites and would not affect the surrounding areas. The simulated impacts on shallow groundwater take three decades to develop, and impacts on deep groundwater would likely take several more decades to become significant. Salinity in deeper layers beneath the sprayfields – even if less than significant – would continue to increase long after sprayfield operation has been discontinued. Saline water is likely to reach wells much sooner than indicated by the model because groundwater flows preferentially along relatively permeable pathways through aquifer materials that are heterogeneous at a local scale not simulated by the model. It should be noted that the area surrounding the Airport is primarily designated for urban development, which would be served by the municipal water supply. As a result agricultural use of groundwater in the area is expected to be limited. However, on balance, the impact on shallow groundwater salinity during Phase I is considered significant and adverse, and therefore mitigation is recommended.~~

Mitigation Measures

4.3.2 **(a) Install three shallow monitoring wells along the down-gradient boundaries of all areas irrigated with Phase I recycled water. Areas with blended irrigation water are exempt from this requirement if the TDS concentration and annual irrigation rate meet the following criterion:**

$$(TDS) \times (IRRIG/6) < 3000$$

where,

TDS = total dissolved solids concentration in the irrigation water (mg/L)
IRRIG = annual irrigation application rates (inches)

Monitor groundwater salinity in those wells and several nearby down-gradient water supply wells at least semiannually until 2023. Monitoring shall be conducted for TDS, sodium, chloride, sulfate.

(b) Tabulate and interpret the data at least semiannually to determine the extent to which shallow and deep groundwater salinity is being impacted by the increase in irrigation water salinity. Interpretation of data shall project when increased salinity levels would affect existing uses of groundwater.

(c) For the proposed Hollister Municipal Airport sprayfield, if the TDS, sodium, chloride, or sulfate concentrations in a nearby down-gradient water supply well are projected to increase to a point that it would adversely affects the existing uses of

the water, and if the increase in can reasonably be attributed to Phase I recycled water operations based on the monitoring data, then the City of Hollister shall provide an alternative water supply to the well operator. The alternative supply shall have water quality characteristics no worse than the pre-project well water. The alternative supply may consist of wellhead treatment.

(d) For all other sprayfields, if the TDS, sodium, chloride, or sulfate concentrations in a nearby down-gradient water supply well are projected to increase to a point that it would adversely affects the existing uses of the water, and if the increase in can reasonably be attributed to Phase I recycled water operations based on the monitoring data, then one or more of the following shall occur:

1. **Reduce or discontinue recycled water irrigation.**
2. **Blend recycled water with CVP or groundwater to reduce salinity of irrigation water. Blending with CVP shall be restricted to CVP Zone 6 Service Area.**

If the TDS, sodium, chloride, or sulfate concentrations in a nearby down-gradient water supply well increase to the point that existing uses of the water are adversely affected, and if the increase can reasonably be attributed to Phase I recycled water operations based on the monitoring data, then the City of Hollister and/or SBCWD shall provide an alternative water supply to the well operator. The alternative supply shall have water quality characteristics no worse than the pre-project well water. The alternative supply may consist of wellhead treatment.

Significance After Mitigation

Less than significant.

Impact 4.3.3 **Decreased percolation at the DWTP and IWTP could affect nearby groundwater quality. This impact is considered less than significant.**

The proposed MBR process would improve the quality of effluent produced at the DWTP. This would allow for the disposal of effluent through sprayfields and irrigation projects, and would eventually reduce the amount of effluent disposed at the DWTP. This could affect the existing groundwater quality near the DWTP, by both changing the quality and quantity of effluent disposed.

As shown in **Table 4.3-1**, the initial quality of effluent during Phase I would meet Basin Plan groundwater quality objectives for nitrogen and boron. However, the salinity of the effluent would remain near existing levels. While overall TDS levels in effluent would equal the Basin Plan objective, particular salt constituents – sodium, chloride, and sulfate – would approach or exceed Basin Plan objectives. It should be noted that the application of groundwater water objectives is made in the context of the actual groundwater naturally present. Groundwater in the vicinity has elevated salinity concentrations (Figure 4.3-5) from a variety of sources. Most of the salts derive from dissolution of aquifer materials, but others are increased through agriculture, primarily through the evaporative concentration of salts in irrigation water, and the disposal of treated wastewater at the DWTP and IWTP. In the vicinity of the DWTP and IWTP the highest levels of groundwater salinity is located downgradient of the DWTP in the San Juan Valley. This increase is salt concentrations is

likely due to reduced dilution (from San Benito River recharge) and leaching of minerals from the finer-grained soils naturally present in the San Juan Valley and due to application of fertilizers and soil amendments from agricultural practices (Geomatrix, 2004).

While the salinity of wastewater percolated at the DWTP would be the same as under existing conditions, the volume of percolated wastewater would change. As shown in **Figure 3-4**, initially, percolation at the DWTP could increase slightly but would remain close to ~~over~~ existing volumes throughout Phase I. During the first few years of Phase II, percolation of municipal effluent would be eliminated at the IWTP and decreased to 38% of existing volumes at the DWTP. This decrease in percolation volume would be accompanied by a decrease in wastewater salinity and a change in percolation from the adjacent San Benito River. The simulation of the Proposed Project takes all of these factors into account. ~~However, as sprayfields are developed and as recycled water use increases, percolation of effluent at the DWTP would substantially decrease.~~

The net effect of changed percolation operations during Phase II would be to decrease shallow groundwater salinity near the DWTP. This is illustrated by the contours of change in groundwater salinity (lower map in **Figure 4.3-8**) and the hydrographs of groundwater salinity (middle graphs in **Figure 4.3-9**). The TDS concentration of wastewater was assumed to decrease from 1,250 to 600 mg/l between Phases I and II, and this lowers the salinity of nearby shallow groundwater by a similar amount.

During Phase I, percolation volumes and wastewater salinity would remain essentially equal to their existing values. Consequently, there would be no impact on shallow groundwater salinity near the DWTP. With implementation of demineralization in Phase II, effluent quality would improve significantly and the volume percolated at the DWTP would decrease. Together, these changes would result in beneficial impacts to groundwater quality in the area.

~~**Figures 4.3-5-A and B** shows contours of change in groundwater salinity in Layer 1 in areas that would be affected by the project. The change equals the simulated salinity at the end of 10 years of the Phase I east bed scenario minus the salinity at the end of 10 years of existing conditions. Blue shading indicates areas where the TDS concentration is smaller by more than 300 mg/L, and red shading indicates areas where it is greater by more than 300 mg/L. The area surrounding the DWTP is shown in the upper graph and reveals a slight increase in salinity near the west beds, which results from the reduction of percolated wastewater effluent to dilute the ambient shallow groundwater salinity in that area. The San Benito River channel truncates the northern edges of the areas of change, where river infiltration is the primary influence on shallow groundwater salinity.~~

~~As noted, during Phase I, the potential exists for percolation to increase at the location of the west beds where the seasonal storage reservoir is proposed. Because the reservoir would be unlined in the short term, percolation volumes may increase. In this case, the change in groundwater salinity would be comparable to that modeled for the east beds, that is, a slight decrease in salinity.~~

~~During Phase I, the impact on shallow groundwater salinity near the DWTP is less than significant because the increase in TDS concentrations would be to a level that is less than or equal to the typical concentration in shallow groundwater beneath surrounding agricultural fields. With implementation of demineralization in Phase II, effluent quality would improve significantly and the continued disposal at the DWTP would result in beneficial impacts to groundwater quality in the area.~~

Mitigation Measures

None required.

Impact

4.3.4 The Proposed Project would result in the discontinuation of domestic flow diversions to the IWTP for treatment, but would dispose of DWTP effluent at the IWTP. This impact is considered less than significant.

In 2000, the City received approval from the CCRWQCB to temporarily divert a portion of its domestic wastewater from the DWTP to the IWTP. This diversion was an interim solution to decreased percolation capacities. Currently, an average of 820 AFY of domestic flows is being diverted to the IWTP for treatment and disposal (based on 2003 to 2005 recorded flows). The EIR (David Powers & Associates, 1999) completed for the diversion project identified that shallow groundwater quality and potentially the quality of water from several domestic wells in the vicinity of the IWTP could be significantly affected in the short-term by the DWTP-IWTP diversion project. In particular, chloride levels in the effluent (up to 282 mg/L) could affect several private domestic wells, resulting in salty-tasting water. The EIR identified the following mitigation.

3. Mitigation Measures for Hydrology and Drainage Impacts

Mitigation for Potential Impacts to Shallow Groundwater Quality and Private Wells

The project includes the following measures to avoid and/or reduce potential impacts upon private supply wells.

- The City will monitor the shallow and deep groundwater in the area to determine the extent of impacts due to percolation at the IWTP ponds. Both the three shallow monitor wells and the converted unused well (MW-4) would be monitored on a quarterly basis. The locations of the monitoring wells are shown on Figure 7. MW-2 and MW-3 are shallow downgradient wells and tap groundwater above a depth of 55 feet. MW-4 is located near the IWTP headwords and is rehabilitated former water supply well. The perforations in MW-4 extend from 83 to 96 feet in depth. Monitoring of MW-4 will help determine if the percolated effluent is moving downward to the depth interval tapped by the shallowest private water supply wells in the area.

- With the owners' permission, the City would sample the four domestic wells and one irrigation well north of the San Benito River and potentially downgradient of the IWTP ponds. At least two sampling rounds would be conducted prior to the start of project operations, to provide a baseline value of well water quality. The City would sample these wells on a semi-annual basis for chloride. The recommended standard for chloride is a maximum contaminant level of 250 mg/l.

- If chloride concentrations in water from the private wells are confirmed as exceeding 250 mg/l as a result of IWTP effluent percolation, then the City would either hook up the private domestic well users to the City water supply system or would replace the

wells with deeper wells with adequate annular seals. For the irrigation well, a deeper replacement well would be drilled.

(David Powers & Associates, 1999, pg. 34)

Under the Proposed Project, the current diversion of untreated effluent to the IWTP would cease and up to 796 AFY of treated effluent from the DWTP would be conveyed to the IWTP. As a result, overall water quality conditions at the IWTP would improve. The Salt Management Program would reduce the concentration of salt constituents in the DWTP effluent. As shown in **Table 4.3-1**, with implementation of demineralization, chloride levels would be reduced to approximately 121 mg/L. This would reduce chloride levels below the Basin Plan objective of 150 mg/L. As a result, the current impact to shallow groundwater quality would be reduced with implementation of the Proposed Project. Therefore, this impact is considered to be less than significant.

Mitigation Measure

None required.

Impact

4.3.5 The Proposed Project may increase surface water baseline surfactant levels. This impact is considered less than significant.

Municipal wastewater influent contains many types of contaminants including surfactants (commonly referred to as methylene blue activated substances or MBAS). There are two types of surfactants: ionic and non-ionic. Although the concentration of both types of surfactants in the influent stream cannot be estimated at this time, the overall treatment capabilities of the MBR treatment system indicate adequate reduction in both ionic and non-ionic surfactant levels from the wastewater stream. For example, data from wastewater treatment plants (WWTPs) indicate an average ionic surfactant removal rate of 92 percent from the wastewater stream. For non-ionic surfactants, the WWTP had a removal rate of 99 percent (Lubello and Gori, 2004). Based on the efficiency of surfactant reductions by MBR systems, the impact of using recycled water generated by the DWTP MBR system on surfactant levels in surface waters would be considered less than significant.

Mitigation Measures

No mitigation is necessary.

Impact

4.3.6 The use of recycled water for sprayfield irrigation could impact surface water quality. The impact is considered potentially significant.

Sprayfield irrigation may increase soil erosion, causing increased sedimentation of surface waters, and may introduce an additional source of bacteria and TDS contamination to the area's surface waters.

The development of sprayfields would increase the potential for erosion based on a net increase in irrigation acreage in the Hollister area. The increase in net irrigation flow could have the potential to increase erosion, thereby preventing the City's compliance with the CCRWQCB's TMDL for the San Benito River. This impact is considered potentially significant.

The use of recycled water for sprayfield irrigation could introduce bacteria to surface waters from either runoff from irrigation practices or stormwater from sprayfields at levels that would be inconsistent with the CCRWQCB's Basin Plan objective for surface water. However, the Proposed Project includes upgrading the DWTP with a MBR treatment system. Bacteria (coliform) levels in effluent treated with an MBR system are typically low, approximately <23 colonies (using the most probable number analytical method) per 100 mL of effluent. Furthermore, recycled water that will be used for irrigation purposes will be disinfected with chlorine in accordance with Title 22. The estimated bacteria count after chlorination is a most probable number of <2.2 per 100 mL of effluent. The performance of the MBR upgrades in conjunction with the chlorination system is expected to operate in compliance with Title 22, and the generated effluent in compliance with the Basin Plan. The impact is considered less than significant.

Agricultural and stormwater runoff from sprayfield irrigation sites may contain high levels of TDS, potentially degrading surface water features in the area. Concentrated salts may then be introduced into surface water features if stormwater is allowed to pond or run off the site. The impact is considered potentially significant.

Mitigation Measure

4.3.6 Implement Mitigation Measure 4.2.4 to comply with Waste Discharge Requirements issued by the RWQCB.

Significance After Mitigation

Less than significant.

Impact

4.3.7 During Phase II of the Proposed Project, adverse impacts to water quality could occur if concentrate produced through the demineralization process was to enter surface water through stormwater runoff or groundwater through percolation. This impact is considered less than significant.

Implementation of the Salt Management Program in Phase II of the Proposed Project would include demineralization of groundwater or treated effluent. The process of demineralization would result in a reject stream of high salinity wastewater, referred to as concentrate or brine. Because the TDS level of groundwater and treated effluent varies, the TDS level of the concentrate would also vary. However, the GWMP EIR estimated that the average TDS level of the concentrate would be 2,600 mg/L (SBCWD & WRASBC, 2004b). This concentrate would be transferred via pipelines to evaporation ponds to remove excess liquid from the solution. If concentrate was to percolate into the groundwater during the evaporation process, adverse impacts could occur to water quality. However, the evaporation facilities would be lined with an impermeable barrier that would prevent percolation. Impacts could also occur to water quality if concentrate were to overflow during a storm event and enter surface waters

through runoff. This would be avoided by allowing adequate freeboard in evaporation ponds to contain a 100-year storm event.

Mitigation Measure

No mitigation is necessary.

IMPACTS TO GROUNDWATER LEVELS

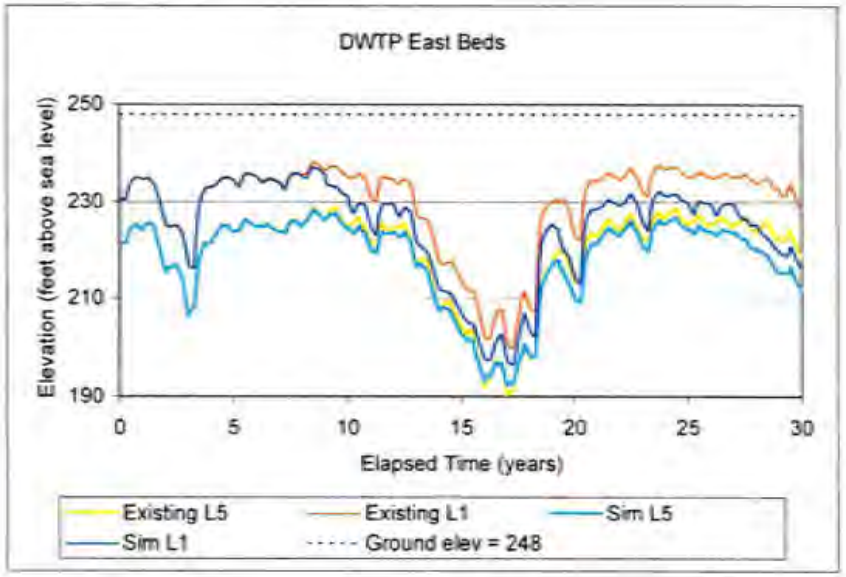
Impact

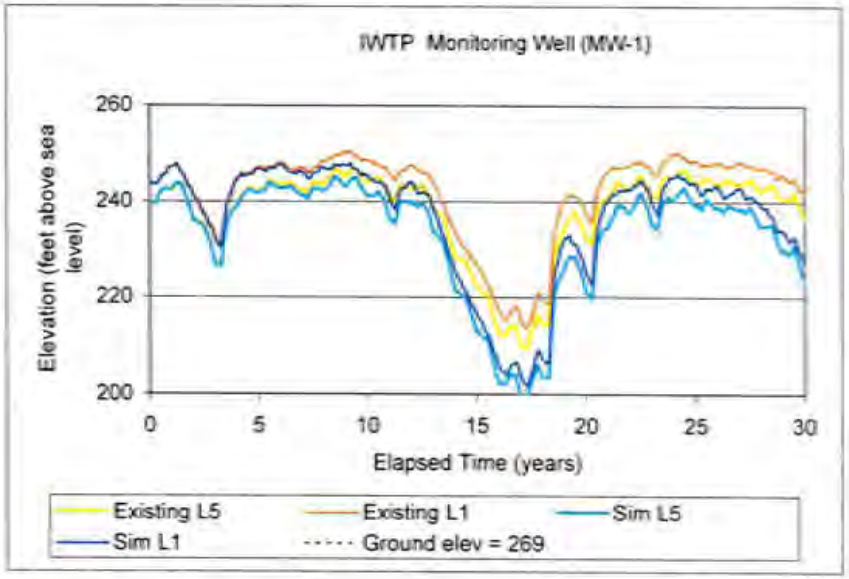
4.3.8 Implementation of the Proposed Project could lead to decreased or increased shallow groundwater levels near the DWTP and IWTP. This impact is considered potentially significant.

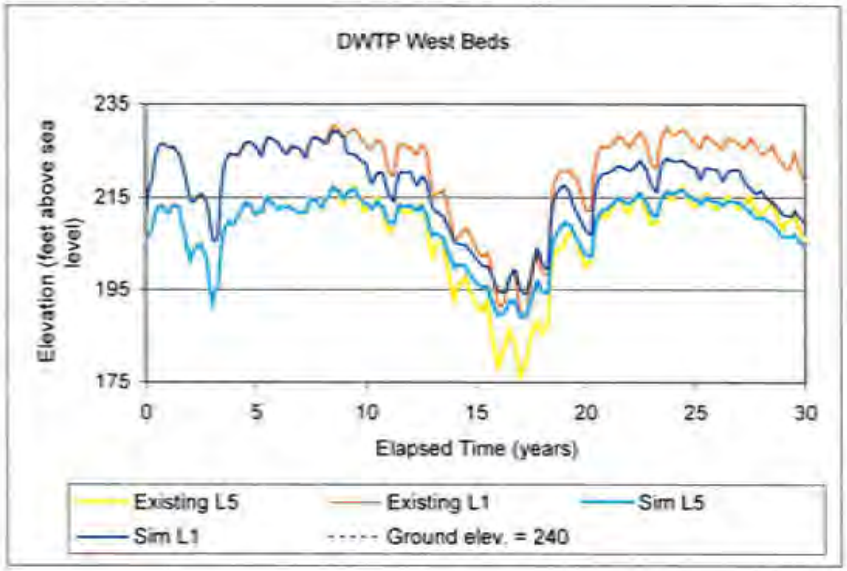
Currently, three-fourths of the ~~all~~ wastewater treated at the DWTP is disposed of by percolation ponds at the DWTP ~~site~~, and the remainder is percolated in ponds at the IWTP. This percolation has resulted in the mounding of groundwater under the percolation ~~beds~~ ponds. The water table beneath the percolation ponds at the DWTP mounds up until the slope of the mound is sufficient to cause groundwater to flow radially away from the pond location at a rate equal to the pond percolation rate. Thus, the height of the mound is related to the percolation rate, or more specifically to the percolation rate per area of pond bottom. ~~Overall wastewater percolation at the DWTP would decrease if Phase I were implemented. However, the percolation rate per unit area for the percolation ponds remaining in service would be higher. This is largely because some of the DWTP effluent is percolated at the IWTP under existing conditions, so that the east and west beds at the DWTP are operating at rates slightly below their maximum capacity of approximately 3,120 AFY. Under Phases I and II, the beds are assumed to operate at capacity (Jensen and Harris, 2006). For example, total DWTP percolation is smaller under the Phase I east bed scenario than under existing conditions, but east bed percolation is actually greater. Similarly, west bed percolation in the Phase I west bed scenario is greater than under existing conditions. These changes in percolation rate are predictably associated with changes in simulated Layer 1 water levels beneath the ponds.~~

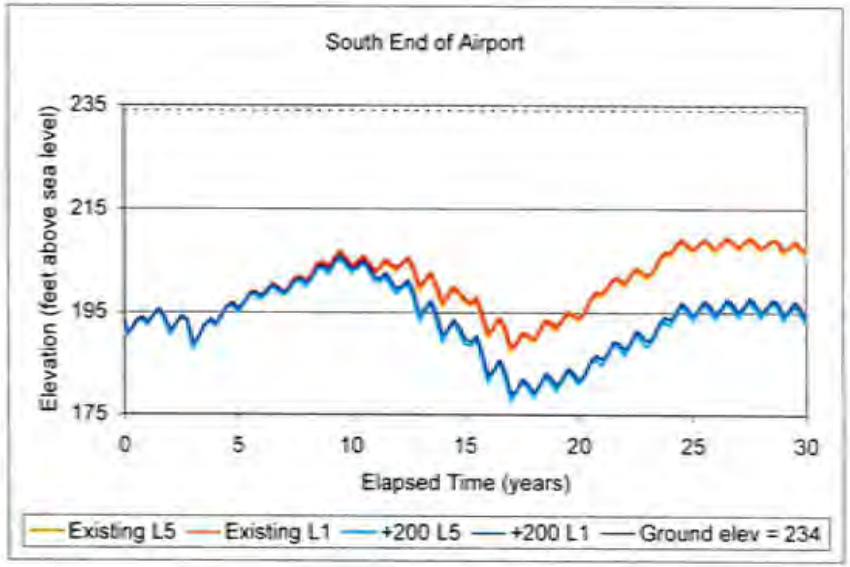
Under Phase I of the Proposed Project, wastewater percolation at the DWTP and IWTP would continue at current rates, which approximately equal the percolation capacity of the two facilities. In Phase II, percolation of municipal effluent at the IWTP would be discontinued, but that facility would continue to be used for percolation of cannery wastewater and stormwater. Percolation at the DWTP would be ramped down over 3 years to approximately 38% of current percolation rates.

Figures 4.3-10 A and B show hydrographs of simulated groundwater levels with the Proposed Project superimposed on hydrographs under existing conditions. Hydrographs for two locations at the DWTP and one at the IWTP (**Figure 4.3-10 A**) show that simulated Layer 1 groundwater elevations beneath those facilities declined by 6-8 feet in most years. Deep groundwater levels near the DWTP east beds were up to 5 feet lower due to decreased percolation. Near the west beds, deep groundwater levels were higher during Phase II because of decreased groundwater pumping for irrigation in the nearby Freitas Road area. In all cases, the changes in water levels were small relative to fluctuations associated with droughts and wet periods. Also, the project tends to diminish the maximum high and low groundwater elevations relative to the no-project simulation. The lowering of shallow





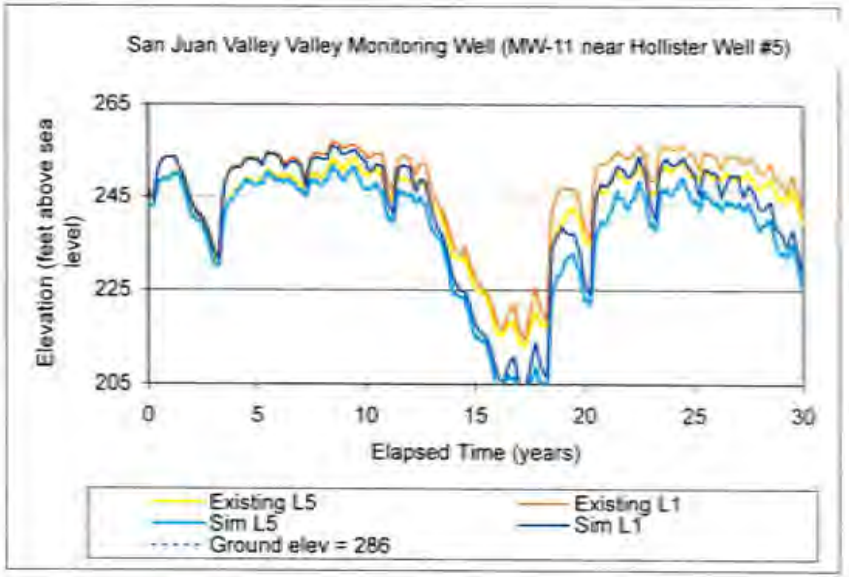


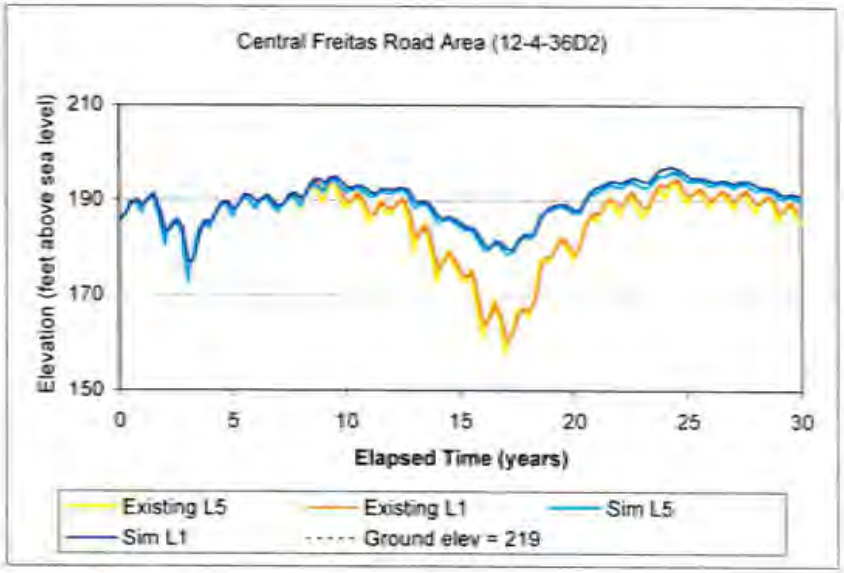


NOTE:
L1 = Model Layer 1 L5 = Model Layer 5

SOURCE: Gus Yates, 2006; AES, 2006

Figure 4.3-10a
Hydrographs of Simulated Groundwater Elevation in Potentially Affected Locations





NOTE:
L1 = Model Layer 1 L5 = Model Layer 5

SOURCE: Geo Yates, 2006; AES, 2006

Figure 4.3-10b
Hydrographs of Simulated Groundwater Elevation in Potentially Affected Locations

groundwater levels allowed increased recharge from the San Benito River, and the moderation of water-level fluctuations would tend to improve the flexibility and reliability of water supply operations. This impact is considered beneficial.

~~**Figures 4.3-8-A, B** and **C** show hydrographs of simulated groundwater levels under the Phase I east bed scenario at the same locations shown earlier for existing conditions. For comparison, the existing conditions hydrographs are also shown (in orange-red colors), and the differences between the existing conditions and the Phase I east bed scenario are the impacts of the Phase I project. As expected, Layer 1 water levels beneath the west beds are considerably lower, by about 10 feet, because those beds would not be used for percolation in this scenario. Water levels in Layer 5 beneath the west beds are lower by only 1 to 2 feet, because the effect of the decrease in local percolation spreads out horizontally as it propagates down to deeper parts of the basin. Simulated water levels in Layer 1 beneath the east beds are 3 to 5 feet higher than under existing conditions, because percolation would be slightly greater than under existing conditions.~~

~~Contours of groundwater elevations under the Phase I east bed scenario are shown in **Figure 4.3-9**. Comparing these with the contours for existing conditions shows that the effects on mounding are limited to the immediate vicinity of the west beds. Groundwater elevations are similar under the two scenarios west of about midway between Mitchell and Flint Roads. East of the DWTP, Layer 1 groundwater levels are also up to 3 feet lower, but this is primarily the result of decreased percolation at the IWTP (which applies equally to all the scenarios of Phase I and II).~~

~~If the west beds continue to be used for percolation and the east beds are converted to storage use (the Phase I west bed scenario), the relative water level changes at the two beds would be the opposite of the changes in the Phase I east bed scenario, as evident in the hydrographs shown in **Figure 4.3-10**. Layer 1 water levels beneath the center of the east beds are about 8 feet lower than under existing conditions. Water levels beneath the west beds are about 3 feet higher than under existing conditions because percolation at the west beds under Phase I would be slightly higher than under existing conditions. However, this rise is limited to the immediate vicinity of the west beds, as can be seen by comparing water level contours for the Phase I west bed scenario with the contours for existing conditions. This rise locally decreases average annual groundwater recharge from the San Benito River (**Figure 4.3-11**). However, when the water budget analysis is expanded to include the Hollister West subbasin, overall river recharge is still greater than under existing conditions because decreased wastewater percolation at the IWTP allows for increased seepage from the river.~~

~~The actual amounts of percolation at the east and west beds would be intermediate between the minimum and maximum amounts assumed in the Phase I east and west bed scenarios. Individual ponds in the east and west bed areas may be operated for storage only and others may be operated exclusively for percolation. Storage beds will not be lined, so they will contribute some percolation in any case. However, the average percolation rate would be lower than for ponds that are actively managed for percolation by periodic drying and disking to maintain permeability. The resulting change in shallow groundwater levels could therefore range from a decrease of up to 10 feet to an increase of up to 5 feet.~~

~~There is no adverse impact associated with lower groundwater levels in the general vicinity of the DWTP. Lower groundwater levels in shallow aquifers are actually beneficial because they allow for increased river recharge, which tends to decrease average subbasin groundwater salinity. The local effect of decreased Layer 1 water levels near the west beds~~

~~largely dissipates before reaching the nearest down gradient location with soil drainage problems (Pacific Sod farm), so the beneficial impact in that regard is negligible.~~

While wastewater percolation at the DWTP is expected to remain at current rates during Phase I and decrease during Phase II, percolation rates could increase at the DWTP during the construction period. During construction of the proposed MBR facility and seasonal storage reservoir, the location of treated wastewater storage and percolation at the DWTP site will be altered. Pond 2, which is currently used for treated wastewater storage, will be dewatered and filled to provide the location of the MBR facility. Emergency Storage Basin 1, which is currently only utilized for storage on an emergency basis will be used for storage and percolation. As a result, during the construction period higher groundwater levels could occur in localized areas within the DWTP.

Higher groundwater levels in shallow aquifers near the DWTP ponds are a potentially significant impact because of the possibility that they would rise to the point that percolated wastewater seeps into the adjacent riverbed. This could constitute a discharge of wastewater to a surface waterway. It could potentially pose a health hazard and would require an additional permit from the RWQCB. The regional groundwater model used for the simulations described in this chapter does not include sufficient spatial detail near the ponds to reliably predict whether seepage will occur. The top model layer is over 100 feet thick and does not explicitly represent thin, local clay and silt layers that are present throughout the alluvial basin deposits. If any such fine-grained layers are present near the east or west beds, they could tend to accentuate water table mounding beneath the ponds and increase the risk of seepage into the river. Therefore, increases in percolation rates at any of the beds could potentially have a significant adverse impact.

~~Impacts during Phase II would be the same as during Phase I, because the amount of wastewater percolated at the DWTP would remain the same.~~

Mitigation Measures

4.3.8 **(a) Construction Period Water Balance Plan. A water balance shall be completed to identify the phasing of construction activities at the DWTP. Phasing of construction shall identify the use of existing percolation beds and emergency storage basins as well as the proposed seasonal storage reservoir cells and the proposed use of percolation at the IWTP. The water balance shall incorporate the findings of the following study:**

DWTP Hydrogeologic Study. A hydrogeologic study shall be completed for the proposed seasonal storage reservoir at the DWTP. The study shall analyze the potential for increased percolation rates to result in increased groundwater mounding and the potential risk for resurfacing of treated effluent within the San Benito River.

If the hydrogeologic study identifies a significant risk of the resurfacing of treated effluent within the San Benito River ~~from~~, appropriate safeguards shall be established to ensure that resurfacing does not occur. Appropriate safeguards may include:

- **Constructing the proposed seasonal storage reservoir at the DWTP with a liner that reduces percolation to an acceptable level.**

- **Identification of additional disposal capacity. Reduction of percolation at the DWTP would require additional disposal capacity. Additional capacity could be provided by the development of sprayfields or recycled water projects.**

The Construction Period Water Balance Plan shall identify adequate disposal capacity throughout the entire construction period. The plan shall be completed prior to the start of construction.

(b) A Comprehensive Effluent Disposal Plan shall be developed by the City of Hollister in cooperation with the San Benito County Water District and San Benito County. The plan shall be updated annually and shall include at a minimum the following provisions:

(1) Projected recycled water availability over the following 5-year period.

(2) If CVP water is required for blending at specific sites, the expected quantity of CVP water available for blending with recycled water shall be estimated.

(3) Annual Operational Water Balance. An Operational Water Balance shall be identified for the first year and revised on an annual basis. The operational water balance shall identify adequate disposal capacity for the DWTP. Disposal limitations at the DWTP shall be based on the hydrogeologic study completed for the site. The plan shall identify areas with adequate disposal capacity in the event that CVP water is unavailable for blending with recycled water during critically dry years.

(4) The plan shall identify a system to notify recycled water users in the event of the inability to provide recycled water.

No new wastewater service connections shall be permitted unless adequate disposal capacity is identified to handle additional flows.

Significance After Mitigation

Less than significant.

~~**Impact**~~

~~**4.3.9 Implementation of the Proposed Project would lead to decreased groundwater levels near the IWTP as other disposal options (sprayfield and recycled water uses) become available. The impact is considered beneficial.**~~

~~Under Phases I and II, all domestic wastewater flows would be treated at the DWTP. However, during Phase I, up to 796 AFY of DWTP treated effluent would be conveyed to the IWTP for percolation. In recent years, Hollister has diverted 662 to 951 AFY of wastewater from the DWTP to the IWTP for treatment and percolation. The existing average annual diversion is 820 AFY. The exact amount of the diversion under Phase I would depend on the availability of other off-site disposal options (sprayfield and recycled water uses), but would not exceed 796 AFY. Also, the average annual transfer would not exceed the existing average annual diversion. As shown in **Figure 3-4**, percolation at the IWTP would be first disposal option to be phased out as recycled water use increases. Thus, transfers of DWTP effluent to the IWTP during the course of the project would initially equal existing amounts and eventually decrease, possibly to zero. To simulate the maximum potential impact, the Phase I~~

~~and II simulations all assumed that transfers were eliminated entirely and only stormwater and cannery effluent would continue to be treated and percolated at the IWTP.~~

~~The hydrographs of simulated Layer 1 water levels near IWTP monitoring well MW-1 (Figure 4.3-8C) show that shallow groundwater levels (model Layer 1) would be about 1 foot lower in normal and wet periods and up to 3 feet lower during droughts under the Phase I east bed scenario. The lower water levels have the beneficial effect of increasing San Benito River percolation by an amount similar in magnitude to the decrease in wastewater percolation.~~

~~Mitigation Measure~~

~~None required.~~

[Note: The analysis of groundwater levels at the IWTP has been incorporated into Impact 4.3-8.]

Impact 4.3.10 **The use of sprayfields and irrigation projects to dispose of recycled water in Phase II would reduce the amount of water disposed of through the percolation beds located at the DWTP. The decrease in ~~water~~ percolation ~~a disposal option~~ would lower the existing groundwater mound under the DWTP. The Whittaker Plume is located adjacent to the DWTP. A decrease in the groundwater table surrounding the Whittaker Plume could alter the rate and direction of the plume. This impact is considered less than significant.**

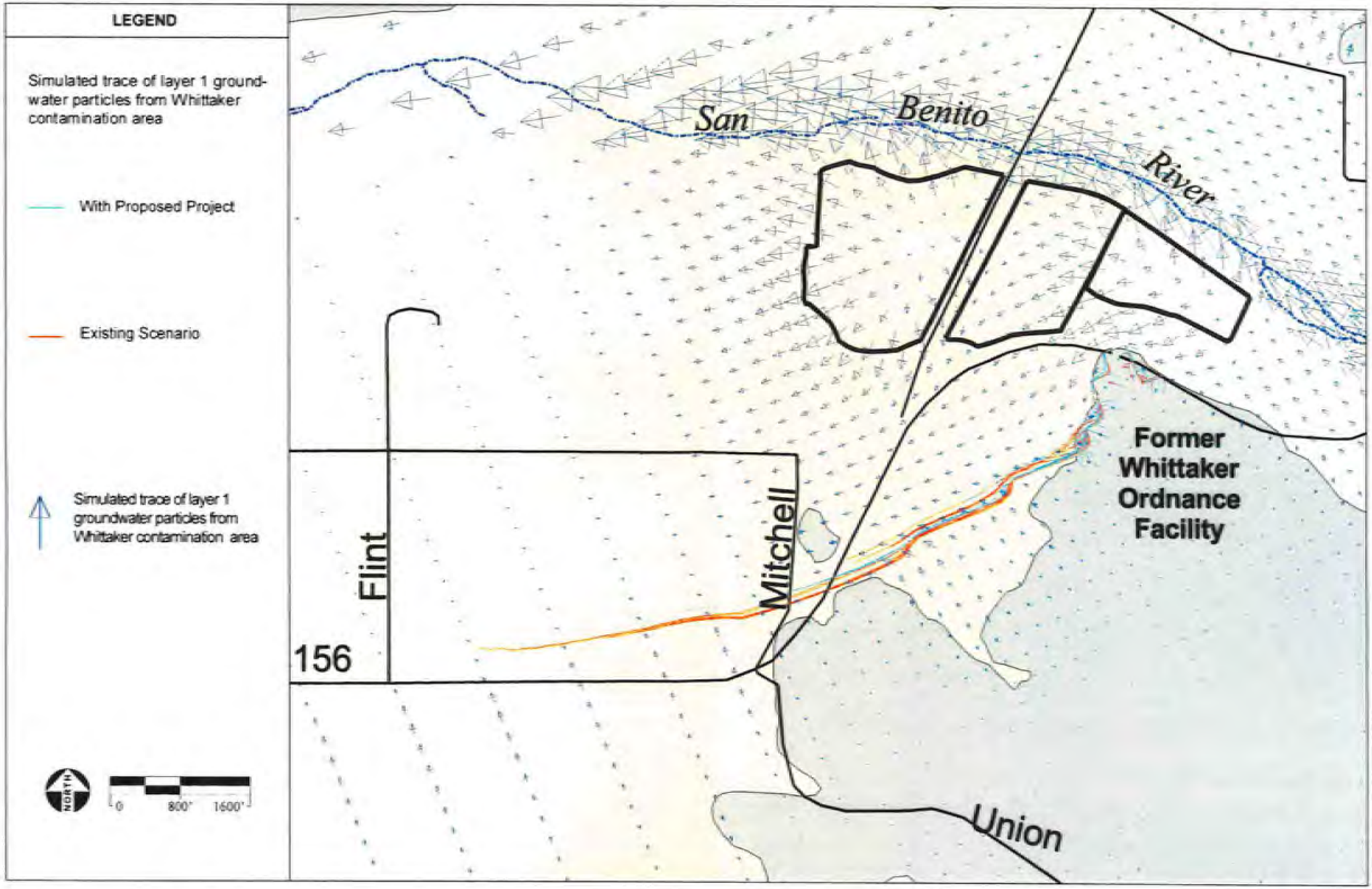
~~**Figure 4.3-12** shows the simulated path of the Whittaker contamination plume under the Phase I east bed and Phase I west bed scenarios. In each figure, the plume path under existing conditions is shown in red for comparison. The results show that eliminating percolation at either the west beds or the east beds of the DWTP has almost no effect on the rate or direction of plume movement. **Figure 4.3-13** shows the path under the Phase II east bed scenario, and similarly confirms that decreases in groundwater pumping for irrigation in the Freitas Road area have a negligible effect. These results demonstrate that divergence of regional groundwater flow as it enters the San Juan Valley is the dominant force controlling groundwater flow in the vicinity of the plume.~~

Figure 4.3-11 shows the simulated path of the Whittaker contamination plume over the 30-year simulation period under existing conditions and with the Proposed Project. Also shown are the vectors of groundwater flow in Layer 1 at the end of Phase II, when annual DWTP percolation would equal 38% of its present volume. The vectors are shorter than under existing conditions, but the pattern is essentially the same. Consequently, the with-project plume (light blue particle traces) follows essentially the same path as the no-project plume (red traces) but is slightly shorter. These results demonstrate that divergence of regional groundwater flow as it enters the San Juan Valley is the dominant force controlling groundwater flow in the vicinity of the plume.

The lack of change in plume direction is a neutral impact, and the decrease in plume length is considered a beneficial impact, as it would likely facilitate remediation and cleanup efforts.

Mitigation Measures

No mitigation is necessary.



SOURCE: Gus Yates, 2006; AES, 2006

Figure 4.3-11
Simulated Path of Whittaker Contamination Plume With and Without the Proposed Project

Impact

4.3.11 Phase I of the Proposed Project could cause higher groundwater levels near the Hollister Municipal Airport sprayfield and other sprayfields. The impact is considered potentially significant.

~~At sprayfield areas, non-irrigated land would be converted to irrigated pasture. Groundwater recharge typically would increase when land is irrigated. Based on the groundwater modeling completed for the project, deep percolation of rainfall at the sprayfield sites averages 2.4 in/yr under existing, non-irrigated conditions. This would increase to 5.2 in/yr when operated as a sprayfield in Phases I and II. Simulated Layer 1 groundwater levels at the down-gradient (northeastern) edge of the Flint Hills sprayfield would rise 2 to 4 feet relative to existing conditions but would remain more than 100 feet below the ground surface.~~

~~At the Airport sprayfield, Layer 1 groundwater levels would rise approximately 2 feet at the site and 0.5 in the surrounding area if the sprayfield was operated for 30 years. As shown in **Figure 4.3-8b**, currently the depth to groundwater at the Airport is approximately 50 feet below the ground surface. The simulated hydrograph shows a long-term rise over the next 30 years associated with lingering recovery from historical overdraft. With sprayfield operation, the depth to water is projected to exceed 20 feet. Therefore the increase in groundwater levels would not affect the root zone of plants or future construction activities. However, because groundwater levels are rising in the area mitigation has been identified below to avoid potential impacts associated with contribution to shallow groundwater from the proposed sprayfield.~~

~~Additional sprayfields may be developed in the future. As the location of these sprayfields has not been determined, the significance of impacts from increasing groundwater elevations is unknown. Due to this uncertainty, impacts from sprayfields developed in the future are considered potentially significant. Programmatic mitigation measures are also included to address impacts from sprayfields that may be developed in the future.~~

~~During Phase II, use of the sprayfields would be phased out as an increasing percentage of wastewater is recycled for irrigation use. Water levels beneath the sprayfields would gradually return to the existing condition under Phase II.~~

The airport sprayfield would consist of areas of non-irrigated grain and fallow cropland that would be converted to pasture or turf and irrigated with treated effluent from the DWTP. Three large fields totaling 161 acres at the north, middle and south ends of the airport would be planted to pasture and irrigated during April-October at the maximum agronomic rate of 50 inches per yearr. Sixteen smaller areas totaling 73 acres between and adjacent to runways would be planted to turf and irrigated at a rate of 36 inches per yearr. Groundwater recharge typically increases when land is converted from non-irrigated to irrigated status. Based on the groundwater modeling completed for the project, deep percolation of rainfall at the pasture sites averages 0.7 inches per year with the existing, non-irrigated grain crop. This would increase to 5.2 inches per year when fully operated as a sprayfield. Average deep percolation at the turf strips would similarly increase from 0.7 to 4.7 inches per year.

If no changes in land use or groundwater pumping occurred during Phase I, Layer 1 groundwater levels near the Airport sprayfield would rise a maximum of approximately 0.5 foot at the end of the sixth year of operation (2013), which would be the year of maximum application of wastewater. **Figure 4.3-12** shows the contours of the maximum water-level

increase, which exceeds 0.1 foot along a band extending approximately 3 miles to the southeast (upgradient) and 1 mile to the northwest (downgradient) of the airport. The contours overstate the probable increase, because concurrent land use changes near the airport and increases in municipal groundwater pumping both act to slightly offset the rise in Layer 1 water levels. This compound effect is evident in hydrographs of groundwater elevation for a simulation that includes the combined effects of wastewater operations, land use changes, and increases in municipal groundwater pumping (**Figure 4.3-10 A and B**). In the hydrographs for locations near the northern and southern ends of the airport, the maximum increase in Layer 1 during Phase I (years 1-8 of the simulation) was only 0.2 foot, which is imperceptible at the plot scale and much smaller than the effects of changes in land use and groundwater pumping. These latter factors gradually increased to year 16 of the simulation and continued at that level thereafter.

The 0.2-foot increase in groundwater level is less than significant because it would not raise the water table to within 8 feet of the ground surface. The water table is shallowest at the north end of the airport, where a depth to water of 10.1 feet was measured in September 2006. The hydrograph for the north end of the airport further demonstrates that the impact is much smaller than water-level variations due to seasonal pumping cycles, land use changes and sequences of dry and wet years. However, because groundwater levels are rising in the area, mitigation has been identified below to avoid potential impacts associated with contribution to shallow groundwater from the proposed sprayfield.

Additional sprayfields may be developed in the future. As the location of these sprayfields has not been determined, the significance of impacts from increasing groundwater elevations is unknown. Due to this uncertainty, impacts from sprayfields developed in the future are considered potentially significant. Programmatic mitigation measures are also included to address impacts from sprayfields that may be developed in the future.

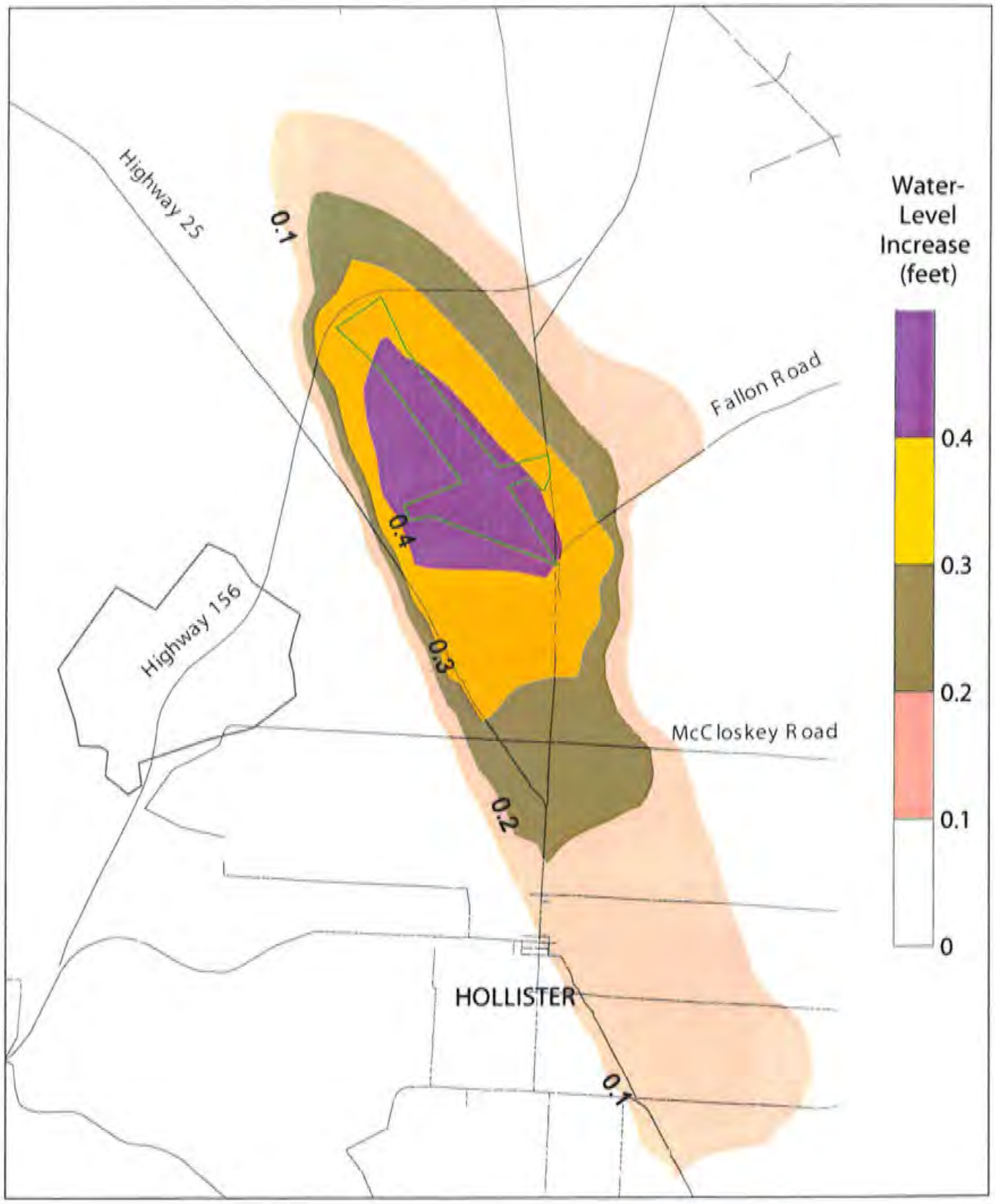
Mitigation Measures

4.3.11 (a) The following measures shall be implemented to avoid impacts from the Hollister Municipal Airport sprayfield.

(1) Install three monitoring wells along the down-gradient boundaries of the Airport irrigation area. Monitor groundwater levels in those wells at least semiannually until irrigation of the Airport for DWTP effluent disposal purposes ceases.

(2) Tabulate and interpret the data at least semiannually to determine the extent to which shallow and deep groundwater levels are being impacted by the increase in irrigation water. Interpretation of data shall project when increased levels would affect the surrounding area.

(3) If groundwater levels in the surrounding area is projected to increase to a point that it would adversely affect ~~the area~~ agricultural or other land uses, and if the increase in levels can reasonably be attributed to irrigation operations based on the monitoring data, then the City shall increase pumping of the municipal supply well located at Fallon Road to offset increases associated with the irrigation of the Airport.



SOURCE: Gus Yates, 2006; AES, 2006

Figure 4.3-12

Increase in Shallow Groundwater Elevation near the Airport Sprayfield at the End of Phase I

(b) The following measures shall be implemented to avoid impacts from the development of other sprayfields.

(1) Analysis shall be completed to determine the groundwater elevations at proposed sprayfield locations. If this analysis reasonably concludes that sprayfield operation could increase groundwater elevations to a point that it would adversely affect the area the following measures shall be implemented.

(a) Install three monitoring wells along the down-gradient boundaries of the proposed irrigation area. Monitor groundwater levels in those wells at least semiannually until irrigation for DWTP effluent disposal purposes ceases.

(b) Tabulate and interpret the data at least semiannually to determine the extent to which shallow and deep groundwater levels are being impacted by the increase in irrigation water. Interpretation of data shall project when increased levels would affect the surrounding area.

(c) If groundwater levels in the surrounding area is projected to increase to a point that it would adversely affect the area, and if the increase in levels can reasonably be attributed to irrigation operations based on the monitoring data, then irrigation shall be reduced or discontinued, and/or other measures taken to avoid the adverse impact.

Significance After Mitigation

Less than significant.

Impact

4.3.12 The use of recycled water to irrigate areas currently using groundwater for irrigation (~~Pacific Sod Farm and San Juan Oaks Golf Club~~ Freitas Road area) would cause groundwater levels to increase near the abandoned irrigation wells. The impact is considered ~~less than~~ significant.

~~In Phase I, the Pacific Sod Farm and agricultural demonstration project are the two locations where irrigation with groundwater would be replaced by irrigation with recycled water or a blend of groundwater and recycled water. In both cases, pumping at the local irrigation wells would decrease and water levels in deep aquifers tapped by those wells would rise. Hydrographs of water levels in Layer 5 at those locations confirm that water levels would be higher under the Phase I east bed scenario than under existing conditions, but by a maximum of about 5 feet during droughts in the immediate vicinity of the pumping wells. At other locations in the Pacific Sod Farm, for example, water levels would be higher by less than 1 foot. At the agricultural demonstration project, where the reduction in pumping would be smaller, the change in Layer 5 water levels would also be less than about 2 feet. The change indicated in the hydrograph is smaller because the monitoring location is in the middle of the demonstration project area and the supply wells are at the edge of the area about 1,200 feet away.~~

~~The higher groundwater levels in Layer 5 are substantially below the ground surface elevation and do not cause a noticeable upward shift in Layer 1 water levels. Therefore, the change has no adverse impact on soil drainage. The higher water levels in Layer 5 also slightly decrease pumping costs, which is a beneficial impact.~~

Replacing groundwater with recycled water as the source of irrigation supply in the Freitas Road area during Phase II of the Proposed Project would substantially shift the groundwater balance of the San Juan Valley. Current groundwater pumping in that area averages approximately 4,200 AFY, and by 2023 essentially all of it would be eliminated. Meanwhile, wastewater percolation at the nearby DWTP would decrease by 1,400 AFY, leaving a net gain of 2,800 AFY in the subbasin water balance. **Figure 4.3-13** compares shallow groundwater levels in spring of a wet year (simulation year 24 corresponding to water year 1998 hydrology) under existing and Phase II conditions. The upper map shows contours of the change in water level caused by the Proposed Project. Water levels in shallow aquifers throughout most of the area between Mitchell Road and Prescott Road were higher by 2.5-7.5 feet under Phase II. The lower map shows that the depth to groundwater in a wet year is less than 8 feet in two areas where the project would raise the water table by 2.5 feet or more. The first area is between Breen Road and Prescott Road near the western end of the valley. Flowing wells and drainage problems have been present in this area since the late 1990s. The second area is along the southern edge of San Juan Valley near the toe of the foothills. The accuracy of model calibration is uncertain in that area because of the lack of measured water levels. Additional field data are needed to confirm whether the existing water table is in fact shallow and whether the simulated rise in water levels under the Proposed Project would create drainage problems. There have been no anecdotal reports of drainage problems or flowing wells in areas east of Breen Road.

This impact is significant because the project would raise the water table to less than 8 feet below the ground surface in certain locations in wet years.

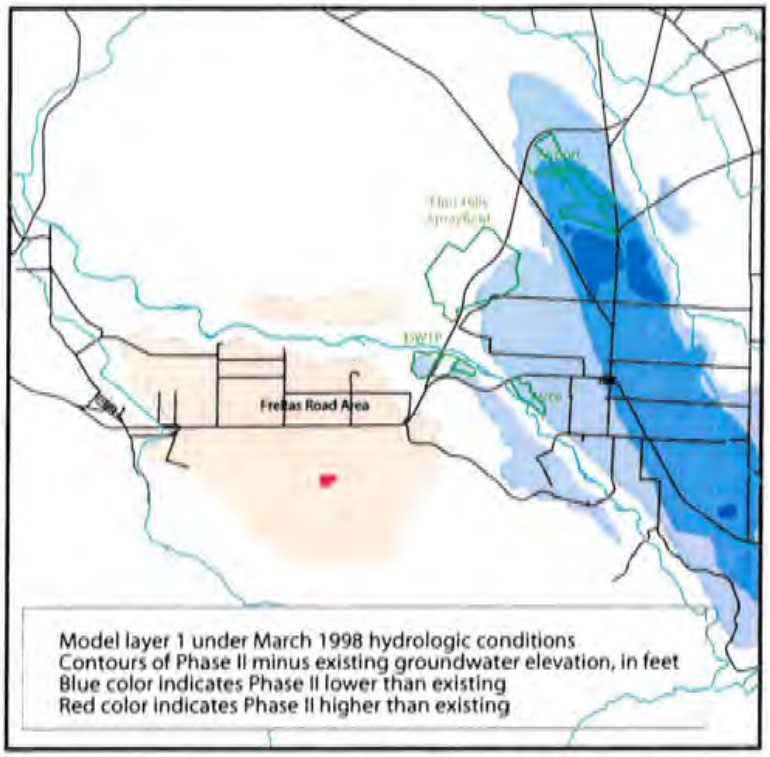
Mitigation Measures

~~No mitigation is necessary.~~

4.3.12 The City of Hollister and/or the SBCWD shall implement one or a combination of both of the following measures to avoid shallow groundwater impacts in the San Juan Valley. A total offset of at least 2,800 AFY shall be provided by either increasing municipal groundwater pumping (a), or decreasing CVP importation (b).

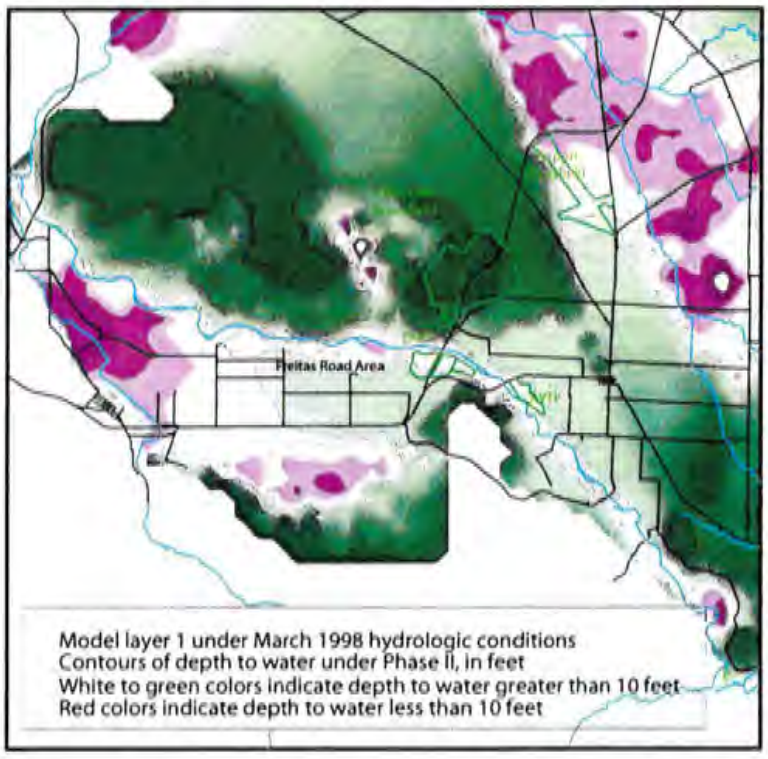
(a) Obtain groundwater for demineralization from new wells in the San Juan Valley. Municipal groundwater pumping during Phase II is expected to increase by approximately 3,700 AFY between 2008 and 2023, and most of this water will be demineralized to make wastewater recycling feasible. One or more new municipal supply wells shall be developed in the San Juan Valley to provide no net change in the subbasin groundwater balance (up to 2,800 AFY in 2023). Pumping rates of municipal supply wells in the San Juan Valley shall offset the estimated recycled water use (from the DWTP) that replaces groundwater use. Recycled water use and the pumping rates necessary to balance the subbasin balance shall be determined on an annual basis.

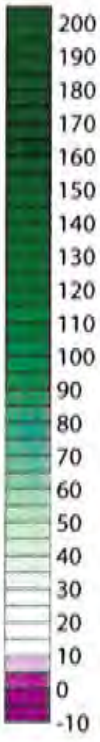
(b) Offset CVP water use in the San Juan Valley by up to 2,800 AFY in 2023. Farmers in the San Juan Valley outside the Freitas Road area presently use about 6,700 AFY of CVP water for irrigation. Replacing CVP water with recycled water would eliminate the Proposed Project's effect on the groundwater budget. The volume of CVP water replacement necessary to balance the subbasin balance shall be determined on an annual basis.



Change in groundwater elevation (feet)

A. Change in Groundwater Elevation from Existing to Phase II Conditions





Depth to groundwater elevation (feet)

B. Depth to Groundwater under Phase II Conditions

SOURCE: Gus Yates, 2006; AES, 2006

Figure 4.3-13
Comparison of Shallow Groundwater Levels in Spring of a Wet Year With and Without the Proposed Project

IMPACTS FROM DWTP CONSTRUCTION

Impact

4.3.13 DWTP construction activity could impact water quality. This impact is considered potentially significant.

Construction and grading activities associated with the Proposed Project and demolition of the existing facility could increase erosion and sediment discharge. In addition, construction equipment and materials have the potential to leak, thereby discharging additional pollutants into stormwater. Pollutants potentially include particulate matter, sediment, oils and greases, and construction supplies such as concrete, paints, and adhesives. Discharge of these pollutants could result in contamination of the San Benito River, causing an exceedance of water quality objectives.

Mitigation Measure

4.3.13 Implement Mitigation Measure 4.2.1 to comply with the State's NPDES General Permit for Discharges of Storm Water Runoff Associated with Construction Activity.

Significance After Mitigation

Less than significant.

Impact

4.3.14 The construction of the storage reservoir and upgraded DWTP could result in a discharge to the San Benito River and impact water quality in the event of a flood or seismic event. This impact is considered potentially significant.

A seismic event could cause the failure of the seasonal storage reservoir causing tertiary treated recycled water to flow into the San Benito River. The potential for seismic failure is addressed in **Section 4.2.**

The current flood maps for the project area (Map Numbers 06069C0060C and 06069C0070C) show that portions of the existing DWTP are located within the 100-year floodplain. However, these flood maps are general in nature. Caltrans prepared a detailed flood study for construction of the State Route 156 bridge over the San Benito River; the bridge directly adjacent to the DWTP site. Caltrans determined that the 100-year flood stage at the bridge is at elevation 237. The existing berms around the DWTP are at elevation 250. It is therefore concluded that the existing DWTP site, where the MBR facility would be constructed, is out of the 100-year floodplain. The proposed storage reservoir would be constructed with berms at elevation 250, which would be out of the 100-year floodplain. Because all facilities would be constructed outside of the 100-year floodplain the potential for a flood event to inundate the reservoir is considered less than significant. However, due to the proximity to the floodplain, the base of the reservoir levees could be subject to scouring during a flood event. This could result in the subsequent failure of the levees and a potential discharge to the San Benito River.

The seasonal storage reservoir would only be used to store tertiary treated effluent. No partially treated wastewater would be stored in the reservoir. As a result, failure of the reservoir levees as the result of a flood event would not result in the potential release of

untreated or partially treated wastewater. The treated effluent stored in the reservoir would meet most of the surface water quality objectives set by the CCRWQCB. Treated effluent would meet the criteria for nitrates and other elements. However, the treated effluent would potentially exceed the objectives for TDS and chlorides. As a result, co-mingling of treated effluent with surface water from a flood or seismic event would cause contamination in excess of the surface water quality objective established by the CCRWQCB.

With the mitigation measures listed below, the impact from the conversion of the west percolation beds to a treated effluent storage reservoir would be less than significant.

Mitigation Measures

4.3.14 **(a) A study shall be conducted to confirm the 100-year flood elevations adjacent to the DWTP site.**

(b) The storage reservoir and DWTP shall be designed with the maximum flood protection feasible, with a minimum of 100-year event protection including adequate levee height and armoring.

(c) The City of Hollister shall provide the construction contractor with the locations of flood control facilities on the project site that must be avoided. The contractor shall in turn develop a construction staging area plan identifying staging areas for construction equipment that would not interfere with or reduce the integrity of existing flood control facilities. The contractor shall supply the staging area plan to the City and all subcontractors involved with the construction of the Proposed Project.

Significance After Mitigation

Less than significant.

Impact

4.3.15 **Portions of the DWTP and seasonal storage reservoir would be constructed adjacent to the 100-year floodplain and may impede or redirect flood flows or impact surface water quality during a flood event. This impact is considered less than significant.**

Upgrades to the DWTP, including the seasonal storage reservoir, would occur at the existing treatment site. The existing DWTP berms are located above the 100-year flood elevation and therefore, development of project features are not expected to impact the existing floodplain. The Proposed Project would not result in the placement of structures that would impede or redirect flood flows.

Mitigation Measures

No mitigation is necessary.

Impact

4.3.16 Development of stone columns to support the proposed MBR facilities may create a hydraulic connection between shallow groundwater layers resulting in the movement of impacted shallow groundwater to deeper layers. This impact is considered to be less than significant.

Construction of the proposed MBR facility would utilize stone columns to provide adequate structural support. The stone columns would be constructed of dense, crushed stone designed to increase bearing capacity, reduce settlement, aid densification and mitigate the potential for liquefaction. The vertical stone columns would be constructed to a depth of approximately 50 feet below the existing grade (elevation 240-250 feet). Shallow groundwater exists at the proposed MBR facility site approximately 20 feet below the ground surface. The columns would intercept two layers of sandy soil that are separated by a layer of silty clay. The potential for the columns to act as a hydraulic connection between the two layers was analyzed by Geomatrix in the review of site conditions (Clay Rodgers, 2006). Water quality testing of water located in the two layers revealed elevated levels of constituents such as chloride and potassium which are associated with the percolation of treated wastewater at the DWTP site. Elevated constituent levels are present in both the upper layer (elevation 220-230 feet) and the lower layer (elevation around 200 feet), but the upper layers are more impacted by effluent disposal. The columns will provide a hydraulic connection between the upper and lower layers. However, a connection between these layers is already present as evidenced by elevated chloride and potassium levels in the deeper layer. As a result, the stone columns are only expected to slightly increase an existing groundwater connection. Because the layers are located close together and because there is already a connection between the two layers, impacts from the stone columns is expected to be less than significant.

Mitigation Measures

No mitigation is necessary.

IMPACTS FROM SPRAYFIELD AND PIPELINE CONSTRUCTION

Impact

4.3.16 17 Construction of the sprayfield and IWTP pipelines may lead to temporary erosion from construction activities. The impact is considered potentially significant.

Construction and grading activities associated with the installation of distribution lines serving the sprayfields, San Juan Oaks Golf Club, and the IWTP could increase erosion and sediment discharge. In addition, construction equipment and materials have the potential to leak, thereby discharging additional pollutants into the stormwater. Pollutants potentially include particulate matter, sediment, oils and greases, and construction supplies such as concrete, paints, and adhesives. Discharge of these pollutants could result in contamination of surface waters, causing an exceedance of water quality objectives outlined in the Basin Plan. This is considered a potentially significant impact.

Mitigation Measure

4.3.~~16~~ 17 Implement Mitigation Measure 4.2.1 to comply with the State's NPDES General Permit for Discharges of Storm Water Runoff Associated with Construction Activity.

Significance After Mitigation

Less than significant.

4.4 BIOLOGICAL RESOURCES

This section describes the biological resources occurring within the project area. It discusses plant communities, common plant and wildlife species, potentially occurring special-status species, and applicable regulations. It also identifies potential impacts to any sensitive biological resources in the area are assessed and mitigation measures designed to avoid or minimize potential project-related impacts.

The project area is intensely farmed, consisting mainly of row crops in the flatlands and pasture in the hills. Elevations in the area range from 132 feet above mean sea level (msl) along the Pajaro River in the north to 624 feet above msl in the Flint Hills. The Northern Pacific Railroad line and Highway 25 bisect the northern half of the project area northwest to southeast. While most of the region has been developed for agriculture and ranching, some commercial and residential uses exist in Hollister and San Juan Bautista. The majority of the remaining natural habitat within the region includes the plant communities described in **Section 4.4.2**

4.4.1 REGULATORY SETTING

The following section summarizes the federal and state regulation of special-status species and "Waters of the U.S.". Relevant goals and policies from the Hollister General Plan are also discussed.

FEDERAL

FEDERAL ENDANGERED SPECIES ACT

Under the Federal Endangered Species Act (FESA), the Secretary of the Interior and the Secretary of Commerce jointly have the authority to list a species as *threatened* or *endangered* (16 United States Code [USC] 1533[c]). The purposes of FESA are to provide a means to conserve the ecosystems that endangered and threatened species depend on and to provide a program and means for conservation and recovery of the species with the intent of removing the species from a listed, protected status. Regulatory protection is given to any species listed as endangered or threatened. Additionally, species of federal concern are considered for environmental impacts during the environmental review process by project proponents and federal agencies, although they are not otherwise protected under the FESA.

The US Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS) are the federal agencies that enforce FESA. Pursuant to the requirements of the FESA, an agency reviewing a project within its jurisdiction must determine whether any federally listed threatened or endangered species may be present in the project area and determine whether a proposed project will have a potentially significant impact on such species. Under FESA, habitat loss is considered to be an impact to the species. In addition, the agency is required to determine whether the project is likely to jeopardize the continued existence of any candidate species for listing under FESA or result in the destruction or adverse modification of critical habitat proposed to be designated for such species (16 USC 1536[3], [4]). Section

7(a)(2) of FESA requires all federal agencies, including NMFS and USFWS to evaluate a proposed project with respect to any species proposed for listing or already listed as endangered or threatened and their critical habitat, if any is proposed or designated.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) makes it unlawful to pursue, capture, kill, possess or attempt to do the same to any migratory bird, part, nest or egg listed in wildlife protection treaties between the United States, Great Britain, Mexico, Japan and the countries of the former Soviet Union. As with FESA, the MBTA authorizes the Secretary of the Interior to issue permits for incidental take. Nesting birds and the contents of nests within the construction area are protected pursuant to MBTA.

Section 404 of the Federal Clean Water Act

The US Army Corps of Engineers (USACE) has primary federal responsibility for administering regulations that concern "Waters of the U.S." under Section 404 of the Clean Water Act including isolated wetlands. Section 404 regulates the discharge of dredged and fill material into "Waters of the U.S.". The USACE requires that a permit be obtained if a project proposes placing structures within, over, or under navigable waters and/or discharging dredged or fill material into "Waters of the U.S." below the ordinary high-water mark. The Environmental Protection Agency (EPA), USFWS, NMFS, and several other agencies provide comment on USACE permit applications. The USACE does not regulate the discharge of dredged or fill material into isolated wetland habitats that do not qualify as "Waters of the U.S.". The USACE has established a series of nationwide permits (NWP) that authorize certain activities in "Waters of the U.S." provided the proposed activity could demonstrate compliance with standard conditions. Normally, the USACE requires Individual Permits (IP) for work activities that do not qualify for a NWP and will affect an area equal to or in excess of 0.3 acres of "Waters of the U.S.".

Section 401 of the Clean Water Act

Water quality certification pursuant to Section 401 applies to projects and project applicants that have applied for a federal permit to conduct any activity including construction or operation of facilities, which may result in discharge into navigable waters. The SWRCB, acting through the Regional Water Quality Control Board (RWQCB), must certify that an USACE permit action meets state water quality objectives.

Magnuson-Stevens Fishery Conservation and Management Act

Enforced by the NMFS (NOAA Fisheries), the Magnuson-Stevens Fishery Conservation and Management Act's immediate purpose is to conserve and manage the fishery resources found off the coasts of the United States, anadromous species and continental shelf fishery resources. The conservation and management of these highly migratory species is addressed through the implementation and enforcement of international fishery agreements. The Act achieves its purpose through the promotion of

domestic, commercial and recreational fishing under sound conservation and management principles, the implementation of fishery management plans to achieve the optimum yield from each fishery on a continuing basis, the establishment of regional fishery management councils to exercise sound judgment in the stewardship of fishery resources, the development of underutilized or not utilized fisheries, and the protection of essential fish habitat in the review of projects conducted under federal permits, licenses, or other authorities that affect or have the potential to affect such habitat.

STATE

CALIFORNIA ENDANGERED SPECIES ACT

Under the California Endangered Species Act (CESA), the California Department of Fish and Game (CDFG) has the responsibility for maintaining a list of threatened and endangered species designated under state law (CDFG Code 2070). The CDFG also maintains lists of species of special concern, which serve as "watch lists." Pursuant to the requirements of the CESA, an agency reviewing a proposed project within its jurisdiction must determine whether any state-listed or sensitive species may be present in the project area and determine whether the proposed project will have a potentially significant impact on such species.

CEQA GUIDELINES SECTION 15380

Although threatened and endangered species are protected by specific federal and state statutes, CEQA Guidelines Section 15380(d) provides that a species not listed on the federal or state list of protected species may be considered rare or endangered if the species can be shown to meet specified criteria. These criteria have been modeled after the definition in the FESA and the section of the California Fish and Game Code defining rare or endangered plants and animals. Section 15380(d) allows a public agency to undertake a review to determine if a significant effect on species that have not yet been listed by either the USFWS or CDFG (i.e., candidate species) would occur. Thus, CEQA provides an agency with the ability to protect a species from a project's potential impacts until the respective government agencies have an opportunity to designate the species as protected.

SECTION 3503 AND 3503.5 OF THE CDFG CODE

These sections provide regulatory protection to resident and migratory birds and all birds of prey within California including the prohibition of the taking of nests and eggs unless other provided by the CDFG Code.

Section 2080 and 2081 of the CDFG Code

Section 2080 of the CDFG Code states that no person shall take, possess, purchase, or sell within this state, any species, or any part of product that the CDFG Commission determines to be an endangered or threatened species.

Under Section 2081, the CDFG may authorize individuals or public agencies to take, or possess, any state-listed endangered, threatened, or candidate for state listing species. These otherwise prohibited acts may be authorized through permits or memoranda of understanding if: (1) the take is incidental to an otherwise lawful activity, (2) impacts of the authorized take are minimized and fully mitigated, (3) the permit is consistent with any regulations adopted pursuant to any recovery plan for the species, and (4) the applicant ensures adequate funding to implement the measures required by CDFG.

Section 1600 of the CDFG Code

Under Sections 1600 – 1616 of the Fish and Game Code, CDFG regulates activities that may cause changes in, removal of material from, and addition of certain materials to, streams and lakes. According to the state of California, "A stream is a body of water that flows at least periodically or intermittently through a bed or channel having banks and supports fish or other aquatic life. This includes watercourses having a surface or subsurface flow that supports or has supported riparian vegetation (14 CCR s 1.72)." Fish and Game Code section 1602 requires any person, state or local governmental agency, or public utility to enter into a Streambed Alteration Agreement with CDFG before beginning any activity that will do one or more of the following: 1) substantially obstruct or divert the natural flow of a river, stream, or lake; 2) substantially change or use any material from the bed, channel, or bank of a river, stream, or lake; or 3) deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it can pass into a river, stream, or lake.

Regional and General Plan Policies

Association of Monterey Bay Area Governments (AMBAG)

AMBAG was organized for the permanent establishment of a forum for planning, discussion and study of regional problems of mutual interest and concern to the counties and cities in Monterey, San Benito, and Santa Cruz Counties; and for the development of studies, plans, policy and action recommendations. This is relevant to the DWTP project from a water quality perspective since discharges from the proposed DWTP facilities and recycled water conveyance systems may have an impact on the biological resources of the region, including the San Benito River thence Pajaro River thence Monterey Bay. A full account of the status of the Pajaro River watershed, which includes the site, may be found in the *Pajaro River Water Quality Management Plan* (AMBAG, 1998) and more recent regional planning documents in preparation.

SAN BENITO COUNTY

The San Benito County General Plan contains a variety of goals and policies regarding the natural environment. The following policies in the Open Space and Conservation Element Update of the San Benito County General Plan (County of San Benito, 1995; based upon the 1994 Environmental Resources and Constraints Inventory) are relevant for the protection of biological resources in the DWTP project area and along proposed recycled water pipeline alignments outside of the City limits within the County:

Policy 1 Major subdivisions or intense development shall not be allowed within potential habitat of Federal or State listed rare, threatened, or endangered plant or animal species until said development(s) prepare habitat plans for the species unless an interim measure has been taken to mitigate the effect of development.

Policy 2 Main corridors for habitat. In rural areas, road and development sites shall be designed to maintain habitat connectivity with a system of corridors for wildlife or plant species avoiding fragmentation of open space areas. Measures to maintain the long-term health of the plant and animal communities in the area shall be incorporated into project design such as buffers, consolidation of/or rerouting access, transitional landscaping, linking nearby open space areas, and habitat corridors.

Policy 3 Mitigation for wetland development. Development shall be sited to avoid encroachment on wetlands. Mitigation shall be required for any development proposals that have the potential to reduce wetland habitat from primary or secondary effects of development.

Policy 4 Avoid loss of habitat from other mitigation measures. Mitigation measures to reduce other environmental hazards (e.g. fire hazard, flood hazard, soil erosion) shall not be acceptable if they will significantly degrade existing habitat, riparian areas, or isolate habitat.

Policy 5 Stimulate regeneration of oak woodland communities. Through a combination of the habitat conservation plan, interagency coordination, and development review procedures, the County will promote the restoration, restocking, and protection of oak woodland habitat on public and private lands in the County.

Policy 6 Exotic plants and animals. It is the policy of the County to work with State, Federal, and local agencies and landowners to develop programs to reduce the destruction of plant and animal life and habitat caused by invasive plants and animals.

Policy 7 Grading, erosion, and native tree removal. It is the policy of the County to minimize erosion resulting from grading and cutting and native tree removal for all development proposals.

~~***San Benito County Water District***~~

~~The San Benito County Water District maintains an encroachment permit process for any work in the arroyos, streams, ditches, and canals of the Hollister and San Juan Bautista valleys.~~

CITY OF HOLLISTER

The City of Hollister General Plan contains goals and policies regarding the natural environment (City of Hollister, 2005). The proposed upgrades to the treatment plant site, percolation ponds, some of the spray fields, and some of the pipeline routes fall within the current City limits, and the most relevant of these policies are presented below.

NRC 1.2 Identify and protect the habitats of endangered species which may found within the Hollister Planning Area, in cooperation with the U.S. Fish and Wildlife Service and the California Department of Fish and Game, through the review all development proposals for compliance with regulations established by the U.S. Fish and Wildlife Service and the California Department of Fish and Game as they apply to the protection of endangered species and their habitats.

NRC 1.3 Hollister shall require developers to assure the provision of compensatory habitat, habitat enhancement, or habitat protection if impacts to sensitive species, which could result from proposed development, cannot be avoided.

NRC 1.4 Hollister shall utilize regional planning and the use concepts such as mitigation banking to offset the cumulative effects of piecemeal development on the habitat of special status species.

NRC 1.5 Hollister shall require those development projects, which may result in the disturbance of delineated seasonal wetlands to be redesigned to avoid such disturbance.

NRC 1.7 Hollister shall require specialized surveys for special status species for those projects that have been proposed in areas that contain suitable habitat for such species. All surveys should take place during appropriate seasons to determine nesting or breeding occurrences.

NRC.G Hollister shall require project applicants in the Fairview Road/Santa Ana Road area to develop and implement a mitigation plan to avoid or otherwise compensate for any

disturbance to the burrowing owl colony in that area. This plan should be developed in coordination with the CDFG.

NRC.K Hollister shall require project applicants with proposed projects on grazing or fallow agricultural land to conduct a spring survey for the presence of burrowing owls.

NRC.U Hollister shall require pre-construction surveys for nesting raptors, to be conducted by a qualified ornithologist, for those projects that would affect on-site oaks or orchards, or which would involve construction during the nesting season (March to July). Hollister shall allow no construction activities that would result in the disturbance of an active raptor nest (including tree removal) to proceed until after it has been determined by a qualified ornithologist that the nest has been abandoned.

NRC.V Hollister shall continue the City's practice of requiring mitigation for projects that would affect wetlands, in conjunction with recommendations of State and Federal agencies.

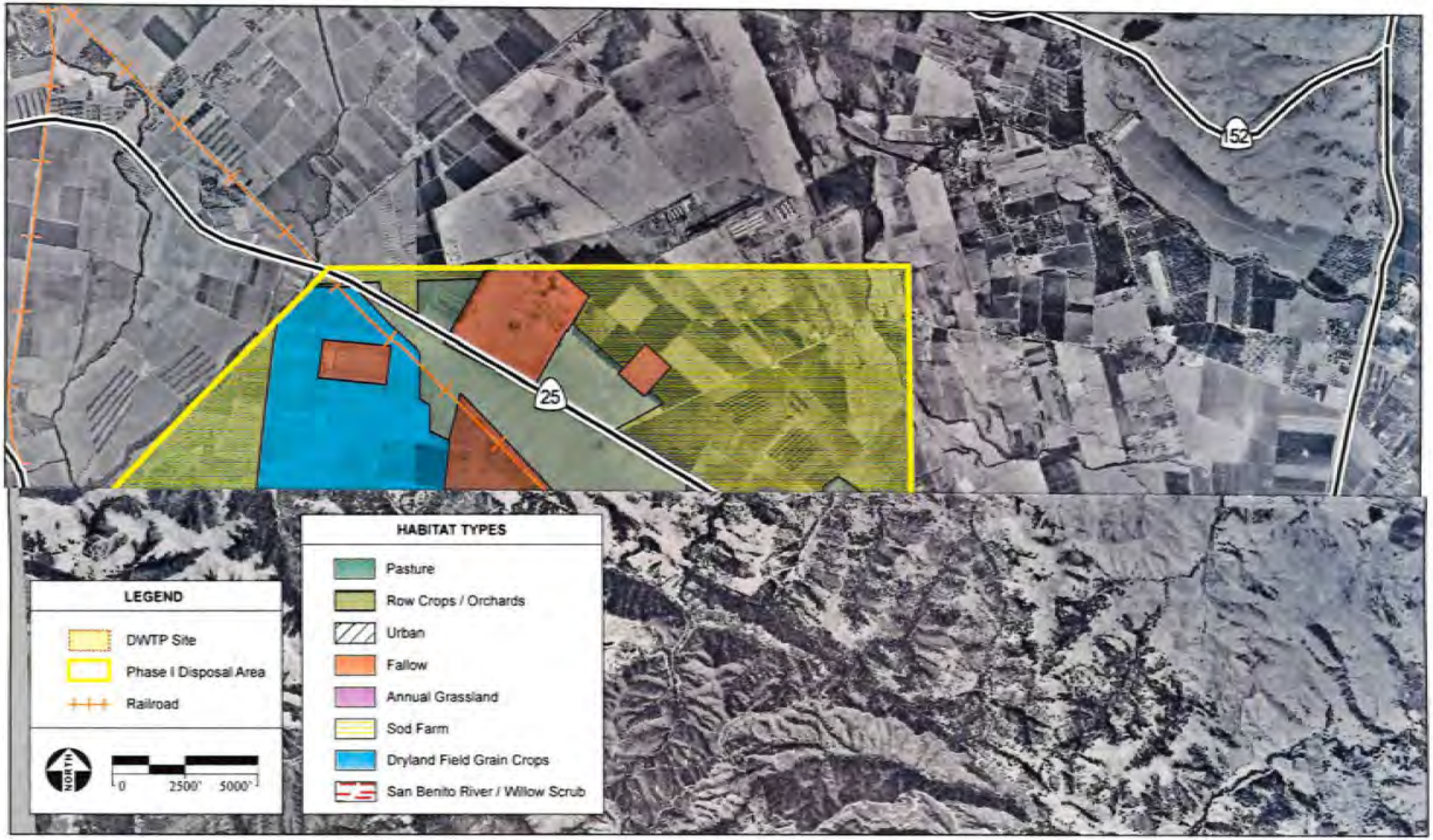
NRC.X Hollister shall require a delineation of jurisdictional waters by a qualified biologist at the outset of the project planning stage of any proposed development that contains or is immediately adjacent to wetlands. This delineation shall be verified and approved by the USACE.

NRC.Y Hollister shall require those development projects, which involve the unavoidable loss of riparian areas to replace any such loss on-site or in immediately adjacent off-site areas along the river/stream corridor, and require project sponsors to develop re-vegetation plans which offset losses of biotic values, in coordination with the CDFG and USACE.

4.4.2 Environmental Setting

Habitats

Within the project boundary, commercial and residential areas are located near the airport, east of the DWTP, and along Freitas Road. Several sensitive habitats exist within the City and adjacent areas including central coast willow scrub, freshwater marsh, and alkali marsh. In addition, highly modified habitats, including wastewater ponds, pastures, agricultural fields, and golf courses are found within and near the City. The following sections describe the habitat types found near the DWTP, the proposed pipeline routes, and the reclaimed water use areas. A comprehensive list of species found during a field survey by AES biologists (February 2006, April 2006) in each of the areas below can be found in **Appendix G**. Natural habitat types discussed below are depicted in **Figure 4.4-1**.



RMC Water and Environment, 2005; San Benito County Water District, 2005; City of Hollister, 2005; USGS Aerial Maps; AES, 2006

Figure 4.4-1
Habitat Map

DOMESTIC WASTEWATER TREATMENT PLANT

Habitat at the DWTP is provided by storage and percolation ponds, as well as trees and other vegetation surrounding the facility. The DWTP storage pond is a concrete-lined pond surrounded by a concrete walkway, resulting in a lack of vegetation, though not a lack of birds. The percolation beds are unlined and surrounded by annual grassland. Willow riparian scrub exists outside the northern fence, along the San Benito River, and young coast live oaks (*Quercus agrifolia*) are growing along the border of Highway 156, apparently planted for landscaping purposes. Various shorebirds and waterfowl were seen in Pond 2 and the percolation beds, including: the American avocet (*Recurvirostra americana*), the American coot (*Fulica americana*), the black-necked stilt (*Himantopus mexicanus*), the green-winged teal (*Anas crecca*), the northern shoveler (*Anas clypeata*), and the sandpiper (*Calidris* sp.).

Bird species found in the grassland, scrub, or trees along the perimeter include: the American kestrel (*Falco spaverius*), the Brewer's blackbird (*Euphagus cyanocephalus*), the European starling (*Sturnus vulgaris*), various gulls (*Larus* sp.), the northern harrier (*Circus cyaneus*), the Nuttall's woodpecker (*Picoides nuttallii*), the Say's phoebe (*Sayornis saya*), the turkey vulture (*Cathartes aura*), the white-tailed kite (*Elanus leucurus*), and the yellow-rumped warbler (*Dendroica coronata*). Additionally, treatment facility staff has observed a golden eagle (*Aquila chrysaetos*) foraging in the percolation beds area in 2005 (Dennis Rose 2006). Plants observed in the area include: fiddleneck, (*Amsinckia menziesii var. intermedia*), pearly everlasting (*Anaphalis margaritacea*), coyote brush (*Baccharis pilularis*), star thistle (*Centaurea solstitialis*), miner's lettuce (*Claytonia perfoliata mexicana*), Danny's skullcap (*Scutellaria tuberose*), clover (*Trifolium* sp.), and a black walnut (*Juglans hindsii*). On a hill at the entrance of the DWTP is a eucalyptus grove that contains: malva (*Malva* sp.), clover (*Trifolium* sp.), milk thistle (*Silybum marianum*), coyotebrush (*Baccharis pilularis*), eucalyptus (*Eucalyptus* sp.), and barley (*Hordeum* sp.).

PROPOSED PIPELINE ROUTES

The proposed pipeline routes generally follow roadsides and the railroad tracks, which are routinely cleared of vegetation. The Northwest Route pipeline follows the railroad tracks through strawberry (*Fragaria* sp.) fields (irrigated rowcrops), pasture, dryland grain crop fields, and other agricultural fields. Three pipelines will cross the San Benito River: Airport Route and the Northwest Route will both utilize pipes already existing in the bridge, while the IWTP Route will require a pipeline to either be hung from a bridge or drilled under the San Benito River. The San Juan Oaks Route crosses a drainage on the border of the San Juan Oaks Golf Club property. Pipes outside the proposed pipeline routes will also be built to carry the water from the main pipeline to the spray fields, which contain annual grassland and wetlands.

DRYLAND GRAIN CROPS

The dryland grain crops occur mainly in the northern part of the project area, and can consist of wheat (*Triticum* sp.), oats (*Avena sativa*), or barley (*Hordeum vulgare*). The fields appeared to be graded and regularly disced, with signs of farmed wetlands existing in some areas. The fields provide foraging habitat for kestrels (*Falco spaverius*), Northern harriers (*Circus cyaneus*), red-tail hawks (*Buteo jamaicensis*), and white-tailed kites (*Elanus leucurus*).

PASTURES

Pastures (both irrigated and dry) are located throughout the project site, but mainly occur in the hilly regions to the west and south. This habitat consists of the same plant species as the annual grasslands, but is regularly grazed by cattle. Drainages and wetlands present in the pastures are depicted in **Figure 4.4-2** and discussed below.

WETLAND HABITATS AND WATERS OF THE U.S.

The term "waters of the U.S." is defined as:

- All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;
- All interstate waters including interstate wetlands; or
- All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use or degradation of which could affect interstate or foreign commerce including any such waters.

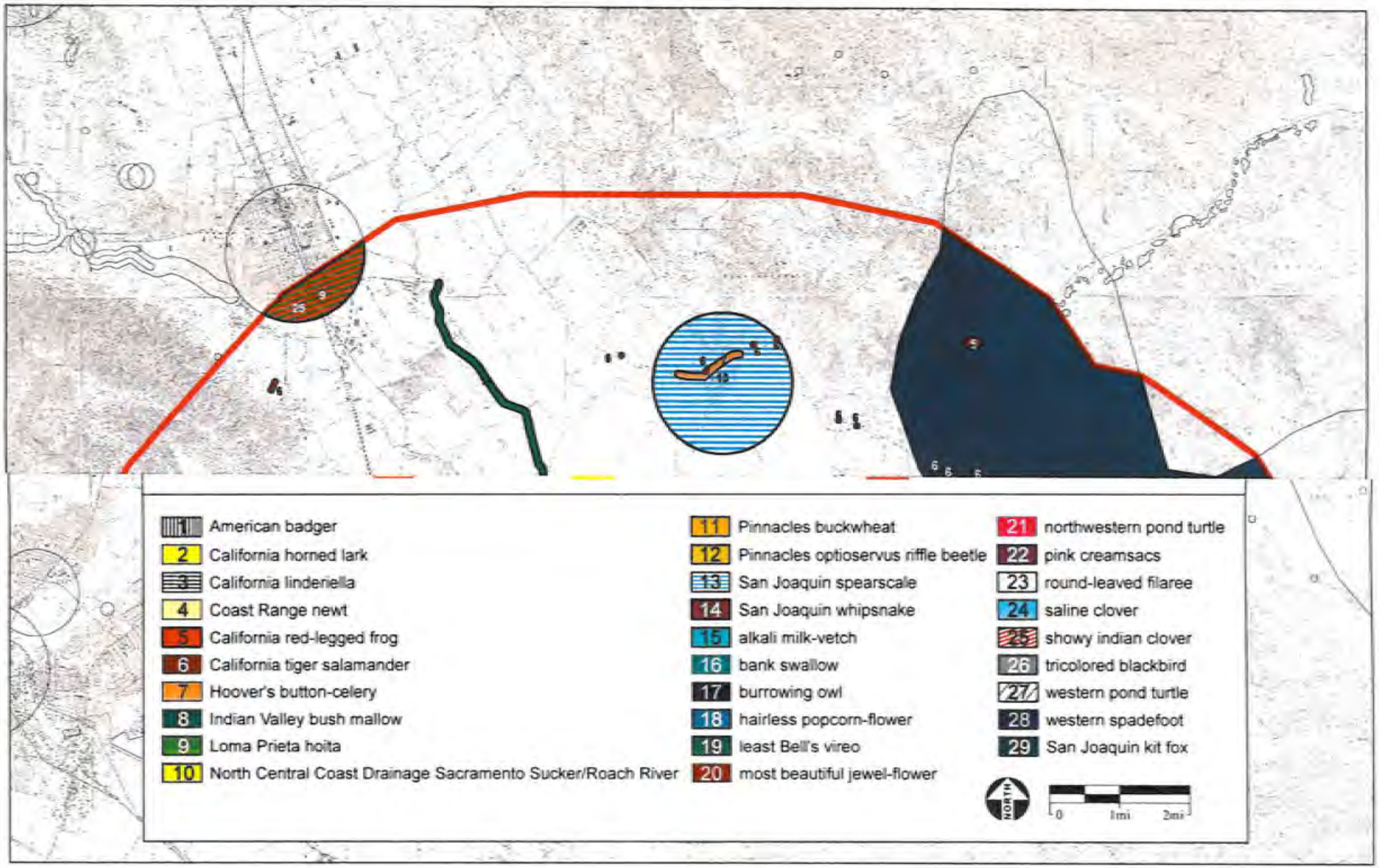
"Wetlands" are defined as:

- Waters of the U.S. or isolated features that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.

Wetlands and drainages present on the project site are depicted in **Figure 4.4-2** and discussed under "Habitat Types" above.

RIVERS/CREEKS/DRAINAGES

The San Benito River crosses the project area east to west, and runs along the northern border of the DWTP site. Various creeks occur in the pastures, including one that passes under the San Juan Access Road (**Figure 4.4-1**). The brush along the bank of the river hosted black phoebes (*Sayornis nigricans*) and Say's phoebes (*Sayornis saya*). Both the river and the mapped creek contain a significant number of



SOURCE:"Hollister, CA" USGS 7.5 Minute Geographic Quadrangle, T12S R4E Unsectioned area of San Juan Valley, R5E T12S Unsectioned Areas of San Juan Valley and The City of Hollister; "San Felipe, CA" USGS 7.5 minute Geographic Quadrangle R4e T11S Unsectioned Areas of Llano De Tequisquita, San Justo and Flint Hills, R5e T12S Unsectioned areas of Bolsa San Felipe and Justo Hollister Valley, Mount Diablo Baseline & Meridian; California Natural Diversity Database, 2005; AES, 2006

Figure 4.4-3
Special Status Species

TABLE 4.4-1
POTENTIALLY OCCURRING SPECIAL STATUS SPECIES

SCIENTIFIC NAME COMMON NAME	FEDERAL/STATE/ CNPS STATUS	DISTRIBUTION	HABITAT REQUIREMENTS/ POTENTIAL FOR OCCURRENCE	IDEAL PERIOD OF IDENTIFICATION
PLANTS				
Astragalus tener var. *tener* Alkali milk-vetch	FSC/--/1B	Alameda, Contra Costa, Merced, Monterey, Napa, San Benito, Santa Clara, San Francisco, San Joaquin, Solano, Sonoma, Stanislaus, and Yolo Counties.	Alkali playa, valley and foothill grassland, vernal pools.	March - June
Atriplex joaquiniana San Joaquin spearscale	FSC/--/1B	Known populations in Alameda, Contra Costa, Colusa, Glenn, Merced, Monterey, Napa, Sacramento, San Benito, Santa Clara, San Joaquin, Solano, Tulare, and Yolo counties.	Chenopod scrub, meadows and seeps, playas, valley and foothill grassland/alkaline; 1-835 meters.	April - October
Castilleja rubicundula ssp. rubicundula Pink creamsacs	--/--/1B	Butte, Colusa, Glenn, Lake, and Napa Counties.	Chaparral, cismontane woodland, meadows, seeps, (serpentinite) valley and foothill grassland.	April - June
Centromadia parryi ssp. congdonii Congdon's tarplant	--/--/1B	Alameda, Contra Costa, Monterey, Santa Clara, Santa Cruz, San Luis Obispo, San Mateo, and Solano Counties.	Found in alkaline valley and foothill grassland.	May - November
Eriogonum nortonii Pinnacles buckwheat	--/--/1B	Monterey and San Benito Counties	Found in sandy sites in valley and foothill grassland, often on recent burns.	May - August
Erodium macrophyllum Round-leaved filaree	--/--/2	Throughout California, southern Oregon, and northern Baja California.	Found on clay soils of cismontane woodlands, valley and foothill grasslands.	March-May
Eryngium aristulatum var. hooveri Hoover's button celery	--/--/1B	Alameda, San Benito, Santa Clara, and San Luis Obispo Counties.	Vernal pools; elevation 3-45 meters.	July
Holta strobilina Loma Prieta holta	--/--/1B	Known to occur in Alameda, Contra Costa, Santa Clara, and Santa Cruz Counties.	Chaparral, cismontane woodland, and riparian woodland. Usually serpentinite, mesic. Elevation 30-860 meters.	May - October
Hordeum intercedens Vernal barley	--/--/3	Mainly occurs in southwestern California, with an isolated occurrence in San Benito County.	Coastal dunes, coastal scrub, valley and foothill grasslands (saline flats and depressions), and vernal pools.	March - June
Juglans hindsii Northern California black walnut	FSC/--/1B	Napa, Solano, Contra Costa, Lake, Yolo, and Sacramento Counties.	Riparian forest and riparian woodland.	April - October

SCIENTIFIC NAME COMMON NAME	FEDERAL/STATE/ CNPS STATUS	DISTRIBUTION	HABITAT REQUIREMENTS/ POTENTIAL FOR OCCURRENCE	IDEAL PERIOD OF IDENTIFICATION
			on sandy, gravelly, or loamy substrate; sometimes on hardpan; most common where there are abundant rodent burrows; rare or absent in dense vegetation or tall grass.	
Masticophis flagellum ruddocki San Joaquin whipsnake	--/CSC	The known range of this California endemic extends from 13 km west of Arbuckle (Colusa County) in the Sacramento Valley southward to the Grapevine in the Kern County portion of the San Joaquin Valley and westward into the inner South Coast Ranges. An isolated population occurs in the Sutter Buttes.	Occurs in open, dry, treeless areas, including grassland and saltbush scrub. Takes refuge in rodent burrows, under shaded vegetation, and under surface objects; elevation 20 m to 900 m.	May - August
Rana aurora draytonii California red-legged frog	FT/CSC	Currently found in coastal drainages from Marin County south to Baja California, Mexico. Range extends from the bay area and the central coast also along the Sierra Nevada Range within the remaining distribution of the species, only isolated populations have been documented in the Sierra Nevada, northern Coast, and northern Transverse ranges. Believed to be extirpated from the southern Transverse and Peninsular ranges, but still present in Baja California, Mexico.	Lowlands and foothills in or near permanent or late-season sources of deep water with dense, shrubby, or emergent vegetation.	May-November
Scaphiopus (=Spea) hammondii Western spadefoot toad	FSC/CSC	This near endemic to California ranges from the vicinity of Redding, Shasta County, southward into northwestern Baja California, Mexico.	Vernal pools that contain water for more than three weeks continuously; elevation 0 to 1363 m above msl.	January - May
Taricha torosa torosa Coast range newt	--/CSC	Distributed through the coast ranges from Mendocino County to San Diego County.	Frequent terrestrial habitats, but breed in ponds, reservoirs, and slow-moving streams.	November – March
FISH				
Oncorhynchus mykiss South/Central California	FT/--	Southern steelhead have been found in virtually every coastal stream in	Similar to those of more northern steelhead stocks, although it is likely that southern	Consult Agency

SCIENTIFIC NAME COMMON NAME	FEDERAL/STATE/ CNPS STATUS	DISTRIBUTION	HABITAT REQUIREMENTS/ POTENTIAL FOR OCCURRENCE	IDEAL PERIOD OF IDENTIFICATION
steelhead		Monterey, San Luis Obispo and Santa Barbara counties north of Point Conception within the last ten years. Southern steelhead evidently once utilized most of the major coastal streams in southern California as well.	steelhead have greater physiological tolerances to the warmer and more variable conditions they commonly encounter in southern California streams.	
BIRDS				
Agelaius tricolor Tricolored blackbird	FSC/CSC/--	California and Baja California, Mexico.	Nests in dense thickets of cattails, tules, willow, blackberry, wild rose, and other tall herbs near fresh water.	All Year
Aquila chrysaetos Golden eagle	--/CSC/--	Breed throughout California, except along coast, flat portions of Central Valley, and southeastern desert.	Primarily open and semiopen habitats, such as grassland and oak savannah.	Year round
Athene cunicularia Western burrowing owl	FSC/CSC/--	Formerly common within the described habitats throughout the state except the northwest coastal forests and high mountains.	Yearlong resident of open, dry grassland and desert habitats, as well as in grass, forb and open shrub stages of pinyon-juniper and ponderosa pine habitats.	All Year
Calypte costae Costa's hummingbird	FSC/--/--	Most common and widespread in southern California, but breeds locally along the western edge of the San Joaquin Valley and the eastern edge of the Sierra Nevada.	Primary habitats are desert wash, edges of desert riparian and valley foothill riparian, coastal scrub, desert scrub, desert succulent shrub, lower-elevation chaparral, and palm oasis.	All year
Carduelis lawrencei Lawrence's goldfinch	FSC/--	Central Valley and coastal foothills of California.	Most often nesting occurs near water. However, nesting can occur in oak or other arid woodlands as well as chaparral habitats.	April - September
Chaetura vauxi Vaux's swift	FSC/CSC/--	In California, North Coast Ranges, Cascade Range, and Sierra Nevada Range south to Sequoia National Park, Tulare County	Coniferous forest. In the North Coast Ranges, redwood forest or Douglas-fir forest. In interior ranges, mixed oak-pine forest or purely coniferous forest. Roosts in hollow trees and snags, often in large flocks.	April - September
Circus cyaneus Northern harrier	--/CSC/--	Permanent residents of the northeastern plateau and coastal areas; less common resident of the Central Valley. Occurs from annual grassland up to lodgepole pine and alpine meadow habitats, as high as	Coastal scrub, Great Basin grassland, marsh and swamp (coastal and fresh water), riparian scrubs, valley and foothill grassland, and wetlands. Nests and forages in grasslands, from salt grass in desert sink to mountain cienagas. Nests on ground in shrubby	All Year

SCIENTIFIC NAME COMMON NAME	FEDERAL/STATE/ CNPS STATUS	DISTRIBUTION	HABITAT REQUIREMENTS/ POTENTIAL FOR OCCURRENCE	IDEAL PERIOD OF IDENTIFICATION
		3000 meters.	vegetation usually at marsh edge; nests built of a large mound of sticks in wet areas.	
Coccyzus americanus occidentalis Western yellow-billed cuckoo	FC/CE/--	Summer migrant along the Colarado River, Sacramento and Owens valleys, Kern River, and other scattered locations throughout lowland California.	Frequents valley foothill and desert riparian habitats; densely foliaged, deciduous trees and shrubs, especially willows, required for roosting sites.	June-August
Elanus leucurus White-tailed kite	FSC/CFP/--	Permanent resident of coastal and valley lowlands.	Nests in dense oak, willow, or other tree stands near open foraging areas. Hunts in herbaceous lowlands with variable tree growth.	All Year Peak nesting is from May-August
Eremophila alpestris actia California horned lark	--/CSC	Can be found throughout California in suitable habitat.	Inhabits a variety of open habitats, usually where trees and large shrubs are absent. Found from grasslands along the coast and deserts near sea level to alpine dwarf-shrub habitat above treeline. Less common in mountain regions, on the North Coast, and in coniferous or chaparral habitats.	All year
Falco mexicanus Prairie falcon	--/CSC	Occurs in California as year round resident or wintering bird along coast.	Uncommon in open deserts, grasslands and agricultural lands.	All year
Falco peregrinus anatum American peregrine falcon	FD/CE/--	Active nesting sites known along the coast north of Santa Barbara and other mountains in northern California.	Breeds mostly in woodland, forest, and coastal habitats. Breeds near water on high cliffs or banks and will nest on human-made structures.	All Year
Haliaeetus leucocephalus Bald eagle	FT/CE	Throughout North America.	Breeding sites are closely tied to bodies of water in mountainous habitats.	February - July
Icteria virens Yellow-breasted chat	--/CSC/--	Klamath and North Coast Ranges, Central Valley, and local through Peninsular and South Coast Ranges and Sierra Foothills	Riparian and shrubby areas.	April - September
Lanius ludovicianus Loggerhead shrike	FSC/CSC/--	United States and western Canada.	Found in a variety of habitats with open areas, available perches, and dense shrubs for nesting.	All Year
Picoides nuttallii Nuttall's woodpecker	SLC/--/--	Occurs in the Central Valley, Transverse, and Peninsular Ranges. In the Coast Ranges, north to Sonoma County and rarely to Humboldt	Nests in snags or live trees in riparian areas and oak woodlands.	All Year

SCIENTIFIC NAME COMMON NAME	FEDERAL/STATE/ CNPS STATUS	DISTRIBUTION	HABITAT REQUIREMENTS/ POTENTIAL FOR OCCURRENCE	IDEAL PERIOD OF IDENTIFICATION
		County. Also found in the lower portions of the Cascade Range and Sierra Nevada.		
Riparia riparia Bank swallow	FSC/CT/--	In California, primarily nests from far Siskyou, Shasta and Lassen Counties, south along the Sacramento River to Yolo County. Also nests locally across much of state.	Typically nests in burrows in vertical banks, cliffs, and bluffs. Nest sites are typically in alluvial, friable soil, and are typically found near a water source.	April - July
Selasphorus rufus Rufous hummingbird	FSC/--/--	In California, breeding has been documented in Trinity and Humboldt counties. Postbreeders migrate south through the Cascade Range and Sierra Nevada in summer; spring migration is mostly through the lowlands and foothills.	Breeds in Transition Life Zone of northwest coastal area from Oregon Border to southern Sonoma County.	April-July
Toxostoma redivivum California thrasher	FSC/--	Foothills and lowlands in cismontane California.	Occupies moderate to dense chaparral and thickets along riparian areas.	February - July
Vireo bellii pusillus Least Bell's vireo	FE/CE	The entire range of the subspecies consists of the southwestern coastline of the United States in California below Santa Barbara, extending inland approximately to the edge of the Imperial Valley. The breeding range for this species encompasses greater Los Angeles and other metropolitan areas of southern California. The wintering habitat includes Baja California, Mexico, and the western coastline of northern and central Mexico.	Occupies dense, low, shrubby vegetation, generally early successional stages in riparian area, brushy fields, young second-growth forest or woodland, scrub oak, coastal chaparral, and mesquite brushlands, often near water in arid regions. The most critical structural component of the Least Bell's Vireo breeding habitat in California is a dense shrub layer, 0.6-3.0 m above ground.	May - August
MAMMALS				
Dipodomys ingens Giant kangaroo rat	FE/CE	San Joaquin Valley, generally in the flat areas, but can occur on gentle slopes.	Annual grasslands on gentle slopes, sometimes in sparse shrubland.	All year, generally in the two hours before dawn

SCIENTIFIC NAME COMMON NAME	FEDERAL/STATE/ CNPS STATUS	DISTRIBUTION	HABITAT REQUIREMENTS/ POTENTIAL FOR OCCURRENCE	IDEAL PERIOD OF IDENTIFICATION
Eumops perotis californicus Greater western mastiff bat	FSC/--/--	Specific California distribution unknown. Thought to inhabit an area east of San Francisco to the Sierra Nevada mountains and south.	Occurs in many open, semi-arid to arid habitats. Crevices in cliff faces, high buildings, trees, and tunnels are required for roosting and nesting.	Year round
Myotis thysanodes Fringed myotis bat	FSC/--	Widespread throughout California except the Central Valley.	Found in a wide variety of habitats. Use caves, mines, buildings, and crevices for maternity colonies and roosts.	April-September
Myotis yumanensis Yuma myotis bat	FSC/--/--	Distribution is closely tied to bodies of water. Widespread throughout California.	Inhabits open forests and woodlands. Distribution is closely tied to bodies of water. Maternity colonies occur in caves, mines, buildings, or crevices.	All Year
Taxidea taxus American badger	--/CSC	Found throughout most of California in suitable habitat.	Suitable habitat occurs in the drier open stages of most shrub, forest, and herbaceous habitats with friable soils. Badgers are generally associated with treeless regions, prairies, park lands, and cold desert areas.	All year
Vulpes macrotis mutica San Joaquin kit fox	FE	Contra Costa County south to Kern County, California.	Alkali sink, valley grassland, foothill woodland. Hunts in areas with low sparse vegetation that allows good visibility and mobility.	Year round

STATUS CODES

FEDERAL: U.S. Fish and Wildlife Service and National Marine Fisheries Service
FE Listed as Endangered by the Federal Government
FT Listed as Threatened by the Federal Government
FPT Proposed for Listing as Threatened
FC Candidate for Federal Listing
FSC Federal Species of Concern
SLC Federal Species of Local Concern
FD Federally Delisted
BCC Birds of Conservation Concern

STATE: California Department of Fish and Game
CE Listed as Endangered by the State of California
CT Listed as Threatened by the State of California
CSC California Species of Special Concern

CNPS: California Native Plant Society
List 1B Plants rare or endangered in California and elsewhere

SOURCE: U.S. Fish and Wildlife Service, 2005; California Natural Diversity Data Base, 2003; CNPS, 2006

SPECIAL STATUS PLANTS

Fifteen special-status plant species have the potential to occur on the project site. The following section describes these species and states whether or not they are likely to occur within the project boundary.

Alkali Milk Vetch *(Astragalus tener tener)*
Federal Status – None
State Status – Species of Concern
Other – CNPS 1B
A relative of locoweed, the alkali milkvetch (*Astragalus tener* var. *tener*) is a tiny member of the legume family. The species is found in alkali soils of dry lakebeds, on the floor of vernal pools, and on heavy clay "adobe" soils. According to records, the species has been extirpated from San Benito County, but is found to the east and north in Alameda, Merced, Solano, and Yolo counties. It is therefore unlikely for it to occur within the project boundaries.

California Black Walnut *(Juglans hindsii)*
Federal Status – Species of Concern
State Status – None
Other – CNPS 1B
The California black walnut is a deciduous tree in the walnut family frequently found in riparian woodlands. Male flowers (in catkins) and female flowers (occurring at the end of branches) occur on the same plant. A single tree was identified by AES biologists on the western boundary of the DWTP property.

Congdon's Tarplant *(Centromadia parryi ssp. congdonii)*
Federal Status – None
State Status – None
Other – CNPS 1B
Related to sunflowers and spikeweed, the tarplant species known as Congdon's tarplant (*Centromadia parryi* ssp. *congdonii*) is found throughout the area, often along railroad tracks, in fallow fields, or field edges, where it is apparently readily dispersed from the few remaining core populations of the region.

Hairless Popcorn-Flower *(Plagiobothrys glaber)*
Federal Status – None
State Status – None
Other – CNPS 1A
Belonging to the borage family, the hairless popcorn flower is known from alkaline marshes and flats of the region. The species was known from the area between 1938 and 1954 (H. T. Harvey & Associates, 2003), when it was collected from the airport property on an alkaline flat.

Hoover's Button Celery ***(Eryngium aristulatum var. hooveri)***
Federal Status – None
State Status – None
Other – CNPS 1B
A member of the family Apiaceae, Hoover's button celery is an annual or perennial herb that is native to California and is endemic to vernal pools and other seasonal wetlands. It is a dicot, having two cotyledons and reticulate venation in the leaves. It was last recorded in 1933 to be approximately one mile northeast of the project area, so it has likely been extirpated from the area since then.

Indian Valley Bush Mallow ***(Malacothamnus aboriginum)***
Federal Status – None
State Status – None
Other – CNPS 1B
An herbaceous shrub in the Malvaceae family often found on rocky slopes in montane chaparral or montane coniferous forests. It is often found in burn areas, and favors elevations between 150 and 1700 meters. This species occurs in hills approximately four miles southeast of the project area, and is not likely to occur within the project boundary.

Loma Prieta Hoita ***(Hoita strobilina)***
Federal Status – None
State Status – None
Other – CNPS 1B
A perennial herb in the Fabaceae family, the Loma Prieta hoita is endemic to California. It prefers chaparral, cismontane woodland, and serpentine soils in riparian woodland. Since none of these habitats occur within the project boundary, it is not likely that this species will occur on the project site.

Most Beautiful Jewel-flower ***(Streptanthus albidus ssp. peramoenus)***
Federal Status – None
State Status – None
Other – CNPS 1B
An annual herb in the Brassicaceae family, the most beautiful jewel-flower is endemic to California and grows in chaparral, cismontane woodland, and serpentine valley and foothill grassland. It has been found northwest of the project site, near Gilroy. However, since the project site contains no cismontane woodland, chaparral, nor serpentine soils, it is very unlikely for the most beautiful jewel-flower to occur on the site.

Pink Creamsacs ***(Castilleja rubicundula ssp. rubicundula)***
Federal Status – None
State Status – None
Other – CNPS 1B
Pink creamsacs is an annual herb in the Scrophulariaceae family. It generally grows in chaparral, cismontane woodland, meadows, seeps, and valley and foothill grassland. While CNPS lists the species

as occurring only in northern California, an isolated population was found within 5 miles of the project site, in the Santa Cruz mountains in 1996. It has the potential to occur in grasslands and lightly-grazed pastures.

Pinnacles Buckwheat *(Eriogonum nortonii)*
Federal Status – None
State Status – None
Other – CNPS 1B
An annual herb in the Polygonaceae family, Pinnacles buckwheat is endemic to California and occurs in only Monterey and San Benito Counties. It grows in chaparral and valley and foothill grasslands, especially where the soil is sandy. It is often seen growing in burn areas. The most recently recorded sighting of this species was in 1993, when a population of over 100 plants was found south of the project site, about three miles southeast of Fremont Peak. It has the potential to occur in grasslands and lightly-grazed pastures with sandy soil in the project site.

Round-Leaved Filaree *(Erodium macrophyllum)*
Federal Status – None
State Status – None
Other – CNPS 2
The round-leaved filaree (*Erodium macrophyllum*) is a relative of the more common filaree and geraniums of the non-native grasslands of California. This annual flower typically grows in valley and foothill grasslands in open habitat on friable clay soils. The petals are usually white but can be tinted pink. Unlike most filaree, there is a single style column which is approximately 3-5 cm in length. The blooming period is from March to May. Though it is unlikely to occur on the floor of the Hollister or San Juan Valleys, it may be encountered in non-native grasslands of the surrounding foothills. A population was recorded in 1992 at San Justo Reservoir, in the vicinity of Mitchell Road. This species therefore has the potential to occur in the valley and foothill grasslands in the project site, particularly in the southern third of the project site.

Saline Clover *(Trifolium depauperatum var. hydrophilum)*
Federal Status – FSC
State Status – None
Other – CNPS 1B
This species is an annual herb in the Fabaceae family and is endemic to California. It grows in marshes, swamps, alkaline grasslands, and vernal pools at elevations between 0 and 300 meters. A population was recorded in 1995 between Miller's Canal and the Pajaro River, while another population was recorded in 2004 in the mountains approximately four miles west of the project site. This species therefore has the potential to occur in suitable habitats in the northern half of the project site.

San Joaquin Spearscale *(Atriplex joaquiniana)*
Federal Status – Species of Concern
State Status – None

Other – CNPS 1B

San Joaquin spearscale, also known as saltbrush (*Atriplex joaquiniana*), is a distant relative of beets and pigweeds, often found in drier portions on the alkaline soils of the Santa Clara and San Joaquin valleys including the dry, interior valleys of the south Coast Ranges. It is an annual herb in the Chenopodiaceae family, and grows well in scrublands, meadows, seeps, playas, and grasslands. A population was recorded in 1938 in the vicinity of the airport, but has likely been extirpated since then by development of the airport. Since another population of over 150 plants was found approximately three mile north of the project area as recently as 1995, there is the possibility of it occurring within the northern half of the project site.

Showy Indian Clover *(Trifolium amoenum)*

Federal Status – Endangered

State Status – None

Other – CNPS 1B

Previously thought extinct, the Showy Indian clover was rediscovered in 1993 and 1996. The species is an annual member of the legume (Fabaceae) family. It is distributed in the southern North Coast Ranges and San Francisco Bay Area, having been documented in Sonoma, Napa, Marin, Solano, Alameda, and Santa Clara Counties. Showy Indian clover occurs in coastal bluff scrub and grassland, sometimes in serpentine soils. It also sometimes occurs in disturbed areas and blooms from April to June. The last recorded finding of this species within five miles of the site was in 1903, so it has probably been extirpated from the area.

Vernal Barley *(Hordeum intercedens)*

Federal Status – None

State Status – None

Other – CNPS 3

This species is an annual grass in the Poaceae (Grass) family. It grows in coastal dunes, coastal scrub, grasslands, saline flats, and vernal pools, and can get to be 1.5 feet tall. It has been known to occur in San Benito County, and suitable habitat occurs within the project boundary in the grasslands and lightly-grazed areas.

SPECIAL STATUS INVERTEBRATES

Five special status invertebrates have the potential to occur on the project site. The following section describes each species and whether it is likely to be found on the site.

California linderiella fairy shrimp *(Linderiella occidentalis)*

Federal Status – Species of Concern

State Status – None

California linderiella fairy shrimp inhabit the same habitats as vernal pool fairy shrimp. Often, the two species are found in the same pools. However, the linderiella fairy shrimp can withstand warmer water temperatures than the vernal pool fairy shrimp. Reproduction is similar as the vernal pool fairy shrimp

with the deposition of cysts in the soil bank. This species has the longest longevity of the fairy shrimp species with animals known to live for up to six months. The average lifespan is four months with a high correlation to water persistence within the pool. This species is known to occur in seasonal and artificial ponds bordering the San Juan Oaks Golf Course.

Conservancy Fairy Shrimp *(Branchinecta conservatio)*
Federal Status – Endangered
State Status – None
Conservancy fairy shrimp are a small crustacean ranging in size from approximately 0.5 to one inch long. As with other fairy shrimp (*Branchinecta* species), they glide upside down by the peristaltic movement of the eleven pair of legs, searching for food (algae, bacteria, protozoa, rotifers and detritus). Conservancy fairy shrimp inhabit large vernal pools with moderately turbid water. Reproduction is performed through the deposition of cysts in the bottom of the pool. The cysts may persist for several years and are capable of withstanding heat, cold, and desiccation. The seasonal filling of vernal pools cues hatching. Though the project site is in the extreme southern end of this species's distribution, it is possible for the species to occur in the suitable wetlands on the project site.

Longhorn Fairy Shrimp *(Branchinecta longiantenna)*
Federal Status – Endangered
State Status – None
The longhorn fairy shrimp (*Branchinecta longiantenna*), is a small crustacean in the Branchinectidae family. It ranges in size from 0.5 to 0.8 inches long. Fairy shrimp are aquatic species in the order Anostraca. Fairy shrimp feed on algae, bacteria, protozoa, rotifers and bits of detritus. Longhorn fairy shrimp inhabit clear to rather turbid vernal pools. While suitable habitat occurs on the project site, there are no recorded occurrences of this species in San Benito County. Therefore, it is unlikely this species will occur on the project site.

Vernal Pool Fairy Shrimp *(Branchinecta lynchi)*
Federal Status – Threatened
State Status – None
The vernal pool fairy shrimp commonly inhabit vernal swales and pools, ditches, shallow stockponds, and ephemeral drainages ranging from 1-4 feet in depth. Persistence of water is essential, as the fairy shrimp completes its lifecycle within the vernal pools. The fairy shrimp hatch from cysts that can withstand heat, cold, and desiccation. Cysts are deposited within the bottom of pools where they persist for one to many years before hatching. Hatching is cued by the persistence of water received from winter rains, which propagate the lifecycle. Vernal pools and other wetlands occur on the site, providing suitable habitat for this species, which is known to occur in the county.

Vernal Pool Tadpole Shrimp *(Lepidurus packardi)*
Federal Status – Endangered
State Status – None
The vernal pool tadpole shrimp (*Lepidurus packardi*) is a small crustacean in the family Triopsidae. It has compound eyes, a large shield-like carapace (shell) that covers most of the body, and a pair of long cercopods (appendages) at the end of the last abdominal segment. Vernal pool tadpole shrimp adults reach a length of 2 inches in length. This animal inhabits vernal pools containing clear to highly turbid water, ranging in size. The life history of the vernal pool tadpole shrimp is linked to the seasonal cycle of the vernal pool. After winter rainwater fills the pool, the population is reestablished from cysts that lie dormant in the dry pool sediments. Sexually mature adults have been observed in vernal pools three to four weeks after the pools had been filled. Some cysts hatch immediately and the others remain dormant in the soil to hatch during later rainy seasons (USFWS, 2005). Due to the extensive loss of vernal pools in the Central Valley, the USFWS has listed the vernal pool tadpole shrimp as endangered pursuant to the Federal Endangered Species Act. This species has the potential to occur in the vernal pools throughout the project area.

SPECIAL STATUS REPTILES AND AMPHIBIANS

Three special-status reptiles and four special-status amphibians have the potential to occur on the project site. The following section describes each of these species and their likelihood of occurring on the project site.

California Red-legged Frog *(Rana aurora draytonii)*
Federal Status – Threatened
State Status – Species of Concern
The California red-legged frog (CRLF) is brown to reddish brown in color and has diffuse moderate-sized dark brown to black spots that sometimes have light centers. Distribution of red or red-orange pigment is highly variable, but is usually restricted to the belly and the undersurfaces of the thighs, legs, and feet. The breeding period is from November-April.

Habitat of CRLF is characterized by dense, shrubby riparian vegetation associated with deep, still or slow-moving water. The shrubby riparian vegetation that structurally seems to be most suitable for CRLF is provided by arroyo willow (*Salix lasiolepis*). Cattails (*Typha* sp.) and bulrushes (*Scirpus* sp.) also provide suitable habitat. Although CRLF can occur in ephemeral or permanent streams or ponds, populations probably cannot be maintained in ephemeral streams in which surface water disappears. The frog was recorded within the project area as recently as 2001. It occurs in the southern area around the San Juan Oaks Golf Course and in the northern area associated with wetlands.

California Tiger Salamander *(Ambystoma californiense)*
Federal Status – Threatened
State Status – Species of Concern

In the Central California foothills, the California tiger salamanders (CTS) are typically found at low-elevations below 1,500 feet. CTS spend the majority of their lives in upland habitats such as annual grasslands, oak savannah, mixed grassland and woodland habitats, woodlands, scrub, or chaparral habitats, plant communities associated with vernal pools, vernal pool complexes, and seasonal ponds. Within these upland habitats, adult CTS spend part of their lives in the underground burrows of small mammals and are therefore rarely encountered even where abundant. They utilize seasonal ponds, natural vernal pools, and vernal pool complexes for breeding during their aquatic phase. Small artificial water bodies such as stockponds may be used but are often not optimum breeding habitat for the CTS because the hydroperiod of stockponds can be so short that larvae cannot metamorphose or so long that predatory fish and bullfrogs can colonize the pond. Periodic maintenance of stockponds may also cause a temporary loss of functioning aquatic habitat. Successful breeding ponds for California tiger salamanders need to be inundated for a minimum of 12 weeks to allow for successful metamorphosis (USFWS, 2005). CTS absorb oxygen through their skin and are therefore sensitive to changes in dissolved oxygen in the water. This species is known to occur on and near the San Juan Oaks Golf Course.

Coast Range Newt *(Taricha torosa torosa)*
Federal Status – None
State Status – Species of Concern
This California newt occurs commonly in the Coast Ranges from central Mendocino County south to northern San Diego County. It occurs primarily in valley-foothill hardwood, valley-foothill hardwood-conifer, coastal scrub and mixed chaparral, but is also known from annual grassland and mixed conifer types. The elevation range extends from sea level to 1,830 m (6,000 ft). Terrestrial individuals are relatively inactive in subterranean refuges most of the year. Migrations to and from breeding areas usually occur at night during, or just following, rains and can last until May. Some migration also takes place on cloudy days. Breeding adults and aquatic larvae are active both day and night. This species is known to occur in the southern area of the project site, east of the San Juan Oaks Golf Course.

Blunt-nosed Leopard Lizard *(Gambelia sila)*
Federal Status – Threatened
State Status – None
The blunt-nosed leopard lizard is a relatively large lizard with a long, regenerative tail, long, hind limbs, and a short, blunt snout. Adult males are slightly larger than females, ranging in size from 3.4 to 4.7 inches in length, excluding tail. Females are 3.4 to 4.4 inches long. There are no current overall population size estimates for the species. This species is found only in the San Joaquin Valley. It inhabits open, sparsely vegetated areas of low relief on the valley floor and the surrounding foothills. It also inhabits alkali playa and valley saltbush scrub. In general, it is absent from areas of steep slope, dense vegetation, or areas subject to seasonal flooding. The project area is west of this species's recorded distribution, and is therefore unlikely to occur in the area.

San Joaquin Whipsnake *(Masticophis flagellum ruddocki)*
Federal Status – Species of Concern
State Status – Species of Concern
The San Joaquin whipsnake, also known as the San Joaquin coachwhip, is a large-sized (90-155 cm SVL), smooth-scaled, large-eyed, slender snake with a buffy citrine, tan-yellow, or olive brown dorsal color without lengthwise stripes. The San Joaquin whipsnake is a swift, diurnal snake that maintains a high activity level when on the surface. Similar to other *M. flagellum* subspecies, it voluntarily maintains a higher active body temperature than most other snakes. As a result emergence tends to be relatively late in the season (usually April-early May) and later in the morning (10:00-11:00 am), although some evidence exists that smaller (younger) individuals emerge earlier in the day and the season than larger (older) snakes. The San Joaquin whipsnake occurs in open, dry, vegetative associations with little or no tree cover. In the western San Joaquin Valley, it occurs in valley grassland and saltbush scrub associations and is known to climb bushes such as *Atriplex* for viewing prey and potential predators. The snake probably requires one or more mammal associates because it uses burrows for refuge and probably for oviposition sites, and may sometimes be dependent on mammals for food. This species is known to occur in the San Benito River channel just outside of the project boundary, so it is possible for the species to also occur in the project area within the San Benito riparian zone and in adjacent grassland and pasture areas.

Western/Northwestern Pond Turtle *(Clemmys marmorata)*
Federal Status – Species of Concern
State Status – Species of Concern
The Western pond turtle, is an aquatic turtle found along ponds, marshes, rivers, streams, and irrigation ditches with aquatic vegetation. The Northwestern pond turtle (*Clemmys marmorata marmorata*) is a subspecies of the Western pond turtle. During warmer periods they may be found basking along shorelines or within the vegetation along the edges of these environments. This species usually leaves the aquatic site to reproduce, to aestivate, and to overwinter. Recent fieldwork has demonstrated that western pond turtles may overwinter on land or in water, or may remain active in water during the winter season; this pattern may vary considerably with latitude and habitat type and remains poorly understood. They appear to be able to tolerate brackish water (1,000 – 5,000 mg/L dissolved salts), though they prefer fresh water. This species has been found in the bed of the San Benito River, in natural and artificial ponds throughout the project area, and in drainages throughout the project area. According to the CNDDB, the most recent recorded sighting was in 2004.

Western Spadefoot Toad *(Scaphiopus hammondii)*
Federal Status – Species of Concern
State Status – Species of Concern
A moderate-sized (1.5-2.5 inches) greenish, grayish, or brownish toad irregularly marked with dark orange- or reddish-tipped tubercles; having faint hourglass markings on the back consisting of four irregular, light-colored stripes; and possessing a distinctive, black, cornified, teardrop-shaped spade on each hindfoot. This near endemic to California ranges from the vicinity of Redding, Shasta County,

southward into northwestern Baja California, Mexico. Its known elevational range extends from near sea level to 1363 m. *Scaphiopus hammondii* is almost completely terrestrial, entering water only to breed. Western spadefoots become surface active following relatively warm (10.0-12.8°C) rains in late winter-spring and fall, emerging from burrows in loose soil to a depth of at least 1 m, but surface activity may occur in any month between October and April if enough rain has fallen. This species requires temporary rainpools with water temperatures of 9°C and < 30°C in which to reproduce and that last 3 weeks in order to metamorphose successfully.

SPECIAL STATUS FISH

The California steelhead is the only special-status fish likely to occur in the waterways of the project site.

South/Central California Steelhead *(Oncorhynchus mykiss)*
Federal Status – Threatened
State Status – None
Other – None
Southern steelhead are winter-run steelhead that persist in streams that have warm, dry lower reaches on the coastal plain. Most streams from San Luis Obispo County southward are definitely "southern steelhead streams", and the Pajaro, Salinas, and Carmel rivers in Monterey County are ecologically similar. Winter steelhead in California typically spawn from December to May, but mostly in January-March. Juvenile steelhead remain in fresh water 1-4 years (usually 1-3 in California) and then spend 1-5 years (usually 2-3 in California) in the ocean.

SPECIAL STATUS BIRDS

Twenty special-status bird species have the potential to occur on the project site. The following section describes each species and the likelihood of it occurring on the project site.

American Peregrine Falcon *(Falco peregrinus anatum)*
Federal Status – Delisted
State Status – Endangered
The American peregrine falcon was de-listed from the federal list under the Endangered Species Act in 1999, but it continues to be listed as Endangered by the State of California. Nesting habitat for this species consists of vertical rocky cliffs in undisturbed areas, and tall buildings, bridges, rock quarries, and raised platforms in man-made sites. The project area contains marginal nesting habitat for the falcon, while also providing some suitable foraging habitat for this species. The falcon's prey primarily consists of medium sized passerines as well as small waterfowl. Some small mammals as well as invertebrates also contribute to their diet.

Bald Eagle *(Haliaeetus leucocephalus)* (Foraging)
Federal Status – Threatened, Proposed for Delisting
State Status – Endangered
In 1995, the USFWS reclassified the bald eagle from endangered to threatened in the lower 48 states. In the mid-1970's the USFWS established five recovery programs based on geographical distribution of the species; the project site is located in the Pacific Recovery Region. In the Pacific Recovery Region, habitat conservation efforts, including laws and management practices at federal, state and community levels have helped facilitate bald eagle population increases. Critical habitat for bald eagle was not designated as part of the Pacific Recovery Plan (60 Federal Register 36000-36010).
Bald eagles typically nest in forested areas, relatively close (usually less than 2 km) to water that offers foraging opportunities. The bird feeds opportunistically, feeding on a variety of mammals and birds. It prefers, however, eating fish, and seeks out aquatic habitats for foraging (Buehler, 2000). This species has been recorded nesting in Monterey County, and the project area provides foraging habitat for this species along the San Benito River and in the grasslands.

Bank Swallow *(Riparia riparia)*
Federal Status – Species of Concern
State Status – Threatened
Breeding range of the bank swallow extends throughout much of North America. Wintering range is primarily in South America, with a small portion of its range in Mexico. In California, the bank swallow's range extends primarily from far northern counties (i.e., Siskyou, Shasta and Lassen), south along the Sacramento River to Yolo County. CNDDB also records observations of bank swallow nest-burrows in several other counties spread throughout the state. The bank swallow typically nests in burrows in vertical banks, cliffs, and bluffs. It sometimes nests in artificial sites, such as road cuts and sand and gravel quarries. Nest sites are typically in alluvial, friable soil, and are typically found near a water source. Breeding occurs from April – July (Garrison, 1999). While this species has been recorded within one mile of the project site, no suitable nesting habitat occurs within the project boundary.

California Horned Lark *(Eremophila alpestris actia)*
Federal Status – None
State Status – Species of Concern
The horned lark is found from grasslands along the coast and deserts near sea level to alpine dwarf-shrub habitat above the tree line. Sparse low herbaceous vegetation or widely scattered low shrubs dominate habitat areas. Vegetation cover is generally at least four inches tall so as to conceal the horned lark and its nest. The horned lark nests in hollows on the ground, often next to grass tufts or clods of earth or manure. This species prefers areas with little to no disturbance, away from roads and areas frequented by humans. California horned larks have been recorded as recently as 2004 in various sites east of the project site, but no suitable habitat was seen along the proposed pipeline routes, in the DWTP property, or in the areas being considered for sprayfields. These areas are either too close to human disturbance or (as is the case in the pastures) the vegetation is too short to provide cover.

California Thrasher ***(Toxostoma redivivum)***
Federal Status – Species of Concern
State Status – None
Foothills and lowlands characterize typical regions for the California thrasher. They occupy moderate to dense chaparral habitats, and less frequently thickets in valley foothill riparian habitat. Within the coastal fog belt north of San Francisco, the thrasher is found only on drier sites. Migration patterns have not been seen in this species, which has a range from the Mexican border north to Shasta, Trinity, and southern Humboldt counties of California. The project site contains potential habitat for this bird in the riparian scrub along the San Benito River or any other riparian areas containing dense thickets.

Costa's Hummingbird ***(Calypte costae)***
Federal Status – Species of Concern
State Status – None
Costa's hummingbirds are common and widespread in southern California, and breed locally along the western edge of San Joaquin Valley, along the eastern edge of the Sierra Nevada north to Inyo County, and in Monterey County. In the winter, they are restricted to the southern coastal areas and deserts. As is common in hummingbirds, it hovers and feeds on nectar from flowers, flycatches insects, and probably gleans small spiders and insects from vegetation. A FWS query showed that this species can occur in the area, and suitable habitat does exist in within the project boundary anywhere oaks, alders, hackberry, willow, palm, citrus trees, sages, ocotillo, yuccas, and cacti are present. The last four host species are unlikely to occur in the project area, but willows occur in abundance along the San Benito River and oaks occur in the grassland and pasture areas.

Golden Eagle ***(Aquila chrysaetos canadensis)***
Federal Status – None
State Status – Species of Concern
In the Southern California region, the species occur in areas of grasslands, brush-lands, deserts, oak savannas, open coniferous forests, and montane valleys. In addition, they use rolling foothills and mountain terrain, wide arid plateaus deeply cut by streams and canyons, open mountain slopes, and cliffs and rock outcrops for foraging grounds. Nesting is primarily restricted to rugged, mountainous country. Secluded cliffs with overhanging ledges and large trees are used for cover. Personal communication from Dennis Rose, the treatment plant operator, indicated that a golden eagle has been seen foraging at the DWTP around the percolation beds.

Lawrence's Goldfinch ***(Carduelis lawrencei)***
Federal Status – Species of Concern
State Status – None
Lawrence's goldfinch is a migratory songbird that breeds only in arid woodlands in foothills of California and northern Baja California. It typically nests in arid woodlands near three features: chaparral or other brushy areas, tall annual weed fields, and a water source. The species winters in portions of the desert Southwest, from southern California and northern Baja California to southwest New Mexico. Lawrence's goldfinch shows little fidelity to former breeding sites or regular migration patterns, resulting in

unpredictable annual movements. The birds generally begin migration to breeding grounds in March, and migrate to wintering grounds by September. The project site provides foraging habitat for the goldfinch during its migration.

Least Bell's Vireo *(Vireo bellii pusillus)*
Federal Status – Endangered
State Status - Endangered
This subspecies of the Bell's vireo is quite similar in appearance to the Arizona Bell's vireo. The least Bell's vireo is a summer resident of cottonwood-willow forest, oak woodland, shrubby thickets, and dry washes with willow thickets at the edges. It was formerly a common and widespread summer resident below about 600 m (2000 ft) in western Sierra Nevada, throughout Sacramento and San Joaquin valleys, and in the coastal valleys and foothills from Santa Clara County south. Currently, its breeding range is in Southern California, with large populations in Riverside and San Diego counties and smaller populations in Santa Barbara, Ventura, and San Diego counties and in northern Baja California. Thickets of willow and other low shrubs, preferably with water nearby, afford nesting and roosting cover. The dense willow riparian scrub along the San Benito River provides a suitable habitat for this species.

Loggerhead Shrike *(Lanius ludovicianus)*
Federal Status – Species of Concern
State Status – Species of Concern
The loggerhead shrike is a common resident and winter visitor in lowlands and foothills throughout California. This species prefers open habitats with scattered shrubs, trees, posts, fences, utility lines, or other perches. They are a year-round resident and breed from March to August. Nest sites are usually well concealed and can be up to 50 feet above ground. Perches are used to hunt insects, reptiles, and amphibians; although they will hunt small mammals and birds. A unique characteristic of the shrike's hunting technique is the skewering of prey on a sharp object. The shrike then either feeds or uses this method to cache prey. The loggerhead shrike was seen by AES biologists at the DWTP, and likely uses the pasturelands as foraging ground as well.

Northern Harrier *(Circus cyaneus)*
Federal Status – None
State Status – Species of Concern
Northern harriers inhabit a large variety of habitats. They can be found from annual grasslands to lodgepole pine and alpine meadow habitats, although not typically found in wooded habitats. Breeding occurs in open grassland or wetland habitats. Higher densities of breeding populations have been observed in undisturbed tracts of thick vegetation. Nest sites are constructed of available material and are located on the ground. The northern harrier was seen by AES biologists at the northern edge of the airport property and at the DWTP.

Nuttall's Woodpecker *(Picoides nuttalli)*
Federal Status – Species of Local Concern
State Status – None
Nuttall's woodpecker is a permanent resident of oak woodlands in California. The range is from west of the Southern Cascade and Sierra Nevada Mountains extending from Northern California to Mexico's Baja California. This relatively small woodpecker is the only "zebra-backed" woodpecker west of the Sierra Nevada Range that has a black and white striped face. Males of this species have a red occipital patch, which is missing in females. Breeding occurs between March and July where incubation lasts for about 14 days. The young remain in the nest nearly a month and rely on both parents for feeding. The greatest threat to the species is habitat loss due to development and Sudden Oak Death Disease. Tens of thousands of trees have been lost due to Sudden Oak Death Disease. In the short term there is an increase in nesting cavities, however in the long term both development and Sudden Oak Death Disease contribute to the loss of habitat. This woodpecker was observed by AES biologists at the DWTP.

Prairie Falcon *(Falco mexicanus)*
Federal Status – None
State Status – Species of Concern
This species is a migrant that ranges from southeastern deserts northwest along the inner Coast Ranges and Sierra Nevada. Habitats include anything from annual grasslands to alpine meadows, but this bird is associated primarily with perennial grasslands, savannahs, rangeland, some agricultural fields, and desert scrub areas. Nest sites include cliffs, bluffs, and abandoned eagle or crow nests in large trees. This species has been recorded northeast of the site, but the exact location is unavailable. Suitable habitat exists for this species on the project site in large trees and in the grasslands and pasture.

Rufous Hummingbird *(Selasphorus sasin)*
Federal Status – Species of Concern
State Status – None
The rufous hummingbird migrates through California and breeds in Oregon and Washington. Recent evidence shows breeding sites in the Trinity Mountains of Northern California. Southward migration occurs along the Cascade Range and Sierra Nevada Mountains. Spring migration follows valley foothills and lowlands. The species is found in a wide array of habitats that provide nectar-producing flowers, habitats that include: valley foothill hardwood, valley foothill hardwood-conifer, riparian, and various chaparral habitats in both northward and southward migration. While the project site contains suitable habitat, it is outside the range of this species.

Tricolored Blackbird *(Agelaius tricolor)*
Federal Status – Species of Concern
State Status – Species of Concern
This species is largely found in the Central and San Joaquin Valley and extending into the south coast range from Monterey County south. Populations also documented from the Peninsular Range near San Diego county and extreme northern California. Tricolored blackbirds usually nest in large flocks with greater than 50 breeding pairs, in dense vegetation near water or by emergent wetlands. Nesting sites are

typically associated with cattails, tules, willows, blackberry, and wild rose and occurs from April to July. Within the Sacramento Valley, breeding has been observed as late as October and November. During the non-breeding season, they can be found foraging in open habitats such as croplands and grassy fields. Suitable habitat within the project area includes the willow riparian scrub along the San Benito River.

Vaux's Swift *(Chaetura vauxi)*
Federal Status – Species of Concern
State Status – Species of Concern
This species is a summer resident of northern California. Breeding habitats are commonly located in the Coast Ranges from Sonoma County north, and very locally south to Santa Cruz County; in the Sierra Nevada; and possibly in the Cascade Range. It prefers redwood and Douglas-fir habitats with nest-sites in large hollow trees and snags, especially tall, burned-out stubs. The Vaux's swift is a fairly common migrant throughout most of the state in April and May, and August and September as it migrates to its wintering grounds in Mexico and Central America. The percolation beds and adjacent willow riparian scrub provide suitable habitat for the swift to use while migrating.

Western Burrowing Owl *(Athene cunicularia hypugaea)*
Federal Status – Species of Concern
State Status –Species of Concern
Burrowing owls occur in open grasslands, especially prairie, plains, and savanna, sometimes in open areas such as vacant lots near human habitation or airports, nesting and roosting in burrows dug by mammals. They spend much time on the ground or on low perches such as fence posts or dirt mounds in search of prey that consists of insects, small mammals, birds, and carrion. Nesting is often in abandoned burrows (e.g., prairie dog, ground squirrel, fox, woodchuck, tortoise) and can be identified by the lining of feathers, pellets, debris, and grass. They often take cover during the warmest part of the day. Any habitat (e.g. grasslands, pasture) that provides habitat for ground squirrel, which were seen at the airport, can provide habitat for the burrowing owls. The most recent recorded sighting of a burrowing owl was in 2003 on Shore Road in the northern part of the project area.

Western Yellow-billed Cuckoo *(Coccyzus americanus occidentalis)*
Federal Status – Candidate for Federal Listing
State Status – Endangered
Western yellow-billed cuckoo inhabit deciduous riparian thickets or forests with thick understory vegetation, contiguous with slow-moving waterways. Willows tend to be a dominant species of the known habitat. Prey base consists of large insects and occasionally frogs or lizards. Once widespread and common throughout the lowlands of California, the numbers have been drastically reduced by the loss of riparian habitat. While the project area is in the historical distribution of this species, it is believed that the western yellow-billed cuckoo has been extirpated from San Benito County.

White-tailed Kite ***(Elanus leucurus)***
Federal Status – Species of Concern
State Status –Fully Protected
White-tailed kites are yearlong residents in coastal and valley lowlands. They inhabit herbaceous and open stages of most habitats and can often be found in agricultural areas. Foraging occurs in open grasslands, meadows, farmland, and emergent wetlands. Prey includes small mammals, small bird species, voles, amphibians, reptiles, and insects. Nesting takes place February through October with a peak season ranging May to August. Nests are placed in dense stands of oaks, willow, or other deciduous tree stands. This species was observed at the DWTP by AES biologists and likely uses the surrounding grasslands and pastures as foraging habitat.

Yellow-breasted Chat ***(Icteria virens)***
Federal Status – None
State Status – Species of Concern
Yellow-breasted chat is a large warbler with a distribution that spans from the West Coast to the East Coast. Within California, yellow-breasted chats breed in the Klamath and North Coast Ranges, Central Valley, and locally through the Peninsular and South Coast Ranges and Sierra Foothills. In arid areas, such as much of the western U.S., the species generally occupies riparian habitat; it may, however, be found in some non-riparian shrubby habitats. Yellow-breasted chats begin arriving on California breeding grounds in April, and generally depart for Mexican and Central American wintering grounds by September. Suitable habitat for this species occurs in the willow riparian scrub along the San Benito River.

SPECIAL STATUS MAMMALS

Six special-status mammals have the potential to occur on the project site. The following section describes each species and the likelihood of it occurring on the project site.

American badger ***(Taxidea taxus)***
Federal Status – None
State Status – Species of Concern
The American badger has a flat body with short legs and a triangular face with a long, pointed, tipped-up nose. It has long brown or black fur with white stripes on its cheeks and one stripe running from its nose to the back of its head. This species is most abundant in drier open stages of most scrub, forest, and herbaceous habitats. The American badger prefers habitat with uncultivated ground, preying on burrowing rodents. Recorded sightings place the badger in the project area as recently as 2004. It likely uses relatively undisturbed pastures and grasslands as habitat.

Fringed Myotis Bat *(Myotis thysanodes)*
Federal Status – Species of Concern
State Status – None
The fringed myotis is widespread in California, occurring in all but the Central Valley and Colorado and Mojave deserts. Its abundance appears to be irregular, so it may be common locally. It occurs in a wide variety of habitats, with records ranging in elevation from sea level to 2850 m (9350 ft) in New Mexico. The fringed myotis roosts in caves, mines, buildings, and crevices. Sometimes the species uses separate day and night roosts. It feeds on beetles, moths, arachnids, and orthopterans, foraging over water, over open habitats, and by gleaning from foliage. The period of hibernation lasts from October through March. Abandoned structures exist in the project area, which would serve as roosting sites for the fringed myotis.

Giant Kangaroo Rat *(Dipodomys ingens)*
Federal Status – Endangered
State Status – None
Kangaroo rats are small mammals with elongated hind limbs for hopping and external cheek pouches for carrying food to their burrows. The giant kangaroo rat is the largest of all kangaroo rats and weighs from 4.6 to 6.4 ounces. The total length is 12 to 13 inches, including a tail that is six to eight inches. Giant kangaroo rats subsist almost entirely on the seeds of annual plants such as brome grasses and filaree. Populations of this species occur in scattered colonies along the western side of the San Joaquin Valley (e.g., Carrizo Plain, Panoche Valley). Habitats generally occur on fine sandy loam soils supporting sparse annual grass/forb vegetation, and marginally found in low-density alkali desert scrub. The project site is too far north to be suitable habitat for the giant kangaroo rat.

Greater Western Mastiff Bat *(Eumops perotis californicus)*
Federal Status – Species of Concern
State Status – Species of Concern
This species is an uncommon resident in southeastern San Joaquin Valley and Coastal Ranges from Monterey County southward through southern California, from the coast eastward to the Colorado Desert. It occurs in many open, semi-arid to arid habitats, including conifer and deciduous woodlands, coastal scrub, annual and perennial grasslands, palm oases, chaparral, desert scrub, and urban areas. The grasslands and pasture areas in the project area provide suitable habitat for this species.

San Joaquin Kit Fox *(Vulpes macrotis mutica)*
Federal Status – Endangered
State Status – Threatened
The federally endangered San Joaquin kit fox occurs in grasslands or grassy openings in shrubland. The kit fox (Vulpes macrotis) is the smallest canid species in North America. San Joaquin kit foxes have an average body length of 20 inches, an average tail length of 12 inches and stand about nine to 12 inches at the shoulder. Historically, San Joaquin kit foxes occurred in several San Joaquin Valley native plant communities. In the southernmost portion of the range, these communities included Valley Sink Scrub, Valley Saltbush Scrub, Upper Sonoran Subshrub Scrub, and Annual Grassland. The project site includes

grasslands and pastures, both of which can be used by this species as habitat. The recorded range of this species in CNDDB covers the Mitchell Road pipeline and place of use, as well as the eastern border and northeastern corner of the project area.

Yuma Myotis Bat *(Myotis yumanensis)*
Federal Status – Species of Concern
State Status – None
The Yuma myotis is named for the area on the lower Colorado River where the Quechan native people speak the Yuma language. This species is closely associated with streams and is rarely found far from water. Flying inches above the water, insects are taken on the wing after dusk. Nursery and maternity colonies occupy abandoned buildings and will not tolerate human disturbance, which causes failure or abandonment of the young and results in subsequent declines in populations. Abandoned structures exist within the project area, close enough to water to be used as roosting sites for this species.

4.4.3 Impacts and Mitigation Measures

Significance Criteria

A project would have a significant impact on biological resources if it would:

- Have a substantial adverse effect, either directly or through habitat modifications, on any species identified or listed in local or regional plans, policies, or regulations, or by CDFG, USFWS or NMFS.
- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the CDFG or USFWS.
- Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, and coastal) through direct removal, filling, hydrological interruption, or other means.
- Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.
- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.
- Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

Impacts and Mitigation Measures

The DWTP improvements, pipeline construction, and sprayfield development, including currently unidentified places of use for the recycled water, may impact biological resources within the project

boundary or downstream of any drainages in the project area. Expected impacts to biological resources (e.g., special-status species, natural communities, and wetlands) and the relevant mitigation measures are discussed below.

DWTP IMPROVEMENTS

Impact

4.4-1 Construction activities may temporarily impact the nesting habitat of protected bird species. This impact is considered potentially significant.

The percolation beds at the DWTP are currently being used by a number of water birds and shorebirds, mostly migratory species. Raptors were observed in the eucalyptus trees near the property, and likely use the property as foraging grounds, while shorebirds and waterfowl were using both the unlined percolation beds and the concrete-lined Pond 2. Construction at the site and the reconfiguration of the percolation beds may temporarily impact the bird species using the area as foraging or nesting habitat. Species known to occur at the DWTP include the golden eagle, the loggerhead shrike, the northern harrier, the Nuttall's woodpecker, and the white-tailed kite. A golden eagle has used the percolation beds as foraging grounds in the past, and so may use the eucalyptus trees bordering the northwestern corner of the DWTP property as a nesting site. The loggerhead shrike, white-tailed kite, and northern harrier were seen at the DWTP, and likely use the percolation beds as foraging habitat. The Nuttall's woodpecker was heard calling at the DWTP. During breeding season, any of these bird species may nest within 100 feet of the DWTP property, particularly in the eucalyptus trees and the willow riparian scrub. Species that may use the DWTP or nearby areas as nesting habitat but were not seen at the site in February include American peregrine falcon, bald eagle, California thrasher, Costa's hummingbird, Lawrence's goldfinch, least Bell's vireo, prairie falcon, Vaux's swift, tricolored blackbird, and the yellow-breasted chat. Construction activities near a nest can cause the adult birds to abandon the nest, causing the young to die. This is a potentially significant impact.

Mitigation Measures

4.4-1 (a) If feasible, conduct all tree and shrub removal and grading during the non-breeding season (generally between August 16 and February 28) for most special-status and non-special-status migratory birds and raptors. Table 4.4-2 contains the nesting periods for several of the birds that have the potential to occur either on the property or in the willow riparian scrub adjacent to the property.

(b) If construction activities are scheduled to occur during the breeding season for special-status and protected birds (generally between March 1 and August 15) and are within 100 feet of suitable nesting habitat for ground-nesting or shrub-nesting birds or within 500 feet of suitable nesting habitat for raptors, a qualified wildlife biologist (with knowledge of the species to be surveyed) shall be retained to conduct a species-specific nesting survey prior to the start of construction and within the appropriate habitat. Protected birds and raptors may nest in the grass (generally 6 inches or more), in the stands of eucalyptus trees, or in or under shrubs. The willow riparian scrub in particular may provide nesting habitat to multiple bird species.

TABLE 4.4-2
BREEDING PERIODS AND BUFFER DISTANCES FOR POTENTIALLY OCCURRING BIRD SPECIES.

Bird Species	Breeding Period	Required Buffer
Golden Eagle	Sept 1 - Dec 31	500 feet
Loggerhead Shrike	Mar 1 - Aug 31	100 feet
Northern Harrier	Apr 1 - Sept 30	500 feet
Nuttall's Woodpecker	Mar 1 - Sept 15	100 feet
Tricolored Blackbird	Apr 15 - Jul 31	100 feet
White-tailed Kite	Apr 1 - Aug 31	100 feet
Yellow-breasted Chat	May 1 - Aug 15	100 feet

Source: AES, 2006.

(c) The nesting surveys should be conducted within 1 week prior to initiation of construction activities that will occur during the specified species' breeding period. If no active nests are detected during these surveys, then no additional mitigation is required.

(d) If surveys indicate that special-status or non-special-status migratory bird or raptor nests are found in the vicinity of the construction area, a no-disturbance buffer shall be established around the site to avoid disturbance or destruction of the nest site until after the breeding season or after a qualified wildlife biologist determines that the young have fledged (usually late June to mid-July). Table 4.4-2 contains generally acceptable buffer radii for several species with the potential to occur in the area. However, the size of the buffer will depend on the level of noise or construction disturbance, line-of-sight between the nest and the disturbance, ambient levels of noise and other disturbances, and other topographical or artificial barriers. The appropriate size of these buffers shall be determined by the biologist in coordination with CDFG. Suitable buffer distances may vary between species.

(e) If construction activities are scheduled to occur within an area that supports an active nest site or within an established no-disturbance buffer, construction would be delayed until after the breeding season or until the young have fledged (as determined by the biologist).

Significance After Mitigation

Less than significant.

Impact

4.4-2 Construction activities within the riparian habitat of the San Benito River require a streambed alteration agreement and may affect habitat for various special-status species. This impact is considered potentially significant.

The willow riparian scrub surrounding the San Benito River north of the DWTP starts immediately on the northern side of the fence that surrounds the DWTP property. Construction within the riparian zone would be considered a significant impact and requires a

streambed alteration agreement (1600s permit). Special-status species that may occur in the willow riparian scrub along the San Benito River include the San Joaquin whipsnake, the western pond turtle, the California red-legged frog, the tricolored blackbird, the western yellow-billed cuckoo, and the white-tailed kite. The renovation of the DWTP, the installation of the pipeline to the IWTP, and the construction of the sprayfields has the potential to significantly impact the riparian zone. This is a potentially significant impact.

Mitigation Measure

4.4-2 The fence on the boundary of the DWTP property serves as the border between the riparian zone and the annual grassland habitat. Signs shall be posted on the fence explaining that the riparian zone is to be completely avoided. No equipment or any personnel shall enter the riparian zone, and no waste or fill produced by the construction activities shall be placed there. No construction activities or any groundbreaking activities shall take place in the riparian zone.

Significance After Mitigation

Less than significant.

Impact

4.4-3 Construction of the seasonal storage reservoir may require the removal of a California black walnut. This impact is considered potentially significant.

A California black walnut (*Juglans hindsii*) is located on the western border of the DWTP facility, within the construction area of the storage basin. This species is considered "rare, threatened, or endangered in California and elsewhere" by CNPS. The following mitigation measure will ensure that the impact is less than significant.

Mitigation Measure

4.4-3 The California black walnut shall either be transplanted or replaced in suitable habitat in reasonable proximity to the DWTP. If replaced, a sapling shall be planted in a suitable location as determined by a certified arborist.

Significance After Mitigation

Less than significant.

PIPELINE ROUTES

Impact

4.4-4 The installation of the IWTP pipeline may require disturbance to the riparian habitat of the San Benito River or the existing bridge, which provides nesting habitat. Installation may impact species using these habitats. This impact is potentially significant.

The pipeline routes following State Route 156 that cross over the San Benito River would use pipes already installed into the existing bridge. A second pipeline river crossing would be necessary to transport recycled water to the IWTP. An existing pipe is located under the river channel hear the San Juan Road bridge which may be utilized if adequately sized. However, if this pipe is not adequately sized, an additional pipeline would have to either be hung from the bridge or placed under the channel.

If the IWTP pipeline is hung from the San Juan Road Bridge spanning the San Benito River, the construction activities may impact the birds or bats using the bridge as a nesting or roosting habitat. Construction activities near a nest can cause the adult birds to abandon the nest, causing the young to die.

The alternative option, to modify the existing pipeline or to directional drill and install a new pipe under the San Benito River, has the potential to impact the riparian habitat and the special-status species that utilize it. Special-status species that may occur in the willow riparian scrub along the San Benito River include the San Joaquin whipsnake, the western pond turtle, the California red-legged frog, the tricolored blackbird, the western yellow-billed cuckoo, and the white-tailed kite. The renovation of the DWTP, the installation of the pipeline to the IWTP, and the construction of the sprayfields has the potential to significantly impact the riparian zone. The following mitigation measures will ensure that the impacts to nesting birds, bats, and species utilizing riparian habitat are less than significant.

Mitigation Measures

4.4-4 (a) If the pipeline will be hung from the existing bridge structure, the following mitigation measures shall be necessary:

(1) The bridge shall be surveyed between March 1 and March 15, prior to the nesting season, and all inactive nests shall be removed.

(2) An appropriate bat survey for the bridge shall be developed in consultation with CDFG to determine whether the bridge is occupied by any special-status bat species. This survey shall also take place between March 1 and March 15.

(3) At a time when no bats or active nests are present in the bridge structure, exclusionary netting shall be installed to prevent these species from using the bridge prior to construction.

(4) Regular surveys shall be done between when the exclusionary netting is put in place and the beginning of construction to ensure that no birds have managed to nest inside the exclusionary netting.

(5) If any active nests or bat roosts are found prior to construction, CDFG shall be consulted as to the appropriate measures to take to avoid impacting these species.

(6) Construction shall take place as early as possible in the breeding season to reduce the possibility of birds nesting on the bridge prior to construction.

(b) If the existing pipeline will be modified, or if a new pipeline will be installed under the San Benito River Channel, the following mitigation measures shall be necessary:

(1) To avoid impacting the willow riparian habitat along the San Benito River, as well as the special –status species potentially using this habitat, the riparian habitat shall be completely avoided during construction. Brightly-colored construction fencing shall be installed at the border of the riparian habitat. Signs shall be posted on the fence explaining that the riparian zone is to be completely avoided. No equipment or any personnel shall enter the riparian zone, and no waste or fill produced by the construction activities shall be placed

there. No construction activities or any groundbreaking activities shall take place in the riparian zone.

Significance After Mitigation

Less than significant.

Impact

4.4-5 Proposed pipelines routes cross jurisdictional waters of the U.S. Construction in or adjacent to jurisdictional waters could impair aquatic and riparian habitat. This is a potentially significant impact.

The diversion, fill, release of sediment into, or release of recycled water into a Water of the State or a Water of the U.S. is considered a significant impact. In addition to the IWTP pipeline crossing of the San Benito River, addressed in **Impact 4.4-4**, the San Juan Oaks pipeline route crosses a creek north of the San Juan Oaks Golf Club. The placement of any pipelines (i.e. pipeline routes or smaller pipelines used to transport water from the main route to the sprayfields) over, through, or near jurisdictional waters may create a significant impact by altering the bank of the drainage or releasing sediment into the drainage. Either of these impacts can negatively affect the species using the drainages, particularly the anadromous fish that migrate up these drainages to spawn. This is considered a potentially significant impact. The mitigation measures identified below are consistent with the measures identified in the EIR completed for the 2004 GWMP Update, which addressed construction related impacts to stream channels (SBCWD & WRASBC, 2004b, pg.V-90).

Mitigation Measures

4.4-5 (a) If feasible, any pipeline that according to the current project plans will cross a jurisdictional drainage shall be re-routed to avoid the drainages.

(b) If this is not feasible, the pipeline shall either be bored under the drainage or suspended over it in order to avoid impact. If the drainage is impacted during construction, CDFG shall be notified immediately.

(c) If it is not feasible for the pipeline to be drilled under the drainage or suspended over it, a streambed alteration (1600's) agreement and a 404 permit shall be obtained. <u>All permit conditions shall be implemented to ensure no net loss of wetlands or other jurisdictional waters.</u>

(d) If it is not feasible to avoid a drainage then construction activities hall be confined to the dry, summer season in order to avoid adverse impacts to water quality.

(e) If any construction activities to install pipelines or sprayfields will occur close enough to a drainage that sediment or fill materials from the construction may enter the drainage, a SWPPP shall be necessary and the activities shall be conducted in accordance with Best Management Practices.

(f) Riparian habitat shall be completely avoided during construction. Brightly-colored construction fencing shall be installed at the border of adjacent riparian habitat. Signs shall be posted on the fence explaining that the riparian zone is to be

completely avoided. No equipment or any personnel shall enter the riparian zone, and no waste or fill produced by the construction activities shall be placed there. No construction activities or any groundbreaking activities shall take place in the riparian zone.

Significance After Mitigation

Less than significant.

Impact

4.4-6 Construction of pipelines has the potential to harm special-status plant species in the annual grasslands along pipeline routes. This impact is considered potentially significant.

A significant amount of the project area is composed of grassland and pasture. These habitats have the potential to contain a number of special-status plant species, including: Congdon's tarplant, pink creamsacs, pinnacles buckwheat, round-leaved filaree, San Joaquin spearscale, and vernal barley. These species may be significantly impacted by construction activities (e.g. heavy equipment driving over the grassland; earthmoving) during the installation of the northwest, San Juan Oaks, and airport pipeline routes. This is considered a potentially significant impact.

Mitigation Measures

4.4-6 (a) Where feasible when following a road or railroad line, the pipelines should avoid grassland or pasture habitat and minimize disturbance to native species by utilizing the side of the road that does not contain grassland or pasture.

(b) If any construction activities must be conducted on potential habitat for a special-status species, a qualified botanist shall conduct a detailed species-specific survey prior to construction and during the identification period of the plant species in question (species that occur in grassland habitat are identified in Table 4.4-1). If no populations of special-status species are encountered in the construction area or within 20 feet of the construction area, no further mitigation is necessary.

(c) If populations of a listed species are encountered, the City of Hollister and/or the SBCWD shall ensure that construction-related impacts are avoided or adequately mitigated by retaining a qualified botanist to develop and implement a Special-Status Plant Species Mitigation and Monitoring Plan. The Mitigation and Monitoring Plan shall be prepared in consultation with the CDFG and shall be approved prior to any initial ground-disturbing activity or construction. This Plan may include, but not be limited to, the following measures:

(1) ~~If feasible, t~~ The project shall be redesigned to avoid direct and indirect impacts to the listed species.

(2) ~~The~~ If the listed species occur within 50 feet of construction activities, they shall be protected during construction by installing appropriate fencing around the special-status plant population, including a buffer of at least 20 feet.

(3) If CDFG and local experts determine transplantation of the listed species is feasible, and the City of Hollister and/or the SBCWD may elects to transplant the population. If this occurs, the botanist shall develop and implement a

transplantation plan through coordination with the CDFG. Transplantation shall be used to supplement other mitigation measures or when avoiding the population is not feasible.

Significance After Mitigation

Less than significant.

Impact

4.4-7 Construction activities necessary to install the pipelines may impact nesting birds. This impact is considered potentially significant.

Construction activities near a nest can cause the adult birds to abandon the nest, causing the young to die. They can alternatively force the young to fledge too early, also resulting in death. It is therefore necessary to have a buffer region around all protected species' nests to ensure the successful fledging of the young. The loggerhead shrike is known to occur in the project area and may nest anywhere clumps of five or more mature trees occur. The white-tailed kite is also known to occur in the project area and may nest anywhere clumps of five or more mature trees of the following species: oak, willow, eucalyptus, cottonwood, or other deciduous tree. The northern harrier, which was seen in various places on the project area by AES biologists, has the potential to nest in any grassland where the grass is more than 6 inches tall and the nest can be placed more than 100 feet from any road. The Nuttall's woodpecker, which was heard calling within the project area, has the potential to nest in any mature hardwood tree in relatively undisturbed habitat (such as pastures). Construction activities near the active nests of any nesting bird species is considered a potentially significant impact.

Mitigation Measures

4.4-7 (a) If feasible, conduct all tree and shrub removal, trenching, and grading during the non-breeding season (see Table 4.4-2).

(b) If construction activities are scheduled to occur within the buffer region (100-500 ft) of potential habitat for any of the species mentioned above, a qualified wildlife biologist (with knowledge of the species to be surveyed) shall be retained to conduct a species-specific nesting survey prior to the start of construction and within the appropriate habitat. The nesting surveys should be conducted within 1 week prior to initiation of construction activities that will occur during the breeding season. If no active nests are detected during these surveys, then no additional mitigation is required.

(c) If the survey determines that construction activities will be occurring in proximity to the buffer region of a protected bird species nest, a no-disturbance buffer shall be established around the site to avoid disturbance or destruction of the nest site until after the breeding season or after a qualified wildlife biologist determines that the young have fledged. Brightly-colored fencing shall be erected around the buffer to prevent workers or equipment from entering the buffer area.

(d) If construction activities are scheduled to occur within an area that supports an active nest site or within an established no-disturbance buffer, construction shall be

delayed until after the breeding season or until the young have fledged (as determined by the biologist).

Significance After Mitigation

Less than significant.

SPRAYFIELD AND RECYCLED WATER PROJECTS

Impact

4.4-8 Construction activities may impact the San Joaquin Kit Fox. This impact is considered potentially significant.

The San Joaquin kit fox's range occurs along the eastern side of the project area and in the southern portion of the area south of State Route 156. This area includes the pipeline corridor to the San Juan Oaks Golf Club as well as the sprayfields and pipelines within the range given in the 5-mile radius map (**Figure 4.4-3**). The sprayfields are not anticipated to impact the kit fox because the use of the land for irrigation is largely replacement of existing irrigation or only seasonal and would not impact the prey base of the fox. The construction required to lay the pipelines, however, may impact the kit fox if there is take of a kit fox or destruction of its den (take is defined as the killing, harming, or harassment of a protected or threatened species, or destruction of its habitat). This would be considered a potentially significant impact.

Mitigation Measure

4.4-8 (a) A qualified biologist shall perform a pre-construction survey in accordance with the USFWS kit fox survey protocol no more than 30 days prior to groundbreaking. This shall take place before the construction of the proposed pipelines to San Juan Oaks Golf Course and the Airport.

(b) If a den occupied by a single adult is discovered, the den may be destroyed when the adult fox has moved or is temporarily absent. If the den is a natal den, a buffer zone of 250 feet shall be maintained around the den until the biologist has determined that the den has been vacated.

(c) Workers shall be educated regarding the kit fox and shall be required to keep heavy equipment operating at safe speeds and checking construction pipes and trenches for kit fox occupation during construction.

Significance After Mitigation

Less than significant.

Impact

4.4-9 Irrigating areas within the 100-year floodplain may allow the recycled water to enter jurisdictional waters. This impact is considered potentially significant.

The release of recycled water other than incidentally into a Water of the State or a Water of the U.S. is considered a significant impact. The project area contains land within the 100-year floodplain. Using the recycled water in these areas creates the potential for the water to enter the San Benito River or its tributaries. This could happen through sheet flow runoff from the sprayfields or flooding of storage ponds, percolation beds, or evaporation ponds during a 100-year flood. This would be considered a potentially significant impact.

Mitigation Measures

4.4-9 Implement Mitigation Measure 4.2.4 to comply with Waste Discharge Requirements issued by the RWQCB.

Significance After Mitigation

Less than significant.

Impact

4.4-10 Elevated total dissolved solids (TDS) levels in recycled water used on sprayfields that are developed in grassland and pasture habitats may have an adverse effect on special-status plant species occurring in or around the sprayfields. This impact is considered potentially significant.

Sprayfields, including those proposed at the Hollister Municipal Airport, may be developed at locations where the existing habitat is composed of grassland and pasture. These habitats have the potential to contain a number of special-status plant species, including: Congdon's tarplant, pink creamsacs, pinnacles buckwheat, round-leaved filaree, San Joaquin spearscale, and vernal barley. These species may be significantly impacted by the high concentrations of salt in the recycled water. High salt concentrations can disrupt the normal functions of the roots in these plants and inhibit water and nutrient uptake. This would be considered a potentially significant impact.

Mitigation Measures

4.4-10 (a) Any potential sprayfields in grassland habitat shall be surveyed for special-status plant species during the appropriate identification periods (Table 4.4-1). The ideal survey times are either one survey in mid-May, or one survey in July and a second survey in mid-April. If no special-status plant species are found within the sprayfield location, no further mitigation is necessary.

(b) If any special-status plants are found in a potential sprayfield site, one of the following mitigation measures shall be applied:

(1) If feasible, the water being used for the sprayfield shall be diluted to reduce the salinity to a concentration suitable for the special-status plant population. Local CDFG and FWS offices shall be consulted to determine whether it is feasible to

increase the water quality enough to not have a significant impact on the plant populations.

(2) If it is not feasible to use diluted water to irrigate the sprayfield, the project shall be redesigned to avoid direct and indirect impacts to the plant species. An appropriate buffer size shall be determined in consultation with CDFG, taking into account the size of the population, the species of plant being protected, and the topography of the area. No irrigation shall take place within this buffer.

Significance After Mitigation

Less than significant.

Impact

4.4-11 Construction of sprayfields may have an adverse impact on wetland habitats and special-status wetland species in the project area. This impact is considered potentially significant.

The project site contains emergent wetlands, seasonal and perennial streams, forested wetlands, excavated wetlands, and artificial ponds, as can be seen in **Figure 4.4-2**. These wetlands provide potential habitat for many different special-status species found in the area, including various fairy shrimp, the vernal pool tadpole shrimp, alkali milk-vetch, hairless popcorn flower, saline clover, the red-legged frog, and the western spadefoot toad. Additionally, wetlands can be considered Waters of the State or Waters of the U.S., which are discussed in **Impact 4.4-5** above. Construction near or on wetlands, the deposition of sediment or fill in wetlands, or the take of any special-status wetland species are considered significant impacts. This is considered a potentially significant impact. The mitigation measures identified below are consistent with the measures identified in the EIR completed for the 2004 GWMP Update, which addressed construction impacts to wetlands (SBCWD & WRASBC, 2004b, pg.V-132).

Mitigation Measures

4.4-11 (a) The City and or its contractor shall maintain complete avoidance of the wetlands.

(b) If construction within 100 feet of a wetland is necessary, a working buffer shall be put into place around the wetland. Brightly-colored fencing shall be installed around the buffer to prevent workers, equipment, or fill from entering the buffer. Silt fencing shall also be used around the buffer to prevent silt or sediment from impacting the wetland.

(c) If construction must take place within 100 feet of a wetland, the construction activities shall be limited to the dry season (June 1 – October 31) so as to avoid impacting wetland species.

(d) The irrigation system shall avoid all wetlands with a 100-foot minimum buffer to ensure that no recycled water enters the wetlands as runoff or spray drift. The buffer shall be greater on slopes where there is a greater probability of the recycled water entering the wetland as runoff.

Significance After Mitigation

Less than significant.

Impact

4.4-12 Construction activities necessary to develop sprayfields may impact nesting birds. This impact is considered potentially significant.

Construction activities near a nest can cause the adult birds to abandon the nest, or force the nestlings to fledge too early, causing the nestlings to die. It is therefore necessary to have a buffer region around all protected species' nests to ensure the successful fledging of the young. The loggerhead shrike is known to occur on the site and may nest anywhere clumps of five or more mature trees occur. Construction activities near an active loggerhead shrike nest would be considered a significant impact.

Mitigation Measure

4.4-12 Implement Mitigation Measure ~~4.4-8~~ 4.4-7.

Significance After Mitigation

Less than significant.

Impact

4.4-13 Construction of sprayfields may damage American badger burrows or harm the American badger. This impact is considered potentially significant.

American badgers may exist in the grasslands and pastures within the project boundary. This species's burrows, if they occur, will likely be located in grasslands or pastures at least 100 feet from any road, railroad, or area that is frequently disturbed. Construction activities associated with the sprayfields and pipelines extending from the main pipeline corridor to the sprayfields may impact this animal by damaging a den while a badger is in it or harassing badgers living in proximity to the construction activities. This would be considered a potentially significant impact.

Mitigation Measures

4.4-13 (a) A qualified biologist shall conduct a pre-construction survey in the construction area and in the 200-foot buffer region around the construction area. If no American badgers or dens are found, no further mitigation is necessary.

(b) If occupied dens are found within 200 feet of planned construction activities, the dens shall be monitored to determine if they are occupied by a single adult badger or if they are a natal den.

(c) If the den is not a natal den, the den may be destroyed when the adult has moved or is temporarily absent.

(d) If the den is a natal den, a buffer zone of 200 feet shall be maintained around the den until a qualified biologist determines that den has been vacated.

Significance After Mitigation

Less than significant.

Impact

4.4-14 Construction activities in Western burrowing owl habitat may damage active burrows or harm the burrowing owls. This impact is considered potentially significant.

Western burrowing owls have been recorded in the area as recently as 2003. Abandoned burrows large enough to be suitable for the owl were observed by AES biologist along the Airport and Freitas Road pipeline routes. Colonies of ground squirrels were observed in grasslands and pastures throughout the project site. Impacts to western burrowing owls are defined as disturbance within 160 feet of a occupied burrow during non-breeding season (September through January) or within 250 feet of an occupied burrow during nesting season, destruction of burrows or burrow entrances, or degradation of foraging habitat in the vicinity of occupied burrows. Construction activities near occupied burrows would be a potentially significant impact.

Mitigation Measures

4.4-14 (a) A qualified biologist shall conduct a species-specific pre-construction survey no more than 30 days prior to the start of construction in accordance with CDFG's *Staff Report on Burrowing Owl Mitigation* (DFG, 1995). If construction is delayed more than 30 days after the survey, another survey shall be performed no more than 30 days prior to the new groundbreaking date. The survey shall include the construction area and a 250-foot wide buffer region around the construction area. If no active burrows or burrowing owls are discovered, no further mitigation is necessary. If active burrows are found, the City or its contractor shall implement the following measures:

(1) Occupied burrows shall not be disturbed during the breeding season (February 1–August 31).

(2) When destruction of occupied burrows is unavoidable during the non-breeding season (September 1–January 31), unsuitable burrows shall be enhanced (enlarged or cleared of debris) or new burrows created (by installing artificial burrows) at a ratio of 2:1 on protected lands approved by CDFG. Newly created burrows will follow guidelines established by CDFG.

(3) If owls must be moved away from the project site during the non-breeding season, passive relocation techniques (e.g., installing one-way doors at burrow entrances) shall be used instead of trapping, as described in the CDFG guidelines. At least 1 week will be necessary to complete passive relocation and allow owls to acclimate to alternate burrows.

(4) If active burrowing owl burrows are found and the owls must be relocated, the City shall offset the loss of foraging and burrow habitat on the project site by acquiring and permanently protecting a minimum of 6.5 acres of foraging habitat per occupied burrow identified on the project site. The protected lands should be located adjacent to the occupied burrowing owl habitat on the project site or at another occupied site near the project site. The location of the protected lands will be determined in coordination with CDFG.

Significance After Mitigation

Less than significant.

Impact

4.4-15 San Joaquin Whipsnake

The San Joaquin whipsnake may occur in any of the grassland or pasture habitats in the vicinity of the San Benito River, where it is known to occur. The construction of pipelines for the sprayfields and the irrigation systems may significantly impact this species since earthmoving equipment has the potential to kill or injure this species. This would be considered a potentially significant impact.

Mitigation Measures

4.4-15 (a) A qualified biologist will conduct a pre-construction survey in suitable whipsnake habitat (any dry grassland or pasture habitat within 0.5 miles of the San Benito River channel) no more than 24 hours prior to construction. If whipsnakes are found a qualified biologist shall be present during construction in the vicinity. The construction area will be resurveyed whenever there is a lapse in construction activity of two weeks or more.

(b) If a San Joaquin whipsnake is encountered within the construction work area, construction activities must cease until the snake moves out of the work area unassisted. Capture and relocation of trapped or injured individuals may only be attempted by a qualified biologist. The snake must then be translocated to a suitable habitat outside the construction area.

Significance After Mitigation

Less than significant.

Impact

4.4-16 Construction activities and elevated TDS levels in recycled water may impact the western/ northwestern pond turtle. This impact is considered potentially significant.

The western/northwestern pond turtle is known to occur in the riparian zone of the San Benito River and in the northern part of the project area in Tequisquito Slough. The construction of pipelines for the sprayfields may significantly impact the western/northwestern pond turtle. Since the turtle is tolerant of brackish water, the recycled water should not significantly impact this species as long as the wetlands and riparian habitats are avoided. Spraying recycled water in western pond turtle habitat would be a potentially significant habitat.

Mitigation Measures

4.4-16 (a) If feasible, no construction shall occur in riparian zones of the San Benito River and Tequisquito Slough.

(b) To avoid construction-related impacts on northwestern pond turtles, the City of Hollister and/or the SBCWD will retain a qualified wildlife biologist to conduct a

preconstruction survey for northwestern pond turtles no more than 48 hours before the start of construction. The wildlife biologist will look for adult pond turtles, in addition to nests containing pond turtle hatchlings and eggs.

(c) If a northwestern pond turtle is located in the construction area, the biologist will move the turtle to a suitable aquatic site, outside the construction area.

(d) If an active pond turtle nest containing either pond turtle hatchlings or eggs is found, the City of Hollister and/or the SBCWD will consult CDFG to determine and implement appropriate avoidance measures, which may include a "no-disturbance" buffer around the nest site until the hatchlings have moved to a nearby aquatic site.

(e) No irrigation with recycled water shall occur within the riparian zone of the San Benito River or the Tequisquito Slough. Additionally, no recycled water shall be sprayed within 100 feet of any perennial wetlands in the project area.

Significance After Mitigation

Less than significant.

Impact

4.4-17 Sprayfields developed within one mile of a known California red-legged frog occurrence may significantly impact the frog. This impact is considered potentially significant.

The California red-legged frog is known to occur in the project area near the northern boundary and in the south, near the San Juan Oaks Golf Club (see **Figure 4.4-3**). Suitable habitat for this species includes deep, slow-moving or still water with overhanging willows (*Salix* sp.) and dense emergent vegetation such as cattails (*Typha latifolia*). USFWS states that all suitable wetlands within one mile of a known California red-legged frog occurrence are considered potential habitat for the California red-legged frog and any construction or sprayfields within one mile of these wetlands is considered a significant impact unless it can be proven either that the red-legged frog does not occur in these wetlands or that the sprayfields will not have a significant impact on the California red-legged frog if the appropriate buffers are adopted. Since this species is considered threatened, additional mitigation is required beyond the mitigation already mentioned for wetland species. Construction of sprayfields within California red-legged frog habitat would be a potentially significant impact. The mitigation measures identified below are consistent with the measures identified in the EIR completed for the 2004 GWMP Update, which addressed construction related impacts to the California red-legged frog (SBCWD & WRASBC, 2004b, pg.V-138-139).

Mitigation Measures

4.4-17 (a) If feasible, no construction activities shall occur within one mile of a known California red-legged frog occurrence.

(b) If the proposed construction and sprayfields are within one mile of a known California red-legged frog (CRF) occurrence, and suitable habitat may occur within one mile of the proposed construction and sprayfields, a focused habitat assessment shall be necessary prior to the beginning of construction. Once the habitat assessment has been completed, the appropriate assessment form shall be submitted

with any supporting documentation to the appropriate USFWS office. If no suitable habitat is found within one mile of a known occurrence, no further mitigation is necessary.

(c) Based on the information provided in the habitat assessment report, the USFWS will provide guidance on how CRF issues shall be addressed, including whether protocol-level field surveys are necessary, when and where the field surveys shall be conducted, and whether incidental take authorization should be obtained through a Section 7 consultation or a Section 10 permit pursuant to the Endangered Species Act. The appropriate surveying time for CRF is January – September.

(d) If protocol-level field surveys are deemed necessary for the site, a qualified biologist shall conduct a field survey for CRF according to USFWS protocols. The USFWS recommends a total of up to 8 surveys to determine the presence of CRF. Two day surveys and four night surveys are recommended during the breeding season; one day and one night survey are recommended during the non-breeding season. Each survey must take place at least 11 days apart. The time between the first survey and the last survey must be at least six weeks. Surveyors are encouraged to implement USFWS decontamination guidelines prior to surveying to prevent the spread of CRF parasites and diseases. If CRF are found during the surveys, no additional surveys are to be conducted. The USFWS shall be notified in writing (e-mail is appropriate) of the presence of CRF within three working days of the identification. Once the survey has been completed, the biologist shall submit their survey results along with their qualifications to the USFWS.

(e) If the USFWS determines that the construction and operation of the sprayfields will have a less than significant impact on the CRF, the proposed sprayfields shall be allowed to be put into effect. If the USFWS requires the sprayfield plans to be modified, they shall be modified according to the USFWS recommendations prior to the beginning of construction. ~~It is encouraged~~ The City of Hollister and/or San Benito County shall require that all machinery, equipment, and workers observe USFWS decontamination guidelines to prevent the spread of CRF parasites and diseases.

Significance After Mitigation

Less than significant.

Impact

4.4-18 The demolition of roosting sites for special-status bat species is considered a potentially significant impact.

Three special-status bat species have the potential to occur on the project site. AES biologists identified abandoned and older buildings in and around the airport that may serve as roosting sites for bats. As the proposed project does not include the demolition of any potential roosting sites, no impact shall occur and no mitigation is necessary.

Mitigation Measures

4.4-18 None required.

Impact

4.4-19 Irrigating with recycled water at the San Juan Oaks Golf Club may impact the California tiger salamander due to the salamander's sensitivity to water-soluble toxins. This impact would be considered potentially significant.

The California tiger salamander (CTS) is known to occur on the eastern side of the San Juan Oaks Golf Club, traveling across gold course property between various wetland areas (including seasonal wetlands and artificial wetlands). Salamanders can absorb toxins through their skin, making them particularly sensitive to water-soluble toxins (e.g. pesticides, heavy metals, treated effluent (estrogens), urban runoff and agricultural runoff). Additionally, CTS larval development can be impaired if the water they are exposed to has high levels of nitrogen and low levels of dissolved oxygen. The CTS may also be impacted by a change in irrigation patterns, since irrigating an area that was not previously being irrigated can cause the CTS start migrating early. Migrating in the summer would cause the CTS to be exposed to high temperatures they are not able to tolerate. This would be considered a potentially significant impact.

Mitigation Measures

4.4-19 **(a) Since a change in irrigation patterns can cause CTS to change their migration patterns, no new sprayfields shall be developed within one mile of a known CTS occurrence. The recycled water shall only be used in areas where an irrigation regime has already been established or approved.**

(b) To avoid impacting CTS larvae, the irrigation systems shall be arranged so no recycled water shall enter CTS breeding ponds except in rare, incidental events.

(c) The salinity of the water sprayed at the San Juan Oaks Golf Club shall not exceed 500 mg/L TDS.

Significance After Mitigation

Less than significant.

Impact

4.4-20 Construction activities may impact the coast range newt. This impact would be considered potentially significant.

One population of coast range newt has been recorded within the project site near the San Juan Oaks Golf Club. This species migrates up to 0.6 miles over grasslands and pastures to their breeding ponds during breeding season (January – April). Construction of the pipelines and sprayfields during the local breeding season of this newt and within or near suitable breeding habitat, would be considered a potentially significant impact.

Mitigation Measures

4.4-20 (a) To avoid impacts to the newts while migrating, construction of the pipeline route to the San Juan Oaks Golf Club should occur during the dry season (June – October).

(b) If the construction of the pipeline must occur during the wet season when the newts may be migrating, the following mitigation measures shall apply:

(1) A biologist shall survey the area each morning before construction begins and move all coast range newts found within 25 feet of the construction zone to a suitable location outside of the construction zone.

(2) The construction area and trench shall be monitored for coast range newts while construction activities are occurring. If any coast range newts are found, a qualified biologist shall move them to a suitable location outside of the construction zone.

(3) Appropriate precautionary measures such as covering the trench at night shall be used to prevent the coast range newts from falling into the trench or hiding in the pipes.

Significance After Mitigation

Less than significant.

4.5 CULTURAL AND PALEONTOLOGICAL RESOURCES

4.5.1 REGULATORY SETTING

CULTURAL RESOURCES

Cultural resources are defined as buildings, sites, structures, or objects, which may have historical, architectural, archaeological, cultural, and/or scientific importance. Numerous laws, regulations, and statutes at the state and local level seek to protect and manage cultural resources.

STATE

California Environmental Quality Act (CEQA)

CEQA Guidelines 15064.5 and Public Resources Code (PRC) Section 21083.2 include provisions for significance criteria related to archaeological and historical resources. A significant archaeological or historical resource is defined as one that meets the criteria of the California Register of Historical Resources (CRHR), is included in a local register of historical resources, or is determined by the lead agency to be historically significant. A significant impact is characterized as a "substantial adverse change in the significance of a historical resource."

PRC Section 5024.1 authorizes the establishment of the CRHR. Any identified cultural resources must therefore be evaluated against the CRHR criteria. In order to be determined eligible for listing in the CRHR, a property must be significant at the local, state, or national level under one or more of the four significance criteria, modeled on the National Register of Historic Places criteria.

California Register of Historical Resources

In order to be determined eligible for listing in the CRHR, a property must be significant at the local, state, or national level under one or more of the following four criteria as defined in PRC 5024.1 and CEQA Guideline 15064.5(a).

1. It is associated with events or patterns of events that have made a significant contribution to the broad patterns of the history and cultural heritage of California and the United States.
2. It is associated with the lives of persons important to the nation or to California's past.
3. It embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values.
4. It has yielded, or may be likely to yield, information important to the prehistory or history of the state and the nation.

In addition to meeting one or more of the above criteria, a significant property must also retain integrity. Properties eligible for listing in the CRHR must retain enough of their historic character to convey the

reason(s) for their significance. Integrity is judged in relation to location, design, setting, materials, workmanship, feeling, and association.

Public Resources Code

PRC Section 21083.2 governs the treatment of unique archaeological resources, defined as "an archaeological artifact, object, or site about which it can be clearly demonstrated" as meeting any of the following criteria;

1 Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information.

2 Has a special and particular quality such as being the oldest of its type or the best example of its type.

3 Is directly associated with a scientifically recognized important prehistoric or historic event or person.

If it can be demonstrated that a project will cause damage to a unique archaeological resource, appropriate mitigation measures shall be required to preserve the resource in place and in an undisturbed state. Mitigation measures may include, but are not limited to 1) planning construction to avoid the site, 2) deeding conservation easements, or 3) capping the site prior to construction. If a resource is determined to be a "non-unique archaeological resource," no further consideration of the resource by the lead agency is necessary.

LOCAL

The San Benito County General Plan identifies protection of archaeological resources and historic structures in its Land Use and Open Space polices as follows:

LU Policy 33 Specific development sites shall avoid, when possible, locating in an environmentally sensitive area (wetlands, erodable soils, important plant and animal communities, archaeological resources).

OS Policy 50 It is the policy of the County to integrate architectural styles of new development with existing architecture and to protect existing historic structures.

OS Policy 51 It is the policy of the County to recognize the value of Native American, archaeological, and paleontological resources.

OS Policy 52 Mitigation for development proposals where Native American, archaeological, or paleontological resources exist shall be guided by the need to provide equitable resolution for rights of the free exercise of religion, the rights of individual property owners, and the rights of the State, and counties to regulate land use.

OS Policy 53 It is the policy of the County to prohibit unauthorized grading, collection, or degradation of Native American, archaeological, or paleontological resources.

The Land Use Element of the General Plan for the City of Hollister contains the following goals and polices relevant to cultural resources:

GOAL LU1 Maintain and enhance Hollister's small town charm and identity. Organize and design the city with an attractive and positive image.

Policy LU1.3 Design Review. Require proposals for residential and nonresidential development projects adjacent to designated landmarks to undergo design review.

Policy LU 8.2 Historic Neighborhoods. Ensure that the existing historic neighborhoods remain intact by prohibiting incompatible uses and development types.

PALEONTOLOGICAL RESOURCES

STATE

The CEQA Guidelines Environmental Checklist Form indicates that a project could have a significant effect on the environment if project activities "directly or indirectly destroy a unique paleontologic resource or site or unique geologic feature."

The PRC, Section 5097.5 prohibits the excavation or removal of any "vertebrate paleontological site, or any other archaeological, paleontological or historical feature, situated on state lands. Any unauthorized disturbance or removal of archaeological, historic or paleontologic materials or sites located on state lands is considered a misdemeanor. There are no "state lands" within the project area.

LOCAL

The San Benito County General Plan and the Hollister General Plan make no provisions for the protection of paleontological resources as these resources are not common in the region.

4.5.2 ENVIRONMENTAL SETTING

PREHISTORY

South of San Francisco Bay, the Central Coast archaeological region encompasses the South Coast Ranges between Año Nuevo and San Luis Obispo. Prehistorically this region was occupied by the Costanoan, Esselen and Salinan Indians, however, early cultural developments of the interior valleys and hills remain poorly known (Moratto, 1984:218).

Starting in 1875, A.A. Saxe of the California Academy of Sciences was the first to excavate in the Central Coast region with the testing of the Sand Hill Bluff site (SCR-7) north of Santa Cruz (Moratto, 1984:226).

After numerous archaeological investigations at various locations along the Monterey coastline between 1900 and 1935, little research took place over the ensuing 45 years. Then, between 1946 and 1955 anthropology students at UC Berkeley began gathering a great deal of information about the Central Coast region. However, despite the numerous excavations and research projects devoted to the Central Coast region, no archaeological study was conducted in the interior of the region until the early 1960s with the first survey of Pinnacles National Monument in San Benito County (approximately 30 miles south of the project area) (Moratto 1984:241). Still, as of 1984 relatively little archaeological activity had taken place in San Benito County (Moratto, 1984:243).

The following information is taken from Moratto (1984) relative to research conducted in the Central Coast region at sites on the coastline in Monterey and Santa Cruz counties. The reader is directed there for a more in depth discussion. Typical of the Bay area groups were the Costanoans who held the South Coast Ranges between San Pablo Bay and Monterey. The early Costanoans seem to have spread rapidly and widely in several directions; between circa 500 and 100 B.C., evidence suggests that they expanded south into Monterey Bay (Moratto, 1984). Archaeological populations identified on the Monterey Peninsula were presumably early Costanoan collectors who entered the Carmel Valley and eventually displaced or absorbed the foraging Esselen.

The Monterey Pattern or Monterey District is a term used to designate an archaeological manifestation, characterized by specialization of economic modes. Sites from the Monterey Pattern are typically shell middens with extremely large amounts of accumulated shells. They are not often village sites, but most are marine collecting/processing stations or limited duration campsites. Village sites located slightly inland would contain evidence of more diverse activities. The Monterey Pattern is almost certainly associated with the Costanoans, in light of the apparently unbroken cultural progression from early Monterey Pattern components to ethnographic Costanoan settlements near Monterey Bay, and the evident replacement of the Sur Pattern (identifiable with the ancestors of the Esselen), by the Monterey Pattern throughout Costanoan territory. It is therefore likely that the Costanoan spread into former Esselen territory throughout the northern Central Coast region at a rapid rate, soon after circa 500 B.C.

The Hudson mound site (Mnt-12), possibly the location of the Rumsen (Costanoan) village of *Pičxenta* (located approximately 36 miles southwest of the proposed project area, on the coast), consists of three shellmounds that form the largest known archaeological site in Monterey County. The 1967 digging of Mnt-12 recorded 18 burials which were not analyzed, but the context of radiocarbon dating from charcoal at the site implied a littoral settlement and economic focus, and particularly intensive use of shellfish, that began as early as 470 B.C. in the southern Monterey Bay vicinity.

ETHNOGRAPHY

The project area is located within the traditional territory of the Mutsun Costanoan (Levy, 1978:485). The term Costanoan is a linguistic one, designating a family of eight languages (Levy, 1978). "Mutsun"

was spoken among the tribelets of the Pajaro River drainage (Levy, 1978:485) and was also the name of a village located in the hills between the Salinas and Pajaro rivers, probably in the La Natividad land grant (Levy, 1978:494).

At the time of European contact, Costanoan-speaking people lived in separate and politically autonomous nations or tribelets ranging in population from 50 to 500 persons, with an average of approximately 200 persons per village site (Levy, 1978). Each tribelet had one or more permanent village sites with smaller seasonal/temporary camps scattered throughout the tribelet territory for food procurement.

The most common design for living structures of the Costanoan was a basic thatched dome on a framework of poles (Levy, 1978). Sweathouses were small and consisted of pits excavated into a stream bank upon which the typical dome was erected and covered with earth. Bedding pads consisted of tule mats and animal skins, while blankets were fashioned from strips of animal skin, usually otter or duck, stitched together. The Costanoans usually cremated their dead, although burials without cremation also occurred when there were no family members to gather wood for the pyre.

Boats made of tule, known as *balsas*, were important among the Costanoan and were used for transportation, hunting and fishing (Levy, 1978). Basketry was used for a number of purposes including gathering, storing and cooking. The materials used to make baskets usually included willow, rush, tule, and the roots of grasses, which were twined instead of coiled. Some baskets were adorned with strips of abalone shell, quail plumes and/or the scalps of woodpeckers.

Tools used by the Costanoan included manos, metates, mortars, pestles, net sinkers, anchors, and pipes made from sedimentary and metamorphic rock (Levy, 1978). Projectile points and blades were hewn from locally procured chert and chalcedony, or obsidian procured through trade. The types of mortars used were bedrock mortars, portable stone mortars and mortars bored into logs. Some blades, scrapers, needles and awls were fashioned from bone or shell.

The primary food animals upon which the Costanoan relied were the black-tailed deer, the Roosevelt elk, antelope, grizzly bear, mountain lion, sea lion and whales (Levy, 1978). Deer were typically hunted by stalking with bows and arrows, while marine mammals were gathered when beached, and roasted in earthen ovens. Other food animals hunted included waterfowl, dogs, skunks, rabbits, squirrels, mice and moles. The Costanoan fished for steelhead, salmon, sturgeon and lampreys, while waterfowl were often caught in twig cages. Burrowing animals were smoked out and fish were obtained by the use of either sink-nets or by poisoning with amole or *yerba del pescado* before being gathered from the water surface.

As a result of introduced diseases and a declining birth rate due to the rigors of forced missionization, the Costanoan population fell from approximately 10,000 or more people in 1770 to less than 2,000 in just over 60 years. By 1973 the population of Costanoan descendants was estimated at over 200 (Levy, 1978)

and in 1994, the San Benito County General Plan estimated there were approximately 300 Costanoan descendants in the Mission San Juan and Mission San Juan Bautista areas.

HISTORY

In 1772, while passing through the area on an expedition of exploration, Father Juan Crespi named the San Benito River, the main waterway in the area, in honor of Saint Benedict (San Benito County Historical Society, 2004). Several years later, on June 24, 1797, Mission San Juan Bautista was established by Father Fermín Lasuén who chose the spot in San Benito Valley because the location "promised the most abundant harvest of souls" (Hoover, 1990).

Following Mexican independence from Spain in 1821, much of the land surrounding the Mission was ceded to wealthy Spanish ranchers as Mexican land grants (San Benito County Historical Society, 2004). In 1839, the Rancho San Justo, a 34,600-acre Mexican land grant, was given to Jose Castro by Governor Juan B. Alvarado. Castro then sold Rancho San Justo to Don Francisco Perez Pacheco for $1,400 in 1850, the same year California became a state. Pacheco later divested himself of the Rancho in 1855.

In 1853, Colonel (honorary title) William Welles Hollister, his brother, Joseph Hubbard Hollister, and their sister, Lucy A. Brown started for California from the East driving 6,000 head of sheep. Subsequently, upon arriving in the San Benito Valley, Colonel Hollister came into possession of the rancho lands east of the San Benito River (San Benito County Historical Society, 2004).

In 1868 the San Justo Homestead Association purchased from Colonel W.W. Hollister the eastern portion of Rancho San Justo, containing 21,000 acres, to be divided between the 50 Association members with 100 acres of land left over for a town site (Hoover, 1990). The city was incorporated on March 26, 1872, and named in honor of Colonel Hollister (City of Hollister, 2004).

One of the prominent residents of both Hollister and the Association was T.S. Hawkins. Originally from Missouri, he settled in the Hollister area in 1867. After being successful as a grain farmer he turned his attention to the development of the Hollister area. His arguments that Monterey, at the time the county seat, was too far to conduct legal transactions met with approval. San Benito County was organized in February 1874 with Hollister as the county seat (Hoover, 1990).

In 1870, the Southern Pacific Railroad laid its first track from Carnardero (about three miles south of Gilroy) to Hollister. The tracks were extended south to Tres Pinos by 1873. Hay, grain, cattle and ore were shipped out by rail (San Benito County Historical Society, 2004).

Hollister has more than tripled its population within the last quarter century. In 1980 the census figures put the population of Hollister at 11,488 (City of Hollister, 2004). Today, Hollister has a population of 37,000 and continues to be surrounded by agricultural and livestock industries, seed companies, and

gravel and dolomite companies (CDOF, 2004a; San Benito County Historical Society, 2004). Downtown Hollister continues as the primary area for commercial and social activity.

METHODOLOGY

CULTURAL RESOURCES

Archival and Literature Search

Cultural resources site records, maps, and survey reports pertaining to the project area prehistory and history were reviewed on July 14, 2004, and updated August 23, 2005 at the Northwest Information Center (NWIC) of the California Historical Resources Information System (CHRIS) at Sonoma State University, Rohnert Park, California, by NWIC staff. In addition, the following local, state, and federal cultural resource inventories were also reviewed: *National Register of Historic Places - National Register Information System* (July 18, 2004); *Five Views: An Ethnic Sites Survey for California* (1988); *Office of Historic Preservation's Directory of Properties in the Historic Property Data File for San Benito County* (August 15, 2005) (which includes properties listed as California Historical Landmarks); and *Caltrans Historic Bridge Inventory (July 14, 2004).* Historical maps were reviewed for historic land use patterns and geomorphological change in order to determine archaeological sensitivity within the project area.

Native American Consultation

A letter requesting a check of the sacred lands file for the project site was sent to the Native American Heritage Commission (NAHC) on July 15, 2004. The NAHC responded with a list of Native American individuals and groups that have expressed interest in projects in San Benito County. Contact was initiated with the Native American individuals and groups identified by the NAHC requesting information relevant to the prehistoric, historic, and ethnographic land uses within the project area. Follow-up calls were made and a consultation log was maintained for each individual or group contacted.

Field Survey

A field survey of the project area was first conducted on July 22, 2004, and included the existing DWTP site. On March 8 and 9, 2006, AES archaeologists Damon Haydu and Gary Arnold conducted a more intensive pedestrian survey of the DWTP, pipeline alignments, Hollister Airport location, and the San Juan Oaks Golf Course location. The study included an on-foot survey in 10- to 15-meter-wide linear transects within the DWTP project site, Hollister Airport sprayfield location, and San Juan Oaks Golf Course. For the pipeline segments a linear survey of both sides of portions of State Route 156, Hollister San Juan Oaks Road, Mitchell Road, Wright Road, Frietas Road, Union Road, Bixby Road, and a portion of Union Pacific Railroad was conducted. Surface visibility varied between little visible ground surface in areas of dense grasses (San Juan Oaks Golf Course), to complete surface visibility in areas of bare soil as a result of discing along the edges of agricultural fields (pipeline alignments). The ground surface was

examined for archaeological remains, while rodent burrow backdirt piles and road cuts were examined for indicators of buried archaeological deposits.

Site indicators for the presence of prehistoric sites in this area may include, but not be limited to ground depressions; darkened soil areas indicative of middens; fire scorched and/or cracked rock; modified obsidian, quartzite or other vitreous minerals; and grinding stones including manos and metates. Historic era artifacts may include, but not be limited to metal objects, including nails, containers or miscellaneous hardware; glass fragments; ceramic or stoneware objects or fragments; milled or split lumber; trenches; feature or structure remains such as buildings or building foundations; and trash dumps.

Paleontological Resources

Existing geological resources were reviewed (Geocon, 2004) for information on the subsurface geology of the project area in order to identify project components that might affect vertebrate paleontologic resources in fossiliferous rocks.

RESULTS

CULTURAL RESOURCES

Archival and Literature Search

Results of the record search indicate that eight previous cultural resources surveys have included portions of the project area, covering a total of 20 percent of the project area (Archaeological Resource Management, 1995; BioSystems Analysis, 1989; Doane, 2002; Hylkema and Orlins 1989; King, 1973; Waldron, 1990; Waldron and Parks, 1990; Winter, 1978;). An additional seven cultural resources surveys have been conducted within a ½-mile radius. Two historical resources have previously been recorded adjacent to the pipeline alignments. P-35-304, an NRHP-eligible historic residence, has been recorded along Wright Road. P-35-302, an NRHP-eligible farm consisting of nine structures, has been recorded along Mitchell Road. Eight additional sites; one prehistoric and seven historic, have been recorded within a ½-mile radius of the project areas. Of the eight surrounding sites, three (all historic structures) have been determined eligible to the NRHP either as separate structures or as components of a multiple property listing. All three sites are located along San Juan Hollister Road immediately adjacent to the south-southeast boundary of the existing disposal and storage areas.

Native American Consultation

A check of the NAHC sacred lands file was negative for the project area. A copy of the NAHC correspondence and a contact log for each of the individuals and groups contacted is included as **Appendix ~~G~~I** to this report. No other responses to the contact letters have been received.

Field Survey

Results of the field surveys were negative; no prehistoric or historic resources were noted within the DWTP project site, San Juan Oaks Golf Course, Hollister Airport sprayfield location, and pipeline alignments. However, several residential structures that appear to be more than 50 years old were located along the pipeline route on Wright Road and Mitchell Road. These historic-period resources included P-35-302 and -304, the two historic-period resources identified in the records search. These structures were noted but not recorded at the time of the survey as they would not be directly or permanently impacted by construction of the proposed project.

Paleontological Resources

A 1973 report by Olaf P. Jenkins, Consulting geologist and retired Chief, California Division of Mines and Geology, indicates that "In this region [the Hollister area], there are deposits representing Plio-Pleistocene, mid-Pleistocene, and late Pleistocene time. However, diagnostic fossils are lacking, and no absolute ages have been determined." Jenkins further indicates that "The oldest deposits, regarded as Plio-Pleistocene, are beds of the non-marine San Benito Gravels."

4.5.3 Impacts and Mitigation Measures

Cultural Resources Significance Criteria

California Register of Historical Resources

In order to be determined eligible for listing in the CRHR, a property must be significant at the local, state, or national level under one or more of four criteria as defined in PRC 5024.1 and CEQA Guideline 15064.5(a). A property must 1) be associated with events that are significant to the history of the state or nation; 2) be associated with the lives of persons important to the history of the state or nation; 3) embody distinctive characteristics of a type, period, region, method of construction, or represent the work of a master; and 4) be likely to yield information important to the prehistory or history of the state or nation. In addition to meeting one or more of the above criteria, a significant property must also retain integrity of location, design, setting, materials, workmanship, feeling, and association.

Public Resources Code

Public Resource Code Section 21083.2 governs the treatment of unique archaeological resources, defined as "an archaeological artifact, object, or site about which it can be clearly demonstrated" as meeting any of three criteria. An archaeological resource must 1) contain information important for scientific research and demonstrable public interest for that information, 2) be the first, last, oldest, or best preserved of its type, and 3) must be directly associated with a scientifically recognized important prehistoric or historic event or person.

If it can be demonstrated that a project will cause damage to a unique archaeological resource, appropriate mitigation measures shall be required to preserve the resource in place and in an undisturbed state.

Mitigation measures may include, but are not limited to 1) planning construction to avoid the site, 2) deeding conservation easements, or 3) capping the site prior to construction. If a resource is determined to be a "non-unique archaeological resource," no further consideration of the resource by the lead agency is necessary.

PALEONTOLOGICAL RESOURCES SIGNIFICANCE CRITERIA

According to standard procedures published by the Society of Vertebrate Paleontology (1991), sedimentary rock units with a high potential for containing significant non-renewable paleontologic resources are those within which vertebrate or significant invertebrate fossils have been determined by previous studies to be present or likely to be present.

A significant impact to paleontological resources would occur if a project directly or indirectly destroyed a unique paleontological resource or site or unique geologic feature.

IMPACT STATEMENTS AND MITIGATION MEASURES

PIPELINE ALIGNMENTS

Impact

4.5.1 Construction of the proposed pipelines may disrupt a historical; archaeological; unique paleontological resource; or disturb human remains, including those interred outside of formal cemeteries. This impact is considered potentially significant.

A record search of the project area revealed that two NRHP-eligible resources (P-35-302 and -304) are located adjacent to the proposed pipeline routes along San Juan Hollister Road, Wright Road and Mitchell Road. P-35-304 is abandoned and in poor condition, however, it has been determined eligible to the NRHP under Criterion C and D for its potential to provide information on construction techniques associated with this type of dwelling. P-35-302, a historic-period farm complex, has been determined eligible under Criterion A for its association with the apricot industry in San Benito County and Criterion C because it embodies the characteristics of its type and period. These structures are located more than 50 feet from the pipeline route along Wright Road and Mitchell Road, respectively, and will not be impacted by construction of the proposed pipeline alignment. Therefore, this impact would be less than significant.

Results of the field survey were negative; no prehistoric or historic resources were noted within the areas of direct impact for the proposed pipeline alignments. However, several residential structures that appear to be more than 50 years old were located adjacent to the pipeline route on Wright Road and Mitchell Road. These structures were noted but not recorded as they will not be directly or permanently impacted by construction of the proposed project. Visual impacts to the setting of these historic structures will be temporary during the construction of the Proposed Project.

Although only one prehistoric site has been recorded within a ½-mile radius of the proposed pipeline alignments, the general vicinity of the San Benito River drainage is an area of known prehistoric and ethnographic use. Therefore, previously unknown cultural resources may be

uncovered during construction activities. Resources, such as prehistoric sites associated with habitation by Native Americans, as well as historic buildings, structures or features may be present. Construction-related earth-moving activities (such as clearing vegetation, grading, driving heavy vehicles, soil compacting, pipeline installation, excavating, and landscaping) within the project area could disrupt or adversely impact subsurface resources. This impact would be significant. The mitigation measures identified below are consistent with measures identified in the EIR completed for the 2004 GWMP Update (SBCWD & WRASBC, 2004b, pg.V-176-177).

No sedimentary rock units with a high potential for containing significant non-renewable paleontological resources are located within the proposed project area. Therefore, impacts to paleontological resources are considered to be less than significant.

Mitigation Measure

4.5.1 In the event that any prehistoric or historic archaeological resources or paleontological resources are discovered during construction-related earth-moving activities, all work within 50 feet of the find shall be halted until the professional archaeologist can assess the significance of the find. If any find is determined to be significant by the archaeologist, then representatives of the City shall meet with the archaeologist to determine the appropriate course of action. All significant cultural materials recovered shall be subject to scientific analysis, professional curation, and a report prepared by the professional archaeologist according to current professional standards.

If human remains are discovered, California Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the county coroner has made the necessary findings as to origin and disposition pursuant to Public Resources Code Section 5097.98. If the coroner determines that no investigation of the cause of death is required and if the remains are of Native American origin, the coroner will notify the Native American Heritage Commission, which will notify a Most Likely Descendant (MLD). The MLD is responsible for recommending the appropriate disposition of the remains and any grave goods.

Significance After Mitigation

Less than significant.

DWTP UPGRADES

Impact

4.5.2 Construction of the proposed upgrades to the DWTP may disrupt a historical; archaeological; unique paleontological resource; or disturb human remains, including those interred outside of formal cemeteries. This impact is considered potentially significant.

Results of a record search and field survey of the DWTP project area were negative; no prehistoric or historic resources were noted within the areas of direct impact for the proposed project. Ground disturbing activities at the DWTP location will be conducted within the

limits of existing disturbance. Therefore, impacts at these locations to known cultural resources would be less than significant.

Although only one prehistoric site has been recorded within a ½-mile radius of the DWTP project area, the San Benito River is an area of known prehistoric and ethnographic use. However minimal, previously unknown cultural resources may be uncovered during construction activities. Resources, such as prehistoric sites associated with habitation by Native Americans, as well as historic-period features may be present. Construction-related earth-moving activities (such as clearing vegetation, grading, driving heavy vehicles, soil compacting, pipeline installation, excavating for structure foundations, and landscaping) within the DWTP project area could disrupt or adversely impact subsurface resources. This impact would be significant.

No sedimentary rock units with a high potential for containing significant non-renewable paleontological resources are located within the proposed project area. Therefore, impacts to paleontological resources are considered to be less than significant.

Mitigation Measure

4.5.2 Implement Mitigation Measure 4.5.1

Significance After Mitigation

Less than significant.

SPRAYFIELD LOCATIONS

Impact

4.5.3 Construction of the proposed Hollister Airport and San Juan Golf Course project locations may disrupt a historical; archaeological; unique paleontological resource; or disturb human remains, including those interred outside of formal cemeteries. This impact is considered potentially significant.

Results of a record search and field survey of the Hollister Airport and San Juan Oaks sprayfield project areas were negative; no prehistoric or historic resources were noted within the areas of direct impact for the proposed project. Ground disturbing activities at the sprayfield location will be conducted within the limits of existing disturbance. Therefore, impacts at these locations to known cultural resources would be less than significant.

Although only one prehistoric site has been recorded within a ½-mile radius of the sprayfield project area, within the general vicinity of the San Benito River drainage is an area of known prehistoric and ethnographic use. Previously unknown cultural resources may be uncovered during construction activities. Resources, such as prehistoric sites associated with habitation by Native Americans, as well as historic-period features may be present. Construction-related earth-moving activities (such as clearing vegetation, grading, driving heavy vehicles, soil compacting, pipeline installation, excavation, and landscaping) within the sprayfield project area could disrupt or adversely impact subsurface resources. This impact would be significant.

No sedimentary rock units with a high potential for containing significant non-renewable paleontological resources are located within the proposed project area. Therefore, impacts to paleontological resources are considered to be less than significant.

Mitigation Measure

4.5.3 Implement Mitigation Measure 4.5.1

Significance After Mitigation

Less than significant.

4.6 HAZARDOUS MATERIALS AND PUBLIC HEALTH AND SAFETY

This section provides an overview of the types of hazardous materials proposed for use and storage at the proposed facilities, and the regulatory setting applicable to environmental protection and health and safety. Issues related to public health and safety include use and storage of hazardous materials at the proposed facilities, possible upset or release of hazardous materials used or stored at the facilities, the generation and handling of hazardous wastes, possible hazards related to the excavation of the pipelines that will deliver recycled water for irrigation and spray fields, and the health hazards related to the use of recycled water for irrigation.

4.6.1 REGULATORY SETTING

INTRODUCTION

A material is considered hazardous if it appears on a list of hazardous materials prepared by a Federal, State, or local agency, or if it has characteristics defined as hazardous by such an agency. A hazardous material is defined in Title 22 of the California Code of Regulations (CCR) as:

> "a substance or combination of substances which, because of its quantity, concentration, or physical, chemical or infectious characteristics, may either (1) cause, or significantly contribute to, an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness; or (2) pose a substantial present or potential hazard to human health or environment when improperly treated, stored, transported or disposed of or otherwise managed" (CCR, Title 22, Section 66260.10).

REGULATORY BACKGROUND

FEDERAL

At the federal level, human exposure to chemical agents, and in some cases the environment and wildlife, is regulated primarily by four regulatory agencies: the United States Environmental Protection Agency (EPA), the Food and Drug Administration (FDA), the Occupational Safety and Health Administration (OSHA), and the Consumer Product Safety Commission (CPSC). The CPSC plays a limited role (primarily the labeling of consumer products) in regulating hazardous substances as they pertain to the Proposed Project and, therefore, will not be discussed further. The FDA primarily regulates food additives and contaminants, human drugs, medical devices, and cosmetics. Similarly, the FDA plays a limited role in regulating hazardous substances as they pertain to the Proposed Project and, therefore, will not be discussed further. In addition to these regulatory agencies, the United States Department of Transportation regulates the interstate transport of hazardous materials, and transportation safety and hazards issues.

The EPA and OSHA administer several critical Congressional statutes. The emphasis of each statute, which varies, addresses the protection of human health and the environment and subsequent economic

costs of such protection. For instance, under separate statutes, the EPA and OSHA may be mandated to regulate exposure to an identical substance using different significance thresholds. These differences often reflect the Congressional objectives of the statute, the ability of the administering agency to regulate the substance of concern (i.e., does the agency have any enforcement authority over the action that leads to exposure?), and the economic benefits of the subject regulation. A summary of the most pertinent federal statutes and their administering agencies proceeds below.

United States Environmental Protection Agency (EPA)

The EPA administers numerous statutes pertaining to human health and the environment. The EPA regulates toxic air contaminants through its implementation of the Clean Air Act (CAA). Although the CAA covers a range of air pollutants, Section 112(r) specifically covers "extremely hazardous materials" which include acutely toxic, extremely flammable, and highly explosive substances. Section 112(r) (referred to as the EPA's Risk Management Program) requires facilities involved in the use or storage of extremely hazardous materials to implement a Risk Management Plan (RMP). A RMP requires a detailed analysis of potential accident factors present at a facility and requires the implementation of mitigation measures designed to reduce the identified accident potential.

The EPA also regulates the land disposal of hazardous materials through the Resource Conservation and Recovery Act (RCRA). Under RCRA, the EPA regulates the activities of waste generators, transporters, and handlers (any individual who treats, stores, and/or disposes of a designated hazardous waste). RCRA further requires the tracking of hazardous waste from its generation to its final disposal through a process often referred to as the "cradle-to-grave" regulation. The "cradle-to-grave" regulation requires detailed documentation and record keeping for hazardous materials generators, transporters, and/or handlers in order to ensure proper accountability for violations.

Occupational Safety and Health Administration (OSHA)

Through the enactment of the Occupational Safety and Health Act, OSHA was obligated to prepare and enforce occupational health and safety regulations with the goal of providing employees a safe working environment. OSHA regulations apply to the work place and cover activities ranging from confined space entry to toxic chemical exposure. OSHA regulates workplace exposure to hazardous chemicals and activities through regulations governing work place procedures and equipment.

U.S. Department of Transportation (U.S. DOT)

The U.S. DOT regulates the interstate transport of hazardous materials and wastes through implementation of the Hazardous Materials Transportation Act. This act specifies driver-training requirements, load labeling procedures, and container design and safety specifications. Transporters of hazardous wastes must also meet the requirements of additional statutes such as RCRA, discussed previously.

Federal Aviation Administration (FAA)

The FAA is an operating agency under the U.S. DOT that regulates aviation safety. This agency has regulatory authority over the operation of federal airports and oversees safety and hazards issues. The FAA has approval authority over specific elements included in individual airport master plans. One of these elements includes the airport layout plan (ALP) which includes runway design and safety features. The FAA is bound by regulatory requirements to evaluate the environmental consequences of any proposed developments or improvements on the ALP.

STATE

At the State level, hazardous materials are regulated through a number of statutes and regulations. These laws, many similar to their federal counterparts, regulate the use, storage, disposal, and transport of hazardous chemicals. The primary state regulatory authorities, the California Environmental Protection Agency (CALEPA) and California Occupational Safety and Health Administration (Cal/OSHA), administer many of these laws. In addition to statutes specific to the State of California, state agencies are often obligated to administer and enforce federal statutes throughout the state. A summary of the primary state statutes and administering agencies proceeds below.

Department of Toxic Substances Control (DTSC)

The DTSC regulates the generation, transportation, treatment, storage, and disposal of hazardous waste under RCRA and the State Hazardous Waste Control Law. Both laws impose "cradle-to-grave" regulatory systems for handling hazardous waste in a manner that protects human health and the environment.

California Occupational Safety and Health Administration (Cal/OSHA)

The Cal/OSHA and the Federal Occupational Safety and Health Administration (Fed/OSHA) are the agencies responsible for assuring worker safety in the handling and use of chemicals in the workplace. Pursuant to the Occupational Safety and Health Act of 1970, Fed/OSHA has adopted numerous regulations pertaining to worker safety, contained in the Code of Federal Regulations Title 29 (29 CFR). These regulations set standards for safe workplaces and work practices, including standards relating to hazardous material handling. Cal/OSHA assumes primary responsibility for developing and enforcing state workplace safety regulations. Because California has a federally approved OSHA program, it is required to adopt regulations that are at least as stringent as those found in 29 CFR. Cal/OSHA standards are generally more stringent than federal regulations.

Cal/OSHA regulations concerning the use of hazardous materials in the workplace, as detailed in Title 8 of the CCR, include requirements for safety training, availability of safety equipment, accident and illness prevention programs, hazardous substance exposure warnings, and emergency action and fire prevention plan preparation. Cal/OSHA enforces hazard communication program regulations that contain training and information requirements, including procedures for identifying and labeling hazardous substances,

communicating hazard information related to hazardous substances and their handling, and preparation of health and safety plans to protect workers and employees at hazardous waste sites. The hazard communication program requires that Material Safety Data Sheets (MSDSs) be available to employees and that employee information and training programs be documented.

California Hazardous Materials Release Response Plans and Inventory Law of 1985

The California Hazardous Materials Release Response Plans and Inventory Law of 1985, often referred to as the Business Plan Act, requires facility operators to prepare Hazardous Materials Business Plans (HMBP). HMBPs are required to inventory hazardous materials stored and used on site, disclose the location of storage and use on site, maintain an emergency response plan, and contain provisions specifying employee training in safety and emergency response procedures. Local regulatory authorities such as local Environmental Health Departments collect hazardous Materials Business Plans.

California Accidental Release Program (CalARP)

The recently passed CalARP requires certain facilities to prepare RMPs. The CalARP is similar to the CAA's Section 112(r). A facility handling hazardous materials listed in the CalARP and federal RMP regulations must comply with both statutes. The CalARP formally replaced California's old Risk Management Prevention Program (RMPP) as of January 1997. Certain facilities prior to implementation of the CalARP were required to comply with the RMPP regulation administered by the State Office of Emergency Services (OES). The majority of these facilities and certain future new facilities will be required to comply with both the federal RMP and CalARP regulations. These similar regulations require facility operators that handle an amount of a listed acutely hazardous material, as well as explosive or flammable material, exceeding a threshold quantity to conduct additional planning studies covering equipment and safety systems, operating procedures, preventative maintenance, off-site consequence and risk assessment analysis, and safety auditing. OES delegates its enforcement authority to local administering agencies such as county Environmental Health Departments.

Emergency Response to Hazardous Materials Incidents

California has developed an Emergency Response Plan to coordinate emergency services provided by Federal, State, and local government and private agencies. Response to hazardous materials incidents is one part of this plan. The plan is administered by the state OES, which coordinates the responses of other agencies including CalEPA, the California Highway Patrol, CDFG, the Central Coast RWQCB, the San Benito County Environmental Management Department, and the City of Hollister Fire Protection District.

Hazardous Materials Transport

State agencies with primary responsibility for enforcing Federal and State regulations and responding to hazardous materials transportation emergencies are the California Highway Patrol and the California Department of Transportation (Caltrans). Together, these agencies determine container types used and license hazardous waste haulers for hazardous waste transportation on public roads.

THE CITY OF HOLLISTER

The City of Hollister General Plan (2005) Environmental Impact Report (EIR) contains a description of potential impacts resulting from hydrology, drainage and flooding hazards, wastewater treatment, water quality, and water supply. Refer to the hydrology section of this EIR (**Section 4.03**) for additional information.

4.6.2 ENVIRONMENTAL SETTING

PROJECT AREA DATABASE REPORT

Database searches were conducted for records of known storage tank sites and known sites of hazardous materials generation, storage, and/or contamination. Databases were searched for sites and listings up to 1.5 miles from a point roughly equivalent to the center of the DWTP site. The environmental database review was accomplished by using the services of a computerized search firm *Environmental Data Resources, Inc.* (EDR). EDR uses a geographical information system to plot locations of past and/or current hazardous materials involvement. AES reviewed the EDR report to determine if the project site and adjacent sites are listed on regulatory agency databases. The purpose is to determine if adjacent sites will impact surface and/or subsurface conditions on the project site. The following paragraphs summarize the findings of the database report. The complete list of reviewed databases is provided in the EDR report, included in **Appendix J** and is summarized in **Table 4.6-1**.

DWTP DATABASE REPORT

The DWTP is listed on the SWF/LF database as a solid waste landfill. This is most likely the result of the accumulation of biosolids in the sludge stabilization basin (SSB). The database report lists the operator as the City of Hollister. There were no violations listed in the database report for the DWTP.

The Tivetti Real Estate site is listed on the HAZNET database and is located approximately 0.85 miles north of the DWTP. The site is listed as producing waste oil and mixed oil that is hauled off site to be recycled.

The Cal Agra site is listed on the CA WDS as a facility that has a seasonal and/or continuous waste discharge. The facility is located approximately 0.80-miles north of the DWTP. The database report identifies the Cal Agra site as a Category C facility, which is defined as "a facility that has no waste treatment system, such as cooling water dischargers or those who must comply through best management practices, facilities with passive waste treatment systems, such as septic systems with subsurface disposal, or dischargers having waste storage systems with land disposal such as dairy waste ponds" (EDR, 2004).

TABLE 4.6-1
ENVIRONMENTAL DATA RESOURCES (EDR) SUMMARY OF AGENCY DATABASES

Agency Database	Survey Distance	Number of Sites Identified
United States Environmental Protection Agency (EPA) National Priority List (NPL) for Superfund Sites	1.5 Mile	0
U.S. EPA Resource Conservation and Recovery Act (RCRA) Corrective Action (CORRATS) List	1.5 Mile	1
U.S. EPA Comprehensive Environmental Response, Compensation No Further Recommendation Action Planned (CERC-NFRAP) List	0.75 Mile	0
U.S. EPA RCRA Permitted Treatment, Storage and Disposal (TSD) Facilities	1.5 Mile	2
U.S. EPA Emergency Response Notification System (ERNS) List	Property	0
U.S. EPA RCRA Registered Large and Small Generators of Hazardous Waste RCRIS-LQG and RCRIS-SQG	0.75 Mile	0
Waste Management Unit Database (WMUDS/SWAT)	1.0 Mile	0
State Waste Discharge System (WDS)	0.5 Mile	0
State Hazardous Wastes and Substances Sites (Cortese)	1.0 Mile	0
State Hazardous Material Incidents, Including Accidental Releases and Spills (CHMIRS)	0.5 Mile	0
State Permitted Solid Waste Landfill, Incinerators or Transfer Stations (SWF/LF) List	1.0 Mile	1
Leaking Underground Storage Tank (LUST) Sites	1.0 Mile	0
State Hazardous Substance Storage Container Database (HIST UST)	0.75 Mile	2
State Facilities Inventory System (CA FID UST)	0.75 Mile	2
State Spills Leaks Incidences and Clean-ups (CA SLICS)	1.0 Mile	0
Hazardous Waste Information System (HAZNET)	0.5 Mile	2
Notify 65	1.5 Mile	1

Source: Environmental Data Resources, 2004.

The Pacsci Quantic LLC site is located at 2751 San Juan Road, approximately 500 feet south of the DWTP. The Pacsci Quantic LLC site is also known as the as the Former Whittaker Ordnance Facility (FWOF). The FWOF is listed on the Resource Conservation and Recovery Information System (RCRIS) Small Quantity Generator (SQG) database as a generator of hazardous wastes. Several violations are listed in the database report that was corrected in 1992. The database report did not specify the nature of the violations. The RCRIS database identifies the site as a facility with a medium corrective action priority with unacceptable migration of contaminated groundwater either observed or expected. The Whittaker site is also on the Resource Conservation and Recovery (RCRA) corrective action (CORRACTS) database and was given a high corrective action priority in 1997. Additionally, the site is listed on the hazardous waste information system (HAZNET) database as producing organic solids with halogens. The site is also identified as on the State underground storage container (UST HIST) database

as having three under ground storage tanks on site. A hydrogeologic assessment report (Geomatrix, 2004) was reviewed by AES. The Geomatrix report included the following descriptions of remedial investigations and cleanup of the FWOF.

The FWOF has operated at 2751 San Juan Road since 1957. The facility currently manufactures explosive devices for automobile airbags. Volatile organic compounds (VOCs) are the primary constituents that have been released into the environment. VOCs that have impacted groundwater beneath the FWOF are: trichloroethene (TCE) and its breakdown products (1,2-dichloroethene and vinyl chloride); 1,1,2-Trichloro-1,2,2-trichloroethane (Freon 113); perchlorate; and hexavalent chromium. Two sources of VOCs have been identified in the northwest portion of the FWOF facility. Sources of the perchlorate include areas where devices were test fired or stored and where water from cleaning the devices was discharged onto the ground surface, disposal into sinks, and material collected in buckets discharged to burn trenches and pads. Cleanup and Abatement Order No. 99-006 was issued by the RWQCB in 1999 to address the confirmed soil and groundwater contamination at the FWOF. Perchlorate and VOCs have been detected in monitoring wells located between the FWOF, and the DWTP. Analytical results from groundwater monitoring wells shows that groundwater beneath the southern edge of the DWTP has been impacted. The results show that groundwater under the percolation ponds and the DWTP building has not been impacted. Currently, several interim soil and groundwater remediation measures are being implemented at the FWOF site and the lateral and vertical extent of impacts in soil and groundwater has effectively been delineated. There are currently several groundwater-monitoring wells on the City of Hollister DWTP site (Geomatrix, 2004).

The San Benito River site is listed on the Notify 65 database for an incident on Bridge Road at Azul Court, approximately 1.1 miles southeast of the DWTP. The type of incident and date were not included in the database report.

RECYCLED WATER AND GENERAL PUBLIC HEALTH CONCERNS

Recycled water is commonly used throughout California and the United States in a variety of ways, including agricultural and landscape irrigation, industrial uses, and groundwater recharge. Although wastewater is known to contain pathogenic (i.e., disease-causing) microorganisms and chemicals with potential public health effects, certain wastewater treatment processes have proven to be highly successful at removing these constituents.

Numerous studies have been conducted, many in California, to examine the potential public health effects of recycled water and to ascertain the adequacy of wastewater reclamation criteria and requirements for the protection of public health. In general, the results of these studies and long-standing observations from existing reclamation projects have convincingly indicated that recycled water meeting Title 22 standards for an intended use does not present a public health risk. There have been no recorded incidents of disease outbreaks or adverse health affects associated with the lawful use of recycled water.

AGRICULTURAL IRRIGATION WITH RECYCLED WATER

A long-term study conducted in Monterey, California examined the health effects of using recycled water to irrigate food crops that are eaten raw. The results of the five-year study determined that there is no increased health threat to farm workers or others coming in contact with spray from irrigation, soil, plants, or runoff water from the fields irrigated with recycled water. No viruses were found on samples of crops grown with recycled water, and naturally occurring levels of coliform bacteria in well water often exceeded the levels in the recycled water used for irrigation. In addition, it was shown that there was no tendency for metals to accumulate in soils or plant tissues (Engineering-Science, 1987).

PATHOGEN CONTAMINATION OF RECYCLED WATER

Pathogens are microscopic organisms that have the potential to cause disease. Tertiary treatment of municipal wastewater typically results in greater than 99.99 percent removal of these organisms, which include bacteria, viruses, and parasites (Yates, 1995). However, in light of the fact that complete removal cannot be guaranteed even with tertiary treatment, a minor risk does exist for public health effects to occur from the use of recycled water.

There are several possible routes of exposure to pathogens in recycled water:

- Through drinking water that has been contaminated by recycled water;
- Through contact with plant and soil materials that have been irrigated using recycled water;
- Through inhalation of aerosols generated during spray irrigation with recycled water; and
- Through contact with persons who have been in contact with recycled water.

The risk of infection, however, depends on many factors, including the efficiency of the treatment process in removing or inactivating the pathogen and the survival of the pathogen in the effluent, on the soil or plants, or in the air. This in turn depends upon temperature, humidity, and sunlight intensity. Sunlight is particularly effective in removing or inactivating microorganisms in recycled water that has been applied to soil or plant surfaces. In one study, more than 99 percent of the detectable viruses and bacteria in the recycled water were eliminated after two days of exposure to sunlight (Feigin, *et al.,* 1991). In addition, further removal of pathogens occurs when recycled water passes through soils and filtration and resulting adsorption processes take place.

Viruses in recycled water have been of particular concern due to their potential to survive disinfection by chlorination, their low infectious dose, and their relatively small size. A recent study of enteric viruses (i.e., viruses originating in the intestinal tract of humans) in recycled water was conducted to determine the risk of infection arising from the use of recycled water. The analysis determined that the annual risk of infection from exposure to disinfected tertiary treated wastewater used for irrigation is in the range of one in one million to one in one hundred billion. The probability of infection can be reduced even further by limiting public exposure and public access to recycled water and the area in which the reclaimed water it is used (Asano, et al., 1992).

CHEMICAL CONTAMINATION OF RECYCLED WATER

The presence of trace elements, or heavy metals, in recycled water depends upon the contaminants discharged into the sewage system and the effectiveness of the wastewater treatment process used. In general, about 70 to 90 percent of trace elements are removed with wastewater solids during secondary treatment (Crohn, 1993). If wastewater is used for irrigation, the remaining trace elements (with the exception of boron) have a tendency to accumulate in the upper soil layers. Excessive accumulation of many trace elements can be toxic to plants and animals (including humans). According to the U.S. EPA, the trace elements of greatest concern in recycled water include cadmium, copper, molybdenum, nickel, zinc, arsenic, chromium, lead, mercury, and selenium. However, the concentration of these elements typically found in tertiary treated effluent from municipal wastewater is well below the drinking water standard, and land application of tertiary recycled water can generally be continued for over 100 years before exceeding the recommended EPA cumulative limit in soil (EPA, 1992).

CONTAMINATION VIA CROSS-CONNECTION WITH POTABLE WATER SYSTEMS

The construction of recycled water distribution pipelines presents the possibility of cross-connection with potable water systems especially in areas where potable water systems are provided as a backup to recycled water. Any potential for mixing of recycled water with the drinking water supply would pose a public health concern due to the possibility of ingestion of recycled water.

Title 17 of the *California Code of Regulations* (CCR), governed by the Department of Health Services (DHS), provides specifications to avoid any potential for cross-connections with drinking water supplies. This includes identification of and signs on pipe materials, backflow prevention requirements, proper air gaps or cross-connection control design measures, plus construction specifications requiring minimum separation for recycled water pipelines and water supply pipelines. The DHS, Public Water Supply Branch, has published the *Guidance Manual for Cross-Connection Control Programs* (September 1988), which provides detailed information on compliance with the requirements.

PROPOSED DWTP HAZARDOUS MATERIALS USAGE

Operation of the proposed MBR facility will involve the delivery, use, and storage of hazardous materials and wastes. **Table 4.6-2** summarizes those hazardous materials proposed for use in bulk quantity, their respective hazards/toxicity, and their respective use in the treatment process. Operation of the proposed MBR facility will also require the minor use and storage of paint thinners, paints, waste oils, miscellaneous lubricating oils, laboratory solvents, and diesel fuel which are not listed with those hazardous materials summarized in **Table 4.6-2.**

Biosolids (the solid waste removed from the wastewater during the treatment process) are considered a non-hazardous waste. Biosolids will be collected in the sludge stabilization basin (SSB) during an approximately 10 to 15 year period. Once the SSB is full, it would be dewatered and the biosolids collected and removed and disposed at a certified location or reused for a beneficial purpose.

PROPOSED DWTP HAZARDOUS MATERIALS TRANSPORTATION AND DELIVERY

Special tanker or flatbed trucks operated by trained drivers typically transport hazardous materials. Delivery vehicles will access the DWTP site via State Route 156 and San Juan Road. Access to the plant from the State Route 156/San Juan Road route will avoid densely populated residential areas located in the City of Hollister.

Due to the bulk storage capacity available at the proposed treatment plant, initial deliveries of sodium hypochlorite would occur one to two times per month. This schedule assumes a tanker truck capacity of 7,000 gallons per delivery. At full build out reclamation capacity, this schedule could increase to three deliveries per month. Sodium hypochlorite will be delivered as a 12.5 percent solution to the proposed DWTP.

Delivery of diesel fuel, acid, sodium hydroxide, and other materials would follow the same route but at variable intervals dependent upon use. Septage trucks will deliver septic tank sewage on a schedule dependent upon the demand for septic tank servicing. Private licensed companies would conduct septage transport. Licensed handlers would remove hazardous wastes from the DWTP site that require off site disposal. The handling and removal of the hazardous wastes would follow standard protocols for handling hazardous wastes that will be part of the hazardous material storage plan implemented by the City of Hollister.

TABLE 4.6-2
DESCRIPTION OF HAZARDOUS MATERIALS STORAGE LOCATIONS, USAGE AMOUNTS, AND TOXICITY

Citric Acid (Proposed As Substitute for Phosphoric Acid) **CAS No. 77-92-9**	Citric acid, used in pH adjustment, would be stored within a containment area to be located at one end of the Chemical Feed and Storage building. Citric acid would be delivered by flatbed delivery truck in 25-pound bags as a powder. Citric acid is irritating to tissues and can damage respiratory systems if powder is inhaled.
Sodium Hydroxide (Caustic Soda) **CAS No. 7646-01-0**	Sodium hydroxide in a single 55-gallon drum would be stored in a chemical storage room to be located at one end of the blower/mcc building. Sodium hydroxide would be delivered by flatbed delivery truck and used to neutralize acid cleaning solution prior to pumping to headworks. Sodium hydroxide is extremely corrosive to all tissues it comes in contact with.
Sodium Hypochlorite (Bleach) **CAS No. 1310-73-2**	Sodium hypochlorite, used for disinfection of recycled water and for cleaning of the microfiltration membrane reactor, would be stored in a two 5,000-gallon above-ground cross-linked polyethylene storage tank located adjacent to and north of the membrane filtration basin (stored volume would be somewhat less as a consequence of administrative controls to prevent overfilling). Sodium hypochlorite would be delivered by bulk tanker truck as a 12.5 percent solution. Sodium hypochlorite ingestion can cause severe gastrointestinal corrosion. Inhalation of sodium hypochlorite fumes can cause pulmonary edema.
Methanol CAS No 67-56-1	Methanol is used as a carbon source to feed the microorganisms that breakdown the solid wastes in the settling ponds.

Source: Merck, 1991

SENSITIVE RECEPTORS

The nearest residents to the proposed DWTP are located on San Juan Road, approximately 0.25 miles southwest of the DWTP site. Because sodium hypochlorite is not considered a severe airborne hazard when released, sensitive receptors are primarily those that have the potential to come in contact with the material before it would be released, in its concentrated form. Therefore, treatment plant personnel that are on-site are considered the primary receptors followed by possible impacts to the environment.

The nearest residents for the sprayfields and irrigation projects could be as close as 50 feet. As identified above, there is limited health risk for exposure to recycled water; however, public health concerns are present when recycled water is used for agriculture while in close proximity to the public.

4.6.3 IMPACTS AND MITIGATION MEASURES

SIGNIFICANCE CRITERIA

On the basis of CEQA standards, a project would generally be considered to have a significant adverse environmental impact if it would create a potential public health hazard; involve the use, production, or disposal of materials that pose a hazard to people, animal or plant populations in the area affected; or if it would interfere with emergency response plans or emergency evacuation plans. For the purposes of this EIR, the following significance criteria are used:

- An impact would be considered significant if the project would involve the use, production, or disposal of materials that pose a hazard to people, or to animal or plant populations in the area affected.
- An impact would be considered significant if the project would create a substantial potential public health or safety hazard due to risk of upset (accidents).
- An impact would be considered significant if the project would violate applicable laws intended to protect human health and safety or would expose employees to working situations that do not meet health standards.
- An impact would be considered significant if the project would interfere with emergency response plans or emergency evacuation plans.

METHODOLOGY

Potential hazardous materials and public health impacts were evaluated through a review of the proposed treatment plant design and understanding of the hazards and risks inherent to the materials used in the treatment process. Risk of upset as a consequence of seismic events is discussed in **Section 4.2 – Geology and Soils**.

Impact Statements and Mitigation Measures

DWTP Construction

Impact

4.6.1 Construction of the proposed City of Hollister DWSI Project would involve the use and storage of hazardous materials such as gasoline and diesel fuel in addition to solvents, hydraulic fluids and oils, paints, etc. This would be a potentially significant impact.

During grading and construction it is anticipated that limited quantities of miscellaneous hazardous substances, such as gasoline, diesel fuel, and hydraulic fluid, would be brought on-site. Various contractors for fueling and maintenance purposes would likely use temporary bulk above ground storage tanks as well as storage sheds/trailers. As with any liquid and solid, during handling and transfer from one container to another, the potential for an accidental release exists. Depending on the relative hazard of the material, if a spill were to occur of significant quantity, the accidental release could pose both a hazard to construction employees as well as the environment. Although typical construction management practices limit and often eliminate the impact of such accidental releases, the potential exists with the temporary on-site storage of hazardous materials that a significant release could occur. Therefore, the impact is considered potentially significant.

Mitigation Measures

4.6.1 (a) The City of Hollister shall ensure through the enforcement of contractual obligations that all contractors transport, store, and handle construction-required hazardous materials in a manner consistent with relevant regulations and guidelines, including those recommended and enforced by the City of Hollister Fire Department and the San Benito County Fire Protection District. Recommendations may include, but are not limited to, transporting and storing materials in appropriate and approved containers, maintaining required clearances, and handling materials using approved protocols.

(b) The City of Hollister shall ensure through the enforcement of contractual obligations that all contractors immediately control the source of any leak and immediately contain any spill utilizing appropriate spill containment and countermeasures. If required by the Fire Department or other regulatory agency, contaminated media shall be collected and disposed of off-site at a facility approved to accept such media.

Significance After Mitigation

Less than significant.

Impact

4.6.2 Construction activities conducted during the dry season in and around dry grasses pose a fire hazard. This would be a potentially significant impact.

Equipment used during grading and construction activities may create sparks, which could ignite dry grass on the project site. During construction, the use of power tools and acetylene

torches may also increase the risk of fire hazard. This risk, similar to that found at other construction sites, is considered potentially significant.

Mitigation Measures

4.6.2 **(a) During construction, staging areas, welding areas, or areas slated for development using spark-producing equipment shall be cleared of dried vegetation or other materials that could serve as fire fuel. To the extent feasible, the contractor shall keep these areas clear of combustible materials in order to maintain a fire break.**

(b) Any construction equipment that normally includes a spark arrester shall be equipped with an arrester in good working order. This includes, but is not limited to, vehicles, heavy equipment, and chainsaws.

Significance After Mitigation

Less than significant.

Impact

4.6.3 **During site grading and excavation phases, contaminated soil and/or groundwater could be encountered. This would be a potentially significant impact**

Construction of the Proposed Project could result in the disturbance of contaminated soil and/or groundwater. A hydrogeologic assessment for the proposed DWTP site found soil and groundwater contamination extends beneath the southern edge of the DWTP (Geomatrix, 2004). The contamination plume is due to previous hazardous materials involvement at the adjacent Former Whittaker Ordnance Facility. The possibility that contamination may be encountered during construction activities would result in a potentially significant impact.

Mitigation Measure

4.6.3 **If contaminated soil and/or groundwater is encountered or if suspected contamination is encountered during project construction, work shall be halted in the area, and the type and extent of the contamination shall be identified. A qualified professional, in consultation with regulatory agencies (Regional Water Quality Control Board, State Department of Toxic Substance Control, or San Benito County) shall then develop an appropriate method to remediate the contamination. If necessary, the City of Hollister shall implement a remediation plan in conjunction with continued project construction.**

Significance After Mitigation

Less than significant.

Impact

4.6.4 **The proposed reservoir could be susceptible to structural failures from flooding, seismic events, and design flaws. In the event of a failure, the treated effluent could be released which could cause flooding hazards and possible loss of life and property. This would be a less than significant impact.**

A seismic event could cause the failure of the seasonal storage reservoir causing tertiary treated recycled water to flow into the San Benito River. The potential for seismic failure is addressed in **Section 4.2.** In the event of a failure of the reservoir dam, the water from the reservoir will drain away from neighboring residential structures and into the San Benito River. The volume of water that could drain from the reservoir is not expected to have the ability to flood the San Benito River, due to the large relative size of the river channel. The location of the reservoir will allow the water to flow from the reservoir into the San Benito River, therefore minimizing the risk of loss of life and property as a result of a failure.

Mitigation Measure

4.6.4 None required.

OFF-SITE CONSTRUCTION OF SPRAYFIELDS, PIPELINES, STORAGE BASIN AND EVAPORATION PONDS

Impact

4.6.5 Construction and excavation activities required for the development of the proposed recycled water pipelines, spray fields, potential off-site storage basin, and evaporation ponds in Phase II could involve the use and storage of hazardous materials such as gasoline and diesel fuel in addition to solvents, hydraulic fluids and oils, paints, etc. Excavation could also expose natural gas pipelines and other underground utilities. This would be a potentially significant impact.

During grading and construction it is anticipated that limited quantities of miscellaneous hazardous substances, such as gasoline, diesel fuel, and hydraulic fluid, would be brought on-site. Various contractors for fueling and maintenance purposes would likely use temporary bulk above ground storage tanks as well as storage sheds/trailers. As with any liquid and solid, during handling and transfer from one container to another, the potential for an accidental release exists. Depending on the relative hazard of the material, if a spill were to occur of significant quantity, the accidental release could pose both a hazard to construction employees as well as the environment. Although typical construction management practices limit and often eliminate the impact of such accidental releases, the potential exists with the temporary on-site storage of hazardous materials that a significant release could occur. Therefore, the impact is considered potentially significant.

Mitigation Measures

4.6.5 (a) The Agency with project approval authority shall ensure through the enforcement of contractual obligations that all contractors transport, store, and handle construction-required hazardous materials in a manner consistent with relevant regulations and guidelines, including those recommended and enforced by the City of Hollister Fire Department and The San Benito County Fire Protection District. Recommendations may include, but are not limited to, transporting and storing materials in appropriate and approved containers, maintaining required clearances, and handling materials using approved protocols.

(b) The Agency with project approval authority shall ensure through the enforcement of contractual obligations that all contractors immediately control the source of any leak and immediately contain any spill utilizing appropriate spill containment and countermeasures. If required by the Fire Department or other regulatory agency,

contaminated media shall be collected and disposed of off-site at a facility approved to accept such media.

Significance After Mitigation

Less than significant.

Impact

4.6.6 During excavation of the sprayfields and pipelines, the possibility exists that underground utilities and pipelines could be encountered. An explosion, fire, and loss of life could result if an underground utility or gas line was ruptured from excavation equipment. The loss of life or property resulting from an explosion or fire during excavation is a potentially significant impact.

Mitigation Measure

4.6.6 In order to prevent accidental rupturing of under ground utilities and pipelines during excavation, underground services alert (USA) shall be notified to mark and map any underground utilities that are located along the pipeline alignment. The agency with project approval authority or construction contractors through contractual obligations with the agency with project approval authority shall notify USA one week prior to the beginning of excavation activities, or within an appropriate timeline so the entire pipeline alignment can be properly surveyed in order to minimize the risk of exposing or damaging underground utilities.

Significance After Mitigation

Less than significant.

DWTP Operation

Impact

4.6.7 Operation of the Proposed Project would involve the use and bulk storage of hazardous materials. This would be a less than significant impact.

The Proposed Project would require the storage of sodium hypochlorite, acid, sodium hydroxide, and diesel fuel on-site in bulk quantities. Sodium hypochlorite is a 12.5 percent solution and would be stored in two 5,000-gallon above ground cross-linked polyethylene storage tank. Diesel fuel oil would be stored in a single 300 gallon above-ground 3/16 inch thick steel double wall storage tank.

As part of the Proposed Project design, the storage facilities for the sodium hypochlorite would include a concrete containment berm capable of containing 110 percent of the storage tanks volume in the event a catastrophic failure of the storage tank occurs. Administrative controls (controls on the operation of the storage tank) would limit the filling of the tank to approximately 90-95 percent of the tanks full capacity. Furthermore, an adequate additional space is provided in the containment berm to manage wind driven waves and any rainwater that may have collected. A small metering pump within the containment berm, when

manually activated, would evacuate collected rain water or spilled sodium hypochlorite to the DWTP's main sump drain system and ultimately to the headworks.

In addition to this storage tank containment system, a delivery truck sump and drain is proposed to collect any sodium hypochlorite spilled during the truck/tank transfer process. Again, collected material in the platform sump would drain to the DWTP's main sump drain system and ultimately to the headworks.

Citric acid would be used for membrane cleaning based on need, and would be stored in a separate chemical storage room. Barrels would be stored on plastic risers to allow spillage and/or leakage to drain to the chemical storage room sump. Sodium hydroxide would be used sparingly to neutralize acid waste and would be stored in the same manner as the liquid acid but in a separate chemical storage area to prevent incompatible acid/base reactions.

Diesel fuel would be stored in a 300 gallon above-ground steel double wall storage tank to be located alongside the MCC/Blower building. The tank would be placed on skids allowing for easy cleaning of minor spills. The double wall tank feature would act as secondary containment, and operation of the tank as an above-ground feature would allow easy visual inspection of the system and easy identification of leaks.

In addition to the protection systems described above, sodium hypochlorite and diesel fuel, in addition to the mixed small quantities of solvents and other chemicals used at the DWTP, would be regulated under the Hazardous Materials Release Response Plans and Inventory Law (HMRRPIL) of 1985, which requires that a Hazardous Materials Business Plan be prepared for tracking hazardous materials use storage, and generation and emergency response plans in the event of a release or threatened release of a hazardous material. All hazardous materials use, storage, and generation would be tracked and documented as a requirement of the HMRRPIL. Bulk hazardous wastes would not be stored on-site and would be removed quarterly by a certified recycler or a properly licensed hazardous waste transporter. In the event an accidental release was to occur, the emergency response plan would provide emergency responders with a protocol for containing and disposing of the unintentional release. The City of Hollister would prepare and implement the Hazardous Materials Business Plan as required. With the protection systems described above and the emergency response plan to be prepared as a condition of the Hazardous Materials Business Plan, the potential for the release of stored hazardous materials is considered less than significant.

Mitigation Measure

4.6.7 None required.

Impact

4.6.8 Operation of the proposed DWTP would require hazardous materials deliveries, particularly liquid sodium hypochlorite on a schedule of every 10 days during the summer reclamation season. This would be a less than significant impact.

Those hazardous materials delivered in bulk by trucks would be transported to the DWTP by licensed transporters and would require special vehicles with cargo containers designed to withstand impacts as a result of a typical highway accident. Federal and State agencies

determine driver-training requirements; load labeling procedures, and container specifications for hazardous materials transport.

Deliveries of hazardous materials, whenever possible would be routed around existing residential areas. All deliveries of bulk hazardous materials will enter the City of Hollister DWTP via State Route 156 and San Juan Road avoiding the City of Hollister residential areas. This excludes septage trucks that are less likely to avoid residential areas. Thus delivery of bulk hazardous materials will avoid existing residential areas, therefore, accidents involving the release of hazardous materials in transport are considered less than significant.

Mitigation Measure

4.6.8 None required.

SPRAYFIELDS AND WATER PIPELINES

Impact

4.6.9 Operation of a recycled water system could possibly result in the ingestion of recycled water by the public or some other form of unacceptable exposure as supported by scientific literature. This would be a potentially significant impact.

The long-term use of recycled water for sprayfield irrigation could raise public health concerns for potential users and the community. Despite the extensive level of treatment of recycled water prior to delivery to the sprayfields, golf course, and irrigation sites, there remains a perceived public health concern due to the origin of recycled water as wastewater. Because the source of recycled water is domestic sewage, there are public health issues related to the known presence of pathogenic microorganisms (such as bacteria, viruses, and parasites) and various chemicals (such as heavy metals or organic substances) in untreated wastewater. However, wastewater treatment processes have proven to be effective in the removal of these substances. The Proposed Project would be required to comply with regulations dictating the production, monitoring, and distribution of recycled water, which have been established by the California DHS and the Regional Water Quality Control Board (RWQCB) to assure public health protection. The California wastewater reclamation criteria in Title 22, as established by the DHS, have been determined to provide a high degree of health protection, particularly for non-potable uses (Crook, 1991). Numerous studies have been conducted throughout California and the world to analyze the public health effects of using recycled water. However, based on numerous reuse studies, demonstrations, and ongoing recycled water programs throughout California, no adverse health effects are expected to result from the use of recycled water that is treated to accepted water quality standards.

In California, the coliform standard for disinfected tertiary recycled water is 2.2 total coliform per 100 milliliters, which is 100 times lower than the comparable standard established by the World Health Organization. For both standards, it has been determined that if recycled water meets these standards and is used for water contact purposes (such as swimming), then the public health risk of enteric disease would not be detectable over background levels. Although the use of the coliform standard is limited for indicating the presence of all pathogenic organisms, recycled water that reliably meets the accepted coliform standard used for irrigation has not resulted in community health problems. Studies indicate that with

proper attention to water quality standards and reclamation plant reliability, recycled water can be produced of a quality that would not pose an increased risk of disease to those using the water (Cooper, 1991).

Specific public health studies have been conducted on wastewater pathogens, aerosols, and viruses, as well as on chemical constituents. Studies on the health risk associated with exposure to wastewater have focused on workers at wastewater treatment plants (WWTPs), who are regularly exposed to untreated or partially treated wastewater, which is of much lower quality than recycled water. These studies represent worst-case conditions, since the general public is much less likely to be exposed to untreated or partially treated wastewater than are workers at WWTPs. Overall, these studies have shown that the risk of infectious disease among wastewater plant workers is minimal. Other health studies have addressed the impacts of human exposure to aerosols or spray from WWTPs. Aerosols are of concern because they can be inhaled. These studies indicate that public health effects have not been attributed to wastewater aerosols. Viruses, which are generally more resistant to treatment than bacteria, are also known to be present in wastewater, however studies conducted in California have shown that there has been no detectable viral hazard associated with current water reuse programs when they comply with California reclamation standards.

The use of recycled water for irrigation is readily practiced, and based on the available evidence from the studies described above, it can be concluded that for non-potable uses, the public health risk associated with exposure to treated recycled water that meets California reclamation standards is negligible. However, to ensure the development and implementation of site-specific water reuse, waste discharge and monitoring requirements required by the RWQCB at individual users sites, to ensure that the safeguards required by the DHS assuring treatment plant reliability are implemented, and to ensure the implementation of public education programs for landscape managers, users, and the general public, the following mitigation measures are recommended. The mitigation measures identified below are consistent with the measures identified in the EIR completed for the 2004 GWMP Update, which addressed the potential impacts of recycled water application (SBCWD & WRASBC, 2004b, pg.V-91).

Mitigation Measures

4.6.9 **(a) A recycled water use permit, including a monitoring program, shall be developed by the City of Hollister in conjunction with San Benito County Water District (SBCWD). The City shall implement appropriate measures designed to protect public health and monitor the water quality of recycled water that will be used for irrigation. The following measures shall be included:**

(1) The treatment, storage, distribution, or reuse of recycled water shall not create a nuisance.

(2) No recycled water used for irrigation shall be applied during periods of rainfall or when soils are saturated such that runoff is likely to occur.

(3) No recycled water used for irrigation shall be allowed to escape to areas outside the designated use areas by surface flow or by airborne spray.

(4) Recycled water shall not be applied to park, golf course, or landscape areas in such a manner or at such times that may expose golfers, picnickers, other

individuals, picnic tables, or food and drinking outlets to come into contact with airborne spray droplets.

(5) Spray, mist, or runoff of recycled water shall not enter a dwelling, food handling facility, or place where the public may be present. The recycled water and shall not contact any drinking fountain.

(6) Recycled water shall not be used as a domestic or animal water supply.

(7) There shall be no cross-connections between the potable water supply and pipes containing recycled water.

(8) The permit holder and users shall provide employee training to assure proper operation of reclamation facilities, worker protection, and compliance with the RWQCB order.

(9) Piping, valves, and outlets shall be color-coded and marked to differentiate recycled water from domestic or other water, and all recycled water controllers and valves shall be affixed with recycled water notification signs.

(10) The permit holder and users shall make necessary provisions to inform the public that the liquid being distributed is recycled water and is unfit for human consumption.

(11) Recycled water lines shall be separated from potable water lines by 10 feet in a horizontal direction and one foot in a vertical direction, with the potable line at the higher elevation.

(12) Potable water services to each site shall be protected with an approved reduced pressure principal backflow prevention valve or similar device.

(13) No hose bibs shall be used on recycled water systems.

(14) Specific pressure or dye tests shall be performed to verify that no cross-connections exist between the recycled water and potable water systems.

(15) The permit holder shall comply with the self-monitoring program as adopted by the RWQCB (i.e., including start-up inspection of each site by the City and DHS and continued area inspections and monitoring of the golf course, sprayfields, irrigation sites, and pipelines to be implemented by the City).

(16) The self-monitoring program shall include requirements for reporting, sampling, analysis, and use observations. Water quality monitoring of recycled water shall be conducted for all parameters required under Title 22 Wastewater Reclamation Criteria, including coliform, turbidity, chemical-biological oxygen demand (BOD), dissolved oxygen (DO), dissolved sulfides, pH adjustment, and chlorine dose. In addition, flow rate measurements and standard observations at user sites and impoundment facilities shall be conducted. Water quality monitoring shall be reported to the RWQCB as required. Additional water quality analysis beyond what is required by Title 22 requirements shall be implemented if included as part of other permit requirements. Implementation of waste discharge requirements (WDRs) and the self-monitoring program would provide a continuous, ongoing system for

tracking treatment plant effectiveness and assuring protection of public health and water quality.

In addition to the above measures, the City shall be responsible for evaluating the public health suitability of individual user sites for recycled water irrigation. The following information shall be considered with respect to the specific user sites.

- **The ability to apply unrestricted use water (i.e., disinfected tertiary treated wastewater) on the site.**
- **The depth to groundwater at the site (i.e., irrigation should not be performed in areas where the groundwater table is less than 10 feet from the ground surface).**
- **The soil type and permeability at the site (i.e., permeability should be sufficient to prevent ponding of irrigation water but would allow irrigation water to pass through the root zone slowly enough that nitrate can be absorbed by the plants).**
- **The proximity of the site to domestic use wells (i.e., irrigated areas shall be kept completely separate from domestic water wells or reservoirs and buffer zones shall be maintained between areas irrigated with recycled water and domestic wells, as required and approved by the DHS and the RWQCB).**
- **The ability to control surface water runoff at the site (i.e., steep sites and sites with little to no surface vegetation would be poor candidates for recycled water irrigation).**
- **The amount of vegetative cover at the site (i.e., sites with substantial vegetative cover and high water and nitrogen uptake rates would be advantageous for irrigation with recycled water).**
- **The amount of water consumption at the site (i.e., sites with demonstrated high water demand and flexible daily and seasonal irrigation requirements would be advantageous for irrigation with recycled water).**
- **The proximity of the site to sensitive surface features (i.e., sites within close proximity to surface streams, lakes, or ponds that could be affected by runoff from recycled water irrigation would be less desirable).**
- **The proximity of the site to places of public gatherings (Public parks, etc), eating or barbecue areas, and drinking fountains.**
- **The crop type on the site (i.e., crops or landscape plants with a high tolerance for accumulated salts and high water and nitrate uptake rates would be considered advantageous).**
- **The existing irrigation system at the site (i.e., would a drip irrigation system be considered advantageous over spray irrigation due to the reduced potential for public exposure).**

(b) Regulations contained in Title 17 of the CCR specify requirements to prevent contamination of the potable water supply through cross-connection with any non-potable water system. In accordance with these regulations, all newly installed recycled water pipes constructed as part of the Proposed Project shall be labeled and color-coded purple to distinguish them from potable water pipes. Other measures, including the use of backflow prevention devices on potable water systems, shall be employed to prevent cross-connection with the potable system. Backflow prevention assemblies shall be approved for use by the California Department of Health Services, as indicated by the Division of Drinking Water and Environmental Management.

In addition, the RWQCB's Water Reuse Requirements would prohibit any cross-connection between potable water supply and piping containing recycled water. The requirements would also likely specify that supplementing recycled water with water used for domestic supply shall not be allowed except through an air-gap separation and an air-gap or reduced pressure principle backflow device shall be provided at all domestic water service connections to recycled water use areas. Compliance with these regulations during design and construction of the recycled water distribution system would prevent any potential for cross-connection between the potable water system and the proposed recycled water system. Therefore, there would be no possibility of direct ingestion of recycled water through pipeline cross-connections.

(c) The City of Hollister shall develop an ongoing public information program regarding the use of recycled water for irrigation. In addition to notifying the public of the proposed changes in water supply sources for various designated uses, the program shall provide ongoing information regarding construction status, start dates and locations of recycled water operations, agency coordination efforts, water quality, and public health safeguards (such as compliance with applicable standards and ongoing monitoring). The City shall be responsible for notifying designated users of recycled water and providing information regarding recycled water quality, signage, plumbing, cross-connection, and public health issues. Information to site users shall be provided to assist them in site-specific water quality management, and information to the general public shall assure them of public health protection. In addition, signs shall be posted at all user sites indicating the use of recycled water.

More detailed and specific education programs shall be provided to persons handling recycled water or who may be exposed to it, such as treatment plant workers, landscape managers and gardeners, fire fighters, etc., to inform them of necessary public health precautions associated with handling recycled water.

Significance After Mitigation

Less than significant.

Impact

4.6.10 **Operation of sprayfields at the Hollister Airport and vicinity could result in aviation safety hazards associated with a potential increase in wildlife and birds, ~~and~~ deterioration of runway surfaces, and potential detrimental effects to aircraft as a result of irrigation overspray. Additionally, the placement of on-site infrastructure could pose a safety hazard to aircraft that attempt to land short of the runway. This would be a potentially significant impact.**

The development of sprayfields at the Hollister Airport could increase the density and duration of vegetation in the airport vicinity as a result of constant irrigation and water supply during months that typically receive limited rainfall. This grass could attract deer or other forms of wildlife as a potential food source. These animals could cross runways and endanger aircraft safety. Possible irrigation overspray adjacent to active runways could lead to standing water. This standing water could create an environment that is attractive to birds, resulting in further aircraft safety hazards. Irrigation overspray could also cause deterioration of runway surfaces and potentially detrimental effects to aircraft.

Additionally, the location of irrigation equipment and infrastructure within the approach zone of the runway may present a safety hazard to aircraft that attempt to land short of the runway. The potential safety hazards created at the Hollister Airport associated with the development of sprayfields are subject to review by the FAA to address aviation safety hazards. In addition, the following mitigation measures would ensure that a less than significant impact would occur to airport operations. The mitigation measures identified below are consistent with the measure identified in the EIR completed for the 2004 GWMP Update, which addressed wildlife hazards to the Hollister Airport (SBCWD & WRASBC, 2004b, pg.V-41).

Mitigation Measure

4.6.10 **(a) Consult with the Federal Aviation Administration ~~and~~, the San Benito County Airport Land Use Commission, and the State of California Department of Transportation Division of Aeronautics to ensure that the sprayfields will be compatible with airport operations.**

(b) The full perimeter fence that surrounds the airport property shall be inspected weekly by airport personnel to ensure the integrity of the fence. This shall prevent large wildlife such as deer from entering the property.

(c) In order to prevent the attraction of birds, sprayfield operation and watering cycles will be such that standing water is kept to a minimum.

(d) Turf within 25 feet of the runway will utilize a subterranean irrigation system that will eliminate the potential for wind driven overspray. This would ensure deterioration of runways surfaces would not occur due to water damage.

(e) Irrigation equipment will have breakaway risers.

(f) In accordance with FAA regulations, a Wildlife Habitat Plan shall be prepared and submitted to the FAA for review and approval. Implementation of this plan on the airport property shall ensure safety hazards do not occur associated with damaged runways from burrowing holes or the attraction of raptors. The City of Hollister in

coordination with airport staff shall be responsible for implementation of the Wildlife Habitat Plan.

Significance After Mitigation

Less than significant.

PHASE II EVAPORATION PONDS

Impact

4.6.11 Concentrate produced through the evaporation of brine could contain heavy metals in exceedance of hazardous waste levels. The removal of concentrate from evaporation ponds could potentially release hazardous materials into the environment, or adversely impact sensitive receptors. This impact is considered potentially significant.

Demineralization of groundwater or treated wastewater may require the evaporation of brine in shallow evaporation pans. The concentrate produced during this process could contain heavy metals, such as selenium or cadmium, in exceedance of hazardous waste levels. Adverse impacts could occur during transportation and disposal of this material if these materials are released into the environment. Additionally, dust created during collection of the concentrate could inadvertently expose nearby sensitive receptors, such as residences and schools, to hazardous materials. This is considered a potentially significant impact.

Mitigation Measure

4.6.11 The City of Hollister shall prepare and implement a salt concentrate handling and disposal plan. The plan shall include semi-annual testing of concentrate to monitor heavy metals and other hazardous constituents. The plan shall identify operational procedures for the removal of concentrate that would ensure the safety of workers and potentially affected sensitive land uses.

Significance After Mitigation

Less than significant.

4.7 UTILITIES AND SERVICE SYSTEMS

This section provides an overview of the utilities and service systems that could be affected with project implementation, and the regulatory setting applicable to environmental protection and adequate provision of public utilities and services. Issues related to utilities and service systems include possible upset to wastewater treatment facilities, increased demand on water supply facilities, and disposal of biosolids generated by the Proposed Project.

4.7.1 REGULATORY SETTING

STATE OF CALIFORNIA

The RWQCB regulates waste discharge to protect beneficial uses through the establishment of Waste Discharge Requirements (WDR) to meet specific water quality objectives. The Hollister Domestic Wastewater Treatment Plant (DWTP) operates under WDR Order No. 87-47. The DWTP is subject to the following restrictions:

- Discharge of any wastes, including overflow, bypass, seepage, and over spray, to the San Benito River, adjacent Drainages and adjacent property is prohibited.
- Dissolved Oxygen in the surface zone of the ponds shall be at least 2.0 mg/L.
- Effluent pH shall be between 6.5 and 8.4
- Discharge of less than primary treated effluent to the percolation beds is prohibited except during maintenance.
- 30-Day average day flow through the DWTP cannot exceed 2.69 MGD.
- Percolation beds must be operated on a 7-day cycle, 6 days of water application and 1 day for drying.
- The discharge cannot cause the nitrate concentration in the groundwater down gradient of the disposal area to exceed 5 mg/L or background levels, whichever is lower.
- The discharge cannot cause a statistically significant increase in mineral constituent concentrations in underlying groundwater.
- The discharge cannot cause concentrations of chemicals and radio nuclides in groundwater to exceed statutory limits

In September 2002, the RWQCB issued Cease and Desist Order (CDO) No. R3-2002-0105 due to the accidental discharge of approximately 15 million gallons of treated, undisinfected domestic wastewater to the San Benito River channel. The CDO included the following requirements:

- Cease issuance of permits for additional connections to the municipal sewer system.
- Obtain approval from RWQCB before prior to implementing measures to improve percolation rates.
- Expand water conservation efforts.

- Construct and install necessary equipment and improvements to reduce suspended solids concentrations in treated effluent discharged to the disposal beds at the DWTP.
- Construct and initiate use of new headworks at the DWTP such that influent flow volumes can be measured and nuisance odor conditions can be prevented.
- Fully implement a long-term wastewater management program (LTWMP) by October 15, 2005, including the prohibition of treatment of domestic wastewater at IWTP.

In July 2005, the City requested an extension to the compliance schedule for implementation of the LTWMP. The RWQCB approved this extension, including the following revisions to the compliance schedule:

- The City submits an updated LTWMP to the RWQCB for review by December 31, 2005.
- The City awards the contracts for construction of the new domestic wastewater treatment and disposal facility by October 31, 2006.
- The City submits a complete Report of Waste Discharge for the new wastewater treatment and disposal facility by March 31, 2007.

AB 939 – The Integrated Waste Management Act

In 1989, the Integrated Waste Management Act was adopted with the purpose of directing attention to the nation's increasing waste stream and decreasing landfill capacity, and to mandate a reduction of waste being disposed. For this purpose the act established waste diversion goals for cities and counties of 25 percent by 1995 and 50 percent by the year 2000. A disposal reporting system was established with CIWMB oversight, and jurisdictions were required to develop Source Reduction and Recycling Elements (SRRE) and Household and Hazardous Waste disposal programs.

Local Jurisdictions

The City of Hollister, San Benito County, and the San Benito County Water District (SBCWD) have entered into a Memorandum of Understanding for the development of a Hollister Urban Area Water and Wastewater Master Plan (MOU). The MOU outlines goals and objectives for water and wastewater treatment, supply and quality. These are summarized as follows:

- The Hollister Domestic Wastewater Treatment Plant is the primary wastewater treatment plant for the Hollister Urban Area including areas in the County that are designated to be served by that facility (Section 2.1.1).
- Standards for the quality of wastewater to be discharged shall be developed and agreed to by the City of Hollister, San Benito County and the San Benito County Water District and shall include appropriate consideration of regional issues. These standards shall be the most stringent of local standards, state regulations or federal regulations and shall include careful consideration of anticipated future regulation (Section 2.1.2).
- Wastewater treatment processes and disposal methods shall include careful consideration of future wastewater disposal requirement, shall provide for maximum reuse of wastewater, and

shall be agreed to by the City of Hollister, San Benito County and the San Benito County Water District (Section 2.1.3).

- Disposal options and sites shall not:
  - Impact drinking water supplies or negatively impact adjacent land uses or values unless fully mitigated to the satisfaction of the City of Hollister, San Benito County and the San Benito County Water District.
  - Be inconsistent with applicable General Plans or Policies including preservation of agricultural land.
  - Be or result in conditions inconsistent with the quantity, quality or groundwater levels objectives of groundwater management plans for the area of disposal (Section 2.1.3).
- Water and wastewater management shall protect and sustain the local surface and groundwater supplies of San Benito County (Section 2.1.5).
- Drinking water shall have a TDS concentration of not greater than 500 mg/l and a hardness of not greater than 120 mg/l (Section 2.2.2).
- Recycled wastewater shall have a target TDS of 500 mg/l and shall not exceed 700 mg/l. This objective shall first be met by rigorous source control and second by demineralization. Blending recycled water with San Felipe water shall only be used as an interim measure to meet these water quality objectives. These objectives shall be met by the measures identified above and the reduction of TDS concentrations in drinking water as soon as practical, and not later than 2015 (Section 2.2.3).
- Within the Hollister Urban Area all wastewater shall be treated at a central wastewater treatment plant and City and County general plans and supporting public service plans and implementing Ordinances/Regulations shall be consistent with that requirement. This provision shall not preclude wastewater satellite treatment plants for the recovery of water for local recycling (Section 2.2.4).

The MOU establishes the guidelines for completion of an Urban Water and Wastewater Master Plan (Master Plan). The Master Plan will consider water and wastewater resource management, in terms of quality, quantity, and groundwater levels; the Master Plan will provide consistency with the City of Hollister and San Benito County General Plans. The Master Plan is scheduled for completion in January 2007.

The Hollister Area Urban Water Management Plan (UWMP) was prepared jointly by the Sunnyslope County Water District, City, and SBCWD. The plan includes goals for strengthening the connection between regional land use planning and availability of water supplies; continuing collaboration between water agencies; providing a resource tool to make sound and consistent decisions regarding regional growth, and water management; meeting state and federal regulatory requirements; and defining water conservation plans (City of Hollister, 2005a).

SAN BENITO COUNTY GENERAL PLAN

The San Benito County General Plan provides the following polices relating to Utilities and Service Systems:

> 31. WASTEWATER TREATMENT: Wastewater treatment systems shall be designed to ensure the long term protection of groundwater resources in San Benito County. Septic systems shall be limited to areas where sewer services are not available and where it can be demonstrated that septic systems will not contaminate groundwater. Every effort should be made in developing and existing developed areas to reduce the use of septic systems in favor of domestic wastewater treatment. Domestic wastewater treatment systems shall be required to use tertiary wastewater treatment as defined by Title 22.
>
> 33. WATER CONSERVATION: To ensure more efficient use of groundwater resources it will be the policy of the County to require conservation of water resources in the County and encourage interagency conservation to develop policies and programs for the protection and enhancement of habitat for fish on major tributaries to the Pajaro River (San Benito River, Pacheco Creek).

CITY OF HOLLISTER GENERAL PLAN

Goal CSF1: Coordinate with other agencies and plan for the provision of adequate infrastructure, facilities and services.

Policies:

CSF1.1 Adequate Capabilities and Capacity of Local Public Services

Ensure that future growth does not exceed the capabilities and capacity of local public services such as wastewater collection and treatment, local water supply systems, fire and police protection, maintenance of streets and roads, local school systems, parks and recreational facilities, and landfill capacity, and ensure that public services meet Federal and State standards and are available in a timely fashion.

CSF1.2 New Development Requirements for Public Services

Require new development applications to identify the impacts that the proposed development would have on the provision of public services, and approve those applications that can mitigate impacts or contribute a proportional fair share so that local public services can be maintained at an acceptable level.

CSF1.4 Coordinate Facilities and Services Planning

Cooperate and coordinate with the County of San Benito, LAFCO and other local agencies in the provision of infrastructure and services within the Hollister Planning Area.

Goal CSF2: Plan for adequate sewer and water facilities.

Policies:

CSF2.1 Sewer and Water Facilities

Coordinate with responsible districts and agencies to assure that sewer and water facility expansion and/or improvements meet Federal and State standards and occur in a timely manner.

CSF2.2 Provision of Sanitary Sewerage Capacity for Commercial and Industrial Uses

Reserve sanitary sewerage capacity for future commercial and industrial uses.

CSF2.4 Local Water Supply System

Encourage development in those portions of the Hollister Planning Area which are already served by the local water supply systems or to which water supply systems can reasonably be extended.

CSF2.7 Water Conservation Measures

Encourage water-conserving practices and features in the design of structures and landscaping, and in the operation of businesses, homes and institutions, and increase the use of recycled water.

Goal CSF3: Provide adequate drainage facilities, limit erosion and maintain clean water.

CSF3.1 Adequate Drainage Facilities

Require project developers to provide adequate storm drains for storm water runoff. Review all proposed development projects to ensure that adequate provisions have been included to accommodate peak flows and that project will not significantly impact downstream lands, and will avoid impacts on riparian vegetation.

Goal CSF4: Provide for an adequate level of community services and facilities to ensure the continued health, education, welfare and safety of all residents and businesses.

Policies:

CSF4.10 Solid Waste Management

Coordinate with the County of San Benito in addressing solid waste management needs consistent with the Hollister General Plan.

CSF 4.11 Waste Reduction and Recycling

Encourage efforts to promote recycling, such as encouraging businesses to recycle building and other materials, promoting composting by restaurants, institutions and residences, and supporting programs to promote recycling. Encourage residential, commercial and industrial concerns to evaluate and reduce their waste streams and to participate in waste exchanges and used goods resale programs.

4.7.2 ENVIRONMENTAL SETTING

WATER

WATER SUPPLIERS AND SUPPLY

Three water suppliers serve the Hollister Planning Area: the SBCWD, the Sunnyslope County Water District (SCWD) and the City of Hollister. These water suppliers are described below.

San Benito County Water District

SBCWD is charged with the wholesale supply of Central Valley Project (CVP) surface water through the San Felipe Project in the Hollister Valley. San Felipe water is imported from San Luis Reservoir through the Hollister Conduit and stored in the San Justo Reservoir. This water is delivered to individual users through a distribution system consisting of approximately 120 miles of pressurized pipeline laterals grouped into 12 subsystems. One or more turnouts are provided at each parcel along the laterals. SBCWD has purchased CVP water since 1986 under a 40-year contract and is entitled to a total supply of 35,550 acre-feet per year (AFY) for agricultural uses and 8,250 AFY for municipal and industrial uses. This contract expires in 2027. These full entitlements are available only in wet years, as defined by the CVP. In normal years, CVP water deliveries are expected to be 65% of the contract entitlements for agricultural uses (23,108 AFY) and 85% of municipal and industrial uses (7,012 AFY). In critically dry years, water deliveries could be reduced to no imported water for agricultural uses and 35% for municipal and industrial uses (2,888 AFY). About 26,271 acre-feet of San Felipe water was used in San Benito County during the 2004 water year. This includes 20,267 acre-feet directly used by agricultural customers (SBCWD & WRASBC, 2004a).

SBCWD also is responsible for groundwater management in much of San Benito County, including the monitoring of groundwater pumping quantities and groundwater storage levels. The safe yield of the groundwater basin is estimated to be 54,000 AFY. This long-term average supply does not consider the quality of groundwater, which can limit beneficial use or impact crop production. Based on water quality, only a portion of the safe groundwater yield can be used for crop irrigation or potable water. It is assumed that approximately 15,000 AFY of the safe yield has some water quality issue that limits the beneficial use or results in crop impacts. Therefore, the beneficial portion of the safe groundwater yield is 39,000 AFY. Based on 56% of its contracted entitlement for CVP water for agricultural uses, the SBCWD is entitled 19,900 AFY. Assuming 85% of its contracted entitlement for municipal and industrial uses, the SBCWD is allowed 7,000 AFY. This constitutes a beneficial water supply of 65,900 AFY (SBCWD & WRASBC, 2004a).

SBCWD also operates the Hernandez and Paicines reservoirs, which collect and store excess runoff from rainfall and deliver surface water to agricultural users and for groundwater recharge in the San Benito River basin (City of Hollister, 2005a).

City of Hollister

The City of Hollister and the SCWD supply retail water primarily to municipal and industrial customers within the Hollister Planning Area. In general, the City water service area includes the west side of Hollister, north Hollister, and a portion of the Cienega Valley. The SCWD service area includes most of the east side of the City, the Fairview area, and other unincorporated land to the east of Hollister. Water supplies come from both groundwater sources and surface water through the newly built Lassalt treatment plant, which treats CVP water for use as domestic water supply.

Both the City of Hollister and the SCWD operate their own wells, distribution and storage systems. The City operates eight wells, including two wells in the Cienega Valley that provide limited supplies of water. Total annual well production rates for the last two years have been approximately 2.7 million gallons per day (MGD) with individual wells ranging up to nearly 2 MGD from the city's largest producing well.

In 2004, the City obtained 69% of water from seven deep ground water wells located throughout the City and Cienega Valley, 24% from San Felipe surface water, and 7% through inter-ties with the SCWD. The City routinely monitors for contaminants and had no violations in 2004. There are three connection points with the SCWD system that allow for the transfer of water through meters between the systems during times of emergency, giving each system an increased safety factor.

The City's three storage reservoirs (Park Hill, Fairview, and Sally Flats) provide a total storage capacity of 1.5 million gallons (MG). In addition to the storage reservoirs, the City has equipped three of its wells with emergency pumping capabilities, which can provide the Park Hill reservoir portion of the City water system with a nominal emergency reserve of 2,400 gpm in the event of a power failure (City of Hollister 2005a).

Sunnyslope County Water District

The SCWD provides water to portions of the City of Hollister and adjacent unincorporated portions of the County generally east and southeast of Hollister. The District currently provides water service to 5,200 accounts, of which approximately 60% are within the City of Hollister. In 2004, the SCWD obtained 68% of potable water from four deep groundwater wells located throughout the district, 29% from San Felipe surface water treated at the Lessalt plant and 3% from distribution system inter-ties with the City. Water provided by SCWD has not violated water quality standards in 2004. There are three connection points with the city's system that allows for the transfer of water through meters between the systems during times of emergency, giving each system an increased safety factor.

Water Demand

The projected future water demand assumes that water conservation will reduce rates of water usage over time. The agricultural water demand assumes 85% irrigation efficiency. Future water demand for

municipal and industrial uses assumes a decrease in water demand of one percent per year per household for the next 20 years through conservation. Overall demand for existing residences is expected to decrease from 420 gallons per day to 344 gpd in 2022. Water demand associated with new residential development is assumed to be 312 gallons per day per residence.

Projections of future agricultural water demand assume irrigated acreage in San Benito County will increase to approximately 17,000 acres by 2022. A water use factor of 1.8 acre-feet per acre with an effective precipitation of 0.4 feet and 85% irrigation efficiency was used to make the projection. Total annual water use in 2002 was approximately 68,000 acre-feet, which is expected to increase to about 89,000 acre-feet by 2022.

In the year 2022, future water demand is expected to be 74,880 acre-feet for agricultural uses and 11,465 acre-feet for municipal and industrial uses (SBCWD & WRASBC, 2004a).

WASTEWATER FACILITIES

DOMESTIC WASTEWATER TREATMENT PLANT

The DWTP was originally built in 1979 and became operational in 1980. At that time, the treatment plant consisted of a primary and secondary pond system with percolation beds. In 2003, the City completed interim improvements at the DWTP to improve treatment and disposal quality and efficiency until the LTWMP could be implemented. These interim improvements introduced considerable changes to the treatment process by converting to a dual-powered multi-cellular (DPMC) process to improve efficiency. In addition to the treatment process changes, a new influent lift station was constructed to control odors and improve flow measurement. Currently, the DWTP disposes of treated effluent in fifteen percolation beds located on the east and west sides of State Route 156, and additional beds located at the Industrial Wastewater Treatment Plant (IWTP).

The treatment plant system is capable of disposing of all of the current effluent flow of approximately 2.7 MGD. However, the percolation beds are operating at maximum capacity and the system will not accommodate projected growth within the City. Additionally, while the current treatment plant meets all existing Waste Discharge Requirements, the Central Coast Regional Water Quality Control Board (CCRWQCB) has indicated that a new treatment plant would be required to meet nitrate limits as established in the local groundwater basin plan. The existing treatment plant is not capable of meeting this nitrate requirement. The disposal of treated effluent at the existing percolation beds has also been identified as contributing to high groundwater levels and high salinity levels in the San Juan Groundwater Sub-Basin of the Gilroy-Hollister Groundwater Basin. High groundwater levels can result in crop reduction or failure and can impact the stability of buildings and roads as well as the functioning of leachfields. High salinity levels in groundwater can harm or kill plants and make it unsuitable as a drinking water source.

INDUSTRIAL WASTEWATER TREATMENT PLANT

The IWTP, which was constructed to serve adjacent cannery facilities, is located about a mile east of the DWTP and has been in operation since 1971. The IWTP originally consisted of influent screening, two sedimentation ponds, aeration ponds, and 36.1 acre of percolation beds. In 1975, the IWTP was upgraded to include a sludge storage lagoon while an additional percolation bed was added in 1981. The additional percolation bed was subsequently destroyed by river erosion. Operations at the IWTP were significantly improved in 1988 after the canneries began screening effluent. As a result, the sedimentation beds were no longer needed and taken out of service. In 2001, the City requested to divert domestic wastewater to the IWTP for treatment and discharge. To accommodate this change, the influent headworks and secondary pond lift station were improved.

The plant was designed to treat "high-strength industrial wastewater" from two canneries. In 1992, one of the canneries shut down. Currently, San Benito Foods is the only industrial discharger, releasing tomato cannery wastewater from mid-June through mid-October. The IWTP has generally complied with its Waste Discharge Requirements, however, during canning season discharges, effluent has exceeded limits for total dissolved solids, sodium, and chloride.

The IWTP is permitted to process 3.5 MGD during the canning season and 1.7 MGD during the non-canning season. However, the IWTP is capable of treating up to 6.1 MGD during the canning season and 2.6 MGD during the non-canning season. The percolation beds at the IWTP have a disposal capacity between 2.6 and 5.36 MGD depending on the operational mode.

SOLID WASTE COLLECTION AND DISPOSAL

Solid waste disposal within the Hollister Planning Area is currently provided under contract via the Hollister Disposal Company. Solid waste is disposed of at the John Smith landfill, the only permitted landfill (a Class III non-hazardous solid waste disposal facility) serving the Hollister area. The landfill is located on John Smith Road, east of Fairview Road. The landfill is owned by the County of San Benito and is operated by Hollister Disposal Company, under contract with the County. Currently, 28 acres of the 57-acre landfill are being utilized, which provides sufficient capacity to dispose of waste at a level of 250 tons per day for an estimated 15 to 18 years. The landfill currently handles an average of approximately 75 tons per day. The Hollister Disposal Company is currently updating its permit to allow full utilization of all 57 acres of the landfill site. Although it is uncertain how technology will alter current packaging and disposal methods and affect long-term success of recycling efforts, it is estimated that the utilization of the full site would provide a life span of between 40 and 45 years, based upon projected population growth in the service area (City of Hollister, 2005a). This facility does not accept biosolids (CIWMB, 2006).

4.7.3 IMPACTS AND MITIGATION MEASURES

SIGNIFICANCE CRITERIA

The project would be considered to have a significant impact on the environment if it would:

- Exceed wastewater treatment capacity,
- Significantly impact municipal water supply systems,
- Result in the production of solid waste in excess of available landfill capacity, or
- Result in noncompliance with federal, state, or local regulations relating to solid waste disposal.

IMPACT STATEMENTS AND MITIGATION MEASURES

DWTP IMPROVEMENTS

Impact

4.7.1 Construction of the DWTP improvements could temporarily interrupt operations at the DWTP and the IWTP, impacting the ability to provide adequate disposal. This impact is potentially significant.

Construction of the Proposed Project is planned to occur without extended interruption to the DWTP operations. The existing DPMC treatment system would remain in service until the new MBR facility is in operation. However, because construction of the MBR facility requires the abandonment of Pond 2, which currently provides storage capacity, additional storage capacity at the DWTP would be required for storage of treated effluent during the winter months. As identified in Section 3.5.1, additional storage would be provided by utilizing Emergency Storage Basins 1 and 2 at the DWTP site and by increasing diversions of municipal wastewater to the IWTP for treatment and disposal. However, as discussed in **Impact 4.3.10**, it is uncertain that adequate disposal capacity is available during the construction process. As discussed, increasing percolation at the DWTP and IWTP could result in increased groundwater mounding and the potential risk for resurfacing of treated effluent within the San Benito River. This would result in a significant operational impact as such a release would not be consistent with the Waste Discharge Requirements for the DWTP and IWTP.

Mitigation Measure

4.7.1 Implement Mitigation Measure 4.3.8, which requires the completion of a Construction Period Water Balance Plan. The plan includes the completion of hydrogeologic studies for the DWTP and IWTP storage facilities, and the identification of safe guards to ensure that resurfacing does not occur. Safe guards include lining the proposed DWTP seasonal storage reservoir, minimizing or eliminating the additional domestic effluent treatment and disposal at the IWTP, and the identification of additional disposal capacity through the development of sprayfields or recycled water projects.

Significance After Mitigation

Less than significant.

Impact

4.7.2 The Proposed Project would require the disposal of biosolids, and salt concentrate generated by the development of evaporation ponds. The improper disposal of biosolids and salt concentrate could result in degradation to soil or water resources. This would be a potentially significant impact.

Biosolids

It is estimated that the MBR process will generate approximately 12,400 pounds dry weight of solids per day at the design flow of 5.0 MGD. This amount of waste activated sludge equates to approximately 150,000 gallons per day of sludge. The sludge will be placed into a sludge stabilization basin (SSB). When the SSB eventually fills, the sludge will have to be removed, dewatered and hauled offsite for disposal or beneficial reuse. The SSB will have approximately 15 years of sludge storage available. Eventually the SSB will have to be cleaned out and the sludge removed for disposal or beneficial reuse. At that time the City would have the option to construct dewatering facilities or to contract out the removal and dewatering of the sludge (Hydroscience Engineers, 2005).

The closest landfill, located on John Smith Road in Hollister, does not accept biosolids. A number of facilities located outside San Benito County are permitted to accept biosolids. Waste would be required to have a minimum solid content and no free liquid to be disposed of at a landfill. The closest landfill that accepts biosolids or sludge is the NORCAL Waste Systems Pacheco Pass landfill located in Gilroy, approximately 19 miles north of Hollister. This facility is a Class III landfill with a maximum throughput of 1,000 tons per day. The estimated closure date of this facility is 2104. The following landfills located near San Benito County also accept biosolids:

1. Kirby Canyon Landfill, located 31 miles north near Morgan Hill, has an estimated closure date of 2025. It is anticipated that date will be extended (Pettit, 2006).
2. City of Watsonville landfill, located 35 miles west in Watsonville, has an estimated closure date of 2029.
3. Monterey Regional Waste Management landfill, located 37 miles west in Marina, has an estimated closure date of 2107.
4. Buena Vista Drive Sanitary landfill, located 41 miles west in Watsonville, has an estimated closure date of 2019.
5. Johnson Canyon Sanitary landfill, located 55 miles south in Gonzales, has an estimated closure date of 2043.

These facilities have sufficient capacity and are licensed to accept biosolid waste. However, mitigation has been identified to minimize impacts to landfill capacity.

Salt Concentrate

Evaporation ponds that could be developed as a component of the Salt Management Program in Phase II of the Proposed Project would produce approximately 3,000 cubic yards of salt concentrate per year. If fueled evaporation is used, concentrate could be dried in a zero liquid cake. As with the biosolids, these concentrate solids would need to be trucked off-site and disposed of at a landfill, or sold to a salt processor. Salt concentrate that does not exceed hazardous waste criteria for heavy metal concentration could be disposed of at a landfill that

accepts wastewater treatment sludge, such as those listed above. It is anticipated that salt concentrate would be accepted at the Kirby Canyon Landfill if it conforms to maximum moisture content levels and other requirements (Petitt, 2006). In the event that salts exceed hazardous waste levels, they would need to be handled and disposed of at a landfill that accepts hazardous waste. The Chemical Waste Management Inc. Landfill, located near Kettleman City approximately 135 miles away, is the nearest landfill that accepts hazardous materials. This landfill is a Class I facility and has an overall capacity of 4,200,000 cubic yards. These facilities have sufficient capacity and therefore, the disposal of salt concentrate is not expected to result in significant impacts to landfill capacity.

Mitigation Measure

4.7.2 In accordance with AB 939 and to the extent feasible, the City shall put the stabilized biosolids generated at the DWTP to beneficial use. Biosolids may be used as a soil amendment and fertilizer for agricultural lands and as a landfill cover material. Spreading properly treated biosolids on orchards, pasture, and farmland can increase crop yields and improve the soil's ability to retain moisture, thereby reducing irrigation requirements. The beneficial reuse of biosolids will decrease the amount of waste diverted to landfills. If land application of biosolids is to take place, the City shall obtain necessary approvals from the Department of Health Services and the RWQCB.

Significance After Mitigation

Less than significant.

SPRAYFIELDS AND RECYCLED WATER PROJECTS

Impact

4.7.3 The construction of pipelines could result in the disruption of existing utility lines during construction. This is a potentially significant impact.

Water, sewer, storm drain, natural gas, electric, telephone, and television cables and other pipelines are potentially located within the proposed project pipeline routes. The proposed pipelines would run parallel to or cross over or under many of these utility lines. Generally, the new wastewater pipeline would be installed below smaller existing cables and pipelines (i.e., house service lateral lines), which are typically near the surface and under existing roads. New pipelines will be positioned to avoid existing utilities whenever possible. However, the construction of a new pipeline as part of the DWSI project could result in temporary planned or accidental disruption of existing utility lines. In most cases, impacts to utilities and services would be temporary. This would be considered a potentially significant impact.

Mitigation Measure

4.7.3 Implement Mitigation Measure 4.6.6. which requires that the underground services alert (USA) be notified to mark and map any underground utilities that are located along the pipeline alignment.

INDIRECT IMPACTS

Impact

4.7.4 The Proposed Project may indirectly increase the use of groundwater for municipal purposes to supply future growth in the Hollister DWTP Service Area. Increased use of groundwater could result in decreased groundwater levels near municipal wells. The decrease in water levels could impact municipal wells by increasing pumping costs. This impact is considered less than significant.

The Proposed Project would expand the wastewater treatment and disposal capacity in the Hollister DWTP Service Area. This expanded capacity would accommodate growth projected to occur in the 2005 City of Hollister General Plan. This growth would increase demand on municipal water suppliers including the City of Hollister and SCWD. The Salt Management Program that would be implemented as Phase II of the Proposed Project would also influence municipal water use, by potentially utilizing well-head treatment of groundwater to reduce the salt content of the municipal water supply.

Potential impacts to municipal wells operated by the City of Hollister and SCWD were analyzed by utilizing a groundwater flow and solute transport model developed by San Benito County Water District and San Benito County. The numerical model consists of a five-layer grid of cells that covers the entire San Benito County part of the Gilroy-Hollister groundwater basin and extends from the ground surface to a depth of approximately 800 feet. The model is described in detail in **Section 4.3**. Impacts of changes in groundwater pumping on water levels at municipal wells were analyzed for Phase I and Phase II conditions. ~~The model analyzes impacts to groundwater on five layers each 250 feet deep. Layer 1 refers to the first 250 below the ground surface, which is also referred to as the shallow aquifer. Layers 2 through 5 correspond to groundwater layers of increasing depth, from 250 to 1,250 feet below the surface. These layers are also referred to as the deep aquifer. The model is described in detail in **Section 4.3**. Impacts to municipal wells were analyzed for Phase I and Phase II conditions.~~

Municipal water use in Hollister is expected to increase at a rate of 2.6% per year (2.0% in the Sunnyslope service area. Assuming the Lessalt plant continues to supply treated CVP water at its existing capacity of 3,000 AFY, groundwater use is expected to increase from 5,120 AFY in 2008 to 5,380 AFY in 2013 and 8,840 AFY in 2023. Increased groundwater withdrawals will decrease groundwater levels near Hollister in model layers 3-5, which correspond to the moderate-to-deep aquifers tapped by municipal wells. Simulating this impact required assumptions regarding the future distribution of pumping among municipal wells and the timing and location of new wells that would be added to supply increased demand. The simulation assumed that pumping was allocated in proportion to the well yields (in gallons per minute) and that existing wells would meet increased demand until the wells were operating 50% of the time, at which point a new well would be added to the system. These assumptions reasonably match existing operations in the SCWD system, whereas production in the Hollister system emphasizes certain high-yielding wells with good water quality more heavily. The discrepancy between the existing and assumed future pumping distributions for the Hollister system contributed noticeably to the difference between simulated water levels for the no-project and Proposed Project simulations.

For the Hollister system, a new well was projected to be added in 2019. This was assumed to be a 900 gpm well located in the future industrial area on the south side of the airport. For the

SCWD system, a new well was projected to become necessary in 2016. A 700 gpm well was added along the south edge of the Ridgemark development in the simulation.

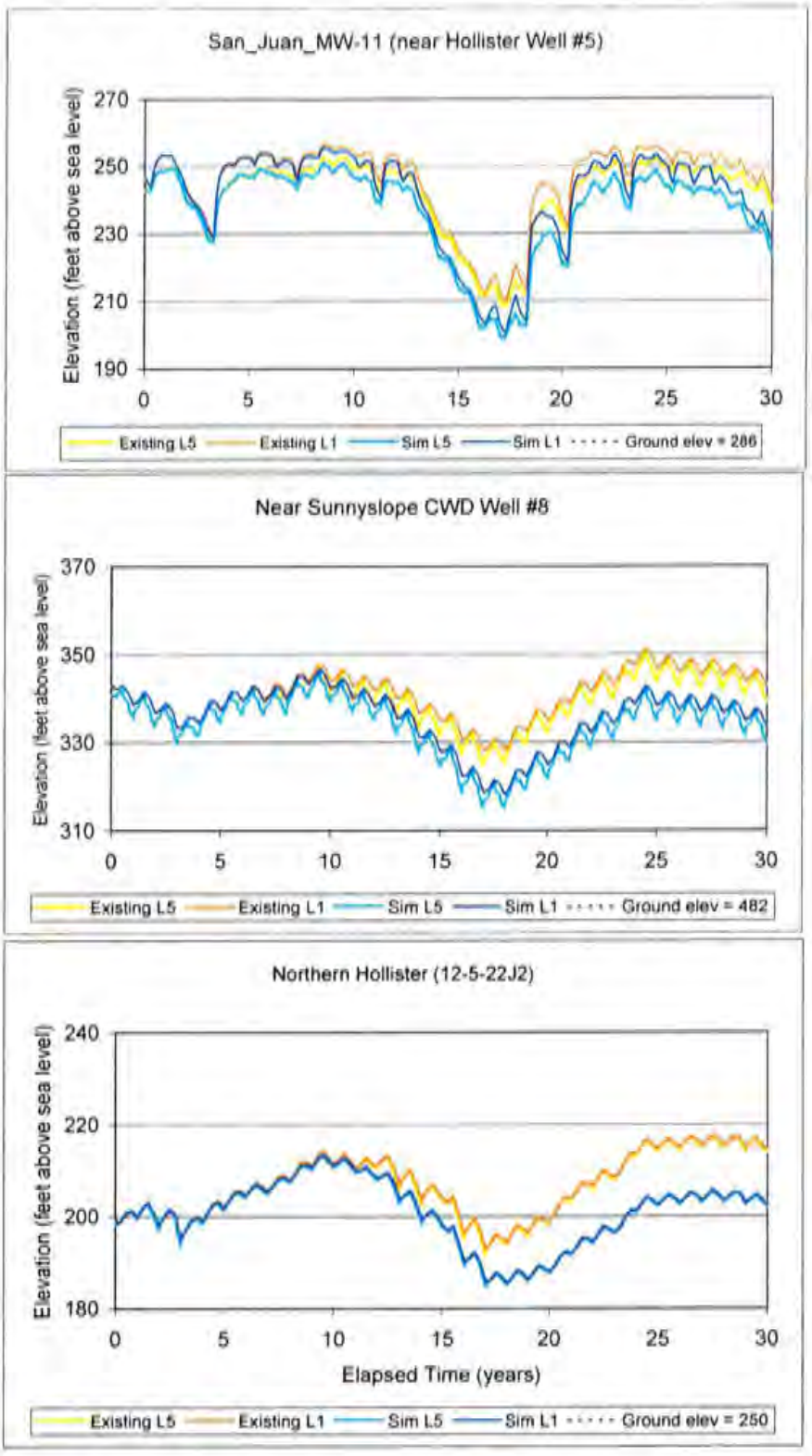
Figure 4.7-1 shows hydrographs of simulated water levels under existing and Proposed Project conditions near three municipal wells. Near the City of Hollister's Well No. 5 on Nash Road (top graph), simulated water levels under the Proposed Project gradually become lower than under existing conditions, by as much as about 6 feet in wet years and 12 feet in dry years. This decrease would not adversely impact well operation because the minimum simulated groundwater elevation is more than 30 feet higher than the lowest historical water level measured at that location in the early 1990s. A similar pattern is evident at the south end of the urban area, near SCWD Well No. 8 (middle graph). The hydrographs for existing and Proposed Project conditions begin departing noticeably from one another in year 8 of the simulation, which is when the new SCWD well was assumed to come on-line. By 2023, Proposed Project water levels were 10 feet lower than under existing conditions. Again, the minimum water level during a drought was tens of feet higher than minimum historical water levels extrapolated from well 13-5-13H1 located several thousand feet to the west. Finally, at the north end of the urban area (San Felipe Road north of McCloskey Road), the existing and with-project hydrographs first separate significantly about the time the new City of Hollister municipal well was assumed to begin operation nearby (in year 11 of the simulation). By 2023, water levels under the Proposed Project were 15 feet lower than under existing conditions. Concerns in this region are that water levels might become too high, not too low. The lower water level is beneficial in that regard.

Figure 4.7-2 shows contours of the difference in layer 5 groundwater elevation between the Proposed Project and existing conditions. Blue shading indicates areas where water levels would be lower under the proposed project, and red shading indicates areas where they would be higher. The upper map is for a dry year (1990) and the lower map is for a wet year (1998); both reflect Phase II conditions. The increase in pumping at all municipal wells lowers deep groundwater levels throughout the urban area by 2-12 feet in wet and dry years. Greater drawdown occurs near certain wells where calibrated hydraulic conductivity is small. The increase of as much as about 15 feet in water levels in the eastern part of the San Juan Valley is the result of decreased agricultural pumping in that area during Phase II, when recycled water would become the primary source of irrigation water.

The decrease in deep water levels in the urban area is not a significant adverse impact because the resulting water levels are substantially higher than minimum historical water levels or because lower water levels are beneficial due to shallow groundwater problems. Impacts associated with higher groundwater levels in the San Juan Valley are addressed under Impact 4.3.12.

~~For Phase I, impacts to municipal wells were analyzed by assuming groundwater pumping at all active Hollister and SCWD municipal wells increases by 25%, bringing total municipal pumping from 3,945 AFY to 4,934 AFY. This is the amount of pumping that would be reached in 2013 assuming total municipal water use increases by 2.6% per year (2.0% in the Sunnyslope service area) and that the Lessalt water treatment plant operates at its capacity of 3,000 AFY. The City of Hollister may install new supply wells specifically for groundwater demineralization, but the locations of those wells remains speculative. For this analysis, it is simply assumed that the additional pumping would be at existing wells.~~

~~**Figure 4.7-1** shows hydrographs of water levels near the City of Hollister's Well No. 5 on Nash Road and Sunnyslope's Well No. 8, which are among the largest producers in the two~~

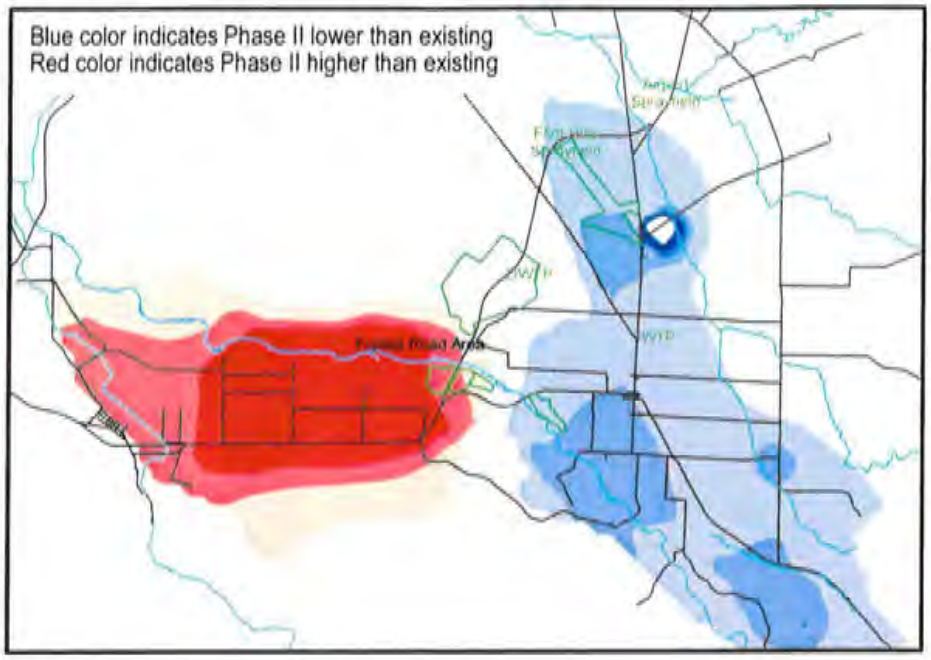


NOTE: L1 = Model Layer 1 L5 = Model Layer 5

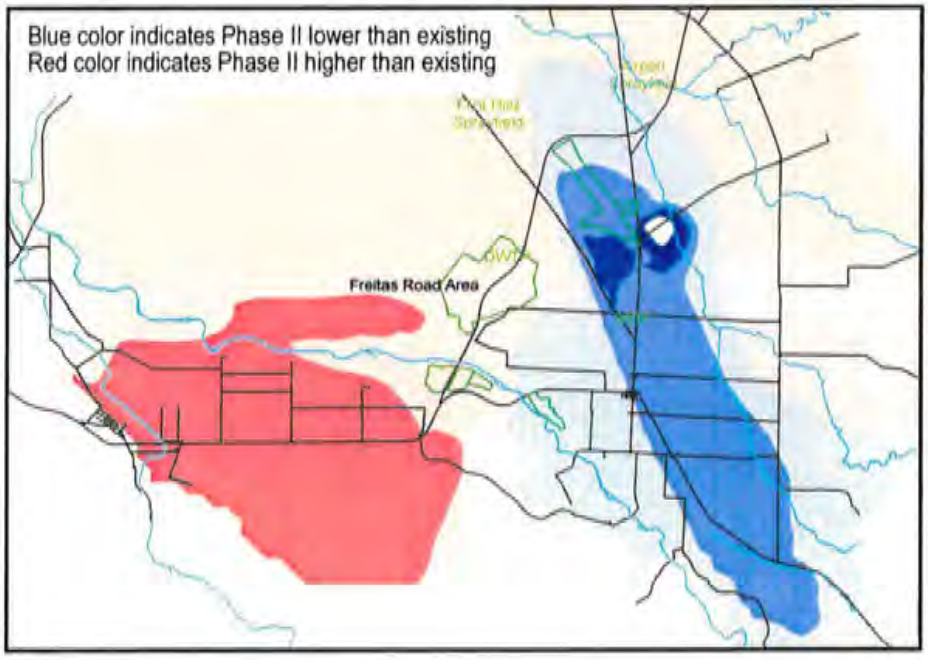
SOURCE: Gus Yates, 2006; AES, 2006

Figure 4.7-1

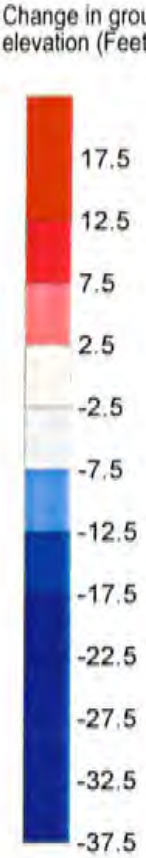
Phase I Impacts on Groundwater Elevations near Municipal Wells



A. Change in Layer 5 Groundwater Elevation from Existing to Phase II Conditions in a Dry Year



B. Change in Layer 5 Groundwater elevation from Existing to Phase II Conditions in a Wet Year



SOURCE: Gus Yates, 2006; AES, 2006

Figure 4.7-2

Phase I Impacts on Groundwater Elevations from Municipal Well Production

4.8 AIR QUALITY

This section provides a discussion of existing air quality conditions, potential air quality and odor impacts, and proposed mitigation measures for identified significant impacts to air quality.

4.8.1 REGULATORY SETTING

FEDERAL REGULATION

The Federal Clean Air Act (FCAA) forms the basis for the national air pollution control program. Basic elements of the FCAA and amendments include national ambient air quality standards (NAAQS) for major air pollutants, hazardous air pollutants (HAP) standards, state implementation plans (SIP), motor vehicle emissions standards, stationary source emissions standards and permits, acid rain control measures, stratospheric ozone protection, and enforcement provisions. EPA is the Federal agency charged with administering the FCAA and other air quality-related legislation. EPA's principal functions included setting NAAQS; establishing minimum national emission limits for major sources of pollution; and promulgating regulations. The NAAQS concentrations are presented in **Table 4.8-1**.

STATE REGULATION

In 1988, the State legislature adopted the California Clean Air Act (CCAA), which established a statewide air pollution control program. The CCAA's requirements include annual emission reductions, development and use of low emission vehicles, setting the California ambient air quality standards (CAAQS), and submittal of air quality attainment plans by air districts. The California Air Resources Board (CARB) is the State agency responsible for coordinating both State and Federal air pollution control programs in California. California's SIP is comprised of the State's efforts to attain the NAAQS as well as plans developed at the regional or local level. CARB approves local air quality management plans (AQMPs), which also address attainment and maintenance of CAAQS as mandated by the CCAA. The CAAQS concentrations are presented in **Table 4.8-1**. CARB also coordinates and approves local plans that eventually become part of the SIP for submittal to the EPA (MBUAPCD, 2004). The approved SIP for the North Central Coast Air Basin (NCCAB) consists of the 1994 Maintenance Plan and Contingency Control Measures for the Monterey Bay Region and adopted rules and regulations (MBUAPCD, 2004).

LOCAL REGULATION

Local air quality regulations are under the purview of the local air district in this region, which is the Monterey Bay Unified Air Pollution Control District (MBUAPCD). As required by the CCAA and the FCAA, the MBUAPCD is responsible for air monitoring, permitting, enforcement, long-range air quality planning, regulatory development, education, and public information activities related to air pollution in Monterey, Santa Cruz, and San Benito counties. California Health and Safety Code Sections 39002, *et seq.* and 40000, *et seq.* require local districts to be the primary enforcement mechanism for air pollution

control. Districts must have rules and regulations for the implementation and enforcement for the attainment and maintenance of federal and state ambient air standards.

TABLE 4.8-1
AMBIENT AIR QUALITY STANDARDS

Pollutant	Averaging Time	California Standard[d] Concentration	National Standard[e] Concentration
Ozone (O_3)	1 Hour	0.09 ppm[a]	~~0.12 ppm~~[c]
	8 Hour	0.070 ppm	0.08 ppm
Carbon Monoxide (CO)	8 Hour	9.0 ppm	9 ppm
	1 Hour	20 ppm	35 ppm
Nitrogen Dioxide (NO_2)	Annual	No Standard	0.053 ppm
	1 Hour	0.25 ppm	No Standard
Sulfur Dioxide (SO_2)	Annual	No Standard	0.030 ppm
	24 Hour	0.04 ppm	0.14 ppm
	1 Hour	0.25 ppm	No Standard
	3 Hour	No Standard	0.5 ppm
Respirable Particulate Matter (PM_{10})	Annual	20 $\mu g/m^3$	50 $\mu g/m^3$
	24 Hour	50 $\mu g/m^3$	150 $\mu g/m^3$
Fine Particulate Matter ($PM_{2.5}$)	Annual	12 $\mu g/m^3$	15 $\mu g/m^3$
	24 Hour	No Standard	65 $\mu g/m^3$
Lead (Pb)	30 day	1.5 $\mu g/m^3$	No Standard
	Calendar Quarter	No Standard	1.5 $\mu g/m^3$
Sulfates (SO_4)	24 hour	25 $\mu g/m^3$	No Standard
Hydrogen Sulfide (H_2S)	1 hour	0.03 ppm	No Standard
Vinyl Chloride	24 hour	0.01 ppm	No Standard

Notes:
a ppm = parts per million
b $\mu g/m^3$ = micrograms per cubic meter
c This standard was officially revoked June 15, 2005
d California ambient air quality standards (CAAQS) for ozone, carbon monoxide, sulfur dioxide (1-hour and 24-hour), nitrogen dioxide, and particulate matter – PM_{10}, $PM_{2.5}$ are values that are not to be exceeded. All others are not to be equaled or exceeded.
e National ambient air quality standards (NAAQS) (other than ozone, particulate matter, and those based on annual averages of annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest eight-hour concentration in a year, averaged over three years, is equal to or less than the standard. For PM_{10}, the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 $\mu g/m^3$ is equal to or less than one. For $PM_{2.5}$, the 24-hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard.

Source: CARB, 2006; AES, 2006

CRITERIA AIR POLLUTANTS

CARBON MONOXIDE (CO)

Carbon monoxide (CO) is a colorless, odorless gas that is formed when carbon in fuel is not burned completely. It is a component of motor vehicle exhaust, which contributes about 56 percent of all CO emissions nationwide. Other non-road engines and vehicles (such as construction equipment and boats) contribute about 22 percent of all CO emissions nationwide. Higher levels of CO generally occur in areas with heavy traffic congestion. In cities, 85 to 95 percent of all CO emissions may come from motor vehicle exhaust. Other sources of CO emissions include industrial processes (such as metals processing and chemical manufacturing), residential wood burning, and natural sources such as forest fires. High CO levels develop primarily during winter when periods of light winds combine with the formation of ground level temperature inversions (typically from the evening through early morning). These conditions result in reduced dispersion of air pollutants. Analysis of CO air quality also focuses on motor vehicles because they emit increased CO at low air temperatures when ground-level inversions are usually present (MBUAPCD, 2004).

State and Federal CO standards have been set for both 1-hour and 8-hour averaging times. The State 1-hour standard is 20 parts per million (ppm) by volume, while the Federal 1-hour standard is 35 ppm. Both State and Federal standards are 9 ppm for the 8-hour averaging period. CO is a public health concern because it combines readily with hemoglobin and thus reduces the amount of oxygen transported in the bloodstream.

OZONE (O_3)

Ozone is not emitted directly into the air, but is formed by a photochemical reaction in the atmosphere. Ozone precursors, which include reactive organic gases (ROG) and oxides of nitrogen (NO_X), react in the atmosphere in the presence of sunlight to form ozone. Because photochemical reaction rates depend on the intensity of ultraviolet light, ozone is primarily a summer air pollution problem. Ozone is a regional pollutant, as the reactions forming it take place over time, and downwind from the sources of the emissions. As a photochemical pollutant, ozone is formed only during daylight hours under appropriate conditions, but is destroyed throughout the day and night. Thus, ozone concentrations vary depending upon both the time of day and the location. Ozone is a respiratory irritant and an oxidant that increases susceptibility to respiratory infections and can cause substantial damage to vegetation and other materials (MBUAPCD, 2004).

In July 1997, EPA promulgated a new 8-hour standard for ozone. As of June 15, 2005, the Federal 1-hour standard was officially revoked. In setting the 8-hour ozone standard, EPA concluded that replacing the existing 1-hour standard with an 8-hour standard was appropriate to provide adequate and more uniform protection of public health from both short-term (1 to 3 hours) and prolonged (6 to 8 hours) exposures to ozone. While the Federal 1-hour ozone standard was officially revoked, the new 8-hour rule also addresses anti-backsliding provisions in the FCAA; so 8-hour ozone nonattainment areas remain

subject to control measure commitments that applied under the 1-hour ozone standard. In addition, the State has adopted a California 8-hour standard for ozone on April 28, 2005 of 0.070 ppm that became effective May 17, 2006.

INHALABLE PARTICULATE MATTER

Health concerns associated with suspended particulate matter focus on those particles small enough to reach the lungs when inhaled. Few particles larger than 10 microns in diameter reach the lungs. Consequently, both the federal and state air quality standards for particulate matter apply only to particulate matter 10 microns or less in diameter (generally designated as PM_{10}). The state PM_{10} standards are 50 micrograms per cubic meter ($\mu g/m^3$) as a 24-hour average, and 30 $\mu g/m^3$ as an annual geometric mean. The Federal PM_{10} standards are 150 $\mu g/m^3$ as a 24-hour average, and 50 $\mu g/m^3$ as an annual arithmetic mean. PM_{10} conditions in San Benito County reflect rural and urban sources, including agricultural activities, industrial emissions, dust suspended by vehicle traffic, and secondary aerosols formed by reactions in the atmosphere (MBUAPCD, 2004).

A new Federal standard for particulate matter less than 2.5 microns in diameter (generally designated as $PM_{2.5}$) was issued in July 1997 by Executive Order of the President. $PM_{2.5}$ is sometimes referred to as "fine particulate matter". The new $PM_{2.5}$ standard has been set at a concentration of 15 $\mu g/m^3$ annually and 65-$\mu g/m^3$ daily. The federal standards for PM_{10} are being maintained so that relatively larger, courser particulate matter continues to be regulated (MBUAPCD, 2004).

ATTAINMENT STATUS

Pursuant to the amendments to the federal CAA, EPA has classified air basins, or portions thereof, as either "attainment" or "non-attainment" for each criteria air pollutant, based on whether or not the NAAQS have been achieved. Both the Federal and State Clean Air Acts require "non-attainment" areas to prepare plans that include strategies for achieving attainment.

Table 4.8-2 provides the attainment status of the project area for each criteria pollutant. San Benito County is classified individually for CO only, while the other classifications are provided for the County as is falls within the North Central Coast Air Basin (NCCAB). As summarized in the table, ~~**Table 4.8-2, the**~~ San Benito County ~~portion of~~as it falls within the ~~North Central Coast Air Basin (~~NCCAB~~)~~ has the designation of non-attainment-transitional for ozone under State regulations (CAAQS). Prior to the EPA's revocation of the Federal 1-hour standard on June 15, 2005, the NCCAB was designated unclassified-attainment for ozone. The NCCAB is now designated unclassified-attainment for the Federal 8-hour ozone standard. According to the District, preliminary air monitoring data for 2005 show that the District meets the criteria for a nonattainment-transitional area having had less than three exceedances of the State ozone standard at any one air monitoring station. It is expected that due to variations, which are largely attributable to variations in year-to-year weather conditions, the District will probably remain on the borderline between attainment and non-attainment for the next several years (Nunes, 2006).

TABLE 4.8-2
ATTAINMENT STATUS FOR SAN BENITO COUNTY WITHIN THE NCCAB

Pollutant	State Status	Federal Status
Ozone (O_3) - 1- hour	N-T [a]	–
Ozone (O_3) - 8- hour	–	U/A [b]
Respirable Particulate Matter (PM_{10})	N [c]	U [d]
Fine Particulate Matter ($PM_{2.5}$)	A [e]	U/A
Carbon Monoxide (CO)	U	U/A
Sulfur Dioxide (SO_2)	A	U
Nitrogen Dioxide (NO_2)	A	U/A
Sulfates (SO_4)	A	–
Lead (Pb)	A	–
Hydrogen Sulfide (H_2S)	U	–

Notes:
a. N-T = Nonattainment / Transitional: a subcategory of the nonattainment designation. An area is designated nonattainment / transitional to signify that the area is close to attaining the standard for that pollutant.
b. U/A = Unclassified/Attainment: Areas that cannot be classified or are better than the national standards.
c. N = Nonattainment: a pollutant is designated nonattainment if there was at least one violation of a State standard for that pollutant in the area.
d. U = Unclassified: a pollutant is designated unclassified if the data are incomplete and do not support a designation of attainment or nonattainment.
e. A = Attainment: a pollutant is designated attainment if the state standard for that pollutant was not violated at any site in the area during a three-year period.
Source: CARB, 2006

In addition to ozone, ~~the San Benito County portion of~~ the North Central Coast Air Basin, and subsequently San Benito County, ~~is~~are designated as non-attainment for PM_{10} under state regulations and unclassified under federal regulations. San Benito County as it falls within the NCCAB is either attainment or unclassified for all other pollutants.

SAN BENITO COUNTY GENERAL PLAN

The San Benito County General Plan includes the following policies relating to air quality:

A. **Open Space and Conservation Element** (San Benito County, 1995)

- **Policy 10** – Air Quality: The County recognizes air as a natural resource and will strive to maintain air quality through proper land use planning. It shall be the County's policy to utilize land use and transportation controls for the protection and enhancement of air quality. Finally, it will be the County's policy to review public and private development proposals in light of possible recreational and open space potential.

B. **Land Use Element** (San Benito County, 2002)

be in accordance with all District Rules and Regulations and the conditions contained on the Authority to Construct (MBUAPCD, 2004).

- *Permit to Operate* before any article, machine, equipment or other contrivance may be operated or used, a separate written permit shall be obtained from the Air Pollution Control Officer for each permit unit. No Permit to Operate shall be granted either by the Air Pollution Control Officer, or the Hearing Board for any article, machine, equipment or contrivance until the information required is presented to the Air Pollution Control Officer and such article, machine, equipment or contrivance is altered, if necessary, and made to conform to the standards set forth in the Rules and Regulations (MBUAPCD, 2004).

Rule 216: *Permit Requirements for Wastewater and Sewage Treatment Facilities*

The Proposed Project would be regulated by District Rule 216 (Permit Requirements for Wastewater and Sewage Treatment Facilities), which requires that new or modified wastewater treatment facilities be consistent with the adopted AQMP. Consistency of wastewater treatment facilities is determined by comparing project forecasts for the proposed service area with the applicable AQMP forecasts. District Rule 216 requires that affected projects also remain consistent with the plan. This is accomplished by requiring establishment of a system to track and report hook-ups for new or modified wastewater treatment facilities (MBUAPCD, 2004).

Regulation IV – Prohibitions

Rule 400: *Visible Emissions*

This rule applies to all sources of air pollutant emissions in the District and sets limits for visible emissions in the District.

Rule 402: *Nuisances Rule*

This rule regulates the occurrence of discharge from any source air contaminants or other materials which cause "injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public; or which endanger the comfort, repose, health, or safety of any such persons or the public; or which cause, or have a natural tendency to cause, injury or damage to business or property".

Rule 404: *Sulfur Compounds and Nitrogen Oxides*

The rule limits the emission of sulfur compounds, nitrogen oxides, and nitrogen dioxide from sources within the District.

Rule 423: *Subpart O—Standards of Performance for Sewage Treatment Plants*
The rule incorporates EPA's New Source Performance Standards for Sewage Treatment Plants. The Standard pertains to a facility that uses an incinerator to combust wastes.

Regulation X – Toxic Air Contaminants (TAC)

Rule 1000: *Permit Guidelines and Requirements for Sources Emitting Toxic Air Contaminants*
The District regulates TACs from new or modified sources under Rule 1000 and a Board approved protocol. The rule applies to any source that requires a permit to construct or operate, and has the potential to emit carcinogenic or non-carcinogenic TACs. TACs are defined as any substance listed as a hazardous air pollutant in the FCAA, any substance listed in the State toxics program for which a reference exposure level has been established, or any substance listed in EPA's Integrated Risk Information System (IRIS) database that has a reference concentration established. Examples include inorganic arsenic, cadmium, dioxane, polychlorinated biphenyls (PCBs), and mercury compounds. Rule 1000 also requires sources of carcinogenic TACs to conduct a risk assessment and submit it as part of the Authority to Construct.

Rule 1003: *Air Toxics Emissions Inventory and Risk Assessments*
The District also implements Rule 1003, Air Toxic Emissions Inventory and Risk Assessments, which establishes and implements the Air Toxics Hot Spots Act. Unlike Rule 1000, Rule 1003 affects existing facilities and addresses several times as many TACs. It also requires that potential non-cancer health effects from acute and chronic exposure to toxic emissions be compared to reference exposure limits (RELs), another indicator of potential adverse health effects. Rule 1003 also requires that any increased cancer risk resulting from an existing facility's emissions is less than one incident per 100,000 population. In addition, if a new or modified source of hazardous emissions is within 1,000 feet from the outer boundary of a school site, the District is required to notify families of children enrolled and to all persons within 1,000 feet of the source before approving any permits (MBUAPCD, 2004).

TOXIC AIR CONTAMINANTS

Toxic air contaminants (TACs) are air pollutants with short-term (acute) and/or long-term (chronic or carcinogenic) adverse human health effects but for which no ambient standards have been established. Regulation of TACs is achieved through federal and state controls on individual sources. The CAAA manages a plan for significant reduction in both mobile and stationary source emissions of designated TACs. All major stationary sources of designated TACs are required to obtain an operating permit under

Title V of the CAAA. The Air Toxics Hot Spots Information and Assessment Act of 1987 (AB2588) regulates over 200 air toxics and is the primary air TAC legislation in the state. Under the act, local air districts may request a facility to account for its TAC emissions. Local air districts then prioritize facilities based on emissions, and high-priority designated facilities are required to submit a health risk assessment and communicate the results to the affected public.

4.8.2 Environmental Setting

Climatology

Air quality is a function of both the rate and location of pollutant emissions and by climatic conditions that influence the movement and dispersion of pollutants. Atmospheric conditions such as wind speed, wind direction, and air temperature gradients, along with local and regional topography, provide the links between air pollutant emissions and air quality.

The project site is located in the North Central Coast Air Basin (NCCAB). The NCCAB is comprised of Monterey, Santa Cruz, and San Benito Counties. The basin lies along the central coast of California and covers an area of 5,159 square miles. The semi-permanent high-pressure cell in the eastern Pacific is the basic controlling factor in the climate air basin. In the summer, the high-pressure cell is dominant and causes persistent west and northwest winds over the entire California coast. Air descends in the Pacific High pressure cell and forms a stable temperature inversion of hot air over a cool coastal layer of air. The warmer air aloft acts as a lid to inhibit vertical air movement.

The onshore air currents pass over cool ocean waters to bring fog and relatively cool air into the coastal valleys. The warmer air aloft acts as a lid to inhibit vertical air movement. The generally northwest-southeast orientation of the mountainous ridges tends to restrict and channel summer onshore air currents. Surface heating in the interior portion of the San Benito Valley, that contains the project site, creates a weak low pressure that intensifies the onshore airflow during the and evening. In the fall, the surface winds become weak, and the marine layer grows shallow, dissipating altogether on some days. The airflow is occasionally reversed in a weak movement, and the relatively stationary air mass is held in place by the Pacific High pressure cell, which allows pollutants to build up over a period of a few days. It is most often during this season that the north or east winds develop to transport pollutants from either the San Francisco Bay area or the Central Valley into the NCCAB.

During the winter, the Pacific high-pressure cell migrates southward and has less influence on the air basin. Air quality flows in a southeasterly direction out of the San Benito Valley, especially during night and morning hours. Northwest winds nevertheless remain dominant in winter, but easterly flow is more frequent. The general absence of deep, persistent inversions and the occasional storm systems usually result in good air quality for the basin as a whole in winter and early spring.

The project site, at the northern end San Benito Valley, experiences west winds nearly one-third of the time. The prevailing air flow during the summer months probably originates in the Monterey Bay area and enters the northern end of the San Benito Valley via the air gap through the Gabilan Range occupied by the Pajaro River. In addition, a northwesterly airflow frequently transports pollutants into the San Benito from the Santa Clara Valley (City of Hollister, 2005b).

EXISTING AIR QUALITY

Meteorology acts on the emissions released into the atmosphere to produce pollutant concentrations. These airborne pollutant concentrations are measured throughout California at air quality monitoring sites. CARB operates a statewide network of monitors. Data from this network are supplemented with data collected by local air districts, other public agencies, and private contractors. There are more than 250 criteria pollutant monitoring sites in California. Each year, more than ten million air quality measurements from all of these sites are collected and stored in a comprehensive air quality database maintained by CARB.

Air quality data for the period from 2003 through 2005 from the monitoring station nearest the project site are summarized in **Table 4.8-3**. The station closest to the project site is the Hollister station on Fairview Road, which is located approximately five miles to the east. The Hollister – Fairview site measures ozone and PM_{10}. The nearest site that measures CO and $PM_{2.5}$ is in Salinas, on East Laurel Drive, approximately 15 miles southwest of the project site. Pollutant concentrations measured at these stations are generally representative of background air pollutant concentrations in the project vicinity.

In addition to monitoring the ambient air, to estimate the sources and quantities of pollution, CARB, in cooperation with local air districts and industry, maintains an inventory of California emission sources. Sources are subdivided into four major emission categories: stationary sources, area-wide sources, mobile sources, and natural sources. Stationary source emissions are based on estimates made by facility operators and local air districts. Emissions from specific facilities can be identified by name and location. Emissions from area-wide sources may be either from small individual sources, such as residential fireplaces, or from widely distributed sources that cannot be tied to a single location, such as consumer products and dust from unpaved roads. CARB and local air district staffs estimate area-wide emissions. Mobile sources include on-road cars, trucks, and buses and other sources such as boats, off-road recreational vehicles, aircraft, and trains. CARB staff estimates mobile source emissions with assistance from districts and other government agencies. These sources include biogenic sources (vegetation) and wildfires. CARB staff and the air districts also estimate natural sources.

Table 4.8-4 summarizes estimated 2005 emissions of key criteria air pollutants from major categories of air pollutant sources. For each pollutant, estimated emissions are presented for San Benito County. No further spatial refinement is available (CARB, 2006).

NATURALLY OCCURRING ASBESTOS

Asbestos is the name given to a number of naturally occurring fibrous silicate minerals that have been mined for their useful properties such as thermal insulation, chemical and thermal stability, and high tensile strength. In addition to the old practice of using asbestos in buildings, it is also found in its natural state and is called naturally occurring asbestos (NOA). Exposure and disturbance of rock and soil that naturally contains asbestos can result in the release of fibers to the air and consequent exposure to the public. Asbestos most commonly occurs in ultramafic rock that has undergone partial or complete alteration to serpentine rock (serpentinite) and often contains chrysotile asbestos. In addition, another form of asbestos, tremolite, can be found associated with ultramafic rock, particularly near faults. Sources of asbestos emissions include: unpaved roads or driveways surfaced with ultramafic rock, construction activities in ultramafic rock deposits, or rock quarrying activities where ultramafic rock is present.

A review of the *General Location Guide for Ultramafic Rocks in California - Areas More Likely to Contain Naturally Occurring Asbestos*, (CDMG, 2000) was made that shows that the project site is not located in an area of potential NOA. No further action is required.

SENSITIVE RECEPTORS

A sensitive receptor is generically defined as a location where human populations, especially children, seniors, and sick persons, are located where there is reasonable expectation of continuous human exposure according to the averaging period for the AAQS (e.g., 24-hour, 8-hour, 1-hour). Locations of sensitive receptors may or may not correspond with the location of the maximum offsite concentration. Sensitive receptors include residences, schools, daycare facilities, nursing homes, hospitals and any other structure located where there is reasonable expectation of continuous human exposure according to the averaging period for the air quality standards. Land uses surrounding the DWTP consist of predominantly agricultural and industrial uses. There are scattered rural residences located in all directions within a half-mile of the DWTP.

Land uses associated with the initial development of sprayfields at the Hollister Municipal Airport, and recycled water use at the San Juan Oaks Golf Club are industrial and recreational, however, pipelines used to deliver the treated wastewater to the locations will be placed near a number of scattered rural residences. Effect on sensitive receptors from the pipelines would be limited to temporary construction activity.

4.8.3 IMPACTS AND MITIGATION MEASURES

This section focuses on the following air quality issues: the potential for violation of any air quality standard or the contribution to an existing or projected air quality violation; the potential for exposing sensitive receptors to pollutants; and the potential for the creation of objectionable odors.

SIGNIFICANCE THRESHOLDS

Consistency with the MBUAPCD's AQMP is used to determine the impact from a project on regional air quality under CEQA. The MBUAPCD is also the agency responsible for establishing the significance criteria of air quality impacts under CEQA in the air basin (MBUAPCD, 2004). Pursuant to the CEQA Guidelines, a project would normally have a significant effect on the environment if it would violate any ambient air quality standard, contribute substantially to an existing or projected air quality violation, or expose sensitive receptors to substantial pollutant concentrations. The significance thresholds for criteria pollutants are discussed below.

CONSTRUCTION

Inhalable Particulates

Construction activities (e.g., excavation, grading, on-site vehicles), which directly generate 82 pounds per day or more of PM_{10}, would have a significant impact on local air quality when they are located nearby and upwind of sensitive receptors or if ambient air quality in the project area already exceeds the CAAQS.

Ozone

Construction projects using typical construction equipment such as dump trucks, scrappers, bulldozers, compactors and front-end loaders which temporarily emit precursors of ozone [i.e., volatile organic compounds (VOC[1]) or oxides of nitrogen (NO_X)], are accommodated in the emission inventories of State- and federally-required air plans and would not have a significant impact on the attainment and maintenance of ozone AAQS. The MBUAPCD should be consulted regarding emissions from non-typical equipment, e.g., grinders, and portable equipment (MBUAPCD 2004).

Toxic Air Contaminants (TACs)

Construction equipment or processes would not result in significant air quality impacts if they comply with the permitting constraints within Rule 1000. Equipment or processes not subject to Rule 1000 that emit noncarcinogenic TACs could result in significant impacts if emissions would exceed the threshold that is based on the best available data [i.e., acute (1-hour) REL, chronic (annual) REL, PEL/420]. In addition, temporary emissions of a carcinogenic TAC that can result in a cancer risk greater than one incident per 100,000 population are considered significant.

OPERATIONAL

Ozone

Projects that would emit 137 pounds per day or more of direct and indirect VOC emissions would have a significant impact on regional air quality by emitting substantial amounts of ozone precursors. Such projects would significantly impact attainment and maintenance of ozone AAQS. Similarly, projects that

1 VOCs are any organic compound containing at least one carbon atom except for specific exempt compounds found to be non-photochemically reactive. In this document, VOC is synonymous with ROG.

emit 137 pounds per day or more of direct and indirect NO_X emissions would generate substantial emissions and have a significant impact on regional air quality.

Inhalable Particulates

Projects that could generate 82 pounds per day or more of PM_{10} at the project site would result in substantial air emissions and have a significant impact on local air quality (MBUAPCD, 2004). If ambient PM_{10} levels already exceed the State AAQS in the project area, the project would contribute substantially to the violation if it would emit more than 82 pounds per day. This would be considered a significant individual and cumulative impact on local air quality, since the background concentration reflects the collective contribution of PM_{10} from nearby sources.

Toxic Air Contaminants (TACs)

Operational equipment or processes would not result in significant air quality impacts if they would comply with the permitting constraints within Rule 1000. However, emissions of a carcinogenic TAC that can result in a cancer risk greater than one incident per 100,000 population are considered significant. Common sources of TACs include diesel fueled internal combustion engines, parking areas for diesel fueled heavy-duty trucks and buses, gasoline stations, and dry cleaners.

Odors

While offensive odors rarely cause any physical harm, they can still result in significant nuisances for residents and visitors. The MBUAPCD identifies that projects would be considered significant if odors "would cause injury, nuisance, or annoyance to a considerable number of persons or would endanger the comfort, health, or safety of the public" (MBUAPCD, 2004).

Impact Statements and Mitigation Measures

Short-Term Construction Impacts

Impact

4.8.1 Short-term construction activities associated with the Proposed Project would result in the generation of ROG, NO_X, and PM_{10} emissions. This would be a potentially significant impact.

Short-term construction emissions of the DWTP portion of the Proposed Project would be associated primarily with demolition of an existing wastewater storage basin and the construction of additional facilities for the membrane treatment system. The primary emission sources related to these construction activities would include construction worker vehicle trips, stationary fuel combustion driven equipment, and mobile construction equipment. In addition, site preparation including excavation, grading, grubbing, and trenching would be required, resulting in fugitive dust emissions.

Short-term construction emissions were quantified using *URBEMIS for Windows version 8.7*. Worst-case unmitigated construction emissions are summarized in **Table 4.8-5**. Emissions were calculated based on the following assumptions:

- *Grading Activities* at the DWTP are assumed to occur for the duration of 6 months. Grading activities would occur on approximately 85 acres total including: 77 acres of seasonal storage and 8 acres in the construction of the MBR plant. Daily maximum acreage disturbed would be 30 acres. Equipment assumptions for the grading phase at the DWTP include: 1 off-highway truck, 3 dozers, and 3 tractors/loaders/backhoes.

- *Building Construction* activities would consist of expanding existing facilities to include an updated membrane treatment system. Equipment assumptions for the building subphase include: 1 grader, 2 off highway trucks, 1 rubber tired dozer, and 1 trencher for a duration of 1 month. Equipment assumptions for the asphalt subphase of construction include: 1 paver and 1 roller for the duration of 1 month at plant site.

TABLE 4.8-5
UNMITIGATED SHORT-TERM DWTP CONSTRUCTION EMISSIONS
(POUNDS PER SUMMER DAY)

Activity	ROG	NO_X	Total PM_{10}	Dust PM_{10}	Exhaust PM_{10}
DWTP Grading Activities	17	126	306	300.01	5.73
DWTP Building Construction	16	107	4	0	4
Maximum - All Construction Phases	**17**	**126**	**306**	**300.01**	**5.73**
Potentially Significant?	*No*	*No*	*Yes*	*Yes*	*No*

Note: Emissions shown are for the highest year in the multi-year construction period. Significance threshold amounts are 137 pounds per day for ROG or NO_X and 82 pounds per day for PM_{10}.
Source: AES, 2006.

Significance thresholds for construction activities consider the direct generation of 82 pounds per day or more of PM_{10} and 137 pounds per day of ROG or NO_X as a significant impact. Unmitigated construction emission from the Proposed Project would have the potential to cause significant temporary emissions of PM_{10}.

Table 4.8-6 shows the estimated quantity of emissions upon application of mitigation measures as described below. Mitigation would reduce emissions of PM_{10} to a level of less than significant. The following mitigation measures are consistent with measures identified in the EIR completed for the 2004 GWMP Update (SBCWD & WRASBC, 2004b, pg.V-166).

TABLE 4.8-6
MITIGATED SHORT-TERM DWTP CONSTRUCTION EMISSIONS
(POUNDS PER SUMMER DAY)

Activity	ROG	NO_X	Total PM_{10}	Dust PM_{10}	Exhaust PM_{10}
DWTP Grading Activities	17	101	46	44.79	1.15
DWTP Building Construction	16	85	1	0.15	0.85
Maximum - All Construction Phases	**17**	**101**	**46**	**44.79**	**1.15**
Potentially Significant?	*No*	*No*	*No*	*No*	*No*

Note: Emissions shown are for the highest year in the multi-year construction period. Significance threshold amounts are 137 pounds per day for ROG or NO_X and 82 pounds per day for PM_{10}.
Source: AES, 2006.

Mitigation Measures

4.8.1 **Construction and site grading activity would result in PM_{10} containing fugitive dust potentially in exceedance of the PM_{10} significance threshold Therefore, implementation of the measures listed below would control fugitive dust generation during construction and site grading. Implementation of these measures would ensure that construction-related fugitive dust emissions are minimized. No mitigation measures are needed for exhaust PM_{10}, ROG and NOx because no significance thresholds will be exceeded. However, mitigation has been identified to reduce these emissions. The following measures would reduce the ROGs, NOx, and PM_{10} emissions from construction activities:**

(a) Preservation of existing vegetation to the maximum extent feasible.

(b) For projects that exceed the threshold limits established by the Monterey Bay Unified Air Pollution Control District (currently 2.2 acres of disturbance or 82 lb/day), a dust abatement program shall be implemented. A person or persons shall be designated to oversee the implementation of the dust abatement program.

(c) Water all exposed soil, material piles, and dirt roadways with adequate frequency to keep soil moist at all times.

(d) Cover all haul trucks.

(e) Sweep paved roads that collect tracked soil from exiting construction site vehicles.

(f) Stabilize construction site entrance by either paving entrance or laying gravel.

(g) Hydroseed or landscape all exposed and disturbed surfaces as soon as feasibly possible.

(h) Prohibit all grading activities during periods of high wind (over 15 mph).

(i) Apply chemical soil stabilizers on inactive construction areas (disturbed lands within construction projects that are unused for at least four consecutive days).

(j) Haul trucks shall maintain at least 2 feet of freeboard.

(k) Cover inactive storage piles.

(l) Post a publicly visible sign that specifies the telephone number and person to contact regarding dust complaints. This person shall respond to complaints and take corrective action within 48 hours. The phone number of the Monterey Bay Unified Air Pollution Control District shall be visible to ensure compliance with the Nuisance Rule 402.

(m) Limit the area under construction at any one time.

(n) Construction equipment shall be adequately muffled and maintained.

(o) Use of aqueous diesel fuel.

(p) Use of cooled exhaust gas recirculation.

(q) Use of lean-NOx catalysts.

Significance After Mitigation

Less than significant

Impact

4.8.2 Short-term construction activities associated with construction of the recycled water pipelines and disposal areas would result in the generation of ROG, NO_X, and PM_{10} emissions. This would be a potentially significant impact.

Short-term construction emissions of the recycled water pipelines and disposal sprayfields associated with the Proposed Project would be associated primarily the construction of the recycled water pipelines including necessary trenching and repaving activities.

Short-term construction emissions were quantified using *URBEMIS for Windows version 8.7* (**Appendix K**). Worst-case unmitigated construction emissions are summarized in **Table 4.8-7**. Emissions were calculated based on the following assumptions:

- *Grading Activities* associated with the disposal system are assumed to occur for the duration of two years. Worst-case conditions would have a total of 1,300,000 linear feet of piping with a 10 foot wide disturbance area for approximately 30 acres of total disturbed space and a potential 776 acres of land using surface irrigation that would contain an element of earth moving and berm creation. Equipment assumptions for the grading phase of the disposal system include: 2 tractors/loaders/backhoes, 2 dozers, and 1 trencher.

TABLE 4.8-7
UNMITIGATED SHORT-TERM DISPOSAL AREA CONSTRUCTION EMISSIONS
(POUNDS PER SUMMER DAY)

Activity	ROG	NO_X	PM_{10}
Disposal Grading Activities	10	75	503
Potentially Significant?	*No*	*No*	*Yes*

Note: Emissions shown are for the highest year in the multi-year construction period. Significance threshold amounts are 137 pounds per day for ROG or NO_X and 82 pounds per day for PM_{10}.
Source: AES, 2006

Significance thresholds for construction activities consider the direct generation of 82 pounds per day or more of PM_{10} and 137 pounds per day of ROG or NO_X as a significant impact. Unmitigated construction emission from the disposal portion of the Proposed Project would have the potential to cause significant temporary emissions of PM_{10}.

Table 4.8.8 shows the estimated quantity of emissions upon application of mitigation measures as described below. Mitigation would reduce emissions of PM_{10} to a level of less than significant.

Mitigation Measures

4.8.2 Implement Mitigation Measure 4.8.1

Significance After Mitigation

Less than significant.

TABLE 4.8-8
MITIGATED SHORT-TERM CONSTRUCTION EMISSIONS
(POUNDS PER SUMMER DAY)

Phase	ROG	NO_X	PM_{10}
Disposal Grading Activities	10	60	75
Potentially Significant?	*No*	*No*	*No*

Note: Emissions shown are for the highest year in the multi-year construction period. Significance threshold amounts are 137 pounds per day for ROG or NO_X and 82 pounds per day for PM_{10}.
Source: AES, 2006.

LONG-TERM OPERATION IMPACTS

Impact

4.8.3 Operation of the proposed DWTP would generate mobile source and stationary source criteria air pollutants. This would be a less than significant impact.

Operational criteria air pollutant emissions would primarily occur through the use of employee (treatment plant operators) vehicles and associated commute trips. Vehicular operation emissions were quantified using emission factors provided through the URBEMIS for Windows version 8.7 (**Appendix K**). Operation emissions are summarized in **Table 4.8-9**. Emissions were calculated based on the following assumption: 6 vehicle trips associated with 3 employees (average number of employees expected to operate treatment plant). Trip lengths are assumed to be approximately 10 miles traveled at an average speed of 30 mph.

TABLE 4.8-9
OPERATION EMISSIONS (LBS/DAY)

Emission Source	CO	ROG	NO_X	PM_{10}
Vehicle Trips	2.25	0.25	0.90	0.09

Source: AES, 2006.

CO, ROG, NO_X, and PM_{10} emissions would not exceed their respective significance thresholds and consequently, operation emissions would not be considered significant. The Proposed Project would be required to comply with District Rule 216, which requires that new or modified wastewater treatment facilities are consistent with the adopted AQMP. Therefore, mitigation measures are unnecessary provided the project complies with District Rule 216.

Additionally, operation of the DWTP would require the transportation of biosolids to an off-site location for disposal. Biosolids would be transported off-site when the storage capacity

Significance After Mitigation

Less than significant

Impact

4.8.2 **Short-term construction activities associated with construction of the recycled water pipelines and disposal areas would result in the generation of ROG, NO_X, and PM_{10} emissions. This would be a potentially significant impact.**

Short-term construction emissions of the recycled water pipelines and disposal sprayfields associated with the Proposed Project would be associated primarily the construction of the recycled water pipelines including necessary trenching and repaving activities.

Short-term construction emissions were quantified using *URBEMIS for Windows version 8.7* (**Appendix K**). Worst-case unmitigated construction emissions are summarized in **Table 4.8-7**. Emissions were calculated based on the following assumptions:

- *Grading Activities* associated with the disposal system are assumed to occur for the duration of two years. Worst-case conditions would have a total of 1,300,000 linear feet of piping with a 10 foot wide disturbance area for approximately 30 acres of total disturbed space and a potential 776 acres of land using surface irrigation that would contain an element of earth moving and berm creation. Equipment assumptions for the grading phase of the disposal system include: 2 tractors/loaders/backhoes, 2 dozers, and 1 trencher.

TABLE 4.8-7
UNMITIGATED SHORT-TERM DISPOSAL AREA CONSTRUCTION EMISSIONS
(POUNDS PER SUMMER DAY)

Activity	ROG	NO_X	PM_{10}
Disposal Grading Activities	10	75	503
Potentially Significant?	*No*	*No*	*Yes*

Note: Emissions shown are for the highest year in the multi-year construction period. Significance threshold amounts are 137 pounds per day for ROG or NO_X and 82 pounds per day for PM_{10}.
Source: AES, 2006

Significance thresholds for construction activities consider the direct generation of 82 pounds per day or more of PM_{10} and 137 pounds per day of ROG or NO_X as a significant impact. Unmitigated construction emission from the disposal portion of the Proposed Project would have the potential to cause significant temporary emissions of PM_{10}.

Table 4.8.8 shows the estimated quantity of emissions upon application of mitigation measures as described below. Mitigation would reduce emissions of PM_{10} to a level of less than significant.

Mitigation Measures

4.8.2 Implement Mitigation Measure 4.8.1

Significance After Mitigation

Less than significant.

TABLE 4.8-8
MITIGATED SHORT-TERM CONSTRUCTION EMISSIONS
(POUNDS PER SUMMER DAY)

Phase	ROG	NO_X	PM_{10}
Disposal Grading Activities	10	60	75
Potentially Significant?	*No*	*No*	*No*

Note: Emissions shown are for the highest year in the multi-year construction period. Significance threshold amounts are 137 pounds per day for ROG or NO_X and 82 pounds per day for PM_{10}.
Source: AES, 2006.

LONG-TERM OPERATION IMPACTS

Impact

4.8.3 Operation of the proposed DWTP would generate mobile source and stationary source criteria air pollutants. This would be a less than significant impact.

Operational criteria air pollutant emissions would primarily occur through the use of employee (treatment plant operators) vehicles and associated commute trips. Vehicular operation emissions were quantified using emission factors provided through the URBEMIS for Windows version 8.7 (**Appendix K**). Operation emissions are summarized in **Table 4.8-9**. Emissions were calculated based on the following assumption: 6 vehicle trips associated with 3 employees (average number of employees expected to operate treatment plant). Trip lengths are assumed to be approximately 10 miles traveled at an average speed of 30 mph.

TABLE 4.8-9
OPERATION EMISSIONS (LBS/DAY)

Emission Source	CO	ROG	NO_X	PM_{10}
Vehicle Trips	2.25	0.25	0.90	0.09

Source: AES, 2006.

CO, ROG, NO_X, and PM_{10} emissions would not exceed their respective significance thresholds and consequently, operation emissions would not be considered significant. The Proposed Project would be required to comply with District Rule 216, which requires that new or modified wastewater treatment facilities are consistent with the adopted AQMP. Therefore, mitigation measures are unnecessary provided the project complies with District Rule 216.

Additionally, operation of the DWTP would require the transportation of biosolids to an off-site location for disposal. Biosolids would be transported off-site when the storage capacity

at the plant is reached. Maximum capacity at the plant is expected to occur every 16 years, and would generate approximately 17,805 tons of solid waste. Assuming an average truck load of 15 tons, disposal would require 1,187 truck trips. Vehicular emissions resulting from the disposal of biosolids were quantified using emission factors provided through the URBEMIS for Windows version 8.7 (**Table 4.8-10**) (**Appendix K**).

TABLE 4.8-10
UNMITIGATED EMISSIONS FROM DISPOSAL OF BIOSOLIDS (POUNDS PER SUMMER DAY)

Activity	ROG	NO_X	SO_X	CO	PM_{10}
Bio-Solid Disposal Emissions (lbs/day)	1.88	29.12	.06	7.0	.93
Significant Levels (lbs/day)	137	137	N/A	N/A	82
Potentially Significant?	*No*	*No*	*N/A*	*N/A*	*No*

Note: N/A = Not Applicable
Source: AES, 2006.

As shown in the above table, ROG, NO_X, SO_X and PM_{10} emissions would not exceed their respective significance thresholds. Therefore, emissions resulting from the disposal of biosolids would not be considered significant.

Mitigation Measure

4.8.3 None required.

Impact

4.8.4 Operation of the Proposed Project would potentially result in the increase of emission of toxic air contaminants. This would be a less than significant impact.

Emission of toxic air contaminates would primarily result from the volatilization of contaminants present in sewage as it is processed through the treatment train. Therefore, emissions of toxic air contaminates is primarily the function of what is entering the sewer system. A partial list of regulated toxic air contaminants can be found in **Table 4.8-1011.**

Although the treatment of wastewater and/or the activities associated with the treatment of wastewater would likely emit known toxic air contaminants (**Table 4.8-1011**), the impact is considered less than significant, because the emissions in municipal sewage are typically at extremely low concentrations. Given the proposed Hollister DWTP's service area and source of influent, toxic air contaminant loadings are estimated to be small and resultant emissions of little risk to human health or the environment.

In addition, operation of the wastewater facilities also requires compliance with District Rule 216 that requires that new or modified wastewater treatment facilities conduct a toxic risk assessment and are consistent with the adopted AQMP.

TABLE 4.8-1011
REGULATED TOXIC AIR CONTAMINANTS (TAC) OF CONCERN

TAC Contaminants of Concern	
Benzene	perchloroethylene
chlorine	trichloroethylene
chloroform	xylenes
Dichlorobenzene	hydrogen sulfide
methylene chloride	

Source: AB 2588; AES, 2006

In addition, operation of the wastewater facilities also requires compliance with District Rule 216 that requires that new or modified wastewater treatment facilities conduct a toxic risk assessment and are consistent with the adopted AQMP.

Mitigation Measure

4.8.4 None required.

Impact

4.8.5 The Proposed Project would increase the capacity of the wastewater treatment facility, which would potentially increase the generation of objectionable odors in the project vicinity. This would be a potentially significant impact.

Odor, especially those emissions comprised of malodorous compounds, is typical of activities associated with the treatment of municipal wastewater. Odor is not unlike other emissions from industrial point sources — the emissions are comprised of many different compounds, many of which have low-odor thresholds (i.e., the necessary concentration of odorous molecules is small in order to illicit a sensory response to the human nose). Municipal wastewater odor is primarily comprised of reduced sulfur compounds formed in the breakdown of raw sewage under reducing anaerobic conditions. These reducing conditions primarily occur within the sewage collection system prior to sewage entrance to the DWTP, and as such, the proposed treatment plant does little to facilitate the generation of odors, rather is merely a location for fugitive release. Therefore, the headworks and anoxic basins are the primary odor sources at the Hollister DWTP. The Proposed Project would increase the DWTPs treatment capacity thereby increasing the volume of wastewater and potential odor generating activity.

According to the existing DWTP Permit to Operate, the permit is conditional upon the ability of the DWTP to operate without the discharge of objectionable odors that would constitute a public nuisance . District Rule 402 regulates public nuisances by the standard that "no person shall discharge from any source whatsoever such quantities of air contaminants or other materials which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public; or which endanger the comfort, repose, health, or safety of any such persons or the public; or which cause, or have a natural tendency to cause, injury or damage to business or property."

There are scattered rural residences in the vicinity of the DWTP. However, a record of odor complaints from the past three years indicate that there have been no odor complaints associated with the DWTP site and the majority of complaints involve the IWTP, usually during tomato processing time, and the remainder are collection system issues. The Proposed Project would include the addition of an odor control biofilter. This includes a new pretreatment facility that will be designed to be fully enclosed with all open channels covered with removable checkered plates or with a concrete decking to help contain odors inside the grit chamber and fine screen areas. Additionally, the biofilter's grit washer and screenings washer/compactor areas, along with their associated dumpsters, will be enclosed in a building. Foul air will be collected from the airspace of the pretreatment structures and from the grit washer and screenings building. The foul air will be deodorized by a odor control biofilter that would consist of a packaged synthetic media biofilter. The septage receiving station would utilize the existing odor control biofilter located at the influent pump station to remove odors. This is a less than significant impact.

Mitigation Measure

4.8.5 None required.

Impact

4.8.6 The Proposed Project would transport disinfected tertiary treated recycled water through pipelines to sprayfields for disposal. This would be a potentially significant impact.

Odor, especially those emissions comprised of malodorous compounds, is sometimes associated with recycled water. The construction of an recycled water pipeline and the application of the disinfected tertiary treated wastewater effluent on the sprayfields would have the potential to create an odor impact. The pipeline will transport recycled water to the sprayfields for disposal. The disinfected tertiary treated recycled water would have very little odor. Therefore, these components of the Proposed Project would result in a less than significant impact from odor.

Mitigation Measure

4.8.6 None required.

Impact

4.8.7 The Proposed Project would divert treated wastewater from the DWTP to the IWTP for disposal. Odor related impacts from this action are considered less than significant.

To address decreased percolation capabilities at the DWTP, the City received permission from the CCRWQCB in 2000 to temporarily divert a portion of untreated domestic wastewater flows to the IWTP for treatment and disposal. Currently, odor impacts resulting from the diversion of domestic wastewater to the IWTP are being addressed through implementation of mitigation measures recommended in the EIR completed for the diversion project (David Powers & Associates, 1999). These measures include:

1) *Collection/Treatment System Odor Control Chemical Addition*
Implementation of this measure has resulted in the use of calcium-sodium nitrate (Ca-$NaNO_3$) in the collection system and treatment ponds as an odor control chemical additive.

2) *Improved Odor Scrubbers*
This measure involved the installation of a biological odor scrubber compost bed at the lift station used for the diversion of domestic wastewater located in the northwest corner of the IWTP. Odorous air is diverted through perforated pipes under the biological compost bed odor scrubber. Bacteria inside the compost consume odor producing organic carbons, and the air is released from the scrubber odorless.

3) *Chemical Sulfide Precipitation*
A ferric chloride storage and dosage tank was installed at the pump station used to divert treated wastewater from the DWTP to the IWTP for disposal. This material can be added to the treated effluent on a emergency basis when needed to dispose of odor very quickly at either the IWTP or DWTP ponds.

4) *Odor Management and Monitoring*
The following procedures have been implemented to ensure odor problems do not occur as a result of diversions from the DWTP:

- The dissolved oxygen concentration is measured at each pond twice a day, and the aerator operation is adjusted accordingly to provide sufficient aeration to meet oxygen demands.
- Sulfide measurements are taken at the IWTP when oxygen levels reach a specified threshold.
- Atmospheric hydrogen sulfide analyzers and odormeters are used for periodic testing around pump station and if complaints are received. Monitoring stations are located near the DWTP and IWTP, and maintained weekly.
- The City maintains an effective sewer cleaning schedule of sewer lines.

Since the implementation of the above measures, no official odor complaints have been received at the DWTP or the IWTP (Rose, 2006). Implementation of the Proposed Project would continue to divert flows to the IWTP for disposal; however, the wastewater would be tertiary treated at the DWTP prior to diversion. Because the effluent would be tertiary treated at the MBR facility, effluent disposed at the IWTP is expected to be improved in quality, and therefore would have a lower potential for resulting in odor impacts. Additionally, existing measures have been successful in addressing odor impacts.

Mitigation Measure

4.8.7 None required.

Impact

4.8.8 The Proposed Project would create a modification to an existing MBUAPCD air quality permit. This may result in population or industrial growth that is inconsistent with the local air quality management plan implemented for the attainment and maintenance of State and national ambient air quality standards. This would be a less than significant impact.

MBUAPCD Rule 200 requires the DWTP to obtain permits. The Air District issued the DWTP a Permit to Operate in 1997. Modifications associated with the Proposed Project would require an application for an Authority to Construct (ATC) (Ericksen, 2006). The Proposed Project would have to continue complying with all applicable requirements of Air District Rules.

The specific MBUAPCD rule for Wastewater and Sewage Treatment Facilities (Rule 216) lists permit requirements specific for wastewater and sewage treatment facilities, which requires that new or modified wastewater treatment facilities be consistent with the adopted AQMP. Consistency of wastewater treatment facilities is determined by comparing project forecasts for the proposed service area with the applicable AQMP forecasts. The AQMP relies on AMBAG's population projections. The recent EIR for the City of Hollister's General Plan (Hollister, 2005b) uses slightly different population projections than AMBAG and has listed it as a potential impact. The EIR identified mitigation to initiate amendment of AMBAG's projections to make them consistent with Hollister's projections. However, AMBAG has determined that an amendment is not necessary, as the growth enabled in the Hollister General Plan would not exceed AMBAG population forecasts and is therefore considered consistent with the AQMP (letter dated October 19, 2006, **Appendix L**). AMBAG has also confirmed that the proposed Domestic Wastewater Treatment System Improvements have been determined to be consistent with the AQMP (**Appendix L**).

MBUAPCD has indicated that as long as the projection is expected to be consistent with AMBAG the project ATC would not be denied for lack of consistency (Ericksen, 2006).

Successful compliance with MBUAPCD rules would ensure that the Proposed Project is consistent with the local air quality management plan for the attainment and maintenance of State and national ambient air quality standards.

Mitigation Measure

4.8.8 None required.

Impact

4.8.9 The proposed MBR facility would include two emergency diesel generators. Emissions from the occasional operation of these generators would have an impact on regional air quality. This would be a less than significant impact.

The two emergency standby engines would be provided at the DWTP to allow for continued service in the event of a power failure. One generator would be rated at 2500 kW/3,675 hp, and the second at 1,500 kW /2,200 hp. These generators would potentially generate NO_X, CO, ROG, and PM. Assuming maximum usage of 60 hours per year for test/exercise purposes, both generators would emit a total of 0.98 tons per year (tpy) of NO_X, 0.08 tpy of

CO, 0.02 tpy of hydrocarbons, and 0.04 tpy of particulate matter. These emissions are less than the MBAQMD's Best Available Control Technology (BACT) limitation for NO_X and do not exceed the Stationary Diesel Airborne Toxic Control Measure (ATCM) for particulate emissions. The generators would meet all applicable requirements imposed by the California Code of Regulations Title 17 Section 93115 – Airborne Toxic Control Measure for Stationary Compression Ignition Engines. Additionally, operation of the emergency diesel generators would require the City of Hollister to obtain a MBUAPCD ATC permit.

Mitigation Measure

4.8.9 None required.

Impact

4.8.10 A 175 hp emergency diesel generator may be provided at the Hollister Municipal Airport. Emissions from the occasional operation of this generator would have an impact on regional air quality. This would be a less than significant impact.

An emergency diesel generator may be provided at the Hollister Municipal Airport to provide backup power to booster pumps. This generator would be considerably smaller than those proposed for the DWTP, and would result in a negligible amount of emissions of NO_X, CO, ROG, and PM. Based on the analysis of the DWTP generators, emissions would less than the MBAQMD's Best Available Control Technology (BACT) limitation for NO_X and do not exceed the Stationary Diesel Airborne Toxic Control Measure (ATCM) for particulate emissions. The generator would meet all applicable requirements imposed by the California Code of Regulations Title 17 Section 93115 – Airborne Toxic Control Measure for Stationary Compression Ignition Engines. Operation of the generator would also require the City of Hollister to obtain a MBUAPCD ATC permit.

Mitigation Measure

4.8.10 None required.

Impact

4.8.11 Dust created during the removal of salt concentrate from evaporation ponds could impact sensitive land uses. This is considered a potentially significant impact.

During Phase II of the Proposed Project, the disposal of brine produced during the demineralization of groundwater or treated effluent would involve the collection and transportation of concentrate produced in evaporation ponds. During the evaporation process, a crust would form over the top of the concentrate, preventing windborne dust from occurring. However during collection and trucking of the salt concentrate from the evaporation ponds, dust could be generated and blown downwind. This dust could adversely impact sensitive land uses such as residences, schools, or businesses. The mitigation measure identified below is consistent with the measure identified in the EIR completed for the 2004 GWMP Update, which addressed the potential impacts from concentrate handling (SBCWD & WRASBC, 2004b, pg.V-184).

Mitigation Measure

4.8.11 A dust abatement program shall be developed for the collection and transportation of salt concentrate from evaporation ponds. This program shall be implemented in accordance with Air Pollution Control District requirements.

Significance After Mitigation

Less than significant.

4.9 TRAFFIC

This section provides an overview of the types of transportation and traffic related issues that may arise as a result of the proposed City of Hollister DWSI Project and the regulatory setting applicable to transportation and traffic. Transportation and traffic issues associated proposed project will be limited to construction activities, including the construction of the proposed transmission pipeline within the existing right of way of Highway 156 and Wright Road. Operational impacts to transportation and traffic are considered less than significant because wastewater treatment plants are not typically considered significant traffic generators. Therefore, discussion of issues associated with transportation and traffic will be limited to construction activities associated with the proposed project.

4.9.1 REGULATORY SETTING

Construction activities with the right-of-way of roadways require encroachment permits and other legal agreements from the public agencies responsible for each affected roadway. In the project area, these encroachment permits would be issued by Caltrans or the San Benito County. In addition to permits, traffic management plans would be required for each of the affected roadways and would be subject to the approval by each of the responsible agency jurisdictions. The traffic management plans should incorporate the standards and techniques presented in references such as Chapter 6 of the Federal Highway Administrations (FHWA) *Manual on Uniform Traffic Control Devices for Streets and Highways*, California Supplement, or as specified by each jurisdiction. The traffic management plans should include traffic control measures, methods of notification of affected businesses or residents, contact information should problems arise during construction activities, and other procedural requirements that may be necessary during construction activities.

4.9.2 ENVIRONMENTAL SETTING

EXISTING ROADWAY NETWORK

The roadway network in the project area consists of two state highways and local roads.

STATE HIGHWAYS

State Route 156 is a two-lane highway that connects Highway 152 north of Hollister to Highway 101 west of Hollister. State Route 156 was formerly routed through downtown Hollister, but with the creation of a bypass, is now located west of Hollister. State Route 156 bisects the DWTP site. Speed limits on State Route 156 vary from 25 to 55 miles per hour.

State Route 25 is a two-lane highway that connects Hollister and southern San Benito County to Highway 101 in the north and Highway 198 in the south. State Route 25 is designated as San Felipe Road and Prospect Avenue in downtown Hollister and Bolsa Road north of Hollister. Construction of a bypass is

expected to begin in 2006 that will re-route the highway through the eastern portion of Hollister. Speed limits on State Route 25 vary from 25 to 55 miles per hour.

LOCAL ROADS

The following local roads are located along potential pipeline alignments in the project area:

- Aerostar Way
- Bixby Road
- Briggs Drive
- Buena Vista Road
- Flint Road
- Freitas Road
- Mitchell Road
- San Juan Hollister Road
- San Juan Oaks Drive
- San Juan Road
- Union Road
- Wright Road

All roadway segments identified above are two lane undivided roads providing local access to agricultural and rural residential areas. Speed limits on these local roads vary from 25 to 55 miles per hour.

4.9.3 IMPACTS AND MITIGATION MEASURES

SIGNIFICANCE CRITERIA

The traffic impacts associated with the Proposed Project would be considered significant if construction activities were to:

- Result in the closure of a major roadway to through traffic with no suitable alternative routes available;
- Prohibit or restrict access to adjacent properties with no suitable alternative access; or
- Prohibit or restrict the flow of emergency vehicles with no suitable alternative access.

IMPACT STATEMENTS AND MITIGATION MEASURES

Impact

4.9.1 Construction of the proposed pipelines would temporarily increase construction traffic on adjacent roadways and negatively affect circulation flow. This is considered a potentially significant impact.

As described in **Section 3.4.1**, construction of pipelines would be required to convey treated effluent to disposal locations including sprayfields, recycled water projects and the IWTP percolation beds. Five major pipeline routes have been identified to serve the Freitas Road

area, the San Juan Oaks Golf Club, the Hollister Municipal Airport, the northwest region of the Phase I disposal area, and the IWTP. Roadways identified in **Section 4.9.2** are located along these routes. Construction of pipelines would result in temporary disruptions to traffic along the identified roadways. Adjacent roadways may also be impacted as the result of the extension of pipelines to serve specific parcels or by limiting access to these roadways. Access to private driveways along pipeline routes could be temporarily blocked by construction activities. Proposed construction activities may interfere with emergency response vehicles and create a delay in emergency response time as a result of lane closures or blockages and an increased presence of construction vehicles on local roadways. It is also possible that emergency services may be needed in areas where access is temporarily blocked by pipeline trenching activities.

Mitigation Measures

4.9.1 A Traffic Management Plan (TMP) will be prepared and submitted to Caltrans and San Benito County for approval prior to each phase of construction within the right-of-way of any state and county road. The TMP may include the following provisions:

- **Construction plans which detail specific roadway construction information; haul routes; signing for closures or detours; and public notification identifying location, scheduling, and duration of construction activities.**
- **Traffic routing plans which address the specific requirements for traffic control, including construction timing for specific areas and traffic detours.**
- **All public service agencies will be notified as to construction times and lane closures. This would insure that alternate routes are available to allow public services to function at an adequate level of service.**
- **During construction, at least one travel lane shall remain open in each direction when feasible. Traffic lanes shall be delineated by temporary traffic cones/barricades. Flag persons should control all directions of traffic, if necessary.**
- **Construction work on major roadways shall be conducted during off-peak traffic periods whenever possible. For State Route 25 and 156, construction should be limited to Monday through Thursdays outside of the hours of 7:00 to 9:00 am, and 3:00 to 7:00 pm, to alleviate traffic impacts. Construction within an intersection will be restricted to only half of the intersection at any one time, whenever possible, in order to maintain traffic flows.**

Significance After Mitigation

Less than significant.

Impact

4.9.2 Trucking of salt concentrate from evaporation ponds and biosolids from the DWTP would increase traffic on affected roadways. This impact is considered less than significant.

Operation of the proposed DWTP improvements would require the transportation of biosolids to an off-site location for disposal. Biosolids would be transported off-site when the storage capacity at the plant is reached approximately every 16 years. At this time, it is anticipated that operation of the plant will have generated 17,805 tons of solid waste. Assuming an

average truck load of 15 tons, disposal would require 1,187 truck trips. These truck trips would occur over a month long period, resulting in approximately 40 trucks trips per day. This increase in traffic along affected roadways from disposal of biosolids would be temporary and would not significantly affect roadway service levels.

During Phase II of the Proposed Project, disposal of byproducts produced during the demineralization of groundwater or treated effluent would require trucking salt concentrate from evaporation ponds to a landfill. This would increase the number of daily trips on affected roadways. It is anticipated that during a seven month dry season, approximately 300 truck trips, or two trips per day, would be required to haul the amount of salt concentrate produced at evaporation ponds (SBCWD & WRASBC, 2004b). The existing service levels of affected roadways are unknown at this time because the location of evaporation ponds has not been identified. However, the minor increase in traffic associated with the trucking of salt concentrate is marginal and would most likely not affect roadway service levels.

Mitigation Measures

None required.

4.10 NOISE

4.10.1 REGULATORY SETTING

Noise regulations, plans, and policies pertaining to the proposed project originate from two separate local jurisdictions. Because elements of the Proposed Project are located both in the City of Hollister and in the County of San Benito, the following discussion summarizes both jurisdictions noise goals and performance standards.

BACKGROUND

Noise is defined as unwanted sound. Sound, traveling in the form of waves from a source, exerts a sound pressure level (referred to as sound level) which is measured in decibels (dB), with zero dB corresponding roughly to the threshold of human hearing and 120 to 140 dB corresponding to the threshold of pain. Pressure waves traveling through air exert a force registered by the human ear as sound.

Sound pressure fluctuations can be measured in units of hertz (Hz) which correspond to the frequency of a particular sound. Typically, sound does not consist of a single frequency, but rather a broad band of frequencies varying in levels of magnitude (sound power). When all the audible frequencies of a sound are measured, a sound spectrum is plotted consisting of each measured Hz and corresponding sound power level. The audible sound spectrum consists of a range of frequency spanning 20 to 20,000 Hz. The sound pressure level, therefore, constitutes the additive force exerted by a sound corresponding to the sound frequency/sound power level spectrum.

The typical human ear is not equally sensitive to all frequencies of the audible sound spectrum (20 to 20,000 Hz). As a consequence, when assessing potential noise impacts, sound is measured using an electronic filter that de-emphasizes the frequencies below 1,000 Hz and above 5,000 Hz in a manner corresponding to the human ear's decreased sensitivity to low and extremely high frequencies. This method of frequency weighting is referred to as A-weighting and is expressed in units of A-weighted decibels (dBA). Frequency A-weighting follows an international standard method of frequency de-emphasis and is typically applied to community noise measurements. In practice, the level of a sound source is conveniently measured using a sound level meter that includes an electrical filter corresponding to the A-weighting curve.

NOISE EXPOSURE AND COMMUNITY NOISE

An individual's noise exposure is a measure of noise over a period of time. A noise level is a measure of noise at a given instant in time. Community noise varies continuously over a period of time with respect to the contributing sound sources of the community noise environment. Community noise is primarily the product of many distant noise sources which constitute a relatively stable background noise exposure with the individual contributors unidentifiable. The background noise level changes throughout a typical day, but does so gradually, corresponding with the addition and subtraction of distant noise sources such

as traffic and atmospheric conditions. What makes community noise constantly variable throughout a day, besides the slowly changing background noise, is the addition of short-duration single event noise sources such as aircraft flyovers, vehicle passbys, sirens, etc., which are readily identifiable to the individual. These successive additions of sound to the community noise environment varies the community noise level from instant to instant requiring the measurement of noise exposure over a period of time to legitimately characterize a community noise environment and evaluate cumulative noise impacts. This time-varying characteristic of environmental noise is described using statistical noise descriptors. The most frequently used noise descriptors are summarized below:

L_{eq}: the equivalent sound level is used to describe noise over a specified period of time, typically one hour, in terms of a single numerical value. The L_{eq} is the constant sound level which would contain the same acoustic energy as the varying sound level, during the same time period (i.e., the average noise exposure level for the given time period).

L_{max}: the instantaneous maximum noise level for a specified period of time.

L_{10}: the noise level that is equaled or exceeded 10 percent of the specified time period. The L_{10} is often considered the maximum noise level averaged over the specified time period.

L_{90}: the noise level that is equaled or exceeded 90 percent of the specified time period. The L_{90} is often considered the background noise level averaged over the specified time period.

L_{dn}: 24-hour day and night A-weighed noise exposure level which accounts for the greater sensitivity of most people to nighttime noise by weighting noise levels at night ("penalizing" nighttime noises). Noise between 10:00 p.m. and 7:00 a.m. is weighted (penalized) by adding 10 dB to take into account the greater annoyance of nighttime noises.

CNEL: similar to the Ldn, the Community Noise Equivalent Level (CNEL) adds a 5 dB "penalty" for the evening hours between 7:00 p.m. and 10:00 p.m. in addition to a 10 dBA penalty between the hours of 10:00 p.m. and 7:00 a.m.

EFFECTS OF NOISE ON PEOPLE

The effects of noise on people can be placed in three categories:

- subjective effects of annoyance, nuisance, dissatisfaction;
- interference with activities such as speech, sleep, and learning; and
- physiological effects such as hearing loss or sudden startling.

Environmental noise typically produces effects in the first two categories. Workers in industrial plants can experience noise in the last category. There is no completely satisfactory way to measure the subjective effects of noise, or the corresponding reactions of annoyance and dissatisfaction. A wide variation in individual thresholds of annoyance exists, and different tolerances to noise tend to develop based on an individual's past experiences with noise.

Thus, an important way of predicting a human reaction to a new noise environment is the way it compares to the existing environment to which one has adapted: the so called "ambient noise" level. In general, the more a new noise exceeds the previously existing ambient noise level, the less acceptable the new noise will be judged by those hearing it. With regard to increases in A-weighted noise level, the following relationships occur:

- Except in carefully controlled laboratory experiments, a change of 1 dBA cannot be perceived;
- Outside of the laboratory, a 3 dBA change is considered a just-perceivable difference;
- A change in level of at least 5 dBA is required before any noticeable change in human response would be expected; and
- A 10 dBA change is subjectively heard as approximately a doubling in loudness, and can cause adverse response.

These relationships occur in part because of the logarithmic nature of sound and the decibel system. The human ear perceives sound in a nonlinear fashion, hence the decibel scale was developed. Because the decibel scale is based on logarithms, two noise sources do not combine in a simple additive fashion, but rather combine logarithmically. For example, if two identical noise sources produce noise levels of 50 dB, the combined sound level would be 53 dB, not 100 dB. Because of this sound characteristic, if two noise emission sources, one producing a noise level greater than 9 dB than the other, the contribution of the quieter noise source is negligible and the sum of the noise sources is that of the louder noise source.

NOISE ATTENUATION

Stationary point sources of noise, including stationary mobile sources such as idling vehicles, attenuate (lessen) at a rate of 6 to 9 dB per doubling of distance from the source, depending on environmental conditions (i.e., atmospheric conditions and noise barriers, either vegetative or manufactured, etc.). Widely distributed noises, such as a large industrial facility spread over many acres, or a street with moving vehicles, would typically attenuate at a lower rate, approximately 4 to 6 dB.

SAN BENITO COUNTY GENERAL PLAN NOISE ELEMENT

San Benito County's policies and guidelines towards noise are contained in the General Plan's Noise Element (San Benito County, 1990). The general plan identifies the noise environment of San Benito County as being dominated by roadway traffic, airports, rail traffic, and stationary industrial operations. However, due to the rural nature of the County, these noise generators generally do not create conflicts with area sensitive receptors. The Noise Element identifies noise level thresholds for different land uses designed to protect against human activity interference and hearing loss for indoor and outdoor uses. These thresholds identified by the County are shown in **Table 4.10-1** (San Benito County, 1990).

TABLE 4.10-1
SAN BENITO COUNTY INDOOR AND OUTDOOR NOISE LEVEL THRESHOLDS (L_{dn})

Land Use	Indoor	Outdoor
Residential with Outside Space and Farm Residence	45	55
Residential with no Outside Space	45	-
Commercial	70	70
Inside Transportation	[a]	-
Industrial	70	70
Hospitals	70	55
Educational	45	55
Recreational Areas	45	70
Farm Land and General Unpopulated Land	70	70

Note: [a] Since different types of activities appear to be associated with different levels, identification of a maximum level for activity interference may be difficult except in those circumstances where speech communication is a critical activity.
Source: San Benito County General Plan Noise Element, 1990.

SAN BENITO COUNTY ZONING ORDINANCE

San Benito County maintains a zoning ordinance, which specifies enforceable noise level standards. **Table 4.10-2** summarizes the acceptable noise standards for any noise generating source as it affects adjacent land uses. These standards are not to be exceeded in any one hour period.

TABLE 4.10-2
NOISE LEVEL STANDARDS FOR SAN BENITO COUNTY

Location	Sound Levels in dbA Leq One Hour Average	
	Day	Night
Rural Residential	45	35
Residential	50	40
Commercial	65	55
Industrial	70	60

Source: San Benito County Zoning Ordinance, Section 44.3 Noise Level Standards.

Exemptions to the noise level standards identified in **Table 4.10-2** include the following:

- Safety signals, warning devices, emergency vehicle sirens,
- Temporary construction, demolition, or maintenance of structures between the hours of 7:00 a.m. and 7 p.m., except Sundays and Federal holidays,
- Agricultural equipment, including but not limited to water well pumps, pest repelling devices, and other related necessary and agricultural oriented uses,
- Yard Maintenance equipment operated between the hours of 7:00 a.m. and 7:00 p.m, and
- Other uses as set forth by a Resolution or as Conditions of Approval by the Planning Commission or the Board of Supervisors.

City of Hollister General Plan Noise Element

The City of Hollister's policies and guidelines towards noise are contained in the City General Plans Noise Element (City of Hollister, 2005). The General Plans provides the following applicable policies:

HS3.1 Protection of Residential Areas from Unacceptable Noise Levels

Protect the noise environment in existing residential areas, requiring the evaluation of mitigation measures for projects under the following circumstances: (a) the project would cause the Ldn to increase 3 dB(A) or more; (b) any increase would result in an Ldn greater than 60 dB(A); (c) the Ldn already exceeds 60 dB(A); and (d) the project has the potential to generate significant adverse community response.

HS3.2 Noise Source Control

Work with property owners to control noise at its source, maintaining existing noise levels and ensuring that noise levels do not exceed acceptable noise standards as established in the Noise and Land Use Compatibility Guidelines.

HS3.3 Construction Noise

Regulate construction activity to reduce noise between 7:00 pm and 7:00 am.

City of Hollister Municipal Code

The City of Hollister maintains enforceable noise standards within the City Municipal Code, specifically within Section 8.28.010:

> *It is declared to be the policy of the city that the peace, health, comfort, safety, and welfare of its citizens require protection from excessive unnecessary or unusually loud noises and vibrations from any and all sources in the community (Ord. 882 § 1 (part), 1996: prior code § 3B-1).*

Noise levels in residential districts above 55 dba during daylight hours and 50 dba after sunset are prohibited. Exemptions to the noise level standards identified in the City of Hollister Municipal Code are similar in nature to those described by the county and include the following:

- Cries for emergency assistance and warning calls,
- Radios, sirens, horns and bells on police, fire and other emergency response vehicles,
- Parades, firework displays, and other special events or any other activity for which a permit has been obtained from the City, provided compliance with all conditions identified on said permit,
- Religious worship activities, including but not limited to, bells, organs, singing, and preaching

- All mechanical devices, apparatus, or equipment which are utilized for the protection or salvage of agricultural crops (City of Hollister, 2003a).

VIBRATION STANDARDS

The Federal Transit Administration (FTA) has published guidelines for assessing the impacts of ground-borne vibration which would be suitable for this project. The FTA recommendations are expressed in terms of the "vibration level," which is calculated from the peak particle velocity due to ground-borne vibration. The FTA measure of the threshold of perception is 65 VdB, which correlates to a peak particle velocity of about 0.002 inches per second (in/sec). The FTA measure of the threshold of architectural damage for conventional sensitive structures is 100 VdB, which correlates to a peak particle velocity of about 0.2 in/sec.

4.10.2 ENVIRONMENTAL SETTING

SENSITIVE RECEPTORS

Some land uses are considered more sensitive to ambient noise levels than others, sensitivity being a function of noise exposure (in term of both exposure duration and insulation from noise) and the types of activities involved. Residential land uses are generally more sensitive to noise than commercial and industrial land uses. Sensitive receptors in the vicinity of the project area consist primarily of residential housing units. The nearest sensitive receptors to the existing DWTP site are located approximately 600 feet south, across San Juan Hollister Road and approximately 1,800 feet southeast adjacent to San Juan Hollister Road. Industrial and commercial land uses south of the site are not considered sensitive to noise. Likewise, vacant and agricultural areas that surround the majority of the project site to the north and east are not considered noise-sensitive. The noise environment in the areas surrounding the existing DWTP site is dominated by roadway noise from Highway 156 and San Juan Hollister Road. Existing land uses in the portion of the project area that is identified for potential pipeline routes, disposal sprayfields, and future irrigation projects, consist primarily of agriculture and single-family homes.

4.10.3 IMPACTS AND MITIGATION MEASURES

SIGNIFICANCE CRITERIA

The CEQA *Guidelines* define a significant adverse impact on the environment as an impact that would substantially increase the ambient noise levels in adjoining areas. Additionally, a significant impact would be created if a change in community noise exposure creating an adverse change in level of compatibility of surrounding land uses as defined in both San Benito County and the City of Hollister noise standards. For example, if the project were to exceed the noise performance standards as measured at the property line of a nearby land use with a corresponding noise compatibility guideline, project-generated noise would be considered significant. It should be noted that any agricultural oriented uses are exempt from noise standard as noted in San Benito County and City of Hollister Noise Ordinance.

METHODOLOGY

Construction noise impacts are based upon an assumed mixture of construction equipment and related noise levels. Noise levels of individual types of equipment are based on industry averages presented below. Assumptions related to construction equipment mixture and industry noise averages were used to evaluate construction related noise impacts. Operation of a DWTP is an inherently noisy activity. Operational noise impacts will primarily be related to additional fixed noise sources such as aeration basins, pumps, and sewage treatment machinery.

IMPACT STATEMENTS AND MITIGATION MEASURES

DWTP

Impact

4.10.1 Construction of the DWTP improvements would temporarily increase noise and vibration levels in nearby areas. This would be a potentially significant impact.

Typical construction noise levels are shown in **Table 4.10-3**. **Table 4.10-3** assumes operation of various construction equipment shown in **Table 4.10-4**. Modifications to the City of Hollister DWTP and construction of the seasonal storage reservoir and associated pipelines would require construction activities primarily related to the excavation, foundations, erection, and finishing categories of **Table 4.10-3**.

The nearest residence is located approximately 600 feet to the south of the DWTP site where system improvements are planned as described above. As indicated in **Table 4.10-3**, excavation and foundation phases would be the noisiest activities associated with construction, averaging 88 dBA, L_{eq} 50 feet from the noisiest piece of construction equipment (includes an ambient noise level of 50 dBA). At a typical attenuation rate of 6 dBA per doubling in distance from the noise source, construction daytime noise levels could reach approximately 67 dBA, L_{eq} at the nearest residential receptor. This would mean that the noisiest phase of construction would equate to an average 67 dBA at the nearest existing residential receptor located south of the existing DWTP across San Juan Hollister Road for a time period encompassing the noise generating activity (e.g., if it takes two hours to excavate a region of the project site for future basins, the noise level at the nearest sensitive receptor for those two hours would average approximately 67 dBA). Compared to the noise limitations of the County and City Noise Ordinance, such noise levels would be significantly higher.

Construction of the MBR facility would require the placement of stone columns under essential facilities. Available data indicates that the airborne noise levels due to pile driving would be in the range of 95 dBA at a distance of 50 feet. This noise source would be impulsive, created by either the impact of the pile driver with the pile, exhaust of the steam or diesel driving system, or both. The most likely impacted sensitive receiver is a residence located approximately 600 feet to the south of the DWTP site. Since the pile driver sounds would be impulsive, they would be potentially more annoying than other sounds such as traffic noise.

TABLE 4.10-3
TYPICAL CONSTRUCTION NOISE LEVELS

Construction Phase	Noise Level (dBA, L_{eq})[a]
Ground Clearing	84
Excavation	88
Foundations	88
Erection	79
Finishing	84

Notes: [a] Average noise levels 50 feet from the noisiest source and 200 feet from the rest of the equipment associated with a given construction phase. Noise levels correspond to public works projects in a suburban ambient noise environment (50 dBA).
Source: Bolt, Beranek, and Newman, 1971.

Conventional pile driving produces potentially significant ground-borne vibration. The use of auger-cast pile driving would not be expected to produce a significant amount of vibration in most instances. However, it would not be practical to predict potential pile driving vibration levels at the nearest receivers until a pile driving engineering plan has been prepared. However, the potential for public annoyance, sleep disruption, or property damage due to pile driving noise and vibration remains of concern.

TABLE 4.10-4
TYPICAL NOISE LEVELS FROM CONSTRUCTION EQUIPMENT

Construction Equipment	Noise Level (dBA at 50 feet)[a]
Dump Truck	88
Portable Air Compressor	81
Concrete Mixer (Truck)	85
Scraper	88
Dozer	87
Paver	89
Generator	76
Backhoe	85

Notes: [a] Noise levels are instantaneous
Source: Cunniff, 1977.

Mitigation Measures

4.10.1 **(a) Noise generating construction shall only occur during the hours of 7:00 a.m. to 7:00 p.m. Monday through Saturday. If construction falls outside those hours specified in encroachment permits, the City of Hollister shall obtain a variance from the appropriate jurisdictional agency.**

(b) The City of Hollister shall require in construction specifications that the contractor select staging areas as far as feasibly possible from existing residences.

(c) The City of Hollister shall require in construction specifications that the contractor maintain all construction equipment with manufacturers specified noise muffling devices.

(d) The City of Hollister shall require in construction specifications that the contractor place all stationary noise generating construction equipment as far away as feasibly possible from sensitive receptors or in an orientation minimizing noise impacts (i.e., behind existing barriers or storage piles, etc.).

(e) Vibration due to pile driving shall not exceed 0.2 inches per second peak particle velocity as measured at the nearest residence. Upon commencement of pile driving, the project owner shall conduct continuous vibration monitoring at the nearest residential receiver south of San Juan Hollister Road and will continue the monitoring until the pile nearest that residence is installed. If vibration measurements indicate at any time that the pile driving vibration at any sensitive receiver has exceeded a peak particle velocity of 0.2 in/sec, the operator shall notify the City of Hollister immediately, and shall cease pile driving until a mitigation plan is developed and implemented. Mitigation could consist of utilizing auger-cast pile driving, or other construction techniques, which would reduce vibration levels.

Significance After Mitigation

Less than significant.

Impact

4.10.2 Operation of the proposed DWTP would generate treatment plant machinery noise. This would be a potentially significant impact.

Operation of the proposed City of Hollister DWTP system improvements would include multiple noise generating sources. Of these sources, noise from the operation of the membrane filtration building would likely dominate. Treatment plant noise could result in significant noise impacts to the nearest sensitive receptor approximately 600 feet to the south of the treatment plant site.

Mitigation Measure

4.10.2 Final design of the DWTP shall incorporate noise attenuating technologies and noise barriers such that noise emanating from the DWTP at ultimate design capacity will not cause the ambient noise level in the outdoor activity areas of the nearest sensitive receptor to exceed 65 dBA, L_{dn} or the noise standards as outlined in the County and City adopted Noise Ordinance. Such technologies shall focus on the design of acoustical enclosures for stationary noise sources such as pumps, motors, filters, and generators, and the use of inherently quieter treatment equipment, when available.

Significance After Mitigation

Less than significant.

SPRAYFIELDS, PIPELINES, OFF-SITE STORAGE RESERVOIR, AND OFF-SITE EVAPORATION PONDS

Impact

4.10.3 Construction of sprayfields, pipelines, off-site storage reservoirs, off-site evaporation ponds and associated pump stations would temporarily increase noise levels in nearby areas. This would be a potentially significant impact.

Trenching for pipelines, grading of sprayfields, reservoirs, ponds and associated facilities would involve sustained intrusive noise generating activities in relatively close proximity to some residences. Pipelines would be installed in agricultural, rural, and rural residential areas. Rural residences are located along the proposed pipeline corridors. Construction activities would occur adjacent to these homes exposing residents to noise levels approximately 88 dBA, L_{eq}. Such noise levels would exceed the noise standards of both the County Noise Ordinance and City Noise Ordinance and, therefore, would be significant.

Mitigation Measures

4.10.3 Implement Mitigation Measures 4.10.1 (a-d)

Significance After Mitigation

Less than significant.

Impact

4.10.4 Operation of the noise generating equipment such as pump stations and compressors would result in new or modified stationary noise sources. This would be a potentially significant impact.

The development of an off-site storage reservoir and evaporation ponds in Phase II would most likely occur in a rural area, although a specific locations have not been identified. Noise generating equipment such as pump stations and compressors may be required at the off-site storage reservoir and evaporation ponds or elsewhere along the pipeline routes. Rural residences are located along the proposed pipeline corridors and maybe located in proximity to the off-site storage reservoir and evaporation ponds. The potential exists that the pump stations could result in operational noise impacts to nearby residents. The following mitigation measures are consistent with measures identified in the EIR completed for the 2004 GWMP Update (SBCWD & WRASBC, 2004b, pg.V-43, 166).

Mitigation Measures

4.10.4 (a) Final design and redesign of noise generating equipment, such as pump stations and compressors, shall incorporate noise attenuating technologies and noise barriers such that noise emanating from the pump station at maximum operation load will not cause the ambient noise level in the outdoor activity areas of the nearest sensitive receptor to exceed the stated noise standards of the City and County adopted Noise Control Ordinance, or the standards stated in Table 4.10-5. Sensitive receptors are defined as residences, schools, medical facilities, libraries, churches, day care centers, and convalescent homes.

TABLE 4.10-5
NOISE STANDARDS FOR NOISE GENERATING EQUIPMENT HOURLY EQUIVALENT (LEQ)

	Noise level in Decibels at Property Line	
	7 AM – 7 PM	7 PM – 7 AM
Noise generating equipment adjacent to or effecting a property used or zoned for residential or other defined sensitive purposes	60	50
Noise generating equipment adjacent to a property used or zoned for commercial purposes	65	65
Noise generating equipment adjacent to a property used or zoned for industrial or other than commercial or residential purposes or defined sensitive uses.	75	75

Source: SBCWD & WRASBC, 2004b, pg.V-43.

(b) In addition, future projects with noise generating equipment shall be sited and designed so that noise levels, using the 24-hour Day-Night Level (DNL) descriptor, shall not exceed 60 dBA in outdoor activity areas for noise sensitive uses. Noise levels shall be reduced by incorporating noise reduction technology (acoustical treatments) such as acoustical enclosures and mufflers, or the use of inherently quieter equipment capable of achieving the previously specified noise performance standard.

(c) A noise analysis that addresses existing and future conditions shall be completed by a qualified acoustical consultant prior to the approval of noise generating projects located within the vicinity of noise sensitive receptors. The noise analysis shall identify measures required to conform with the noise guidelines listed in Mitigation Measure 4.10.4 (a).

Significance After Mitigation

Less than significant.

Impact

4.10.5 Trucks required for the transportation of concentrate from evaporation ponds to disposal locations would temporarily increase ambient noise levels in the vicinity of the evaporation ponds and along affected roadways. This is a potentially significant impact.

Operation of evaporation ponds during the Salt Management Program in Phase II would require the collection and removal of concentrate produced by trucks. Loading and operation of the tanker trucks would produce temporary increases in the ambient noise environment at the evaporation ponds and along affected roadways.

Mitigation Measures

4.10.5 Truck traffic shall be limited to the hours between 7:00 am and 7:00 pm Monday through Saturday.