4.11 UTILITIES

4.11 UTILITIES

Introduction

This section of the EIR describes water supply and wastewater utilities that would serve the Proposed Project in relation to overall water supplies for the region. As part of the analysis, this section assesses the expected water demand resulting from the Proposed Project, evaluates the effects of the Proposed Project on existing and future water supplies and infrastructure, and recommends mitigation measures where appropriate. These subjects are closely related to the discussion of potential impacts to regional hydrologic resources, which is found in Section 4.6, and the discussion of wastewater facilities which are discussed in this section.

Comments raised in letters received in response to the NOP (see Appendix B) include the relocation of an on-site groundwater well and the Vaughn Pipeline owned by the Solano Irrigation District (SID), water demand, water supply infrastructure, existing and future planned groundwater well locations, as well as, salinity of the City's wastewater stream. These issues are analyzed in this section of the EIR.

Information in this section was obtained from the *City of Dixon Northeast Quadrant Specific Plan (NQSP) Draft EIR* (1994), the Dixon 1993 General Plan, *Water Supply Assessment for the Northeast Quadrant, Dixon, California* (December 24, 2003), *Master Plan for the Water Supply and Delivery System Through Buildout* (January, 2000), and *North Central Solano County Groundwater Resources Report* (May 16, 1995). These documents are available for the public at the Dixon Community Development Department, 600 East A Street, Dixon, during normal business hours.

Water Supply

Environmental Setting

Water Supply Planning

The project site is within the service area of the Dixon-Solano Municipal Water Service (DSMWS). The DSMWS was formed by a Joint Exercise of Powers Agreement (JEPA) between the City of Dixon and the Solano Irrigation District (SID), which expires in 2009. The DSMWS currently delivers water to municipal and industrial users within the common boundaries of the City of Dixon and the SID. The DSMWS was formed by an agreement between the two entities in 1984, in which the powers of the JEPA would be restricted by oversight from the SID. The DSMWS currently delivers water supplied only from local groundwater resources. The developed water supplies are chlorinated at the wellheads prior to conveyance to customers to meet drinking water quality standards. In addition, some of the groundwater wells produce water that contains levels of nitrates that exceed drinking water standards.

These wells have specific treatment and monitoring programs to reduce the levels of nitrates prior to delivery.[1]

The DSMWS prepared the *Master Plan for the Water Supply and Delivery System Through Buildout* (January 2000) and *Water Supply Assessment for the Northeast Quadrant* (December 2003). The latter document states that the Proposed Project is within the service area of the DSMWS, and that the DSMWS would serve domestic water to all development in the NQSP area. Therefore, the DSMWS was identified as the public water supplier for the Proposed Project. The above documents are available for review at the City of Dixon, 600 East A Street, Dixon.

The City's domestic water supplies come from the California Water Service Company (CWSC) and the DSMWS. In general, CWSC serves the core of the city, while the DSMWS serves the development areas surrounding the city's core, as shown in Figure 4.11-1. The DSMWS does not have any agricultural customers. Domestic water supplies are provided by both entities through separate wells, storage, and booster facilities.[2] The *Water Supply Assessment for the Northeast Quadrant* (December 2003) studied the additional demand on groundwater supplies that the Proposed Project would create, in addition to demand from buildout of the City of Dixon 1993 General Plan. Figure 4.11-2 shows the water distribution system serving the NQSP area.

The DSMWS service area's potable water demand is met from four existing groundwater production wells owned and operated by the DSMWS. In addition, DSMWS and CWSC have an agreement to maintain metered interconnections between the two separate systems in the event of low system pressure in either of the water delivery systems. This arrangement provides some relief to either service area from momentary interruptions in delivery from equipment maintenance or failure. All groundwater in the DSMWS and CWSC service areas are drawn from the Solano Sub-basin. The Solano Sub-basin is bounded by Putah Creek to the north, the Sacramento River to the east, the North Mokelumne River to the southeast, and the San Joaquin River to the south.[3]

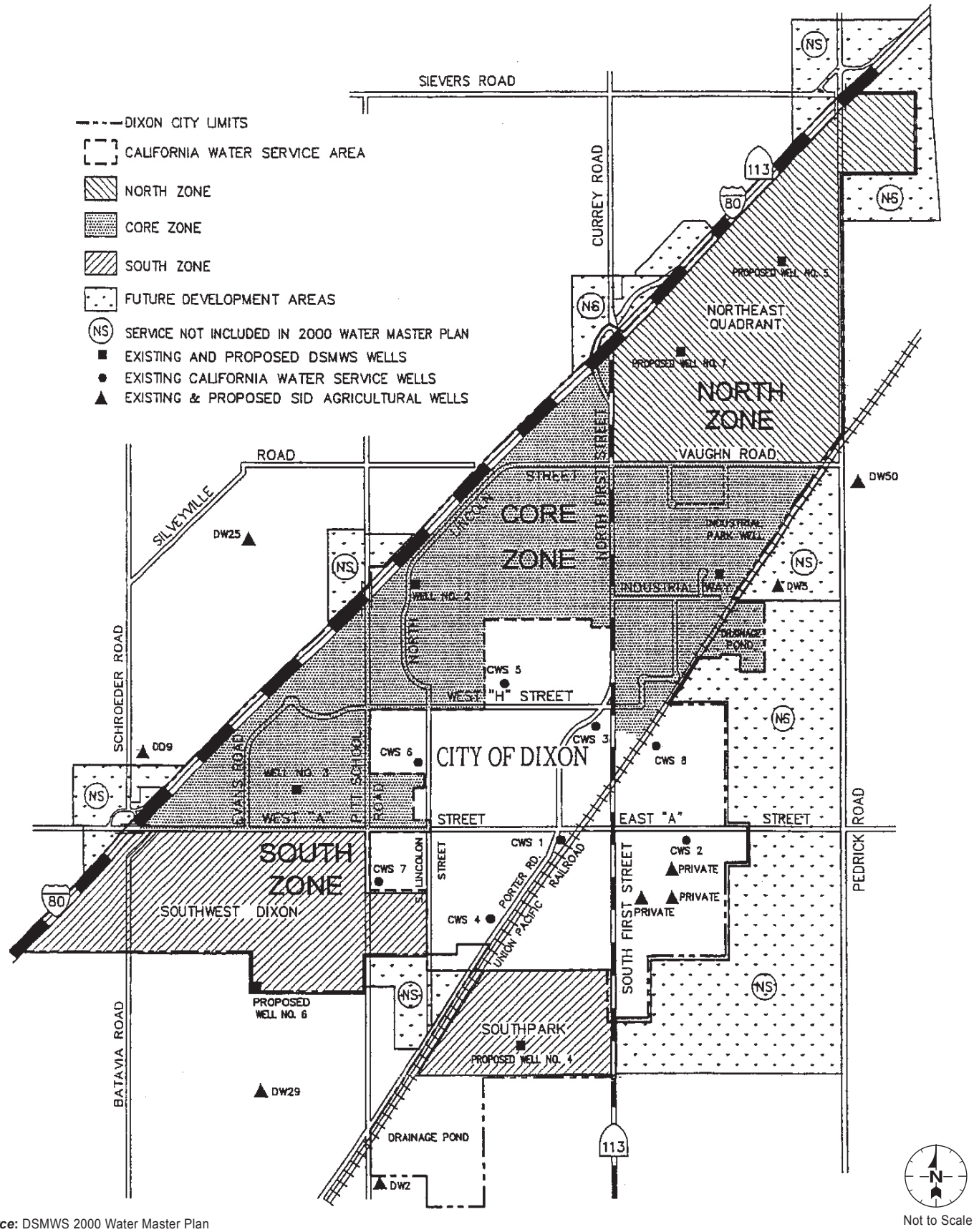
The DSMWS has both overlying and appropriative rights to groundwater in this basin within its service area. The Solano Sub-basin is not adjudicated, meaning that there is no appointed "water master" to resolve groundwater pumping issues, and that there are no established limits on the amounts of groundwater that can be extracted by individuals or agencies within these basins. A more detailed description of the groundwater resources in the Dixon is provided in the Environmental Setting below.

In order to serve the NQSP, including the Proposed Project, DSMWS would expand the current service system by adding wells, booster pumps, storage tanks, and water transmission pipelines and laterals to ensure the system had sufficient production and delivery capacity. It is anticipated that the necessary infrastructure would be constructed adjacent to the Proposed Project site. The expansion of the service system would be consistent the DSMWS' standards and would be owned and operated by the DSMWS.

1 Dixon Solano Municipal Water Service, *Master Plan for the Water Supply and Delivery System Through Buildout*, January 2000, pages 44 through 49.

2 Dixon Solano Municipal Water Service, *Master Plan for the Water Supply and Delivery System Through Buildout*, January 2000, pages 13, 14, and Plate 2.1.

3 California Department of Water Resources, *California's Groundwater, Bulletin 118, Sacramento Valley Groundwater Basin, Solano Subbasin*, February 27, 2004.

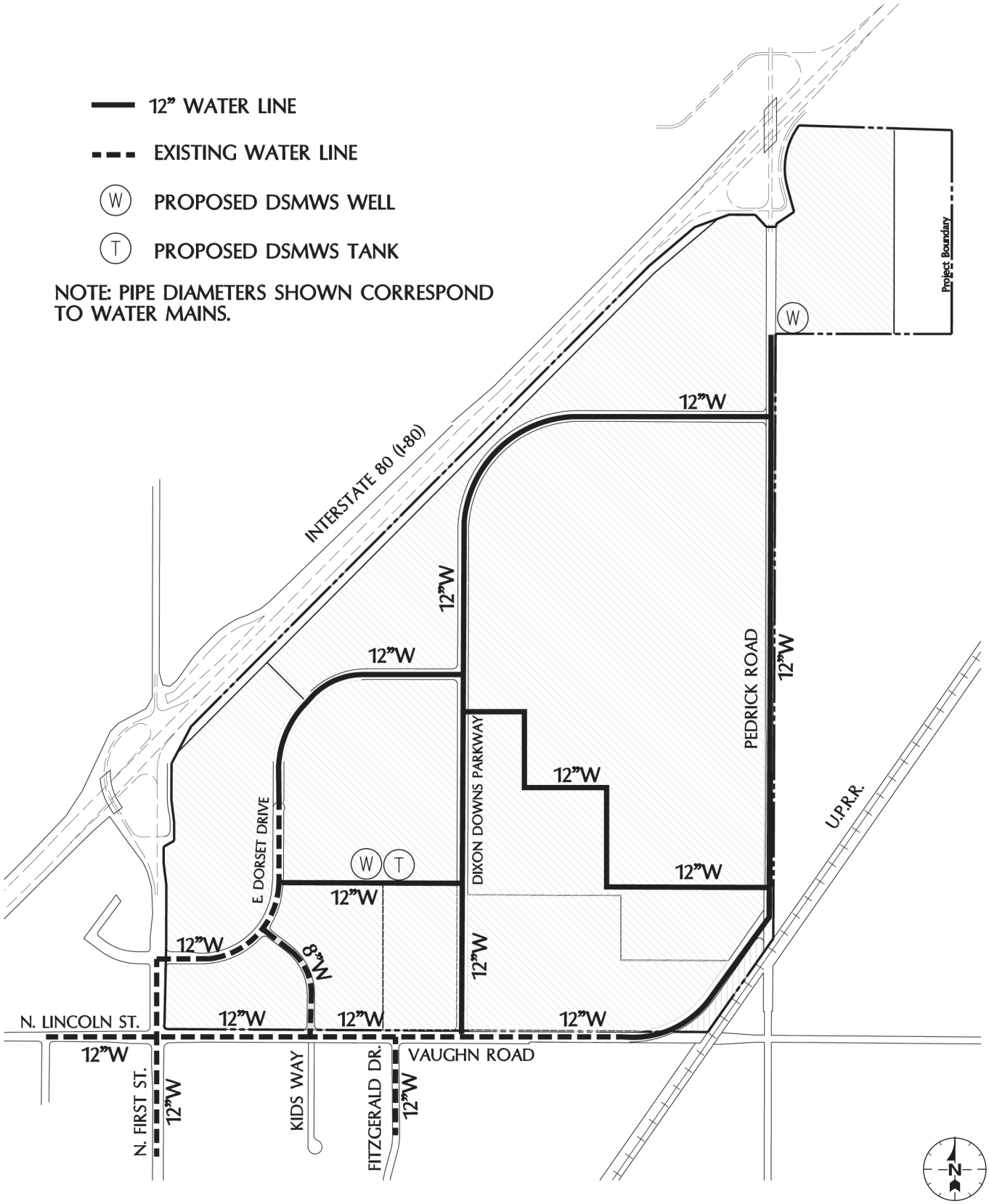


***Source*:** DSMWS 2000 Water Master Plan

EIP ASSOCIATES

FIGURE **4.11-1**

Dixon Solano Municipal Water Service and California Water Service Areas



***Source*:** City of Dixon Northeast Quadrant Specific Plan

Not to Scale

EIP ASSOCIATES

FIGURE **4.11-2**

Water Distribution System

Water Resources in the Dixon Area

As noted above, the DSMWS's service area includes all of NQSP area, where the Proposed Project is located. Existing DSMWS water supply service standards and any proposed future policies and/or mitigation measures would apply to Proposed Project infrastructure and water supply delivery requirements.

Impacts associated with the construction of facilities to maintain existing standards are addressed in this EIR in Sections 4.2 Air Quality, 4.8 Noise, and 4.10 Transportation and Circulation.

Groundwater

The Proposed Project site is located within the Solano Sub-basin of the larger 27,200 square mile Sacramento Valley Groundwater Basin. The Sacramento Valley is a northward-trending trough filled with marine and continental sediments. Fresh groundwater in the basin is contained in unconsolidated deposits of the older alluvium (Quaternary), Pliocene, Eocene deposits, and the Tehama Formation. The Sacramento Valley Groundwater Basin supplies approximately 2.5 million acre-feet of water to municipal, industrial, and agricultural users on an average annual basis. The Sacramento Valley Groundwater Basin is filled with sediments having variable permeabilities and thickness, which result in well production levels in areas with coarser materials to produce larger amounts of water than those with finer materials. In general, well yields in the basin can range from about 100 to several thousand gallons per minute (gpm).[4]

Solano Sub-basin Groundwater

The Solano Sub-basin is located in southernmost extent of the Sacramento Valley Groundwater Basin and is bounded by Putah Creek on the north, the Sacramento River on the East, the North Mokelumne River on the southeast, the San Joaquin River on the south, and roughly by the English and Montezuma Hills to the west. Some subsurface groundwater inflow into the groundwater basin occurs from the Yolo Sub-basin to the north and outflow occurs to the South American (River) Sub-basin to the east due to deep subsurface permeable geohydrologic conditions. The Solano Sub-basin primarily contains the fresh-water bearing formations of younger alluvium, older alluvium, and the Tehama Formation. These formations generally range in thickness from 200 to 3,000 feet thick from west to east, respectively.[5]

Groundwater Levels

Groundwater levels in the Solano Sub-basin have been documented for about 90 years. From 1912 to 1932, reduced precipitation levels resulted in a lowering of the groundwater table, while during the period from 1932 to 1941, water levels increase due to an abundance of precipitation. Subsequent to 1941, and until the Solano Project started in 1959, groundwater levels in the basin continued to decline to the point that there was a measurable cone of depression centered between Dixon and Davis. The Solano Project was built to store water through construction of the Monticello Dam-Lake Berryessa, Putah Diversion Dam-Lake Solano, and the Putah South Canal to supply water to agriculture in Solano County.[6] After the Solano Project began in earnest, groundwater rebounded slowly, with minor dips during the drought

4 California Department of Water Resources, *California's Groundwater, Bulletin 118*, Sacramento, CA, 2003, page 158.

5 California Department of Water Resources, *California's Groundwater, Bulletin 118, Sacramento Valley Groundwater Basin, Solano Subbasin*, February 27, 2004.

6 Solano County Water Agency, *Phase 1, Integrated Regional Water Resources Plan*, January 8, 2004, page 8.

of the 1970's and late-1980's that recovered quickly with above-average periods of precipitation that followed.[7] More recently, groundwater levels in the basin located within a two-mile radius from the center of Dixon has exhibited fairly stable water levels with seasonal and inter-annual fluctuations reflecting typical patterns associated with summer and winter water use.[8]

Groundwater levels are further affected by wells and pumps in Dixon. In general, most groundwater wells create "cones of depression" by actively pumping water out of the aquifer and reducing groundwater levels around the wells such that groundwater levels are less affected with an increase in distance from the well location. Cones of depression can affect nearby groundwater levels based on the pump rates and the physical characteristics of the aquifer material (i.e., alluvium). In addition, wells spaced too closely can have overlapping cones of depression, which create an increased decline in groundwater levels and increase the energy required to pump (or lift) the water out of the aquifer. Therefore, DSMWS has set specific criteria for the location of wells based on the underlying aquifer storage material and pump rates. Wells should be placed at least 1,320 feet apart for wells which pump at a 1,500 gpm rate and up to 1,700 feet apart for wells which pump at 2,000 gpm. These distances are guidelines that can be used for planning purposes. Ultimately, the conditions that exist at each well site may be tested and distances can be adjusted to prevent overlapping cones of depression.[9]

Groundwater Quality

All sources of water, including groundwater and rainwater, contain constituents from the surrounding environment. As it percolates through the soil, groundwater dissolves and incorporates many constituents, which may be naturally occurring minerals and gases, or man-made contaminants. Surrounding land uses also influence water quality; for example, receiving water (surface water or groundwater) predominantly surrounded by urban uses can contain elevated levels of oil, grease, heavy metals, and sediments. Agricultural land uses primarily contribute excess nutrients (derived from fertilizers) and sediments to receiving water. Pesticides and herbicides are typically present in irrigation return water.

Examples of potential secondary inorganic contaminants include iron, manganese and total dissolved solids (TDS), which are typically forms of salts. Other potential contaminants include nitrates, nitrites and nitrate as nitrogen, as well as pesticides and volatile organic compounds (VOCs) and semi-volatile organic compounds (SVOCs). Nitrates are of particular interest because of their broad range of possible sources in the central valley, including fertilizers and dairy activities.

According to the DWR, the groundwater quality in the Solano Sub-basin is generally suitable for most urban and agricultural uses with only local impairments. The primary contaminants of concern are TDS, nitrate, boron, chloride, and organic compounds. Overall, 123 public supply wells within the groundwater basin are monitored to meet the State's primary Maximum Contaminant Levels (MCLs) for drinking water. Approximately 6 percent of the wells had constituents exceeding one or more MCLs. Of these, 23% were pesticides, 61% were nitrates, 8% were VOCs/SVOCs, and 8% were inorganic contaminants.

7 California Department of Water Resources, *California's Groundwater, Bulletin 118, Sacramento Valley Groundwater Basin, Solano Subbasin*, February 27, 2004.

8 California Department of Water Resources, Division of Planning and Local Assistance website, http://wdl.water.ca.gov/gw/gw_data/hyd/, accessed November 9, 2004.

9 Solano Water Authority, *Project Agreement #4, North Central Solano County Groundwater Resources Report*, May 16, 1995, pages 25 and 26.

The benchmarks for usability are the MCLs listed in the California Code of Regulations, Title 22 for inorganic, organic, and radiologic constituents. The TDS levels in the groundwater basin range between 250 and 500 milligrams per liter or parts per million (ppm) in the eastern and northwest portions of the basin, with levels approaching 800 ppm in the central and southern areas. Chloride concentrations in the basin range from 100 ppm in the southern areas, with maximum MCLs for chloride at 600 ppm. Iron concentrations increase from west to east in the basin from less than 0.02 ppm to greater than 0.05 ppm along the Sacramento River, exceeding the MCL of 0.03 ppm. Likewise, manganese concentrations increase from the west (0.01 ppm) to the east (over 0.1 ppm), where levels exceed the MCL of 0.05 ppm. Most important to water supply considerations are the concentrations of the arsenic in the groundwater basin which typically range between 0.02 amd 0.05 ppm with the highest concentrations of arsenic found on the southeastern border of the basin. Although these levels of arsenic are at or below the MCL of 0.05 ppm, California has set a public health goal for arsenic levels in drinking water at 0.04 ppm to be set by the DHS in the near future.[10]

Regional Surface and Groundwater Use

Groundwater and surface water supplies are used within the Solano Sub-basin for both agricultural and urban uses. Agricultural irrigation demand is mostly met by surface water diversions supplied through a large variety of public and private water suppliers in the basin. Within the basin, the largest water purveyor is the Solano County Water Agency (SCWA). The SCWA is authorized to provide wholesale, untreated water to cities, districts, and State agencies within the County from water in the U.S. Bureau of Reclamation's Solano Project. Water from the Solano Project is used in the County mainly for agriculture and drinking water. The SID is contracted to receive water from the Solano Project. The SID currently receives up to 141,400 ac-ft/yr from the Solano Project. The SID distributes some of this water through the Vaughn Pipeline, which is located within the project boundaries. The Vaughn Pipeline conveys water from the north of the project site to thousands of acres of agricultural land located east of Dixon. The City of Dixon will receive up to 300 ac-ft/yr starting in 2016 and increase to a maximum of 1,500 ac-ft/yr by 2020 from the State Water Project (SWP). An acre-foot of water is the amount of water that would cover an acre one foot deep. Unlike other cities in the Solano groundwater basin, the Cities of Dixon and Rio Vista rely entirely on groundwater until their SWP contracts start in 2016.[11]

Currently, groundwater is provided to the City by production from 12 wells, eight owned and operated by California Water Service and four owned and operated by the DSMWS, all of which withdraw water from the deep aquifer in the in the Tehama Formation. In addition to these domestic wells, SID owns and operates nine groundwater wells in the same well field as the domestic wells. The SID maintains an average demand of approximately 6,000 ac-ft/yr from all of its wells in the Solano groundwater basin.[12] Historic groundwater pumping for domestic water by the DSMWS is summarized in Table 4.11-1. The current groundwater pumping for domestic water by the California Water Service Company (CWSC) is on average approximately 1,700 ac-ft/yr.[13] The recent annual water consumption rates for both the DSMWS and CWSC are combined to show total domestic water pumping for Dixon in Table 4.11-2. Currently, the total water pumped in the Dixon area for domestic purposes is approximately 3,550 ac-ft/yr are withdrawn. New wells are being proposed in the southern portion of the City and in the

10 California Department of Health Services, Division of Drinking Water and Environmental Management website, http://www.dhs.ca.gov/ps/ddwem/chemicals/arsenic/newmcl.html, accessed November 10, 2004.

11 Solano County Water Agency, *Phase 1, Solano County Water Agency, Integrated Regional Water Resources Plan*, January 8, 2004.

12 Solano Water Authority, *North Central Solano County Groundwater Resources Report*, May 16, 1995, Appendix A, page A-8.

13 California Water Service Company, http://www.calwater.com/contactus/dixon.htm, accessed November 13, 2004.

Table 4.11-1

Historical Annual Water Production by DSMWS

Year	Supply (ac-ft/yr)
1987	448
1988	470
1989	500
1990	667
1991	676
1992	767
1993	814
1994	928
1995	1,009
1996	1,155
1997	1,395
1998	1,329
1999	1,662
2000	1,702
2001	1,801
2002	1,844

Source: Dixon-Solano Municipal Water Service, *Water Supply Assessment for the Northeast Quadrant, Dixon, California*, December 24, 2003, Table 1.

Northeast Quadrant. According to the City, the two new wells proposed for the Northeast Quadrant are to be funded by the Proposed Project and other developers in the Northeast Quadrant. The City continues to explore well field expansion as a means of maintaining adequate water supply.

Table 4.11-2

Recent Annual Domestic Water Pumping for Dixon (ac-ft/yr)

Water Supplier	1999	2000	2001	2002
CWSC	1,767	1,747	1,668	1,701
DSMWS	1,662	1,703	1,801	1,844
Total	**3,429**	**3,450**	**3,469**	**3,545**

Source: Solano County Water Agency, Integrated Regional Water Resources Plan, Phase 1, January 8, 2004, page 47.

The SID maintains 19 wells in the Putah Creek Fan with a total average annual production of about 4,800 ac-ft/year. Of these wells, approximately nine wells are located within, or adjacent to, the City of Dixon General Plan boundaries. One of the SID wells is located in the southwestern corner of the project site and would be relocated as a condition of the development agreement, as described previously in Chapter 3, Project Description. Another SID well (well DW-50) is located approximately 700 feet southeast of the project site. Other known groundwater wells in the areas adjacent to the project site are three wells located on the Campbell Soup Company plant located adjacent to and east of the project site, across Pedrick Road.

DSMWS Production and Distribution Facilities

The DSMWS service area demand is entirely met through groundwater wells located throughout the City's boundaries. In general, groundwater is pumped from the wells into a series of interconnected pipelines and booster stations for distribution throughout the service area. Some of the groundwater is pumped directly into storage tanks and stored until needed. There are three storage tanks located throughout the service area that are pumped into the distribution system to provide pressure required to meet demands in different pressure zones in the service area, to ensure backup supplies during pump maintenance or failure, and to meet the volume and pressure required for fire flows. The DSWMS requires redundant water supply facilities that provide backup facilities in the event of mechanical failures and for maintenance down time.

Regulatory Framework

Federal Regulations

The US Environmental Protection Agency (US EPA) has developed minimum drinking water standards that are administered by the State. There are no federal regulations that control the supply of water within local jurisdictions.

State Regulations

California DHS, State Water Resources Control Board (SWRCB), and the DWR would have input into the provision of water for the Proposed Project site. In compliance with State law (SB 610 discussed below), including CEQA Guideline 15083.5, the water supplier for the Proposed Project is required to prepare a WSA for the water service request prior to the provision of service. The DSMWS has completed the *Water Supply Assessment for the Northeast Quadrant, Dixon, California*, approved of by the DSMWS on March 23, 2004, which is available for review at the City of Dixon Community Development Department, 600 East A Street, Dixon, during normal business hours.

Water Rights

The SWRCB is charged with coordinating the water rights and water quality functions of the state, as well as managing the state's Water Code. California water law typically applies only to surface water resources, although according to the SWRCB, "California law also recognizes and protects rights to extract and use waters percolating beneath the surface of the land. Again, while the Water Code implies the existence of these groundwater rights, their doctrinal bases and characteristics are essentially the product of the decisions of our courts."[14] There are no existing water supply entitlements for the Proposed Project, other than those associated with overlying property rights, and appropriative or prescriptive rights to groundwater resources. Since this is the case, the SWRCB would not have regulatory responsibility.

SB 610

Senate Bills 610 was passed into law in 2001 and reflect the growing awareness of the need to incorporate water supply and demand analysis at the earliest possible stage in the land use planning

14 State Water Resources Control Board, *Statutory Water Rights Law*, 1999.

process. Senate Bill 610 amends the statutes of the Urban Water Management Planning Act. The foundational document for compliance with SB 610 is the UWMP. This information is an important source for cities and counties as they update their General Plans. Likewise, planning documents such as General Plans and Specific Plans form the basis for the demand information contained in an UWMP, as well as Water Supply Assessments (WSAs) required under SB 610.

The lack of a current UWMP for the area is not critical for the purposes of this analysis. Water Code Section 10910 (c)(4) states: "If the city or county is required to comply with this part pursuant to subdivision (b), the water assessment for the project shall include a discussion with regard to whether the total projected water supplies, determined to be available by the city or county for the project during normal, single dry and multiple dry water years during a 20-year projection, will meet the projected water demand associated with the Proposed Project, in addition to existing and planned future uses, including agricultural and manufacturing uses."

Urban Water Management Plans

California Water Code Section 10610 (et seq.) requires that all public water systems providing water for municipal purposes to more than 3,000 customers, or supplying more than 3,000 ac-ft/yr, must prepare an Urban Water Management Plan (UWMP). The DWR provides guidance to urban water suppliers in the preparation and implementation of UWMPs. This plan must be updated at least every five years on or before December 31, in years ending in five and zero. Because the DSMWS does not have 3,000 customers and does not supply more than 3,000 ac-ft/yr, it is not currently required to prepare an UWMP.

Water Supply Assessments

Water supply planning under SB 610 requires reviewing and identifying adequate available water supplies necessary to meet the demand generated by a project, as well as the cumulative demand for the general region over the next 20 years, under a broad range of water conditions. As noted above, this information is typically found in the current UWMP for the project area. The SB 610 requires preparation of a WSA if a project meets the definition of a "Project" under Water Code Section 10912 (a). Under Water Code Section 10912 (a), a "Project" is defined as meeting any of the following criteria:

1. A proposed residential development of more than 500 dwelling units;

2. A proposed shopping center or business establishment employing more than 1,000 persons or having more than 500,000 square feet (ft^2) of floor space;

3. A commercial building employing more than 1,000 persons or having more than 250,000 ft^2 of floor space;

4. A hotel or motel with more than 500 rooms;

5. A proposed industrial, manufacturing, or processing plant, or industrial park, planned to house more than 1,000 persons, occupying more than 40 acres of land, or having more than 650,000 ft^2 of floor area;

6. A mixed-use project that includes one or more of these elements; or

7. A project creating the equivalent demand of 500 residential units.

Alternately, if a public water system has less than 5,000 service connections, like the DSMWS, the definition of a "Project" includes any proposed residential, business, commercial, hotel or motel, or industrial development that would account for an increase of 10 percent or more in the number of service connections for the public water system. The Proposed Project would require water equal to or in excess of 500 residential units and is thus considered a "Project" as defined under SB 610. Thus, the DSMWS has prepared a WSA as required by these criteria under SB 610.

Water Code Section 10910 (d)(1) states: "The assessment required by this section shall include an identification of any existing water supply entitlements, water rights, or water service contracts relevant to the identified water supply for the Proposed Project, and a description of the quantities of water received in prior years by the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), under the existing water supply entitlements, water rights or water service contracts."

Section 10910 (d)(2) of the Water Code further defines requirements of WSAs, including: (A) documentation showing proof of water supply entitlements, water rights, or existing water service; (B) copies of a capital outlay program for financing the delivery of a water supply that has been adopted by the public water system; (C) copies of federal, state or local permits for construction of necessary infrastructure associated with delivery of the water supply; and (D) copies of any necessary regulatory approvals that are required to convey or deliver the water supply.

The Proposed Project would be served entirely by local groundwater production wells. According to SB 610, if groundwater is a source of supply, the WSA must contain a description of the condition of the basin. In addition, Section 10910 (f) of the Water Code also applies, which requires an analysis of the amount and location of groundwater projected to meet water demand associated with the Proposed Project based on "information that is reasonably available, including, but not limited to, historic use records."

The WSA prepared for the Proposed Project (see Appendix I), along with additional technical information included in the *Master Plan for the Water Supply and Delivery System Through Buildout* prepared by the DSMWS, satisfy the documentation requirements of SB 610, and Water Code sections 10631, 10910, and 10912. The DSMWS WSA concluded that:

- the Solano Sub-basin is not in overdraft condition;
- the Solano Sub-basin can provide enough water to serve development proposed for the remainder of the DSMWS service area, including the NQSP area; and
- water is available if new water supply facilities are constructed as new development occurs.

A discussion of the WSA is included later in the Methods of Analysis.

Drinking Water Quality

The California DHS is responsible for implementing the federal Safe Drinking Water Act of 1974 and its updates, as well as California statutes and regulations related to drinking water. As part of their efforts,

the DHS inspects and provides regulatory oversight for public water systems within California. In addition, in the Solano Sub-basin, the Central Valley RWQCB has responsibility for protecting the beneficial uses of the State's waters, including groundwater, and these include municipal drinking water supply, as well as various other uses.

Public water system operators are required to regularly monitor their drinking water sources for microbiological, chemical and radiological contaminants to show that drinking water supplies meet the regulatory requirements listed in Title 22 of the California Code of Regulations as primary maximum contaminant levels or MCLs. Primary standards are developed to protect public health and are legally enforceable. Among these contaminants are approximately 80 specific inorganic and organic contaminants and six radiological contaminants that reflect the natural environment, as well as human activities. Examples of potential primary inorganic contaminants are aluminum and arsenic, while radiological contaminants can include Uranium and Radium.

Public water system operators are also required to monitor for a number of other contaminants and characteristics that deal with the aesthetic properties of drinking water. These are known as secondary MCLs. Secondary standards are generally associated with qualities such as taste, odor and appearance, as well as cosmetic qualities. These are generally non-enforceable guidelines. However, in California secondary standards are legally enforceable for all new drinking water systems and new sources developed by existing public water suppliers.[15] The public water system operators are also required to analyze samples for unregulated contaminants, and to report other contaminants that may be detected during sampling.

The California Department of Toxic Substances (DTSC) is the primary agency charged with protecting groundwater resources through their Hazardous Waste Management Program and Site Mitigation Programs. A critical element of both programs is maintaining environmental quality and economic vitality through the protection of groundwater resources. This is accomplished through: hazardous waste facility permitting and design; oversight of hazardous waste handling; removal and disposal; oversight of remediation of hazardous cleanup of illegal drug labs; cleanup of abandoned hazardous waste sites; oversight of the closure of military bases; and pollution prevention.

In addition, the Department of Pesticide Regulation (DPR) protects human health and the environment by regulating pesticide sales and use, and by promoting reduced-risk pest management. Pesticides are subject to permitting by local county agricultural commissioners and to use restrictions specified in various regulations.

Local Regulations

Dixon General Plan

The following general plan policies are applicable to water supply and demand for the Proposed Project.

15 California Department of Water Resources, *California's Groundwater, Bulletin 118*, 2003, page 101.

VII. Public Services and Facilities Policies

General

2. New development shall pay its fair share of the cost of all required public facilities and services by means of adequate mitigation fees. An equitable basis for allocating costs between new development and existing areas will be defined where capital improvements raise the quality of existing service or remedies an existing problem in service provision. However, the premature upgrading and replacement of all types of facilities and equipment caused by new growth will be the responsibility of the new development.

Water Facilities

9. The City shall ensure that the significant increases in water demand generated by new development will be met in a timely, cost-effective and environmentally sound manner. Achieving this policy will require a variety of improvements, including:

    - Installing new water mains; and
    - Increasing storage and treatment capacity.

10. The City shall coordinate development activity with the water purveyors to ensure that adequate domestic, commercial/industrial and fire flow requirements are met.

11. The City shall ensure that water improvements and service will continue to be financed with impact fees and service charges.

Implementation

Water Facilities

C. Work closely with the Solano Irrigation District and through the Dixon-Solano Municipal Water Service to ensure that the safe yield of the groundwater aquifer is not jeopardized.

Northeast Quadrant Specific Plan

There are no Northeast Quadrant Specific Plan (NQSP) policies applicable to water supply and demand for the Proposed Project.

Standards of Significance

For the purposes of this EIR, impacts on water supply service would be considered significant if the Proposed Project would:

- Substantially deplete local groundwater resources and adversely affect existing or planned future uses of these resources; or
- Have insufficient water supplies available to serve the project from existing entitlements and resources, or require new or expanded entitlements.

Methods of Analysis

The analysis in this section focuses on the nature and magnitude of the change in levels of water use compared with existing and projected water use within the Proposed Project, the NQSP, and the DSMWS service area. To determine potential impacts, water demands were estimated for the Proposed Project along with existing land use, approved projects, and proposed development. Total water demands were then compared to existing and planned water supplies. The primary resources used for this analysis include the following technical documents: *Water Supply Assessment for Northeast Quadrant, Dixon, California*, Dixon-Solano Municipal Water Service (December 24, 2003); *Master Plan for the Water Supply and Delivery System Through Buildout* (Master Water Plan), Dixon-Solano Municipal Water Service (January, 2000); *North Central Solano County Groundwater Resources Report*, Solano Water Authority (May 16, 1995); and *California's Groundwater, Bulletin #118*, DWR (2003). All of the documents listed above are available for review at the City of Dixon, 600 East A Street, Dixon.

Water Supply Assumptions

Land Use

The land use types for the Proposed Project were used for calculating water demand. The Proposed Project land use is zoned Light Industrial (ML-PD), Highway Commercial (HC), and Professional/Administrative Offices (PAO). The Proposed Project would change the zoning in the project site to those types and acreages described in detail and presented in Chapter 3, Project Description in this EIR. The WSA projected water demand for the DSMWS service area based on the development rates used in the Master Water Plan, land use types, and supplemental information from the project applicant detailing water demand for the Proposed Project. Development within the DSMWS service area has been at or below the City's modeled projections for commercial, industrial and other non-residential land uses that would occur within the NQSP.[16] The rate of development of residential land use in the DSMWS service area is governed by the recently passed "Measure B", which mandates a maximum growth rate of 3% of existing residential dwelling units (DUs) within the Dixon General Plan area. Based on the "Measure B" limitation, residential development will increase in the DSMWS service area from 370 acres (approximately 1,365 DUs) in 2004 to 890 acres (approximately 6,077 DUs) in 2024.[17] Table 4.11-3 lists the growth rates assumed in the WSA for non-residential areas.

Water Demand

The DSMWS serves residential, commercial, and public water uses within City limits. Water demand in the City has grown over the last decade in proportion to growth of residential and commercial land uses in the General Plan boundaries. The Water Supply Assessment (see Appendix I) prepared for the project used only the DSMWS service area.

Water use is assumed to be based on the indoor and outdoor water use for residences, businesses, and public facilities. The indoor water use represents water used for drinking, bathing, sanitation, and industrial processing. The outdoor water use represents water used for private and public landscape

16 Dixon-Solano Municipal Water Service, *Water Supply Assessment for Northeast Quadrant, Dixon, California*, December 24, 2003, Table 4.

17 Dixon-Solano Municipal Water Service, *Water Supply Assessment for Northeast Quadrant, Dixon, California*, December 24, 2003, Appendix D.

Table 4.11-3

Actual and Projected Development Rates for Non-Residential Land Uses in Dixon (acres/year)

Agency	Commercial				Industrial	Other Land Uses			
	HC	NC, CC, O	SC	Total	ML, MH	GI	P	L/S	S
DSMWS Projected Growth	2.50	1.50	2.00	6.00	15.00	0.50	1.50	1.00	2.00
DSMWS Actual 1994-2002	3.64	0.21	0.63	4.48	15.03	0.00	1.34	0.62	0.00
City of Dixon 12-yr average	NA	NA	NA	4.00	6.00	NA	NA	NA	NA
Wastewater Treatment Facilities Plan Average	NA	NA	NA	3.50	8.50	NA	NA	NA	NA

Notes: Commercial land uses include Commercial Highway (HC), Neighborhood Commercial (NC), Community Commercial (CC), Office (O), and Service Commercial (SC). Industrial land uses include Light Industry (ML) and Light/Heavy Industry (MH). Other land uses include Government/Institutional (GI), Parks (P), Landscaping (L/S), and Schools (S).
NA = Not Applicable.
Source: Dixon-Solano Municipal Water Service, Water Supply Assessment for the Northeast Quadrant, Dixon, California, December 24, 2003, Table 4.

irrigation, and, in the case of Dixon Downs, for consumption by horses, dust control, and for washing horses.

The water use in the DSMWS service area is based on the demand factors of population, number of dwelling units, and number of acres of specific land use types. Water use in the DSMWS is assumed to be constant from month-to-month for any given demand factor and independent of climatic conditions. The water demand factors currently used by the DSMWS for planning purposes for residential, commercial, industrial and other non-residential land uses in the DSMWS service area are presented in Table 4.11-4. These factors are used to calculate the total water use in the DSMWS service area to project the future water demand of the City and plan for future water supply infrastructure. The water uses in the DSMWS service area are supplied solely from groundwater.

Water demand rates for residential land use in the DSMWS service area were established by studying annual water usage records of over 400 service connections. Average usage rates were calculated, and design rates were selected for residential land uses. The WSA used both land use acreage and residential DUs to calculate actual and projected future water demand from residential and non-residential land uses, respectively. The water demand figures presented in WSA were averaged over a one year period.

Corresponding to the projected increase in development, the water use within the City of Dixon is projected to nearly triple between 2004 and 2025. During the period of 1994 through 2003, the annual average water use in the DSMWS service area, calculated by using the demand factors shown in Table 4.11-4, rose from 1,232 to 2,296 ac-ft/yr. The actual (from meter records) average annual water use as a percent of the calculated water use during this period ranged from 72 to 86 percent. Annual historical and projected water use for 1994 through 2024 in the DSMWS service area is listed in Table 4.11-5 in five-year increments. In addition to overall project water demand, the WSA calculated water demand for the DSMWS service area for the next 20 years in five-year periods using the estimated average development rates for non-residential land uses, and "Measure B" development rates for residential land uses and water demand factors presented in the WSA. This methodology was used to project water use for any given five-year time period out to year 2024. The WSA assumed that water demand would be independent of climatic conditions based on historical average water use data. The projected water use for 2024 will be about 7,500 ac-ft/yr.

Table 4.11-4

DSMWS Water Demand Factors for Land Use in Dixon

Land Use	Water Demand Factor
Residential	
Very Low Density (VDL)	600 GPD/DU
Low Density (LD)	600 GPD/DU
Medium Density – Low (MDL)	480 GPD/DU
Medium Density – High (MDH)	400 GPD/DU
Commercial	
Highway Commercial (HC)	4,800 GDP/ACRE
Service Commercial (SC)	2,880 GDP/ACRE
Neighborhood Commercial (NC)	2,880 GDP/ACRE
Community Commercial (CC)	2,880 GDP/ACRE
Office (O)	2,880 GDP/ACRE
Industrial Areas (ML, MH)	1,440 GPD/ACRE
Other Areas	
Government/Institutional (GI)	2,880 GPD/ACER
Parks (P)[1]	2,880 GDP/ACRE
Landscaping (L/S)[1]	5,760 GDP/ACRE
Schools (S)	5,760 GPD/ACRE

Notes:
1. Water demand was based on an annual average water usage from meter readings and bills for specific land use types, per DSMWS.
GPD = gallons per day
Source: Dixon-Solano Municipal Water Service, Water Supply Assessment for the Northeast Quadrant, Dixon, California, December 24, 2003, Attachment 2.

Table 4.11-5

Historical and Projected Water Demand for the DSMWS Service Area 1994 – 2024 (ac-ft/yr)

	Historical			Projected			
Land Use	**1994**	**1999**	**2004**	**2009**	**2014**	**2019**	**2024**
Residential	772	1,256	1,452	2,229	3,297	4,084	4,993
Non-Residential							
HC	91	142	156	223	290	357	425
NC,CC,O	44	51	100	124	149	173	197
CS	17	43	78	110	142	175	207
Industrial (ML,MH)	142	191	335	456	577	697	818
GI	5	14	24	32	40	48	56
P	77	116	124	148	172	197	221
S	59	59	139	203	268	332	397
L/S	24	64	71	103	135	168	200
Total	**1,232**	**1,938**	**2,478**	**3,628**	**5,070**	**6,230**	**7,514**

Source: Dixon-Solano Municipal Water Service, *Water Supply Assessment for the Northeast Quadrant, Dixon, California*, December 24, 2003, Table 7.

According to the WSA, demand during dry years was assumed to be the same as during normal years based on the historical usage rates in the service area in the past. In addition, the WSA assumed that

variations in demand due to climatic changes are accounted for in the average water demand rates calculated based on past historical rates.[18]

Projected Use for the Proposed Project

The WSA calculated the Proposed Project's water demand at approximately 792 ac-ft/yr at full buildout. Since the WSA was published in late 2003, more detailed information about the Proposed Project has become available. The updated water demand for the Proposed Project was calculated based on potable and non-potable water uses. Non-potable water demand for the Proposed Project is specifically related to horse-racing operations, such as dust control on the dirt track and in the stable areas, horse washing, watering of the turf track and other landscaping. The projected potable water demand for the Proposed Project prepared by the project applicant was based on land use demand rates presented in Table 4.11-4 and demand rates specific to horse-racing facility water uses. The water demand for the Proposed Project is presented in Table 4.11-6, with a more detailed account of non-potable water demand presented in Table 4.11-7. The total demand for the Proposed Project at Phase 1 would be approximately 687 ac-ft/yr. At full build-out (Phase 2), the Proposed Project would have a water demand of approximately 702 ac-ft/yr.[19]

Table 4.11-6

Proposed Project Water Demand

Phase	Phase/Area	Land Use	Area (acres)	Demand Rate (ac-ft/ac/yr)	Annual Average Demand (ac-ft/yr)
Phase 1	North Area (175 acres)	Mixed Commercial	42.1	2.27	95.6
	South Area (69.5)	Service Area	11.5	2.27	26.1
		Grooms Quarters	8.5	8.04	68.3
	Non-Potable Water Use	See Table 4.11-9			497
	Total				**687**
Phase 2	North Area (175 acres)	Mixed Commercial	101	2.27	229.3
	South Area (69.5)	Service Area	11.5	2.27	26.1
		Grooms Quarters	8.5	8.04	68.3
	Non-Potable Water Use	See Table 4.11-9			378
	Total				**702**

Source: Ran Singh, Professional Engineer, Morton & Pitalo, Inc., personal communication, EIP Associates, dated January 31, 2005.

Water Supply

Water supply for the Proposed Project was analyzed and projected in the WSA (see Appendix I). The extent to which the water supply calculated in the WSA can serve the Proposed Project is evaluated in this section. The water supply sources available or planned to be available in the future, and assumed in this analysis are those water supplies operated by the DSMWS. Since the groundwater basin is not adjudicated or in overdraft, the DSMWS can pump groundwater for residential, commercial, and public uses. The DSMWS service area water supply is served entirely from groundwater pumped from four

18 Dixon-Solano Municipal Water Service, *Water Supply Assessment for Northeast Quadrant, Dixon, California*, December 24, 2003, page 14.

19 Ran Singh, Professional Engineer, Morton & Pitalo, Inc., personal communication, dated January 31, 2005.

Table 4.11-7

Proposed Project Non-Potable Water Demand

Phase	Use	Description	Area (acres)	Demand Rate (gpd/acre)	Annual Demand (ac-ft/yr)
Phase 1	Dirt Track	Dust control	19.1	5066	46.6
	Turf Area	Maintaining turf-track	49.5	8443	189.3
	Horse Wash	Washing 1,440 horses	NA	20 gpd/horse	32.3
	Stable Area	Dust control	15.0	5066	36.6
	Landscaping	Irrigation	73.8	5760	192.5
	Total				**497**
Phase 2	Dirt Track	Dust control	19.1	5066	46.6
	Turf Area	Maintaining turf-track	49.5	8443	189.3
	Horse Wash	Washing 1,440 horses	NA	20 gpd/horse	32.3
	Stable Area	Dust control	15.0	5066	36.6
	Landscaping	Irrigation	28.1	5760	73.3
	Total				**378**

Source: Ran Singh, Professional Engineer, Morton & Pitalo, Inc., personal communication dated January 31, 2005.

Table 4.11-8

Current and Planned Groundwater Supplies in the DSMWS Service Area

Facility	Maximum Pumping Rate (gpm)	Maximum Annual Delivery (ac-ft/yr)
Current DSMWS Wells		
Well No. 1 (Industrial Parke Facility)	690	1,113
Well No. 2 (Watson Ranch Facility)	1,500	2,419
Well No. 3 (School Well Facility)	1,800	2,903
Well No. 4 (Southpark Facility)	1,800	2,903
Total Existing	**5,790**	**9,338**
Planned Wells		
Well No. 5 (NQSP Well No.1)	2,000	3,225
Well No. 6 (Southwest Facility)	1,500	2,419
Well No. 7 (NQSP Well No.2)	2,000	3,225
Proposed Project Well	1,500	2,419
Total Planned	**5,500**	**11,288**
Total Existing and Planned	**11,290**	**20,626**

Source: Dixon-Solano Municipal Water Service, *Water Supply Assessment for the Northeast Quadrant, Dixon, California*, December 24, 2003; Dixon-Solano Municipal Water Service, *Master Plan for the Water Supply and Delivery System Through Buildout*, January, 2000.

groundwater wells with associated booster pumps, and two water storage tanks. These four wells provide a maximum cumulative pumping capacity of approximately 9,340 ac-ft/yr.[20, 21]

20 Dixon-Solano Municipal Water Service, *Master Plan for the Water Supply and Delivery System Through Buildout*, January, 2000, pages 46 through 49.

Since implementation of the new DSMWS wells is based on the buildout of the NQSP, the following analysis is based on the water demand for the buildout conditions of the Proposed Project. Two new groundwater wells, two storage tanks, and booster stations for each well would be constructed in the NQSP by the DSMWS, to meet the required demands, internal system pressure, and emergency back-up for the water supply system in its service area. In addition to these facilities, the Proposed Project would construct an on-site groundwater well and pump station to supply non-potable water for landscape irrigation and horse facility purposes (including washing of horses and dust control). Table 4.11-8 lists the current and proposed DSMWS facilities and the Proposed Project's well, and their individual and cumulative maximum pumping capacities. Table 4.11-8 shows that the WSA has planned for future water supply facilities that are required to meet the demands of projected demand in the NQSP, including that from the Proposed Project. Included in Table 4.11-8 is a groundwater well to be built as part of the Proposed Project. This well is expected to meet non-potable water demands from irrigation and racetrack uses. Table 4.11-9 compares the projected demand with projected supplies and shows a surplus of supplies out to 2024.

Table 4.11-9

Projected Annual Groundwater Supply and Demand Comparison (ac-ft/yr)

	2004	2009	2014	2019	2024
Groundwater Supply	9,338	16,595	19,014	19,014	19,014
Demand	2,478	3,628	5,070	6,230	7,514
Difference	**6,860**	**15,386**	**13,944**	**12,784**	**11,500**

Source: Dixon-Solano Municipal Water Service, *Water Supply Assessment for the Northeast Quadrant, Dixon, California*, December 24, 2003.

Impacts and Mitigation Measures

Impact 4.11-1	**The Proposed Project's demand for water could exceed available sources of groundwater supplies.**
Applicable Policies and Regulations	Water Code Sections 10631, 10910, 10912 SB 610
Significance before Mitigation	Phase 1: Less than Significant Phases 1 and 2: Less than Significant
Applicable NQSP Mitigation Measures	None
Mitigation Measures	Phase 1: None required Phases 1 and 2: None required
Significance after Mitigation	Phase 1: Less than Significant Phases 1 and 2: Less than Significant

21 Dixon-Solano Municipal Water Service, *Water Supply Assessment for Northeast Quadrant, Dixon, California*, December 24, 2003, page 9.

Phases 1 and 2

The project site is currently used for agriculture with water supplied by SID. Development of the Proposed Project would include a phased mixed-use development that includes a horse-racing and training facility, retail uses, a hotel/conference center, office space, and landscaped land uses. These proposed land uses would require an increased demand for water over current DSMWS supplies. The WSA prepared by the DSMWS for the NQSP (in compliance with SB 610) calculated the current and future water demands in the NQSP (including the Proposed Project's water demand) based on land use zoning and assumed growth rates for development of those land uses. The WSA assumed that the Proposed Project, and the remaining land uses in the NQSP, would use water supplied from two proposed groundwater wells, a one million-gallon water tank, and a booster station that would be connected to the rest of the DSMWS service system and existing water supplies. The total water demand for the Proposed Project was based on land use water demand rates and supplemental information supplied by the applicant to the DSMWS on water demand for horse facilities (i.e., dust control and horse washing).

Since the WSA was published in late 2003, more detailed information about the Proposed Project has become available. The project applicant has recently calculated the Proposed Project's demand and separated demand into potable and non-potable water uses. The non-potable water uses include dust control for the dirt track and stables, landscape watering for the turf track and other landscaped areas in the project site, and horse washing. Potable water uses would include drinking water for the humans and horses on the project site. The Proposed Project water use, demand, and demand rates are listed in Table 4.11-8 and Table 4.11-9. As shown in these tables, the Proposed Project demand would be approximately 687 ac-ft/yr for Phase 1 and 702 ac-ft/yr at build-out in Phase 2. These water demands are less than the Proposed Project's demand presented in the WSA. As shown in Table 4.11-7, an excess of water supplies would be available through the proposed on-site well and DSMWS facilities to serve the Proposed Project and future NQSP demands, including the buildout of the Proposed Project. The proposed groundwater wells would be constructed and in operation prior to buildout of the Proposed Project and would provide an adequate water supply to meet the demands of the Proposed Project at buildout. Therefore, the Proposed Project would have a ***less-than-significant impact***.

Mitigation Measures

None required.

Impact 4.11-2	**The Proposed Project would install and operate one new groundwater well that could affect groundwater levels in areas within and adjacent to the Proposed Project area.**
Applicable Policies and Regulations	Water Code Sections 10631, 10910, 10912 SB 610
Significance before mitigation	Phase 1: Less than Significant Phases 1 and 2: Less than Significant
Applicable NQSP Mitigation Measures	None
Mitigation Measures	Phase 1: None required Phases 1 and 2: None required
Significance after Mitigation	Phase 1: Less than Significant Phases 1 and 2: Less than Significant

Phases 1 and 2

In general, groundwater wells in the Dixon area produce permanent cones of depression.[22] The Proposed Project would install one new groundwater well centrally located between the racetrack and stables area. Other groundwater wells in the area include a private well located in the southeast corner of the Proposed Project site, the Campbell Soup Company's wells east of the project site, and an SID well located/southeast to the project site. The existing private on-site well would be abandoned in place, in accordance with Solano County requirements, and paved over by the new access road and right-of-way. The new groundwater well would provide the Proposed Project with a source of water for non-potable uses and would reduce the demand on the DSMWS system. The groundwater well would pump at a maximum rate of 1,500 gpm and would create a permanent cone of depression that would affect groundwater levels nearby. The Proposed Project would locate the well according to the DSMWS guideline of siting wells with pumping capacities between 1,500 and 2,000 gpm at least one-quarter mile away from other wells. This would prevent the proposed well from overlapping with and affecting existing SID and Campbell Soup Company wells, and from affecting the planned DSMWS wells. Therefore, the Proposed Project would result in a ***less-than-significant impact***.

Mitigation Measure

None required.

22 Solano Water Authority, *North Central Solano County Groundwater Resources Report*, May 16, 1995, pages 25 and 26.

Impact 4.11-3	**The Proposed Project would affect the structural integrity of the Vaughn Pipeline which could interrupt water deliveries to SID agricultural customers.**	
Applicable Policies and Regulations	None	
Significance before mitigation	Phase 1: Phases 1 and 2:	Potentially Significant Potentially Significant
Applicable NQSP Mitigation Measures	None	
Mitigation Measures	Phase 1: Phases 1 and 2:	4.11-3 4.11-3
Significance after Mitigation	Phase 1: Phases 1 and 2:	Less than Significant Less than Significant

Phases 1 and 2

The Proposed Project is located adjacent to and east of the SID's Vaughn Pipeline. This off-site pipeline lies in a 20-foot wide easement located between the Proposed Project site to the east and the AKT property to the west. Existing turnouts from the Vaughn Pipeline located along this easement serve the project site and adjacent agricultural properties with raw water. Construction of the Proposed Project would use heavy equipment and result in increased traffic over the Vaughn Pipeline. The weight from construction equipment and automobile traffic would impact the structural integrity of the pipeline resulting in leaks and/or service interruption to SID's customers.

Approximately 360 feet of the Vaughn Pipeline is located east of the proposed Dixon Downs Parkway along Vaughn Road adjacent to private parcels not in the project site. While replacement of this section could be left to those property owners, the SID requires replacement to eliminate leaking in existing connections. In addition, until the respective landowners waive water service to their parcels, the existing turnouts and sub-laterals must remain in service. Proper control valves and meters are required at their connections to the relocated Vaughn Pipeline. Therefore, the Proposed Project would have a ***potentially significant impact*** on SID customers served by the Vaughn Pipeline south of I-80.

Mitigation Measure

The following mitigation measure would ensure that SID customers using water conveyed through the Vaughn Pipeline south of I-80 would not experience interruptions in service. The following mitigation measures would replace the existing pipeline with a reinforced pipeline that can resist the pressure of construction equipment and increased automobile traffic resulting in a *less-than-significant impact*. The replacement pipeline would not be connected during the irrigation season (March 1 through October 15) to prevent interruption in service.

4.11-3(a) *(Phases 1 and 2)*

The project applicant shall replace the Vaughn Pipeline from its emergence crossing under I-80 to about 100 feet west of the east property line of APN 111-080-22, where the replacement pipeline would connect to a pipeline installed by the North First Street Assessment District project. All construction

shall conform to SID standards and be shown in construction plans reviewed and approved by SID. A SID inspector shall observe the construction and acceptance testing.

The replacement shall consist of:

- *removal or paralleling of about 5,700 feet of 42-inch monolithic concrete pipe lined with 36-inch Techite pipe (fiberglass-reinforced mortar pipe);*
- *connection to the existing "Rubber-Gasketed Reinforced Culvert Pipe" pipeline crossing under I-80 with a rolled steel stub and concrete connection block;*
- *installing about 5,700 feet of 42-inch ASTM C-905 PVC pipe with appurtenances including sectionalizing valves, fittings, turnouts (services), connections to the replacement deepwell and remaining sub-laterals, thrust blocks, air release valves and blowoffs, all to be determined in the design phase; and*
- *connection to the existing "Rubber-Gasketed Reinforced Concrete Pipe" pipeline on the north side of Vaughn Road with a rolled steel stub and concrete connection block.*

4.11-3(b) *(Phases 1 and 2)*

The project applicant shall connect the replacement pipeline to portions of the existing pipeline and turnouts such that no interruption of service is experienced by SID customers downstream of the existing pipeline. The connection of the replacement pipeline can not occur during the irrigation season, from March 1 through October 15. The project applicant shall coordinate with SID to connect the pipeline during the months of November through February.

Cumulative Impacts and Mitigation Measures

The cumulative setting for impacts to water supply is the buildout of the Proposed Project, in addition to other development within the Solano groundwater basin, in the year 2024.

Impact 4.11-4	**Development of the Proposed Project, in combination with development in the Solano groundwater basin, could result in a decline in groundwater levels.**
Applicable Policies and Regulations	40 CFR Parts 9, 141, and 142 Water Code Sections 10631, 10910, 10912 SB 610
Significance before Mitigation	Phase 1: Less than Significant Phases 1 and 2: Less than Significant
Applicable NQSP Mitigation Measures	None
Mitigation Measures	Phase 1: None required Phases 1 and 2: None required
Significance after Mitigation	Phase 1: Less than Significant Phases 1 and 2: Less than Significant

Phases 1 and 2

As stated previously, according to the WSA, the Master Water Plan, and the *North Central Solano County Groundwater Resources Report*, the Solano Sub-basin is in a state of equilibrium, where groundwater levels are stable and at levels that preceded the overdraft of the basin from intense agricultural use of groundwater in the 1930's. The data presented in these reports, and additional data published by DWR, show that the Solano Sub-basin is not permanently impacted by multiple dry or wet years and is not in a state of overdraft. In other words, the Solano Sub-basin level changes slightly over short periods of time in response to climatic conditions, and over the past twenty years the basin has showed an average level of stability despite the increased level of growth and water demands. Further, the WSA reports that the Putah Creek Fan portion of the groundwater basin, where the City of Dixon is located, has an excess amount of water storage that may need to be pumped to prevent soils in the area from becoming water logged. The amount of excess water supplies in the groundwater basin was reported to be from 25,000 to 30,000 ac-ft.[23] Further, the Proposed Project, in addition to existing and planned future uses (including agriculture and industrial uses), would have an adequate supply of groundwater to meet demands for the next 20-year period during normal, dry, and multiple dry years mainly because groundwater supplies are not affected by dry and multiple dry years.

The Proposed Project along with other future development in the Solano Sub-basin would result in an increased use of groundwater. Increased future development in the Solano Sub-basin would displace agricultural land use, and would further decrease the use of groundwater for agricultural purposes in the basin. The DSMWS and other Solano County water districts have prepared groundwater management plans which include monitoring and adjustment of groundwater use to preserve the groundwater resources in the basin.[24] Therefore, cumulative demands on groundwater from the Proposed Project and future development would result in ***less-than-cumulatively considerable impacts*** to the Solano groundwater basin.

Mitigation Measures

None required.

23 Dixon-Solano Municipal Water Service, *Water Supply Assessment for Northeast Quadrant, Dixon, California*, December 24, 2003, page 7.

24 Dixon-Solano Municipal Water Service, *Water Supply Assessment for Northeast Quadrant, Dixon, California*, December 24, 2003, page 7.

WASTEWATER

Environmental Setting

The City of Dixon provides wastewater collection and treatment services for development within the City limits. Sewage is conveyed in lines of varying diameter and transported to the City's Wastewater Treatment Plant (WWTP) located at the intersection of Casey and Pedrick roads, approximately five miles south of the project site.

Existing Facilities – Collection and Conveyance

Wastewater within the City limits is collected in sewer lines varying in size from 6 to 15 inches in diameter. Once collected, sewage is transported through a 27-inch line to the WWTP. The 27-inch trunk line travels south along State Route 113 (First Street) to Midway Road, then east for about ¼ mile, south for ½ mile, and east for ¼ mile to the WWTP. The trunk line is currently operating near capacity during peak periods. A new 42-inch trunk line is being constructed that will provide increased capacity for new development in the City.

There is an existing 15-inch line in Vaughn Road, which connects to a 21-inch pipe along N. Fitzgerald Street on the south side of Vaughn Road.[25] Flows in the 21-inch line are conveyed to larger lines that will ultimately connect to the new 42-inch trunk line to the WWTP. The existing and proposed NQSP area wastewater collection system is shown in Figure 4.11-3.

City engineering standards require that pipes be sized so they are no more than 70 percent full under peak flow conditions and that they are sloped enough to maintain velocities sufficient to hold wastewater solids in suspension. For large commercial or industrial users, the City requires installation of flow monitoring facilities at points of connection to the City's collection system to enforce Sewer Ordinance limitations (see "Regulatory Setting," below) and to provide confirmation of the basis for billing and capital cost apportionment.

Groundwater may occur at shallow depths, depending on the time of year or amount of rainfall in a given year. The City has experienced a high rate of groundwater infiltration into its sewer trunk systems.[26] The infiltration is primarily related to design and construction of the sewer pipes themselves and not directly related to groundwater conditions in the area, although the high groundwater conditions exacerbate the problem.[27] The City has adopted design standards to reduce the inflows, and features that need to be incorporated into wastewater collection system design and installation to minimize groundwater intrusion.

Existing Facilities – Wastewater Treatment Plant

The WWTP is a "secondary equivalent" pond treatment system using total land containment for percolation and evaporation disposal. There are no discharges of treated effluent to surface water. The existing WWTP has a permitted average dry weather flow (ADWF) capacity of approximately 1.8 million gallons per day (mgd). Current ADWF into the WWTP is close to 1.5 mgd.

25 ECO:LOGIC Engineering, Review of Dixon Downs Project Impacts on City Wastewater Facilities, Draft January 5, 2005, Figure 2.
26 City of Dixon, Southwest Dixon Specific Plan Draft EIR (SCH #200204237), March 2003, page 285.
27 Joe DiGiorgio, ECO:LOGIC Engineering, personal communication, January 4, 2005.

The treatment plant operates under Waste Discharge Requirements (WDR) developed and enforced by the Central Valley Regional Water Quality Control Board (CVRWQCB). The current WDR for the City's WWTP specifies certain operating criteria and monitoring requirements. In September 1997, CVRWQCB issued a CDO related to groundwater degradation at the WWTP resulting from the land disposal of treated effluent. The September 1997 CDO No. 97-193 required assessment of groundwater degradation, quantification of dry weather wastewater flows, and completion of an expansion of the WWTP. At the present time, the city's WWTP does not have capacity to serve city growth for the next five years (including Phase I of the project).

In June 2005, the CVRWQCB issued a new CDO No. R5-2005-0078 which supersedes the 1997 Order and sets forth a compliance schedule to assess background groundwater conditions at the WWTP and proposed off-site land disposal areas, and construct facilities by 2009 that do not degrade groundwater, including salt impacts, and will serve all City growth through 2014. To achieve the required capacity, a two-step phased improvements and expansion of the facility from 1.8 mgd to approximately 2.5 mgd over the next four years. Additional studies are being performed to address the viability of the WWTP expansion plan. A copy of the June 2005 CDO is available for review at the City of Dixon, 600 East A Street, Dixon. The Order specifies an average daily dry weather influent flow limit of 1.82 mgd, which is then raised to 2.0 mgd in the first phase of the improvement project in 2007. The 2.0 mgd limit is to remain in effect until the CVRWQCB adopts revised WDRs prior to completion of the second phase of the improvements project in 2009. The Order also requires additional groundwater quality monitoring, development of a facilities and financing plan, submittal of design and completion reports from WWTP expansion, and a compliance schedule.[28] A discussion of planned improvements, schedule, and timing as it relates to the Dixon Downs project is presented in "Conveyance and Treatment – Planned Improvements," below.

WWTP Groundwater Issues

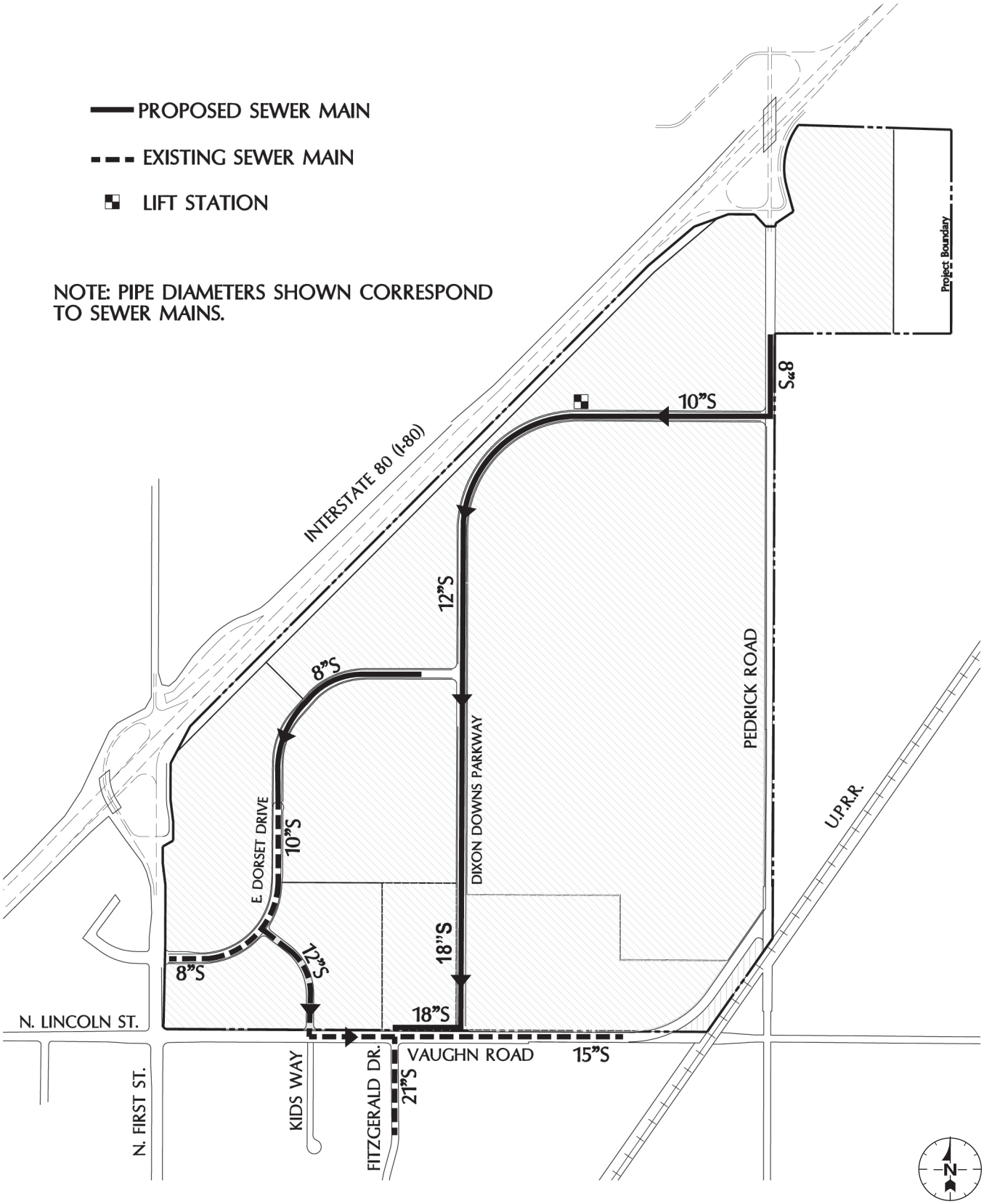
Groundwater provides the domestic water supply in the City of Dixon and supports regional agriculture. As noted above, the CVRWQCB has determined that WWTP percolation disposal of treated wastewater has adversely affected groundwater quality at the WWTP disposal area, and efforts are underway to correct the problem. The proposed solution to the WWTP groundwater salt impacts is to move most of the percolation disposal to an area outside of the existing WWTP where groundwater salinity is higher than the treated wastewater. Relatively low-salinity stormwater that drains past the existing WWTP site may be impounded and percolated in the existing percolation disposal basins to mitigate the salt percolation that would continue from the remaining wastewater percolation disposal basins.[29] The treatment ponds would be lined to prevent percolation.

Another component of the CDO compliance plan involves limiting the amount of salt entering the City wastewater stream, which may include lowering the current city-wide Sewer Ordinance limits on salt, limiting the use of salt-discharging water softeners, and, over the long-term, changing at least some of the City water supply to surface water. The anticipated operational changes would occur regardless of whether the Proposed Project is implemented, and the analysis of the potential environmental effects of the WWTP operational modifications would be accomplished as a separate action, independent of the Proposed Project.[30]

28 California Regional Water Quality Control Board, Tentative Cease and Desist Order for the City of Dixon Wastewater Treatment Facility, Solano County, Notice, June 2005.

29 ECO:LOGIC Engineering, Review of Dixon Downs Project Impacts on City Wastewater Facilities, Draft, January 5, 2005.

30 ECO:LOGIC Engineering, Review of Dixon Downs Project Impacts on City Wastewater Facilities, Draft, January 5, 2005.



***Source*:** City of Dixon Northeast Quadrant Specific Plan

EIP ASSOCIATES

FIGURE **4.11-3**

Wastewater Collection System

If the salt-limiting controls described above are adopted by the city, the Proposed Project would be subject to the existing and any future revisions to the Sewer Ordinance salt limits or other restrictions.

Conveyance and Treatment – Planned Improvements

Collection System

As noted above, one of the planned improvements to the city's wastewater system is a new 42-inch sewer trunk line, which is under construction scheduled to be completed by Summer 2005. The line will serve projected growth in the Dixon, including development in the Northeast Quadrant Specific Plan (which includes the Proposed Project), and the southwest Dixon area, the Southpark (Valley Glen) area. The trunk line generally runs south from the vicinity of the Hall Park lift station to the treatment plant. An east-west connector will extend from the West A Street/Pitt School Road intersection to the trunk line.[31] The environmental effects of construction and operation of the South Dixon sewer trunk line were evaluated in the EIR for that project.[32]

WWTP Expansion

As noted above, modifications to the existing WWTP are planned to occur in two phases. Phase 1 includes improving the headworks to accommodate the 42-inch line described above, treatment pond lining, creating more capacity with aerators, and modifying the disposal areas. The potential environmental effects of physical changes to the WWTP would be accomplished as a separate action, independent of the Proposed Project.

The Phase 2 improvements, which are described in the CDO, would increase WWTP capacity to approximately 2 mgd. This would accommodate projected city growth through 2014. The city estimates it will take about four years for the city to complete the necessary technical studies and CEQA environmental documentation, procure rights for an additional 500 acres of land for percolation basins, and construct the Phase 2 facilities.

For the near-term, the city has proposed an approximately 0.2-mgd expansion to create an "interim" Phase 1 2.0-mgd facility at the existing WWTP site to address salinity issues and accommodate projected City growth through about 2010. Both the interim WWTP expansion to 2.0 mgd and the future capacity to approximately 2.5 mgd would be necessary regardless of whether the Proposed Project is implemented; if approved, the proposed Dixon Downs Phase 1 project treatment demand (0.2 mgd) interim capacity increase from 1.82 to 2.0 mgd. According to the timeline established in the RWD, the interim Phase 1 WWTP improvements are expected to be completed by 2007. Construction of the Phase 2 WWTP improvements to approximately 2.5 mgd capacity is scheduled for 2008-9.[33]

31 City of Dixon, Southwest Dixon Specific Plan Draft EIR (SCH #200204237), March 2003, pages 280-281.
32 City of Dixon, *South Dixon Sewer Line Trunk Project Draft Environmental Impact Report* (SCH #99102002), June 2000.
33 ECO:LOGIC Engineering, Review of Dixon Downs Project Impacts on City Wastewater Facilities, Draft, January 5, 2005.

Regulatory Framework

Federal Regulations

The discharge of wastewater to surface water is regulated under the U.S. Environmental Protection Agency (EPA) National Pollutant Discharge Elimination System (NPDES) program, which was established in the federal Clean Water Act (CWA) and subsequently codified in Title 40, Part 122 of the Code of Federal Regulations. Requirements and performance standards established in Title 40, Part 122 are enforced and monitored at the State level, as summarized below. Sections 401 and 402 of the CWA contain general requirements regarding NPDES permits. Section 303 of the federal Clean Water Act (CWA) requires states to adopt water quality standards for all surface water of the United States. Where multiple uses exist, water quality standards must protect the most sensitive use. Water quality standards are typically numeric, although narrative criteria based upon biomonitoring methods may be employed where numerical standards cannot be established or where they are needed to supplement numerical standards. Additional detail on water quality standards is included in Section 4.6, Hydrology and Water Quality.

State Regulations

The State Water Resources Control Board (SWRCB) and the Regional Water Quality Control Board (RWQCB) are responsible for ensuring implementation and compliance with the provisions of the federal CWA and California's Porter-Cologne Water Quality Control Act. The Porter-Cologne Water Quality Control Act[34] is California's statutory authority for the protection of water quality. Under the Porter-Cologne Act, the State must adopt water quality policies, plans, and objectives that will provide protection to the State's waters for the use and enjoyment of the people of California. The SWRCB has authority and responsibility for establishing policy for water quality control issues for the State. Regional authority for planning, permitting, and enforcement is delegated to the nine RWQCBs. SWRCB and RWQCB regulations implementing the Porter-Cologne Water Quality Control Act are included in Title 27 of the California Code of Regulations. The Central Valley Regional Water Quality Control Board (CVRWQCB) is the local regional board that enforces and monitors water quality in the project area.

The Porter-Cologne Water Quality Control Act authorizes the SWRCB and RWQCB to issue waste discharge requirements (WDR) that are specific to each facility, and to enforce these permits.

Horse Racing Act

The Business and Professions Code (Sections 19495, 19610.3, and 19610.4) regulates the taxes and fees imposed on racing facilities. Section 19495 limits excise taxes or fees levied on licensees to $100 per racing day. Under Section 19610.3, the city or county the racetrack facility is operating in can select, by resolution, to receive a statutory distribution of funds from the racing facility. Section 19610.3 sets this distribution amount at 0.33 of 1 percent of the total pari-mutuel wagers placed at the facility. Section 19610.4 extends this distribution amount to apply to satellite wagering as well. The city may not levy any taxes or fees on the racing association, or any racing patron, service provider, participant, promoter, or vendor if the city elects to receive distribution payments from the racing facility. In addition, Section 19610.3 specifies that any city or county that elects to receive distribution payments "shall continue to provide ordinary and traditional municipal services, such as police services and traffic control."

34 California Water Code Section 13000 *et seq.*

Local Regulations

City of Dixon General Plan

The Public Services and Facilities Element of the Dixon General Plan contains the following policies regarding the provision of wastewater services.

> POLICY 6
>
> The City shall ensure that the significant increases in sewage treatment and disposal capacity requirements generated by new development will be provided in a timely, cost-effective and environmentally sound manner. Achieving this policy will require a variety of improvements, including:
>
> - installing major new conveyances;
> - expansion of existing sewage treatment capacity; and
> - expansion of existing effluent disposal facilities.
>
> POLICY 7
>
> The City shall ensure that development does not exceed the capacity of the local wastewater treatment facilities.

City of Dixon City Code

Chapter 17 of the City Code contains requirements pertaining to general sewer use, pretreatment of wastewater prior to sewer discharge, and wastewater discharge permits for non-residential development within the City of Dixon. The City's Sewer Ordinance (adopted as Ordinance No. 9410) would apply to wastewater discharges from the Proposed Project.[35]

The purpose of the Sewer Ordinance is to prevent the introduction of pollutants into the WWTP that would interfere with its operation or result in inadequately treated effluent that would be land disposed (and, as a result, degrade groundwater quality), to protect WWTP workers, and to provide a fee basis for cost apportionment, among other requirements.

Northeast Quadrant Specific Plan

The NQSP Public Facilities and Services Element Section 6.11.3 contains the following policies applicable to the provision of wastewater services in the plan area:

> 1. Strict implementation of all conditions and requirements of the Section 12.24 Performance Standards of the City of Dixon Zoning Ordinance, as applicable to wastewater collection and disposal will be enforced.

In the above-referenced policy, Section 12.24.12 of the Zoning Ordinance is the performance standard specific to liquid wastes. It requires compliance with relevant provisions of state and local laws and regulations.[36]

35 City of Dixon, *City Code Chapter 17*.
36 City of Dixon, Zoning Ordinance, Section 12.24.12 (Liquid or Solid Wastes).

The NQSP EIR evaluated the environmental effects related to wastewater services associated with development of the NSQP. Mitigation measures PS-C and PS-E from the NQSP EIR were identified to reduce significant impacts associated with the provision of wastewater services to a less-than-significant level. Applicable mitigation measures from the NQSP EIR are listed below.

PS-C Prior to the issuance of a building permit, evidence that the city's wastewater treatment plant has capacity to accommodate the Proposed Project shall be submitted to the City of Dixon.

PS-E The project proponent shall be responsible for contributing to the appropriate hook-up fees to help offset the costs of necessary sewage treatment facility expansions. In addition, the project proponent shall be responsible for the construction of sewer lift stations, sewer mains and any other facility improvements deemed necessary to serve the Proposed Project.

Standards of Significance

For the purposes of this EIR, impacts on wastewater services are considered significant if the Proposed Project would:

- Require or result in the construction of new wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects;
- Result in a determination by the wastewater treatment plant provider which serves or may serve the project that it lacks adequate capacity to serve the project's projected demand in addition to the provider's existing commitments; or
- Violate any water quality standards or waste discharge requirements, or exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board.

Methods of Analysis

The evaluation of wastewater conveyance and treatment demands of the Proposed Project is based on technical studies prepared by consultants hired by the project applicant, Morton & Pitalo (*Preliminary Sewer Study-Dixon Downs*, April 16, 2004) and ECO:LOGIC Engineering (ECO:LOGIC *Engineering, Review of Dixon Downs Project Impacts on City Wastewater Facilities,* Draft, January 5, 2005). The analysis assumed that project-generated wastewater would be conveyed through the City's sewer collection system to the WWTP. The analysis also assumed the volume and type of wastewater (i.e., constituents in the waste stream) would generally be similar to that anticipated in the City's General Plan and NQSP and would be required to conform to the City Sewer Ordinance.[37]

Two flow characteristics were used in the engineering analysis. Average flow was used to determine effects on WWTP capacity, and peak (or maximum) flow was primarily used to determine effects on the collection system. Peak flows were estimated by multiplying the average flow by a peaking factor and adding additional water (inflow and infiltration [I/I] resulting from leaking pipes or unintended[38] stormwater inflow. General peak flow values from City Engineering Standards were used for all

37 ECO:LOGIC Engineering, Review of Dixon Downs Project Impacts on City Wastewater Facilities, Draft, January 5, 2005.

38 Unintended stormwater connections included open clean out pipes, unsealed manhole lids, and storm drain lines that were connected to the City's sanitary sewer system before there was a stormwater system in Dixon in all areas.

anticipated activities, except for the high occupancy facilities and barn areas. In those cases, flows were calculated by estimating the number of plumbing fixtures or the number of horses.[39]

The technical analysis assumed the on-site collection system pipelines would be installed in conjunction with commencement of Phase 1 development and sized to accommodate the ultimate peak flows generated by the Proposed Project, along with a small contribution (approximately 0.05 mg) from upstream areas in the sewer drainage area. The installation of sewer infrastructure with capacity for project build-out flows as part of Phase 1 development would eliminate the need for additional ground disturbance within the Dixon Downs facility after Phase 1 becomes operational.

The impacts on WWTP capacity were evaluated separately for Phase 1 and Phase 2 demand. Based on information provided in the project application submitted to the city, the engineering analysis assumed Phase 1 demand would occur over the 2005-2010 timeframe, and Phase 2 flows would begin in 2010 and continue beyond.[40]

Impacts and Mitigation Measures

Impact 4.11-5	**The Proposed Project would discharge flows to the existing city sewer system, which would exceed City Engineering Standards for peak flow in the lines.**	
Applicable Policies and Regulations	Dixon General Plan Policies 6,7; NQSP Section 6.11.3 Policy 1	
Significance before Mitigation	Phase 1: Phases 1 and 2:	Significant Significant
Applicable NQSP Mitigation Measures	PS-E	
Mitigation Measures	Phase 1: Phases 1 and 2:	4.11-5(a) through 4.11-5(d) 4.11-5(e)
Significance after Mitigation	Phase 1: Phases 1 and 2:	Less than Significant Less than Significant

Phase 1

Implementation of the Proposed Project would generate wastewater flows that would be discharged to the City's sewer system. Phase 1 peak flow is estimated to be 0.46 mgd. The applicant has proposed a network of sewer lines ranging in diameter from 10 to 15 inches, which would connect to the existing 12- and 15-inch-diameter lines in Vaughn Road.

The racetrack facilities are likely to produce highly variable flows due to the heavy use by patrons during race events. Stormwater from the barn area would also be discharged to the sewer to limit animal and operational wastes in stormwater runoff (see Impact 4.11-7, below). The final estimates of the total volume of stormwater conveyed to the sewer have not been completed, but they are not anticipated to substantially alter the conclusions of the analysis with regard to WWTP capacity.[41] A holding tank would

39 ECO:LOGIC Engineering, Review of Dixon Downs Project Impacts on City Wastewater Facilities, Draft, January 5, 2005.
40 ECO:LOGIC Engineering, Review of Dixon Downs Project Impacts on City Wastewater Facilities, Draft, January 5, 2005.
41 Joe DiGiorgio, ECO:LOGIC Engineering, personal communication, January 4, 2005.

be used to store the barn area stormwater prior to discharge to the sewer to limit potential peak flow effects on the collection system capacity.

Based on the engineering analysis, the proposed 15-inch-diameter line in the project site, as well as the existing 15-inch-diamater pipeline in Vaughn Road would flow at more than 70 percent full.[42] While flows would not exceed 100% capacity of the line, they would exceed the 70 percent full-under-peak-flow standard established in the City Engineering Standards. Exceeding the flow standard could impair the ability of the City's sewer line system to contain and safely convey flows to the WWTP without overflowing, which could create a health hazard. This is a ***significant impact***. However, for the 21-inch and larger diameter sewer lines that would receive project-generated flows from the 15-inch line, the engineering analysis concluded the estimated peak flows would not exceed the City's 70 percent full standard. [43]

Phases 1 and 2

Development of Phase 2 would further increase the amount of wastewater discharged to the sewer system. Phase 2 peak flow is estimated to be approximately 0.22 mgd. The total estimated peak flow to the sewer system would be 0.68 mgd. [44] As described for Phase 1, the volume could exceed the City's 70 percent full standard for line capacity in the 15-inch line, which could have adverse effects on the City sewer system such as overflows. This is considered a ***significant impact***. On-site design features such as flow equalization and monitoring facilities would be necessary to limit outflows into the system.

Mitigation Measures

The engineering analysis concluded that installation of an 18-inch line in the project site and in Vaughn Road (replacing the proposed and existing 15-inch lines, respectively) would meet the City's 70 percent criterion. On-site design features included in the sewer system to limit peak flows to the collection system (flow equalization and monitoring facilities), which are identified in Mitigation Measure 4.11-5(a) through (d), would further ensure project-generated flows do not exceed City standards for pipeline flow capacity. This would reduce impacts to a *less-than-significant level* and would ensure consistency with Public Services and Facilities Element Policy 6 and Policy 7. Implementation of NQSP EIR Mitigation Measure PS-E identifies the applicant's financial obligations for connection developer-installed lines to the City's sewer system.

Because the flow equalization and monitoring facilities would be on-site, the environmental effects of construction of the facilities required in Mitigation Measure 4.11-5 would be within the scope of construction-related effects discussed in other technical sections in this EIR (e.g., construction-related air emissions, noise, biological resources, etc.). From an operations standpoint, the facilities could result in minor air quality and noise effects. The flow-equalization device (tanks or basins) would store untreated wastewater for brief periods of time until flows could be released into the sewer, which could be a source of unpleasant, nuisance odors. However, the system would be self-contained and enclosed. Odor-scrubbing facilities would be used, as necessary, to minimize unpleasant odors. This would limit the potential for odors. The flow equalization and monitoring equipment would be equipped with mechanical features, including small pumps and blowers, which could generate noise. However, noise

42 ECO:LOGIC Engineering, Review of Dixon Downs Project Impacts on City Wastewater Facilities, Draft, January 5, 2005.
43 ECO:LOGIC Engineering, Review of Dixon Downs Project Impacts on City Wastewater Facilities, Draft, January 5, 2005.
44 ECO:LOGIC Engineering, Review of Dixon Downs Project Impacts on City Wastewater Facilities, Draft, January 5, 2005.

levels from such equipment would not be excessive and would be attenuated within the facility enclosures.

4.11-5(a) *(Phase 1)*

Prior to grading permit approval, the Proposed Project sewer system plan shall be revised to include an 18-inch-diameter line connection to a new 18-inch-diameter line in Vaughn Road, and to include flow diversion and equalization facilities to limit peak flows to the collection system to ensure the project's allocated flow capacity is not exceeded. Flow equalization facilities could include, but would not be limited to, holding tanks or basins that would be slowly emptied at times when project flows are less than allocated capacity and a monitoring system at the point of connection to the city's sewer system. The results of engineering analysis shall be used to demonstrate to the satisfaction of the city's Engineer that the proposed equalization facilities will limit the project flows to less than or equal to allocated capacity.

4.11-5(b) *(Phase 1)*

Inclusion of flow equalization and monitoring facilities in Phase 1 of project design shall be demonstrated at the Plan Check stage.

4.11-5(c) *(Phase 1)*

The project applicant shall install flow monitoring facilities at the point of connection to the city's collection system prior to the issuance of the first building permit to ensure compliance with the city's Sewer Ordinance limitations to provide a basis for billing and capital cost apportionment.

4.11-5(d) *(Phase 1)*

Implement NQSP EIR Mitigation Measure PS-E:

The following mitigation measures from the NQSP EIR, including the proposed revision, clarifies the project applicant's responsibility.

> *PS-E The project proponent shall be responsible for contributing to the appropriate hook-up fees to help offset the costs of necessary sewage conveyance, storage, treatment, and disposal ~~sewage treatment~~ facility expansions. In addition, the project proponent shall be responsible for the construction of sewer lift stations, sewer mains and any other facility improvements deemed necessary to serve the Proposed Project.*

4.11-5(e) *(Phase 2)*

Prior to the issuance of any permit for Phase 2 development, the project sewer plan shall be evaluated and revised, as necessary, to identify necessary upgrades and/or modifications to the flow equalization and monitoring facilities installed as part of Phase 1 development. The revisions shall be made to the satisfaction of the City Engineer prior to the issuance of any building permit for Phase 2 development Modifications to the design shall be verified at the Plan Check stage. The applicant(s) shall pay wastewater connection fees in accordance with the most current City of Dixon fee schedule, as specified in NQSP EIR Mitigation Measure PS-E.

Impact 4.11-6	The Proposed Project would result in the need for expansion of the City's WWTP facilities.	
Applicable Policies and Regulations	Dixon General Plan Policies 6,7; NQSP Section 6.11.3 Policy 1	
Significance before Mitigation	Phase 1: Phases 1 and 2:	Significant Significant
Applicable NQSP Mitigation Measures	PS-C and PS-E	
Mitigation Measures	Phase 1: Phases 1 and 2:	4.11-6(a) 4.11-6(b)
Significance after Mitigation	Phase 1: Phases 1 and 2:	Less than Significant Significant and Unavoidable

Phase 1

Phase 1 of the Proposed Project is estimated to generate an average daily flow of 0.17 mgd of wastewater. Current WWTP permitted capacity is 1.82 mgd and flows are nearing 1.5 mgd. As noted in the "Environmental Setting," above, at the present time, the city's WWTP does not have the capacity to serve city growth for the next five years, including Phase 1 of the Proposed Project. No new sewer connections that would exceed the permitted capacity of the WWTP would be allowed unless in concert with the new CDO.

The estimated wastewater treatment demand of Phase 1 of the Proposed Project (approximately 0.2 mgd) has been accounted for in the city's planned interim Phase 1 WWTP improvements to 2.0 mgd.[45] The 2.0-mgd Phase 1 WWTP improvements are not expected to be operational until 2007. As noted in the Environmental Setting, the interim WWTP improvements are needed regardless of whether the Proposed Project is implemented. The interim WWTP improvements would occur at the existing facility and would be primarily a construction activity. At this time, the city does not anticipate there would be any significant environmental effects resulting from the interim WWTP project that could not be mitigated to a less-than-significant level. However, environmental review in compliance with CEQA will be prepared independent of the Proposed Project.[46]

Although the Proposed Project would not directly result in any direct or indirect significant adverse environmental effects associated with construction of the interim WWTP improvements, because there is inadequate capacity to serve the project's projected demand in addition to the city's existing commitments, this is considered a ***significant impact.***

Phases 1 and 2

Phase 2 of the Proposed Project would generate 0.08 mgd of wastewater. When combined with Phase 1 flows, the total buildout flows would be 0.25 mgd, which could be accommodated by the city WWTP when the facility is expanded to approximately 2.5 mgd.[47] The expansion to approximately 2.5 mgd

45 ECO:LOGIC Engineering, Review of Dixon Downs Project Impacts on City Wastewater Facilities, Draft, January 5, 2005.
46 ECO:LOGIC Engineering, Review of Dixon Downs Project Impacts on City Wastewater Facilities, Draft, January 5, 2005.
47 ECO:LOGIC Engineering, Review of Dixon Downs Project Impacts on City Wastewater Facilities, Draft, January 5, 2005.

would occur regardless of whether the Proposed Project is implemented. However, such an expansion cannot occur until permitted by the CVRWQCB. Further, completion of the WWTP expansion to 2.5 mgd is not expected to be completed until 2009.

Construction of the Phase 2 WWTP facilities could result in significant environmental effects through the conversion of agricultural land or loss of biological resources as well as other impacts that are too speculative to determine at this time and may not be avoidable. While the Proposed Project would not in and of itself result in direct physical impacts related to the WWTP expansion to approximately 2.5 mgd, it would contribute to the need for such expansion and would, therefore, incrementally contribute to potentially significant and unavoidable environmental impacts.

Moreover, because there is inadequate capacity to serve the projected demand of Phase 1 and Phase 2 in addition to the City's existing commitments, this is considered a ***significant impact.***

Mitigation Measures

The NQSP EIR identified Mitigation Measure PS-C to address WWTP capacity issues. Mitigation Measure PS-C requires that permitted capacity be demonstrated prior to issuance of a building permit. A plan and timeline to expand the WWTP to 2.0 mgd, which would accommodate Phase 1 flows, has been developed, and expansion is expected by the end of 2007. The applicant may elect to grade the site, install infrastructure, and construct other improvements, which would require a building permit, but which could also occur in advance of completion of the expansion. Mitigation Measures 4.11-6(a) and 4.11-6(b) provide flexibility in the timing of such improvements relative to the interim WWTP (2.0 mgd) and ultimate Phase 2 (2.5 mgd) improvement plans. Implementation of either option in Mitigation Measure 4.11-6(a) would reduce impacts for Phase 1 to a *less-than-significant level* and would ensure consistency with Public Services and Facilities Element Policy 6 and Policy 7. Implementation of NQSP EIR Mitigation Measure PS-E (which is included in Mitigation Measure 4.11-6) identifies the applicant's financial obligations for the WWTP expansion. Under Mitigation Measure 4.11-6(b), the WWTP capacity with Phase 2 improvements would accommodate Proposed Project flows, but such expansion (to which the Proposed Project would incrementally contribute) could result in significant, and possibly unavoidable, significant impacts.

4.11-6(a) *(Phase 1)*

Implement NQSP EIR Mitigation Measure PS-C:

PS-C Prior to the issuance of a building permit, evidence that the city's wastewater treatment plant has capacity to accommodate the Proposed Project shall be submitted to the City of Dixon.

-OR-

Prior to issuance of an occupancy permit, the City shall determine that the permitted WWTP capacity is sufficient to serve Phase 1 of the project. Site development (grading, installation of infrastructure, and building construction) shall be allowed, but any use of the Phase 1 project elements for events, worker housing, or horse boarding shall be prohibited until the above determination is made.

4.11-6(b) *(Phase 2)*

Implement NQSP EIR Mitigation Measure PS-C:

PS-C Prior to the issuance of a building permit, evidence that the city's wastewater treatment plant has capacity to accommodate the Proposed Project shall be submitted to the City of Dixon.

-OR-

Prior to issuance of an occupancy permit for the first component of Phase 2, the City shall determine the permitted WWTP capacity is sufficient to serve Phase 2 of the project. Site development (grading, installation of infrastructure, and building construction) shall be allowed, but any use of the Phase 2 project elements for events, shall be prohibited until the above determination is made.

Impact 4.11-7	**Stormwater runoff from the horse barns would be discharged to the sewer for conveyance to the City's WWTP. Constituents in the wastewater could temporarily and intermittently affect the chemical character of the water entering the WWTP, as compared to typical wastewater flows from residential, commercial, or retail land uses.**
Applicable Policies and Regulations	City of Dixon Sewer Ordinance NQSP Section 6.11.3 Policy 1
Significance before Mitigation	Phase 1: Less than Significant Phases 1 and 2: Less than Significant
Applicable NQSP Mitigation Measures	None
Mitigation Measures	Phase 1: Mitigation Measure 4.11-7 Phases 1 and 2: None required
Significance after Mitigation	Phase 1: Less than Significant Phases 1 and 2: Less than Significant

Phase 1

Developed Areas (Exclusive of Horse Barns)

Phase 1 of the Proposed Project would include restroom, shower, and kitchen facilities and maintenance areas with sinks. Constituents typically found in wastewater from such sources would flow through pretreatment devices such as screens, grit traps, and grease traps installed in the on-site sewer system. These devices are required in order to comply with the city's Sewer Ordinance. Other constituents of concern could include salts as well as some pesticides and herbicides. It is expected that careful handling and use of products containing constituents of concern would minimize the amount entering the sewer. As such, wastewater constituents from these areas are not expected to adversely affect the quality of wastewater leaving the site and entering the city's WWTP. Periodic sampling for these constituents at the site would need to be performed at the city's discretion as part of a best practicable treatment and control (BPTC) program required by the new WWTP CDO and future Waste Discharge Requirements permit when it is issued.

Barn Areas

As currently planned, the stables in the barn area would be covered, and associated floor drains would capture stormwater in an underground holding tank where it would then discharge to the sanitary sewer system during times when discharges from the project site are low. Directing the barn area runoff to the sewer is a stormwater runoff Best Management Practice (BMP) intended to reduce contaminant loading in stormwater runoff generated at the site (see Impact 4.6-6 in Section 4.6, Hydrology and Water Quality). Runoff from the barn roofs and other areas not exposed to horse wastes and storm flows from the barn area in excess of a 25-year storm event would discharge to the on-site stormwater system.

Process water and runoff from the barn areas could contain inorganic and organic matter associated with animal wastes, bedding, hair, or spilled feed. Generally, the primary pollutants associated with these materials include nitrogen compounds, salts, organic matter, pathogens, and to a lesser extent antibiotics, pesticides, and hormones.[48] These constituents could temporarily affect the character of wastewater entering the WWTP, which has specific effluent quality standards that must be achieved to satisfy the CDO, and future WDR permit for land disposal. If the levels of constituents of concern contributed by the Proposed Project to the WWTP were sufficiently elevated, this could increase the potential for WWTP effluent discharge limits established by the CVRWQCB to be exceeded. However, like in other areas, it is expected that careful handing and use of products containing constituents of concern would minimize the amount entering the sewer. As such, wastewater constituents from these areas are not expected to adversely affect the quality of wastewater leaving the site and entering the City's WWTP. Moreover, periodic sampling for these constituents at the site would need to be performed at the City's discretion as part of a BPTC program required by the new WWTP CDO and future WDR permit when it is issued by the CVRWQCB. Therefore, the impact would be ***less than significant***.

Phases 1 and 2

Development of the retail, commercial, and/or office land uses proposed under Phase 2 would not be expected to include any special types of wastewater discharges that would contribute to potential water quality violations at the WWTP. Connections to the sewer system would be required to comply with the city's Sewer Ordinance. Impacts would be ***less than significant***.

Mitigation Measures

Although not required, implementation of Mitigation Measure 4.11-7 would ensure impacts remain *less than significant* by ensuring barn area stormwater runoff conveyed to the sewer system is contained prior to release and meets the requirements of the city's Sewer Ordinance and any subsequent amendments to that ordinance adopted by the city in response to the new WWTP CDO and future WDR permit when it is issued. It also provides a mechanism for corrective action consistent with the city's Sewer Ordinance (Mitigation Measure 4.11-7(b)(ii)) should constituent levels in barn area runoff discharged to the sewer via the flow equalization unit exceed Sewer Ordinance limits.

48 Brown, Vence & Associates, Review of Animal Waste Management Regulations Task 2 Report, October 2003, Final Report-1.

4.11-7(a) *(Phase 1)*

In conjunction with design of the flow diversion and equalization system required under Mitigation Measure 4.11-5(a), the on-site sewer plan shall also include features specifically intended to limit the types and concentrations of animal and operational wastes contained in barn area stormwater runoff directed to the sewer system, consistent with the city Sewer Ordinance requirements and any subsequent amendments thereto.

4.11-7(b) *(Phase 1)*

(i) The project applicant shall finance and implement water quality sampling and flow monitoring program at the point of connection to the sanitary sewer consistent with the city's Sewer Ordinance.

(ii) The need for continuous sampling and/or removal of problematic compounds shall be at the discretion of the city if it is found necessary to protect water quality.

Cumulative Impacts and Mitigation Measures

The cumulative context for the provision of wastewater services is the city's wastewater collection and treatment service area. Because the city provides wastewater services within city limits, the cumulative context is buildout of the city through 2010.

Impact 4.11-8	**The Proposed Project, in combination with other development in the City of Dixon, could result in the need for new or physically altered wastewater collection facilities that could result in significant environmental effects.**	
Applicable Policies and Regulations	Dixon General Plan Policies 6; NQSP Section 6.11.3 Policy 1	
Significance before Mitigation	Phase 1: Phases 1 and 2:	Significant Significant
Applicable NQSP Mitigation Measures	PS-E	
Mitigation Measures	Phase 1: Phases 1 and 2:	Mitigation Measure 4.11-8 Mitigation Measure 4.11-8
Significance after Mitigation	Phase 1: Phases 1 and 2:	Less than Significant Less than Significant

Phases 1 and 2

Cumulative development in the city would increase the volume of wastewater flows discharged to the sewer collection system. General Plan Policy 6 requires that new development provide necessary improvements to conveyance capacity, and the city has adopted specific standards to ensure correct pipeline sizing to accommodate flows from new development in addition to existing flows. Similarly, the NQSP EIR Mitigation Measure PS-E also imposes requirements on new development to provide adequate conveyance capacity. Mitigation Measure 4.11-5 ensures that the Dixon Downs project flows, in combination with other wastewater flows, do not exceed the city's 70 percent flow criterion for pipelines by requiring upsizing at specific locations on and adjacent to the project site.

Improvements to the wastewater conveyance system that would be needed to accommodate buildout would typically occur within existing roadway right-of-ways to accommodate flows from new development. In other cases, improvements would occur on-site in conjunction with backbone infrastructure improvements intended to serve new development, but may still require upsizing of off-site lines. It is possible such on- or off-site improvements on a city-wide basis under General Plan buildout could result in significant environmental effects such as air emissions or disturbance of biological resources protected under federal, State, or local laws and regulations, depending on the length of the improvement, width of the area to be disturbed, and location. It remains unknown whether such impacts (exclusive of the Proposed Project) could be mitigated to less-than-significant levels.

Implementation of Mitigation Measure 4.11-5 requires that an existing 15-inch sewer in Vaughn Road be upsized to 18 inches. This off-site improvement would occur in an existing right-of-way and would be approximately 2,400 feet long. The installation would not be expected to result in any adverse environmental effects related to loss of biological resources or habitat because such resources do not occur within the roadway. Air emissions associated with trenching and installation of an approximately ½-mile length of pipeline would not generate substantial emissions. No historic or unique archaeological resources have been identified. The pipeline would be buried, so there would be no adverse visual impact. There would be no discharges to surface water or groundwater that could affect water quality. The project's contribution to the cumulative impact would be cumulatively considerable, and the cumulative impact would be considered ***significant.***

Mitigation Measures

Compliance with Mitigation Measure 4.11-5 would ensure the project's cumulative contribution would be reduced to a *less-than-significant level.*

4.11-8 *(Phases 1 and 2)*

Implement Mitigation Measure 4.11-5.

Impact 4.11-9	**The Proposed Project, in combination with other development in the City of Dixon, could result in the need for new or physically altered wastewater treatment facilities that could result in significant environmental effects.**	
Applicable Policies and Regulations	Dixon General Plan Policies 6, 7; NQSP Section 6.11.3 Policy 1	
Significance before Mitigation	Phase 1: Phases 1 and 2:	Significant Significant
Applicable NQSP Mitigation Measures	PS-C and PS-E	
Mitigation Measures	Phase 1: Phases 1 and 2:	None available None available
Significance after Mitigation	Phase 1: Phases 1 and 2:	Significant Unavoidable Significant Unavoidable

Phases 1 and 2

Buildout of the city's General Plan would increase development in the city, which would result in the need for additional wastewater treatment services. The General Plan includes policies to ensure that development does not exceed the capacity of the WWTP and establishes a mechanism to provide additional capacity. The NQSP EIR (Impact PS-5) concluded that the impact of wastewater generated by cumulative development in the city (2.5 mgd) would be less than significant, provided that the development of each project is contingent upon providing evidence or acquiring adequate permitted capacity at the plant, which is consistent with General Plan policies. No additional mitigation, beyond NQSP EIR Mitigation Measures PS-C and PS-E, was identified to address cumulative impacts related to the provision of wastewater facilities.

The combined Phases 1 and 2 of Proposed Project would incrementally contribute to, but would not exceed, the demand for wastewater treatment services anticipated in the General Plan and NQSP EIR. As noted in the Environmental Setting, the city is moving forward with efforts to expand the city's WWTP to the planned capacity of approximately 2.5 mgd, which would accommodate project buildout plus growth in the city projected in the most current adopted General Plan. Implementation of NQSP EIR Mitigation Measures PS-C and PS-E along with Mitigation Measures 4.11-5 and 4.11-6 is a mechanism to ensure that adequate capacity is available at the city's WWTP to accommodate the Proposed Project prior to occupancy.

However, as currently planned, expansion of the city's WWTP capacity would require additional effluent percolation disposal area outside of the existing WWTP boundary. Development of the additional percolation disposal area under the planned Phase 2 improvements would require the acquisition of property and would result in the conversion of undeveloped land to another use. The location(s) for the percolation disposal areas have not been identified, so current land uses are unknown. It is therefore possible the development of the one or more environmental impacts that could be significant and potentially unavoidable. For example, potential environmental impacts associated with the conversion of land could include permanent loss of productive agricultural land or Prime Farmland or loss of foraging habitat. Groundwater degradation would not be expected to result in any significant impacts, however, because the CVRWQCB would not permit such expansion if it could not be demonstrated there would be no adverse water quality effects. Construction of the percolation disposal areas could also result in temporary emissions of criteria air pollutants that could exceed adopted air district thresholds, which may or may not be mitigable to less-than-significant levels.

Therefore, expansion of the WWTP would be required to accommodate cumulative development, including the project, and cumulative impacts could be significant. These impacts would be considered indirect consequences of getting additional capacity; there is no danger that additional hookups would be granted without adequate capacity available. The project's demand for wastewater treatment capacity could represent approximately 31 percent of the planned increase in capacity from 1.82 mgd existing interim capacity to the ultimate capacity of approximately 2.5 mgd, assuming expansion beyond 2.0 mgd is permitted by the CVRWQCB. The project's contribution would be cumulatively considerable.

As discussed in the Environmental Setting, additional environmental review under CEQA would be required for the WWTP expansion. Mitigation measures to which the project could contribute to help avoid or reduce significant environmental effects associated with the WWTP expansion have not been identified. However, any related connection fees would be required for all future development, including the Proposed Project. Because there are currently no feasible mitigation measures that are available to

the applicant that could be implemented to address cumulative impacts, the cumulative impact remains ***significant and unavoidable***.

Mitigation Measures

None available.

Impact 4.11-10	**The Proposed Project, in combination with other non-residential development in the City of Dixon, would discharge wastewater to the sewer that could contain constituents that could affect the quality of wastewater treated and disposed of at the City's WWTP.**
Applicable Policies and Regulations	Dixon Sewer Ordinance NQSP Section 6.11.3 Policy 1
Significance before Mitigation	Less than Significant Less than Significant
Applicable NQSP Mitigation Measures	
Mitigation Measures	None required None required
Significance after Mitigation	Less than Significant Less than Significant

Phases 1 and 2

Cumulative development under City of Dixon General Plan buildout, including the Proposed Project, would increase wastewater flows to the city WWTP. Existing flows to the WWTP are primarily from residential uses, with a small portion from commercial and industrial uses. Constituents that could be introduced into flows conveyed to the WWTP are regulated by the city's Sewer Ordinance to ensure compliance with the WWTP permit, as discussed in the Regulatory Setting. There are no existing or planned major commercial or industrial uses that would be expected to substantially alter the quality of wastewater treated by the WWTP and ultimately discharged to the percolation basins. Any new commercial or industrial development that would discharge to the WWTP would be subject to the Sewer Ordinance, as would be imposed for the Proposed Project. Because the chemical characteristics of wastewater entering the WWTP with cumulative development is not anticipated to vary substantially from existing conditions, the cumulative impact is deemed ***less than significant***.

The Proposed Project's contribution would also not be cumulatively considerable. Process wastewater (see Impact 4.11-7) and barn area runoff water would comprise approximately one-half to two-thirds of Proposed Project flows into the sewer, depending on the time of year. As noted in Impact 4.11-7, wastewater would be periodically sampled to ensure Sewer Ordinance requirements and would be part of a BPTC required under the new permit for the WWTP.

Mitigation Measures

None required.