January 3, 2024

Beatriz Barranco, SCCO Manager
Davenport County Sanitation District
2750 Lode St.
Santa Cruz, CA 95062
Beatriz.barranco@santacruzcounty.us

Dear Beatriz Barranco,

APPROVAL OF 2023 WATERSHED SANITARY SURVEY
DAVENPORT COUNTY SANITATION DISTRICT (SYSTEM NO. 4400571)

The State Water Resources Control Board, Division of Drinking Water (Division) is in receipt of the Watershed Sanitary Survey (Survey), submitted December 27, 2023. The Survey was prepared by Rodney Trujillo and updated by Renee Inlow. The Survey includes information about the hydrogeology, land use, possible contamination, watershed management, and water quality of the watershed supplying the surface water sources of the Davenport County Sanitation District (Davenport CSD) water system.

After review, the Division finds the Survey satisfies all watershed sanitary survey report requirements outlined in California Code of Regulations, title 22, section 64665. Davenport CSD has satisfied the watershed sanitary survey requirements. The next watershed sanitary survey report five-year update is due by **December 31, 2028**.

If you have any questions, please contact Kyle Graff at kyle.graff@waterboards.ca.gov or (831) 655-3935 or the Monterey District Office at DWPDIST05@waterboards.ca.gov or (831) 655-6939.

Sincerely,

Jonathan Weininger, PE
District Engineer, Monterey District
Division of Drinking Water

cc: Santa Cruz County Environmental Health
Isaac Bojorquez, Isaac.bojorquez@santacruzcounty.us

DAVENPORT COUNTY SANITATION DISTRICT WATER SYSTEM

WATERSHED SANITARY SURVEY

SAN VICENTE AND MILL CREEK WATERSHEDS

SANTA CRUZ COUNTY

December 2023

Prepared by: Rodney Trujillo, Updated by Renee Inlow
County of Santa Cruz
December 2023

Contents

Section 1: Introduction

1.1 Sanitary Survey Requirements

Sanitary surveys are required by the California Department of Public Health (CDPH) to be completed for each watershed that is a drinking water source. Updates are required every five years per the State of California Surface Water Treatment regulations (Chapter 17, Title 22). These requirements incorporate the Surface Water Treatment Rule (SWTR) mandated by the United States Environmental Protection Agency (EPA) and enforced by CDPH as a primacy agency for federal regulations.

The purpose of the SWTR is to protect the general public from waterborne diseases, particularly those associated with microbial contaminants, such as *Giardia lamblia*, *Cryptosporidium,* viruses, and bacteria. Understanding the potential for water contamination events within each individual watershed is important in avoiding or responding to such events.

1.2 Project Area Description

The Davenport County Sanitation District (District) is located approximately 12 miles north of the City of Santa Cruz on Highway 1. The service area is bordered by the now closed CEMEX Cement Plan on the north, the Pacific Ocean on the west, and agricultural lands on the south and east. The District serves the area known as Davenport, which encompasses the communities commonly called “New” Town and “Old” Town. Appendix A includes a *Davenport County Sanitation District* exhibit showing the District limits. Davenport has a permanent population of approximately 388 residents.

History:
Development in the Davenport area began with the building of a 450-foot long wharf at Davenport Landing in 1867 to handle dairy, timber and quarry products. The present communities of Davenport and New Town owe their existence to the development of the local quarries and cement plant. The town of Davenport was built concurrently with the cement plant in 1906. It was originally built and owned by Coast Dairies and Land Company to provide rental housing and services for cement plant employees. Newtown was built between 1910 and 1915 by the Santa Cruz Portland Cement Company to provide alternative housing for their supervisory personnel.

County service areas were formed by the County Public Works Department to provide for the maintenance of the sewer and water facilities in the Oldtown portion of Davenport: The Davenport Sewer Maintenance District and the Santa Cruz County Waterworks District No. 1.

In 1979, the Davenport County Sanitation District was formed to establish a legal entity to provide water and sewer service for Davenport and New Town. The District is a consolidation

of the Davenport Sewer Maintenance District and the Santa Cruz County Waterworks District No. 1.

The District has been providing treated water to Davenport and New Town residents from the treatment facility located on the Cement Plant property since taking over the operation of the water system. The District also provides raw water to the plant for industrial purposes. The water supply is surface water from San Vicente and Mill Creeks. Some water is diverted for industrial use prior to treatment and storage; the remainder is treated and stored in the existing 260,000-gallon tank. The District does not utilize groundwater wells for water supply.

The Central Coast has a temperate climate characterized by mild, wet winters and warm, dry summers. Average historical precipitation for the area is approximately 36 inches annually with most rainfall occurring between late November and mid-April.

The watershed area includes conservation land, rural residential development, timber harvesting, some agricultural land, conference grounds, and a school. The watershed area tributary to the Mill Creek intake is more densely developed than the area tributary to the San Vicente intake.

1.3 Objectives

The objective of this report is to provide an evaluation of the San Vicente and Mill Creek watersheds in order to identify existing and potential sources of contamination and to show their approximate locations. The existing watershed management and control practices currently in place to protect creek water quality are also described.

1.4 Study Methods

The County conducts sanitary surveys from a vehicle and by walking along the various creeks. These surveys consist of a posted sign review, a sanitary hazard assessment along the creeks, water quality testing from the two intake locations, and removal of various foreign objects from the creeks. The survey also utilizes the County's GIS database mapping information and aerial photography to determine zoning, topography, geology, septic disposal areas, ownership, stream tributaries, road locations, and active agricultural areas. Rodney Trujillo compiled the 2018 report. Renee Inlow updated the report in 2023.

1.5 Major Conclusions of the Watershed Sanitary Survey

The primary conclusion of this report is that the San Vicente and Mill Creek watersheds provide high quality water. No indications of chemical pollutants, such as pesticides or hazardous materials, were identified in the survey. No pesticides or other synthetic organic chemicals have ever been detected in the water sampling from either intake feed lines.

The presence of suspended sediment in the creek water during rain events is an ongoing issue. The source is attributed to erosion along the banks and karst geological conditions. The District mitigates this issue by continuously monitoring the turbidity of the raw water before it enters the

treatment plant. The plant automatically stops the intake of water when instrumentation indicates that the turbidity exceeds 14 NTU. The County seeks to preserve the overall health of the creek system by continuing to work to identify and reduce potential sources of erosion.

With the completion of this report, the District will be in compliance with the Surface Water Treatment Rule requirements for conducting a Sanitary Survey, as required by CDPH.

Ongoing Actions

1. The County will continue raw water sampling in the watershed.

2. The District will continue to work closely with the Santa Cruz County Environmental Health Services (SCCEH) department to correct any identified coliform sources, if ever discovered.

3. The District will continue to inspect the intake areas and creeks monthly during dry weather and more frequently during the rainy season.

4. The District will continue to work with local and State regulatory agencies to ensure that best management practices are being observed throughout the watershed.

5. The District is in the process of adding 700,000 gallons of additional storage capacity to the system in the form of large above ground tanks. These tanks will serve the community for drought preparedness and fire suppression.

Section 2: Watershed Characteristics and Surface Water Supply System Components

2.1 Watershed Study Area

The surface water sources utilized by the District are San Vicente Creek and Mill Creek. San Vicente Creek is the larger of the two streams and is the primary source of domestic water supply. The creeks rise in the uplands near the crest of Ben Lomond Mountain. Mill Creek is tributary to San Vicente Creek with a point of confluence approximately 11,000 feet north of the District's Water Treatment Plant. Both streams are listed as perennial on the County of Santa Cruz online GIS database and United States Geological Survey (USGS) maps with continuous flow during years of normal rainfall. However, Mill Creek has been observed to have significantly reduced flow during the summer months.

The diverted stream water gravity flows from the San Vicente Creek and Mill Creek intakes to the District's treatment plant on the decommissioned CEMEX cement plant property through 6-inch high density polyethylene (HDPE) transmission mains.

The watershed is on the west facing slopes of the Santa Cruz Mountains and its mouth discharges to the Pacific Ocean in the community of Davenport. The hillsides and canyons are relatively steep and have heavy growths of redwood trees along with, Douglas-fir, and live oak trees. The total tributary drainage area above the intakes is approximately 4,850 acres (3,850 acres tributary to the San Vicente intake and 1,000 acres tributary to the Mill Creek intake). The watershed boundaries are shown on the Watershed Boundary Map map in Appendix A. The intake locations overlaid on a United States Geological Survey (USGS) quadrangle is included in Appendix A as an exhibit titled San Vicente Redwoods – Davenport Water System.

Portions of the watershed are underlain by pervious soils and underground karst formations, which provide for critical groundwater recharge. This recharge helps maintain vital year-round stream flows, which in turn supports domestic water supplies.

2.2 Land Use

The land use zone designations within the watershed are Agriculture (A); Commercial Agriculture (CA); Parks, Recreation, and Open Space (PR); Residential Agriculture (RA); Special Use (SU); and Timber Production (TP). The watershed use is approximately 66 percent Timber Production,12 percent Residential Agriculture, 11 percent Rural Residential, and 11 percent of the remaining designations. The parcels with "Residential" designations are most densely located in the Mill Creek portion of the watershed. Several residential homes are located within 50 to 100 feet from San Vicente Creek, Mill Creek, and their tributaries. Most of the septic tank leachfield systems within the watershed have been installed under the direct supervision of the SCCEH. Private landowners have direct access to the creek upstream from the District's creek intakes. The zoning for the watersheds tributary to the San Vicente and Mill

Creek intakes are shown on the *San Vicente Zoning Exhibit* and *the Mill Creek Zoning Exhibit* in Appendix A.

Much of the watershed is under the management of the San Vicente Redwoods Partnership. Peninsula Open Space Trust (POST), Sempervirens Fund, Land Trust of Santa Cruz County, and Save the Redwoods League. These groups work together to support the mission of conservation, recreation, and sustainable timber harvest. Access to the reserve is limited through gates, monitored video surveillance, hired patrol, and restrictive signage at primary access points. However, in December of 2022, the Conservation Partners opened the first phase of an envisioned 38-mile multi-use trail system. 7.3 miles of trails are currently open to the public along Empire Grade, in the northern portion of the San Vicente watershed.

Examples of posted signs at entrances to the watershed

2.3 Existing Hydrology and Rainfall

Stream flows in San Vicente Creek and Mill Creek are not measured by the Santa Cruz County Planning Department or the District. In 2018, data was available from the Resource Conservation District of Santa Cruz County (RCD) for the San Vicente Creek, downstream of the intake, near the decommissioned CEMEX plant. The RCD has suspended monitoring activities and current data is no longer available. The geology and precipitation are such that the San Vicente Creek sustains summer minimum base flows of about 1 cubic feet per second (cfs) .[1] The estimated flow for 2-year, 10-year, and 50-year return periods are 300 cfs, 1,800 cfs, and 4,800 cfs, respectively, based on 15 years of data.[2] The same report estimates flow frequencies for the 2-year, 10-year, and 50-year return periods at a location near the San Vicente Creek Intake (USGS Gage 11161800) as 175 cfs, 1,050 cfs, and 2,780 cfs, respectively. The USGS Gage estimates the mean flow between years 1970 and 1985 as 1.6 cfs near the San Vicente Intake. The stream flow data obtained for Mill Creek is limited. The California

[1] Resource Conservation District of Santa Cruz County, "San Vicente Creek Watershed Plan for Salmonid Recovery", February 2014 (56)
[2] Resource Conservation District of Santa Cruz County, "San Vicente Creek Watershed Plan for Salmonid Recovery", February 2014 (27)

department of Fish and Wildlife records a streamflow of 1.16 cfs in June of 2010 at a location 1500' downstream of the Mill Creek Intake. [3]

The watersheds are situated in a temperate climate with the majority of rainfall occurring during the winter season between October and April. Table 2-1 summarizes the recorded monthly rainfall as measured at the Davenport rain gauge downstream of the intakes.[4] The data shown is for the period 2013 through 2022.

Table 2-1
Precipitation at Davenport Rain Gage

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
2013	1.32	0.4	1.4	0.72	0.04	0.16	0	0	0.2	0	0.64	0.2	5.08
2014	0.08	0.64	0.12	0	0	0	0	0	0.28	0.56	3.36	12.9	17.9
2015	0	1.76	0.2	1.48	0.04	0	0	0	0.02	0.04	2.24	5.72	11.7
2016	10.5	0.8	3.4	0.12	0.04	0	0	0	0	3.64	3.16	6.32	28
2017	13.4	12.2	4.52	2.68	0.08	0.24	0	0	0	0.08	2.36	0.08	35.7
2018	6.78	0.24	3.66	0.59	0.04	0	0	0	0.16	0.08	1.59	1.39	14.53
2019	3.83	3.12	0.44	0.04	0.48	0	0	0	0.04	0	0.55	0.4	8.9
2020	0.76	0	1.47	0.87	0.52	0	0	0	0.12	0	0.36	1.27	5.37
2021	2.65	1.11	0.8	0.24	0.04	0.16	0	0	0	5.64	2.4	8.63	21.67
2022	0.51	0.16	1.39	1.58	0	0.16	0.04	0.2	1.14	0.55	2.88	10.24	18.85

Table 2-2 provides the Santa Cruz County Historical average precipitation values recorded by the National Climatic Data Center between 2003 and 2023.[5]

Table 2.2
Santa Cruz County Historical Precipitation Averages from the National Climatic Data Center

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
2003-2023 Average	5.85	5.02	5.04	2.36	0.69	0.14	0.02	0.02	0.16	1.58	2.80	7.65	31.46

2.4 Brief Description of Raw Water Source Facilities

Water from San Vicente Creek and Mill Creek is diverted into two separate raw water gravity line transmission mains for delivery to the Davenport CSD Treatment Plant located in the community of Davenport. The diversions are known as the San Vicente Creek Intake (S008351) and the Mill Creek Intake (S008350). The San Vicente intake serves as the primary water source for the

[3] California Department of Fish and Wildlife, Santa Cruz County, Big Basins Coastal Watersheds Stream Habitat Assessment Report, Mill Creek, Surveyed 2010 (22)
[4] https://santacruz.onerain.com/list.php
[5] https://www.ncei.noaa.gov/access/monitoring/climate-at-a-glance/county. December, 2023 data not included.

community of Davenport due its superior water quality and the reliability of the stream flows. The intake has a pre-1914 appropriative water right and normally distributes surface flows at a rate of 0.2 cfs for the Town of Davenport and 0.1 cfs to the decommissioned CEMEX property for dust control.

The Mill Creek Intake also has a pre-1914 appropriative water right and serves as a secondary water source for Davenport. A minimal flow is maintained at the intake in order to keep the supply line flushed. This intake is used as a back-up when the San Vicente Intake goes off-line for repairs. The intake is a valuable part of Davenport's system but experiences higher turbidity and less reliable stream flows during summer months than the San Vicente Creek Intake.

Each intake consists of a small concrete diversion dam that gravity flows water through 6-inch high-density polyethylene (HDPE) transmission mains to the treatment plant, where it is discharged at the water treatment plant. The flow from the transmission lines into the treatment plant is controlled by an automated valve at the treatment plant which closes when the raw water turbidity exceeds 14 NTU. The San Vicente and Mill Creek transmission mains are approximately 3.6 and 3.0 miles long, respectively. Photographs of the diversions are included below.

San Vicente Intake

Mill Creek Intake

During the storms of February 2017 several sections of the transmission mains along the San Vicente Creek diversion pipeline were severely damaged, rendering the pipeline temporarily inoperable. Emergency repairs were performed, and the project was completed in July of 2017. Water from Mill Creek was used during the shutdown to meet the town's water needs. Photographs of the damaged main below the San Vicente Creek Intake are shown below.

Damaged San Vicente Main after 2017 Storm

Tree at San Vicente Intake after 2017 Storm

On August 16th 2020, the CZU Lightning Complex Fire destroyed approximately 15,000 linear feet of six-inch gravity waterlines. These waterlines transport raw water from San Vicente Creek and Mill Creek intakes to the water treatment plant. Repairs to the water lines began October 1, 2020 and the project was completed December 12, 2020. While the water treatment plant was unable to receive water, a daily average of 45,000 gallons of potable water was purchased from the City of Santa Cruz and trucked into the town of Davenport for community use.

Water Lines Destroyed by the CZU Fire

Filling Potable Water Tanks

The District was awarded a grant through the California Department of Water Resources (DWR) Small Community Drought Relief Program, to engineer, permit, and construct potable water storage tanks at the Davenport Water Treatment Plant. When constructed, the new tanks will increase storage of potable water by 700,000 gallons. Construction began in September of 2023 and will likely be completed by June of 2024.

2.5 Current Watershed Protection Activities

SCCEH and the District currently monitor watershed sewer systems. Sewage disposal for residential homes in the watershed occurs through septic tank/leachfield systems. In general, privies and septic tanks have been placed at safe locations away from the creeks when installed under the supervision of the SCCEH. SCCEH maintains a database of County parcels with septic systems within the watershed (see Registered Septic Systems map in Appendix A).

The County reviews timber harvesting plan applications and works with County staff and the California Department of Forestry and Fire Protection (CAL FIRE) to provide plan review comments to ensure that prudent watershed control is observed within the watershed.

Watershed Monitoring. The District conducts monthly (or more frequent) inspections at the intakes and along portions of the creek. The survey consists of a posted sign inventory, a sanitary hazard assessment along the creeks, and associated water quality testing in areas where sanitary problems are evident. The District also responds to sanitary complaints reported by the public. As the watershed is vast and primarily owned by private landowners, the District does not have complete control over the use and development of the watershed area. Routine surveillance of the entire watershed is not possible. However, over half of the watershed is controlled and monitored by the Conservation Partners, as described in Section 2.2.

District Staff Sampling Raw Creek Water

The quality of the water in the creeks is very good. San Vicente Creek and Mill Creek are monitored in accordance with State water quality monitoring regulations. Raw water samples are collected from the feed line of each intake and tested for bacteriological, general physical, general mineral, inorganic chemical, radioactivity, and organic chemical analysis. Both surface sources are in compliance with the primary and secondary drinking water standards based on these analyses.

2.6 Emergency Response Agencies/Responsibilities

Response to emergencies that could potentially affect creek water quality may be provided by the following regulatory agencies:

State of California

- State Water Resources Control Board (water rights)
- Central Coastal Regional Water Quality Control Board (RWQCB) [waste discharges/water quality]
- Department of Fish and Wildlife (fish/wildlife protection)
- CDPH (drinking water/public health)
- Department of Water Resources (water quality/quantity)
- California EPA (toxins)
- CAL FIRE (fire)

Santa Cruz County

- Agricultural Commissioner (pesticides/herbicides)
- County Sheriff (vehicular accidents)
- SCCEH (smaller public water systems/private sewage disposal)
- Department of Public Works (roads damage, spills caused by vehicular accidents)
- Other County agencies such as Building and Planning (stream restoration, review of timber harvesting plans, and unclogging of log jams in creeks)

Sanitation District (sanitary survey inspection of creek/intake areas)

Plans are in place to respond to natural disasters, fires, power outages, planned waste discharges, public recreation, hazardous materials spills, sewage breaks, septage spills, private sewage disposal failures, land use, and emergencies that might significantly impact water quality.

The most likely water quality emergencies to occur within the watershed include the following: failing septic systems, septic spills, and excessive turbidity caused by erosion from heavy storms or poor logging practices. CAL FIRE has responsibility for firefighting throughout the watershed and controls logging. In the event of a hazardous material spill, the District would contact SCCEH, CDFW, the RWQCB, and any other appropriate agency.

Section 3: Potential Contamination Sources in the Watershed

3.1 Survey Methods

Information relating to potential contaminant sources was obtained from a field survey, internet searches and a literature review. The literature review consisted of database and document research and telephone interviews with relevant agencies and individuals. GIS maps from the Santa Cruz County Community Development & Infrastructure (CDI) Planning Division, Santa Cruz County Agricultural Commissioner and the District were used to locate specific features such as residential developments, conservation areas, creeks, and tributaries.

The literature and telephone surveys included interviews and/or review of information from the SCCEH, the Santa Cruz County CDI Planning Division, the Santa Cruz County Agricultural Commissioner, CAL FIRE, and the Bureau of Land Management.

The field survey consisted of driving and walking a portion of each watershed and inspecting land use features in the watershed, including each creek intake area. District Operations staff conducts the monthly inspections of the intakes and other areas easily accessible by vehicles and by foot. See *County and Private Roads in Watershed* exhibit in Appendix A for the location of major roads within the watershed area.

3.2 Potential Contaminant Sources

3.2.1 Domestic Wastewater Treatment Plants and Septic Tank/Leachfield Systems

Wastewater treatment systems have the potential to contaminate surface water due to direct creek discharge. Septic systems have the potential to contaminate surface water through percolation of wastewater through the soil into groundwater and potentially surfacing into nearby creeks or impounded surface waters.

Contaminants of Concern.
Domestic sewage contains pathogenic microorganisms such as bacteria, parasitic cysts, and viruses, which can pose an immediate public health risk. A longer-term public health risk is posed by excessive concentrations of organics, nutrients, and trace metals in the sewage.

Existing Conditions - Municipal Wastewater Treatment Plants.
There are no wastewater treatment plants in the watershed.

Existing Conditions - Septic Systems. Septic tanks are regulated locally by the County Health Officer through SCCEH in accordance with standards established by the RWQCB. Using a county ordinance, SCCEH regulates septic tank/leachfield systems. This ordinance requires the following setback distances from creeks:

	New Installations	Repair of Existing Installations
Septic Tank	100'	50' (plus sand filter if <50')[1]
Leachfields	100'	50' (plus sand filter if <50')[1]

[1]Under no circumstances less than 25'.

The County maintains a database of all parcels in the watershed with a septic system. Based on review GIS data, aerial photography, and limited field visits, most private residences appear to be set back from the main creeks and their respective tributaries with the exception of a small number of homes within both watersheds. A field review of each residence was not performed. However, none of the septic systems are known by the District to be in violation of the required setback distances at this time.

The majority of the watershed is conservation area. Private residences account for approximately 10% of the total watershed areas. There are single family residential homes, limited agriculture, a church, an elementary school, and wine tasting within the watershed. Locations of note include:

- **Bonny Doon Elementary School.** This is an elementary school located at 1492 Pine Flat Road that operates a total of 180 teaching days a year.

- **Bonny Doon Church.** This is a small church located at the intersection of Bonny Doon Road and Pine Flat Road. A small coffee shop with limited hours of operation is located on the same property.

SCCEH has programs for:

- Septic system evaluations

- Adequate septic tank/leachfield installations for new residences or new systems for existing residences

- Responding to nuisance complaints as a result of failing septic systems

- Repairing problem septic systems

The District samples raw water from each intake feed line for total coliform and Escherichia coli (E. coli), and the treated water for total coilform, E. coli, and chlorine residual monthly. Annually

the raw water sources are tested for ammonia, phosphates, nitrates, and various minerals and chemicals.

Summary. Despite the presence of septic systems within the watershed, the treated water is tested to consistently not contain coliform and meets current drinking water standards.

3.2.2 Urban Stormwater Runoff

Urban storm water runoff is the storm water discharge from developed, urban areas that flows to surface waters via natural channels or storm drains.

Existing Conditions. There are no dense urbanized areas in the watershed. Runoff from other land uses area discussed below.

3.2.3 Agricultural Crop Land Use

Drainage from agricultural cropland includes runoff of excess irrigation water and storm water runoff from developed farming areas.

Contaminants of Concern. Agricultural cropland drainage can contain a number of contaminants, including pesticides, herbicides, fertilizers, sediment, and pathogenic organisms from applied animal manures.

Existing Conditions. There are numerous lands zoned Agriculture or Commercial Agriculture in the watersheds. Currently 4parcels within the watershed area are registered with active pesticide use permits. These properties consist of three vineyards, , and the Bonny Doon Ecological Reserve- under the control of California Department of Fish and Wildlife. See Appendix A for a map of *Agricultural Lands.*

The primary contaminants from these lands are expected to be pesticides, herbicides, and fertilizers. Chemical usage is tracked, identified, and kept in a database maintained by the Santa Cruz County Agricultural Commissioner.

Summary. Agricultural cropland in the watershed is limited to a small percentage of the total watershed area and is predominately located within the Mill Creek watershed area. The agricultural crop land is not a likely threat to water quality in the watershed. The raw water from intake feed lines are sampled for these compounds regularly; no pesticides or herbicides have ever been detected.

3.2.4 Grazing Animals

Contaminants of Concern. The most significant potential source of contaminants is pathogenic organisms entering the creeks by storm water runoff from grazing land areas.

Existing Conditions. This category includes livestock production on rangeland and the stabling of horses. The Vigne Farm Equestrian Park previously offering horse boarding and training is no longer in business. The grazing lands in the watershed are small in relation to the size of the watershed, and much of the pastureland is below the water intake sites.

Summary. This contamination source is a low threat to water quality along most of the creeks.

3.2.5 Concentrated Animal Facilities

Animal operations include feedlots or other operations where animals are housed in concentrated areas. No concentrated animal facilities were noted in the watershed.

3.2.6 Pesticide/Herbicide Use

Pesticide/herbicide uses for reasons other than agriculture purposes are the following:

- Use by individual homeowners for gardening and pest control
- Control of weed growth along public and private roads
- Herbicide application in timber forests to control unwanted plant growth

These chemicals can reach creek flow by percolation and/or in rainfall runoff.

Existing Conditions. The Santa Cruz County CDI Public Works Division discontinued the use of Round-up or other herbicides to control vegetation along the roadways in 2005. Mowing and weed whacking are the primary methods employed. The use of pesticides and herbicides by ordinary households was not evaluated, nor was the use of herbicides to control unwanted plant growth in the logging areas or Fish and Wildlife right of ways. The District does not use herbicides anywhere within the watershed.

Summary. The above described pesticide use in the watershed is considered minor and has not significantly impacted water quality. No pesticides have ever been detected in the water sampling conducted at the raw water feed lines.

3.2.7 Mining

An examination of USGS quadrangle maps of the watershed area reveals historic mining activity from operations associated with the CEMEX cement plant that was decommissioned in 2010. The Bureau of Land Management (BLM) of the U.S. Department of Interior keeps records of both active and inactive mines throughout the United States, including lands not owned by the federal government. The watershed area is located in the area of Township 10S, Range 3 West. The water quality of either creek is not impacted by mine drainage.

3.2.8 Solid/Hazardous Waste Disposal Facilities

There are no permitted solid/hazardous waste disposal facilities in the watershed. There are no commercial businesses in the watershed selling gasoline/diesel fuels from underground tanks.

3.2.9 Logging

Erosion from improperly performed logging operations can increase the sediment load and turbidity in storm water runoff.

Existing Conditions. CAL FIRE controls logging. Logging is primarily performed during summer months because dry soil conditions are required for most efficient operation of the logging equipment and the haul trucks.

Timber harvesting plans must be prepared and submitted to CAL FIRE for all proposed timber cutting operations. These plans are reviewed and evaluated by the County and the District. The District is notified when plans are proposed in our watershed and the District is given an opportunity to comment on proposed logging plan. Agencies that constitute the review team (chaired by CAL FIRE) are CDFW, the RWQCB, and the Santa Cruz County CDI Planning Division. Normally, timber harvesting plans include measures to control erosion. However, water quality monitoring is seldom performed because timber harvesting plans do not require water sampling.

Summary. Logging has the potential to cause high turbidity conditions in the creek waters if done improperly. CAL FIRE controls logging operations in this watershed. Historically, CAL FIRE has done a good job in controlling logging-related erosion problems within the watershed.

3.2.10 Recreational Use

Body contact with the creek water during the summer and fall is a potential source of human pathogen contamination. Microbial, pathogenic organisms, such as bacteria, viruses, and parasitic cysts (*Giardia lamblia* and *Cryptosporidium*) from humans, dogs, and horses would pose the most significant recreational risk to water quality in this category.

Existing Conditions. There are no lakes or ponds in the watershed connected to either creek. Neither creek is easily accessible to the public for wading or swimming. The Bonny Doon Ecological Reserve and San Vicente Redwood Conservation Partners allows public access to portions of the watershed, limited to wildlife viewing, hiking, and biking.

Summary. Direct creek access is limited and therefore contamination from recreational use is considered low risk.

3.2.11 Unauthorized Activity

Examples of unauthorized activities could include direct connection from septic tanks to creeks instead of leachfields and the dumping of cars, refuse, chemicals, paints, or any other toxic or biological materials into the creeks.

Existing Conditions. This sanitary survey of the watershed revealed no evidence of illegal dumping. There was no house-to-house septic tank/leachfield survey for the developed properties adjacent to the creeks. However, the District has no reports of direct connections, unauthorized activity, or hazardous materials spills that would threaten water quality within the watershed in the last 10 years.

Summary. Water quality testing does not show significant evidence of unauthorized activity impacting water quality. Neither creek intake showed any evidence of litter or debris that would indicate significant unauthorized entry into these areas. Water quality data shows no indications of hazardous material dumping in the watershed.

3.2.12 Traffic Accidents/Spills

Traffic accidents are a potential source of contamination to surface waters through their potential to spill fuel and cargo. The possible cargo in this watershed could include septage waste off-haul and pesticides/herbicides/fertilizer delivery for agricultural use.

Existing Conditions. Few county and private roads parallel the creek system (see *County and Private Roads in Watershed* map). The likelihood that a spill on a roadway would enter the creek system is low. The SCCEH, the Santa Cruz County Sheriff's Department, and the Santa Cruz County CDI Public Works Division are the primary responders for roadway spills. The District is not aware of any recent spills in the vicinity of the creek system.

Summary. Water quality tests do not show evidence that water quality has significantly been impaired by spills from traffic accidents.

3.2.13 Groundwater That Influences Surface Water

The creeks are influenced by surface water from adjacent hillsides. Natural springs and karst geology within the creek system have the potential to convey wastewater from septic tanks and leachfield systems to creeks.

Summary. Despite the presence of septic systems in the watershed, the treated water is tested consistently and does not contain coliforms. Evidence of significant contamination outside of treatment parameters is not observed.

3.2.14 Geologic Hazards

Geologic hazards, such as earthquakes and landslides, have the potential to contribute large quantities of suspended materials to the creek system.

Existing Conditions. Santa Cruz County is in a region of high seismic activity. No evidence of landslides was observed during the field survey. However, a small, localized slide occurred on Ice Cream Grade at the periphery of the Mill Creek watershed during the significant rainfall experienced in 2017. Debris flow studies conducted after the CZU Lightning Complex Fire do not indicate an increased risk of debris flow within the San Vicente watershed.

Summary. Landslides are possible in both watersheds but are not frequent. CDI Public Works collaborates with Sempervirens to repair slide areas and prevent further erosion into the creeks once a slide occurs. The Santa Cruz County Planning Department works with landowners to develop erosion control plans to prevent slides on steep slopes. District staff frequently inspect the intake areas and piping facilities during and after heavy storms. Water quality can be impaired by erosion of sediment into the creeks.

3.2.15 Wildfires

Wildfires within a watershed create erodible soils that can contribute large loads of suspended solids and organic matter to surface waters when rain causes runoff before the native vegetation has an opportunity to re-establish itself.

Cal Fire is responsible for fire suppression and management in State Responsibility Areas (SRAs) and the Santa Cruz County Fire jurisdictional area. Outside of SRAs, local governments typically have jurisdiction, e.g., fire districts in Boulder Creek, Felton, Ben Lomond, Zayante, and Scotts Valley. Over the past 15 years there have been three large scale wildfires that have impacted the watershed:

Lockheed Fire — The Lockheed Fire burned approximately 7,900 acres of the upper watersheds of Scotts and San Vicente creeks on August 12-23 in 2009. This fire primarily damaged the western edge of the of the San Vicente intake watershed.

Martin Fire — The Martin Fire burned approximately 520 acres in the Laguna Creek and San Vicente Creek watersheds, on June 11-16 in 2008. The fire primarily caused damage along the eastern edge of the Mill creek intake watershed, mostly within the Bonny Doon Ecological Reserve.

CZU Lightning Complex Fire – The morning of August 16, 2020 a series of thunderstorms produced over 300 lightning strikes in Santa Cruz and San Mateo Counties which, combined with dangerous drought conditions, resulted in the largest fire in Santa Cruz County history. The fire consumed 63,754 acres, destroyed 1,431 structures (of which 911 were single family homes), required evacuation of 70,000 people and caused the tragic death of one Santa Cruz County resident. The impacts to the San Vicente watershed were extensive. The water supply lines from both San Vicente Creek and Mill Creek were destroyed leaving the town of Davenport without a water supply. See the discussion in section 2.4.

Exhibits showing the *Lockheed, Martin, and CZU Fire Burn Areas* are included in Appendix A.

A large portion of the total watershed is undeveloped and covered with trees and brush, making the area susceptible to wildfires. Fires are controlled by CAL FIRE and the Santa Cruz County Fire Department. Fire retardants used during fire suppression activities also pose a fire related risk to the watershed.

Summary. Wildfire in the watershed is always a possibility. Subsequent erosion could be a significant source of potential water contamination, including the presence of ash in the water.

3.2.16 Pipes Crossing Over Creeks

During the field survey, no pipes other than raw water pipes were observed crossing over or closely adjacent to the creeks upstream of each creek intake. The raw water pipes observed belong to other small water systems within the watershed and/or private homeowners who are using the creek water system for domestic/irrigation purposes.

Summary. The raw water pipes that now exist routing either across or parallel to creeks do not pose a risk to water quality in the creeks.

3.2.17 Wild Animal Populations

Wild animal populations are a potential threat to water quality because they can contribute pathogenic organisms (*Giardia lamblia, Cryptosporidium*, bacteria, and viruses) to the water supply. The amount of undeveloped land in the watershed makes this source a concern. The following animals are reported to live in the watershed: amphibians, deer, pigs, coyotes, bobcats, mountain lions, foxes, rabbits, squirrels, and a variety of birds. A wild animal population in the watershed is a condition that is not controlled by the District.

Summary. Limited data is available on the contribution of pathogenic organisms from the wild animal populations in the watershed. The intakes have been monitored for *Giardia lamblia, Cryptosporidium*, and the levels have been very low. The impacts to water quality by wildlife are considered minor.

3.3 Significance of Potential Contaminant Sources

Tables 3-1 and 3-2 present a summary of the significance of the various potential contaminant sources discussed in this section. The assessments are subjective, based on information gathered from the field survey, document research, and contacts with various agencies.

Table 3-1
Significance of Potential Contaminant Sources in the San Vicente Watershed

Source	Potential to affect water quality	Comments
Septic Systems	Medium	Septic tanks in the watershed, several close to creeks
Geologic Hazards	Medium	Landslides; seismic area
Logging	Medium	Some logging in watershed
Wild Animal Populations	Medium	Limited data available, but large size of undeveloped area suggests this is a potential source of pathogenic microorganisms
Fire	Medium	Watershed has heavy tree coverage and is susceptible to wildfires
Grazing Animals	Low	Few cattle grazing
Groundwater	Low	No apparent influences; some springs could be septic influenced
Pesticide/Herbicide Use	Low	Round-Up no longer used along County roads by Santa Cruz County CDI Public Works Division
Recreation	Low	Hiking, Biking and wildlife viewing for a portion of watershed
Traffic Accidents/Spills	Low	No major transportation corridors, no major past problems; septage hauled at times
Unauthorized Activity	Low	Potential for illegal dumping into creek
Urban/Industrial Runoff	Low	Mainly single residential/rural homes; one elementary school
Agricultural Cropland	Low	No major cropland activity in watershed
Concentrated Animal Facilities	None	None in watershed
Mining	None	No active mines in watershed
Pipelines	None	No pipelines crossing the creeks other than raw waterlines
Solid/Hazardous Waste Disposal	None	None in watershed
Wastewater Treatment Plants	None	No wastewater treatment plants in the watershed

Table 3-2
Significance of Potential Contaminant Sources in the Mill Creek Watershed

Source	Potential to affect water quality	Comments
Septic Systems	Potentially High	Septic tanks in the watershed, some close to creeks
Geologic Hazards	Medium	Landslides; seismic area
Logging	Medium	Some logging in watershed
Wild Animal Populations	Medium	Limited data available, but large size of undeveloped area suggests this is a potential source of pathogenic microorganisms
Agricultural Cropland	Low	Very little cropland in watershed (apple orchards)
Fire	Medium	Watershed is forested and susceptible to wildfires
Grazing Animals	Low	Few cattle grazing and perhaps some horses in watershed.
Groundwater	Low	No apparent influence; some springs could be septic influenced
Pesticide/Herbicide Use	Low	Round-Up no longer used along County roads by Santa Cruz County CDI Public Works Division
Recreation	Low	Occasional unauthorized body contact wading.
Traffic Accidents/Spills	Low	No major transportation corridors; no past problems; private septage is periodically hauled
Unauthorized Activity	Low	Potential for illegal dumping into creeks
Urban/Industrial Runoff	None	No urban areas in watershed
Concentrated Animal Facilities	None	None in watershed
Mining	None	No active mines in watershed
Pipelines	None	No pipelines crossing the creeks except raw
Solid/Hazardous Waste Disposal	None	None in watershed
Wastewater Treatment Plants	None	No wastewater treatment plants in the watershed

Section 4: Existing Watershed Control and Management Practices

4.1 Primary Watershed Control Agency (Santa Cruz County)

The primary watershed management agency is Santa Cruz County. The watershed is entirely within the unincorporated area of the County.

Listed below are the Santa Cruz County departments that are responsible for watershed management:

Santa Cruz County Environmental Health Services:

- Administration of the County septic tank ordinance as it applies to new development and adequate maintenance of existing septic tank/leachfield systems
- Water quality sampling of local creeks and streams to confirm that septic systems are not adversely impacting stream water quality and safety in recognized water contact sports areas
- Regulating other public water systems in the watershed, including the protection of their respective water supply sources, and collecting water quality information from the water sources they use
- Investigating and seeking the remediation of accidental spills in the watershed as a result of vehicular accidents
- Administration of the County's underground chemical storage tank program
- Review of timber harvesting plans
- Regulation of hauling and disposal of septage wastes

Santa Cruz County Community Development & Infrastructure Public Works Division:

- Maintenance of County roads
- Response and cleanup of vehicular accidents including spills that occur
- Installation and maintenance of drainage control structures
- Review of timber harvesting plans
- Controlling weed growth along County roads

Santa Cruz County Agricultural Commissioner. This agency has the responsibility of controlling and regulating the use of pesticides and herbicides in the watershed.

Santa Cruz County Community Development & Infrastructure Planning Division. This division zones the watershed. Zoning controls land uses and the density of land development. The agency is also involved in the following activities:

- Review of timber harvesting plans
- Review of development for compliance with riparian ordinance
- Restoration of creek channels when mudslides deform them
- Restoration of aquatic habitat

Santa Cruz County Fire Department. This department will assist CAL FIRE to fight major wildfires.

4.2 Other Watershed Management Control Agencies (State of California)

A variety of State agencies provide additional controls and regulation of the watershed lands such as:

California Department of Public Health. This department regulates the District's water system and conducts yearly water system facility reviews including the intake areas.

California Department of Forestry and Fire Protection. This department is the lead agency in the review and approval of timber harvesting plans. They also check for plan compliance during logging and in the cleanup, restoration, and closure actions necessary after a parcel has been logged.

Central Coast Regional Water Quality Control Board. This agency would permit any significant liquid/solid waste discharges within the watershed (currently none). The RWQCB is charged with protecting the beneficial uses of the waters of the State, which includes the groundwater and the surface water of this watershed.

California Department of Fish and Wildlife. This department's responsibilities are to protect and promote fish and wildlife within the watershed. Their activities to protect fish are a direct water quality protection activity. This department also reviews timber harvesting plans.

4.3 District Responsibilities

Listed below are the various County activities that protect and monitor the watershed.

4.3.1 Watershed Control Activities

District staff are assigned the following responsibilities:

- Monthly water quality monitoring in both watersheds. The monitoring program is designed to inspect the intakes and identify items of possible concern.

- Inspecting the watershed (roads and portion of creeks) monthly looking for materials near and in the creeks that might contaminate water quality. District crews promptly remove any objects and materials that raise concerns. District staff also conduct a more thorough inspection annually.

- Reviewing and commenting on timber harvesting plans filed with CAL FIRE by other landowners in the watershed.

- Communicating with other agencies having watershed control jurisdiction on an as-needed basis.

- Inspecting the creeks after heavy rains for signs of major landslides and debris.

4.3.2 Creek Diversion Control Activities

District staff are assigned the following responsibilities:

- Regularly inspecting both creek intake areas for signs of vandalism and to assure the facilities are functioning properly

- Cleaning of sand and leaf traps

- Maintaining warning signs that inform the general public that the facility is part of a domestic water system

- After heavy rains, inspecting each intake area to determine if mudslides have damaged the physical facilities, including the above ground raw water piping conveying the creek water to the District's treatment plant.

Section 5: Water Treatment Regulations and Water Quality

5.1 Water Treatment Regulations and Existing Water Treatment Plant

The water treatment plant was upgraded in 2011 to meet current surface water requirements for high turbidity water. The upgraded plant includes pre-filtration, chlorine treatment, and a 260,000-gallon steel storage tank for peak day storage plus fire flows. Under the Surface Water Treatment Rule (SWTR), the District is currently required to provide 3-log (99.99%) removal/deactivation for Giardia cysts, 4-log (99.999%) virus removal/deactivation, and a total of 99 percent removal of Cryptosporidium through filtration.

The water treatment system has been designed and constructed to comply with the requirements of the State of California's Code of Regulations (Title 22), the Environmental Protection Agency's SWTR, and both the Long Term 1 and Long Term 2 Enhanced Surface Water Treatment Rules (LT1ESWTR and LT2ESWTR) by treating the domestic water, and monitoring for E. coli and Cryptosporidium as per LT2ESWTR rules. In addition, the EPA's Membrane Filtration Guidance Manual (MFGM) recommendations and procedures have been followed and implemented.

The major components of the plant's treatment system consist of pre-filtration, membrane microfiltration, and chlorine disinfection. The system was designed to meet the Surface Water Treatment Rules. The membrane filtration system is an approved technology under the California Department of Public Health (CDPH) Division of Drinking Water and Environmental Management's (DDWEM) Alternative Filtration Program. The CDPH-DDWEM rates the membrane filtration for pathogen removal credits (i.e. 3-log removal of Giardia Cysts) at a maximum flux and maximum transmembrane pressure (pressure differential between inlet and outlet side of filter).

The pre-filtration consists of a two-stage treatment scheme. The first pre-filtration stage consists of a coarse filter that removes the coarse materials, such as pebbles, grit and leaves that are occasionally present in the raw water. The filter is made up of a housing containing a 16 mesh (1200 microns) stainless steel screen.

The second pre-filtration stage consists of two-disc filters that remove fine particles. The first disc filter provides depth filtration using a 200-micron filter followed by the second disc filter using a 100 micron filter.

The final stage consists of microfiltration using membrane filtration technology that is Programmable Logic Controller controlled and provides the operator visualization, alarms, monitoring and historic electronic records through the Human Machine Interface (HMI) located on the Memcor Unit.

A separate Programmable Logic Controller monitors and controls plant systems for the disinfection system, process instruments for measuring raw and treated water turbidity, and chlorine residual at two discrete points. Pressure differential switches and alarms are monitored and recorded through the Human Machine Interface located on the Motor Control Center. The system is designed to operate at 100 GPM.

This plan responds to all elements stipulated by the Santa Cruz County Environmental Health Agency, California Code of Regulations Title 22 §64661(b) and Department of Health and Safety recommendations.

Davenport Water Treatment Plant

5.2 Water Treatment Plant Production

The District began documenting treatment plant production in 2017. Table 5-1 summarizes total filter plant water production for the period 2014 through 2022.

Table 5-1

YEAR	TREATMENT PLANT PRODUCTION (gallons)
2014	12,768,000
2015	17,448,500
2016	17,788,900
2017	19,992,700
2018	18,489,600
2019	18,620,393
2020	14,668,900
2021	15,037,500
2022	15,508,000

5.3 Sampling Plan

The District implements a water quality monitoring plan that includes testing of raw water from the San Vicente Intake and the Mill Creek Intake, and the treated water at the water treatment plant.

5.4 Water Quality

The District performs primary inorganic, general mineral, secondary standards, radioactivity, volatile organic chemicals, synthetic organic chemicals and bacteriological sampling at the San Vicente Intake and the Mill Creek Intake. The water quality characteristics of the two water sources are similar, with Mill Creek typically having a higher turbidity. The water quality parameters tested continue to meet all the applicable drinking water quality standards for raw water. Total coliform and E. coli levels in the creeks fluctuate throughout the year and have not been attributed to any one source or variable.

Section 6: Conclusions and Recommendations

6.1 Conclusions

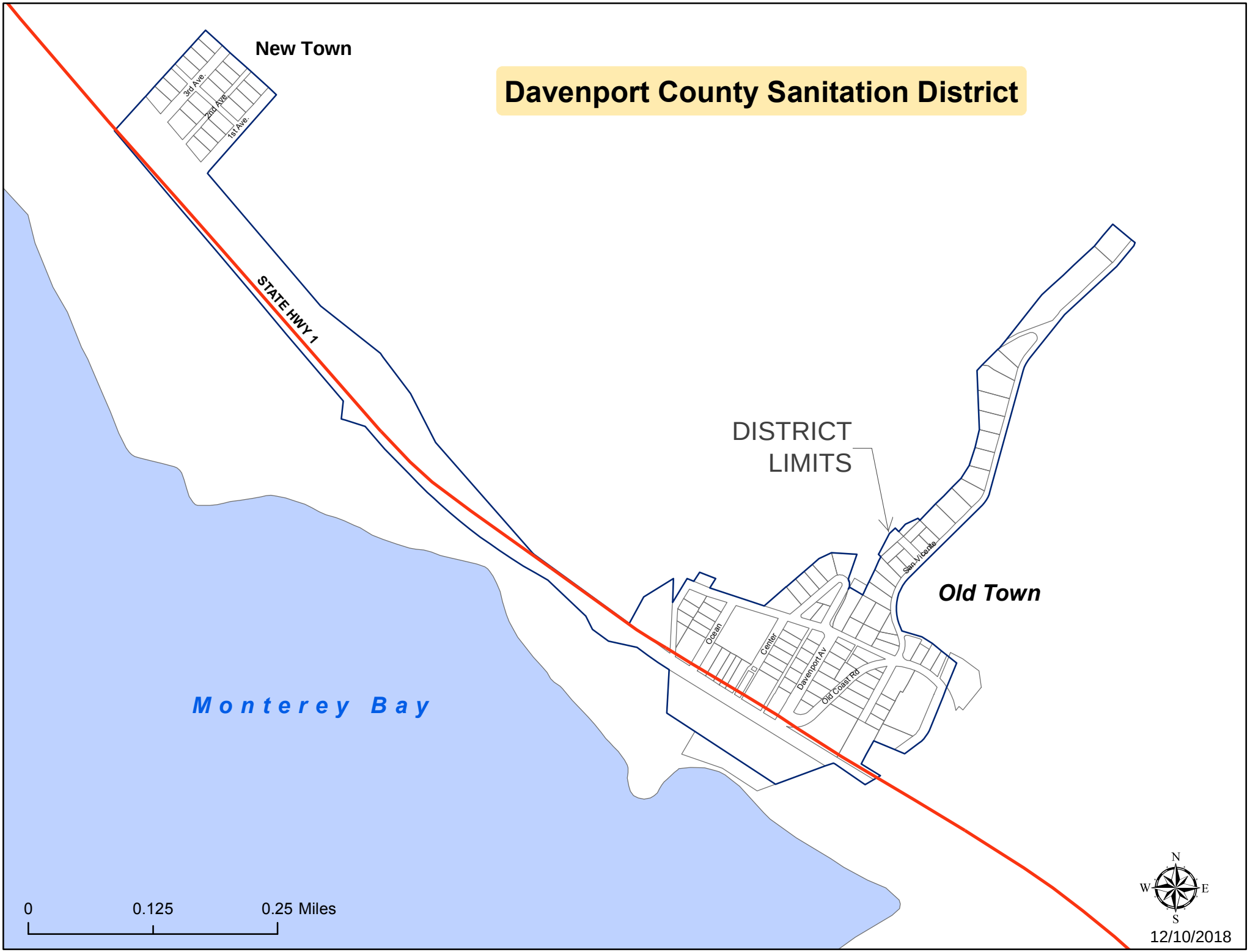
The District has a sampling program that confirms that the water quality of the two creeks is good. No pesticides, herbicides, or other synthetic organic chemicals have been detected in the raw water. The treated water meets all applicable water quality regulations. Overall, it is concluded that the San Vicente/Mill Creek watershed is adequately managed, and the quality of water supplied to Davenport meets all necessary requirements.

6.2 Recommendations

The District will continue to inspect the intake areas, watershed roads and creeks monthly. If pollutants of concern are detected during routine monitoring, District staff can implement a watershed sampling program. This program will check water quality indicators at key points in the creek system upstream of the intakes to locate areas of point source contamination. Data will be evaluated, and sampling points will be changed or added as necessary to determine the sources of the pollutant of concern.

The District will continue to receive, review, and comment on all timber harvesting plans filed by watershed property owners with CAL FIRE. The District will work cooperatively with the County to mitigate any significant sediment sources identified through our monitoring program.

Appendix A


Davenport County Sanitation District
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3rd Ave.
2nd Ave.
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STATE HWY 1
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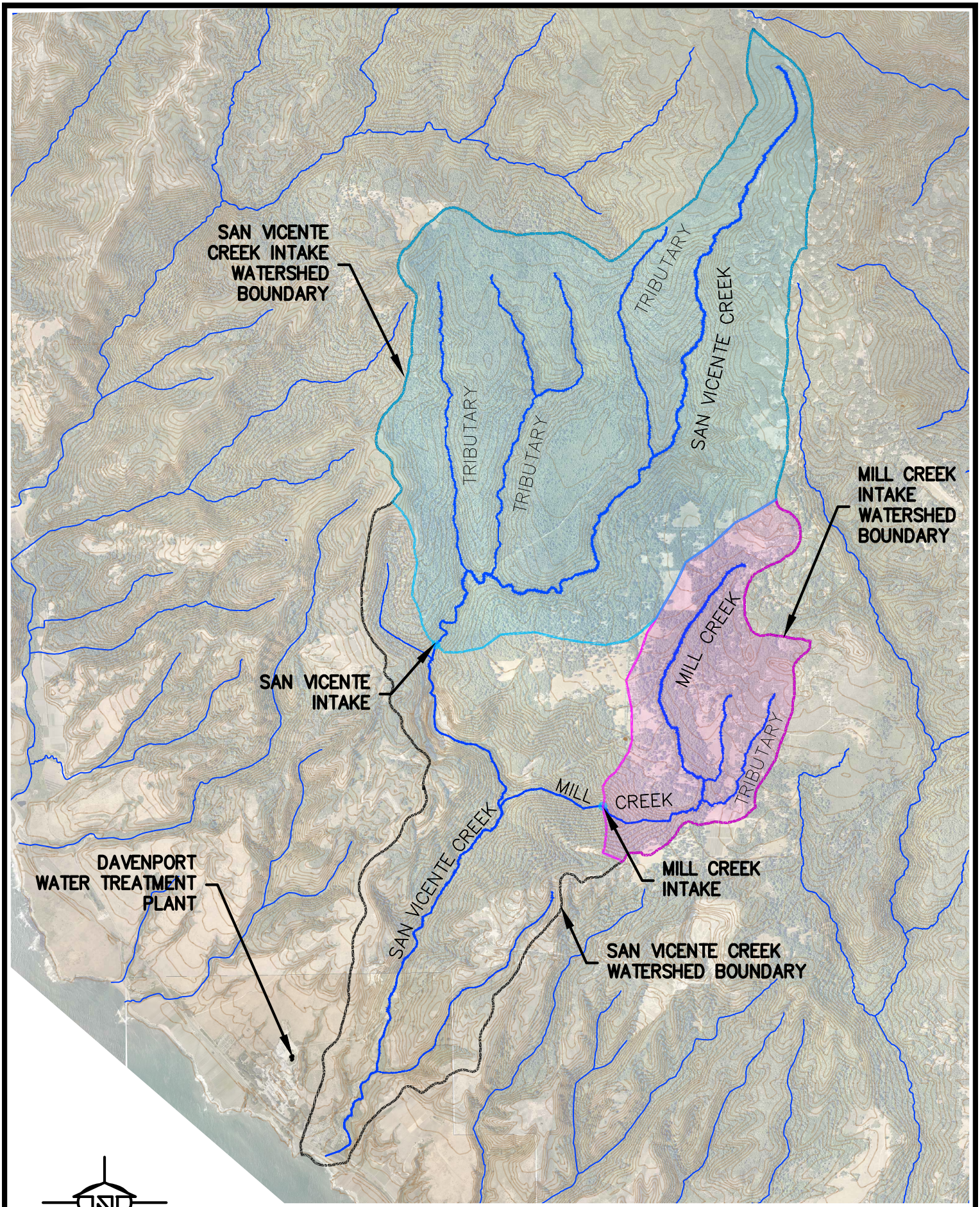

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WATERSHED BOUNDARY MAP

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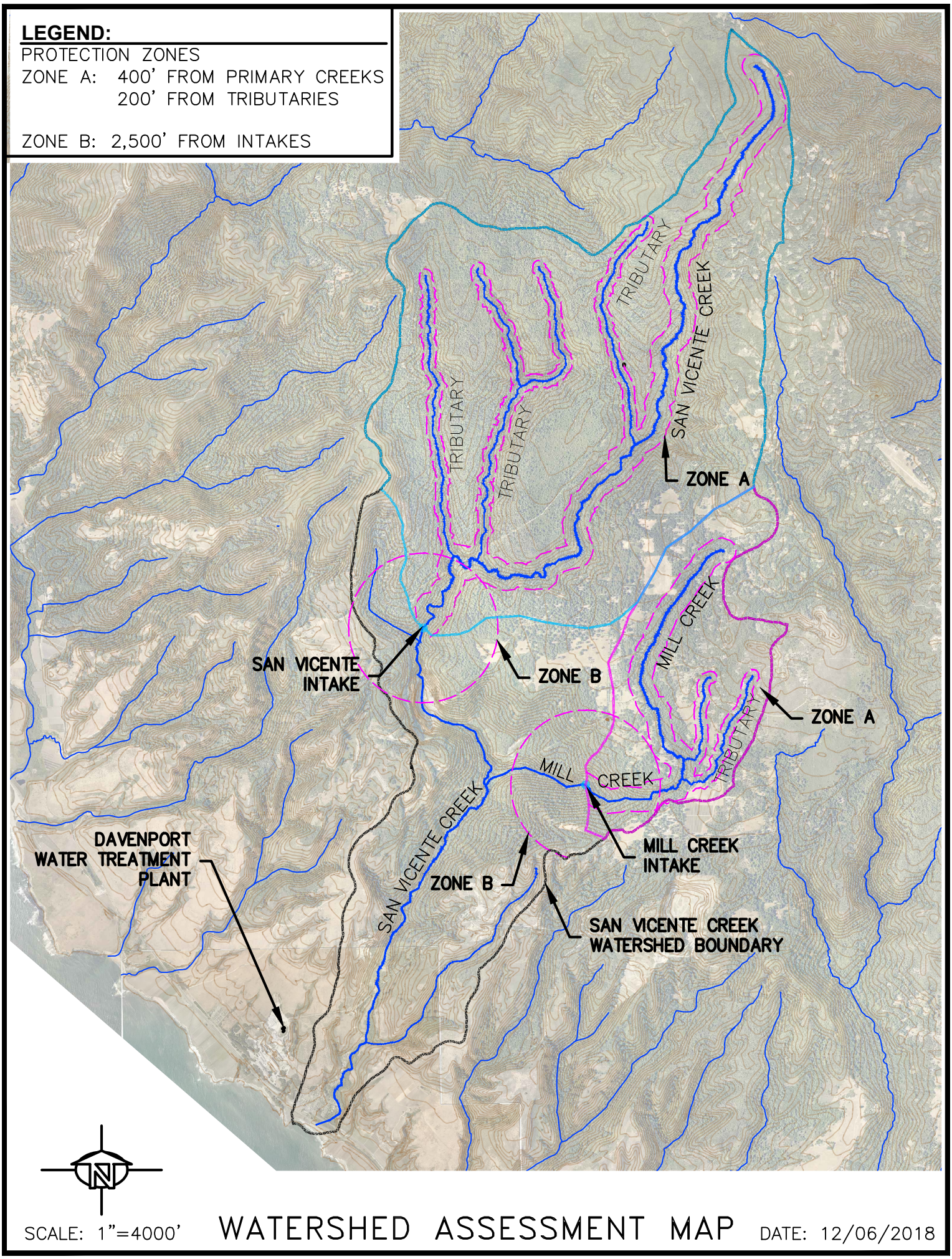

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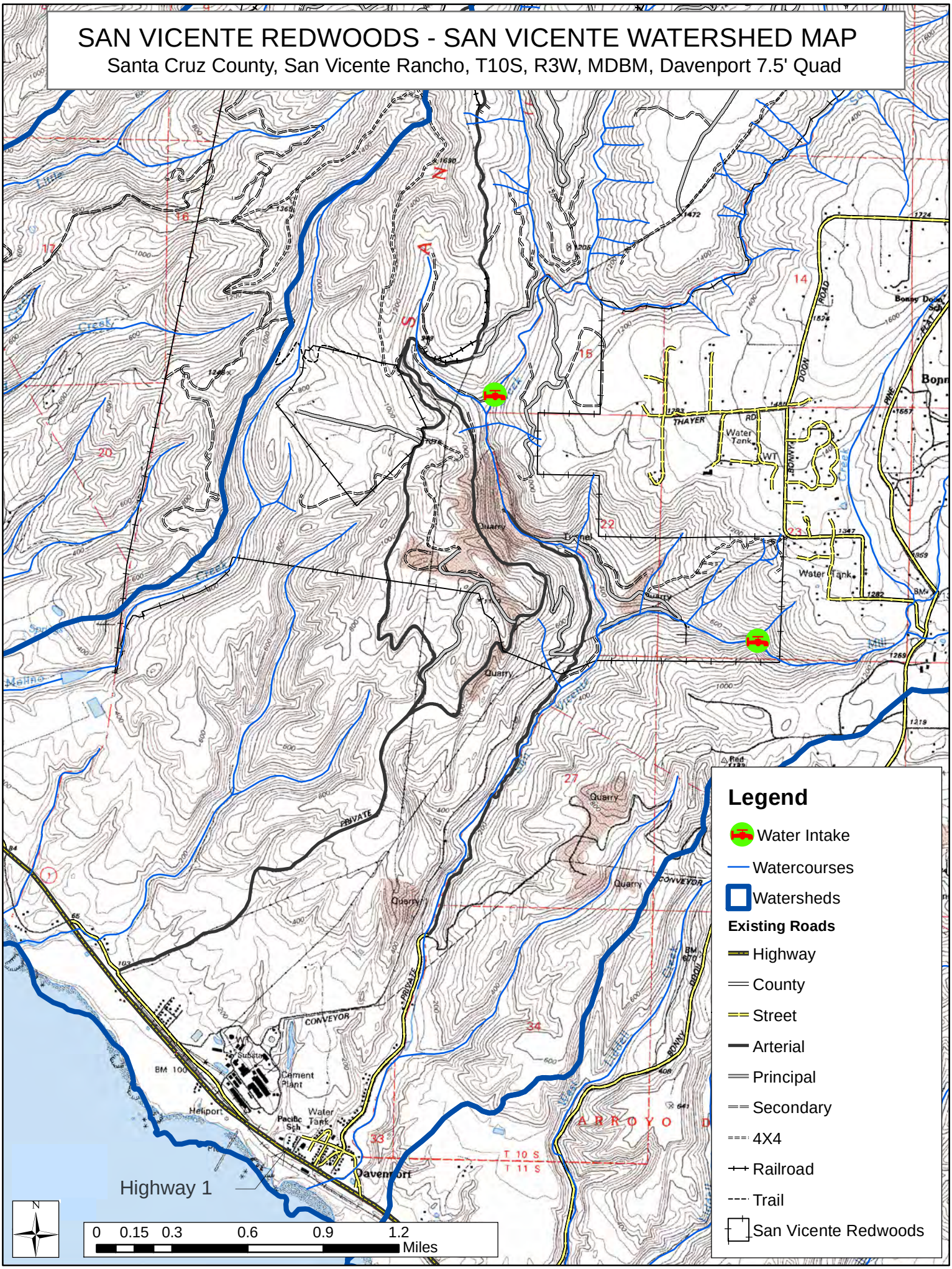
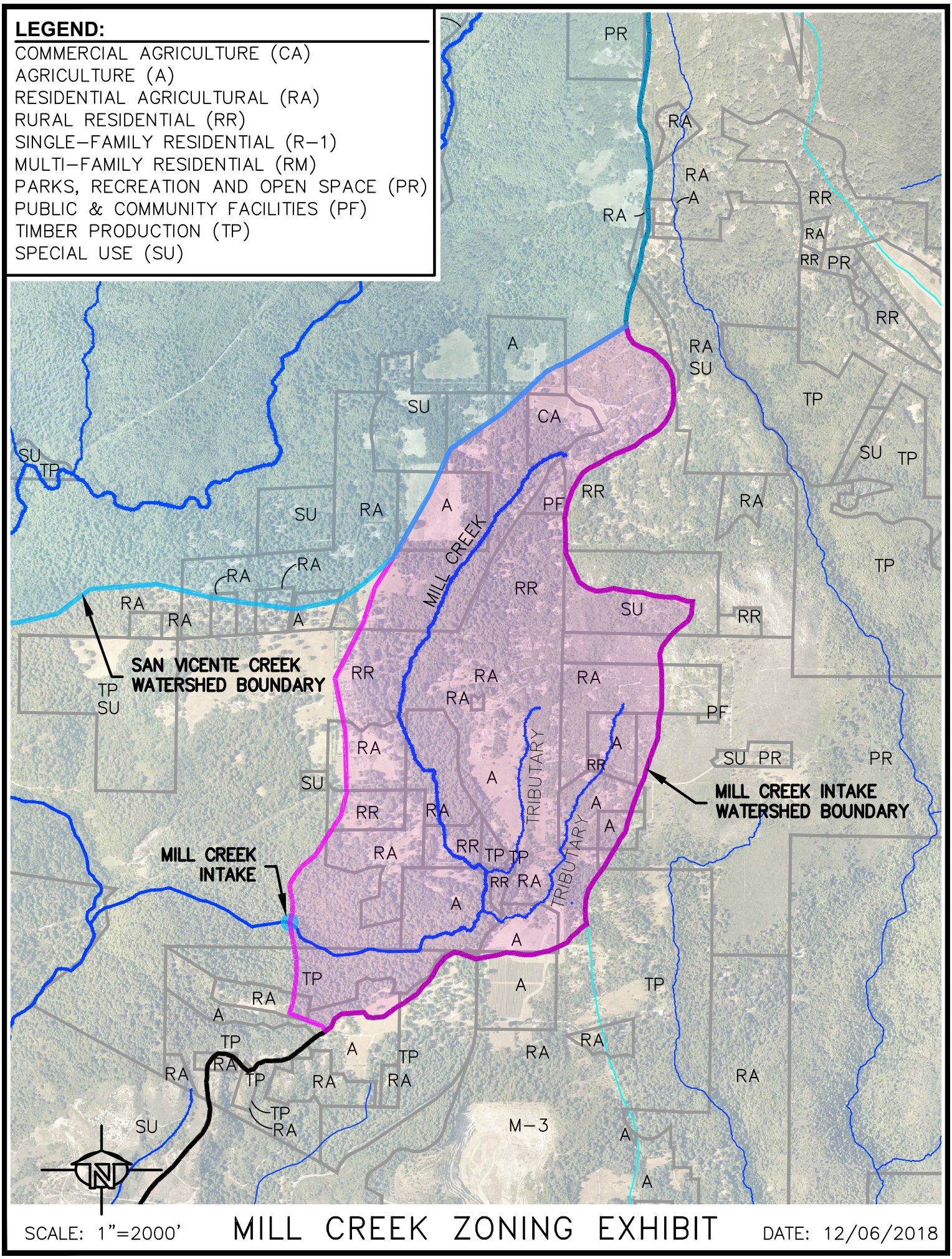
WATERSHED ASSESSMENT MAP

DATE: 12/06/2018

SAN VICENTE REDWOODS - SAN VICENTE WATERSHED MAP

Santa Cruz County, San Vicente Rancho, T10S, R3W, MDBM, Davenport 7.5' Quad





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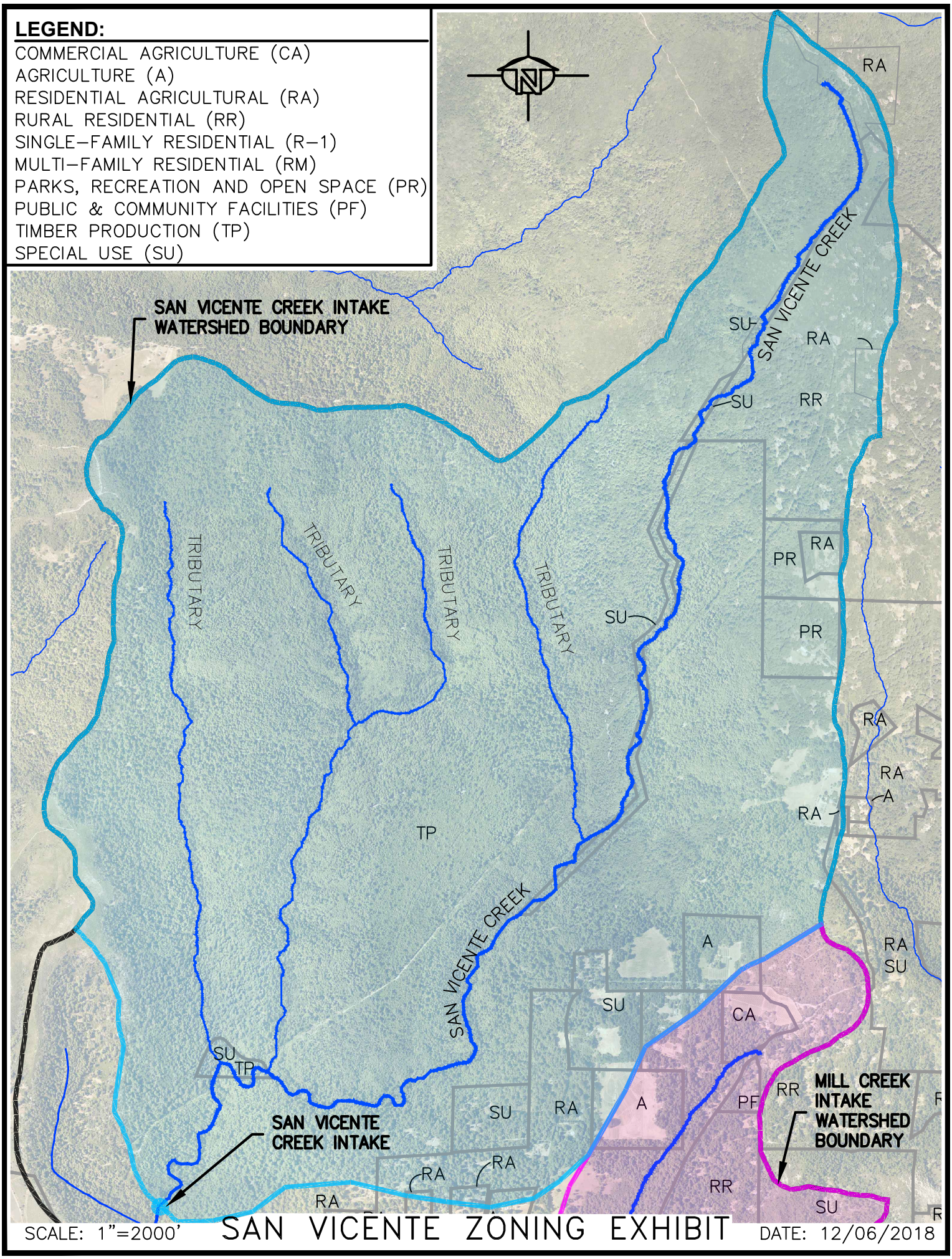
MILL CREEK ZONING EXHIBIT

DATE: 12/06/2018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AGRICULTURE (A)
RESIDENTIAL AGRICULTURAL (RA)
RURAL RESIDENTIAL (RR)
SINGLE-FAMILY RESIDENTIAL (R-1)
MULTI-FAMILY RESIDENTIAL (RM)
PARKS, RECREATION AND OPEN SPACE (PR)
PUBLIC & COMMUNITY FACILITIES (PF)
TIMBER PRODUCTION (TP)
SPECIAL USE (SU)
SAN VICENTE CREEK INTAKE WATERSHED BOUNDARY
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SAN VICENTE ZONING EXHIBIT
DATE: 12/06/2018

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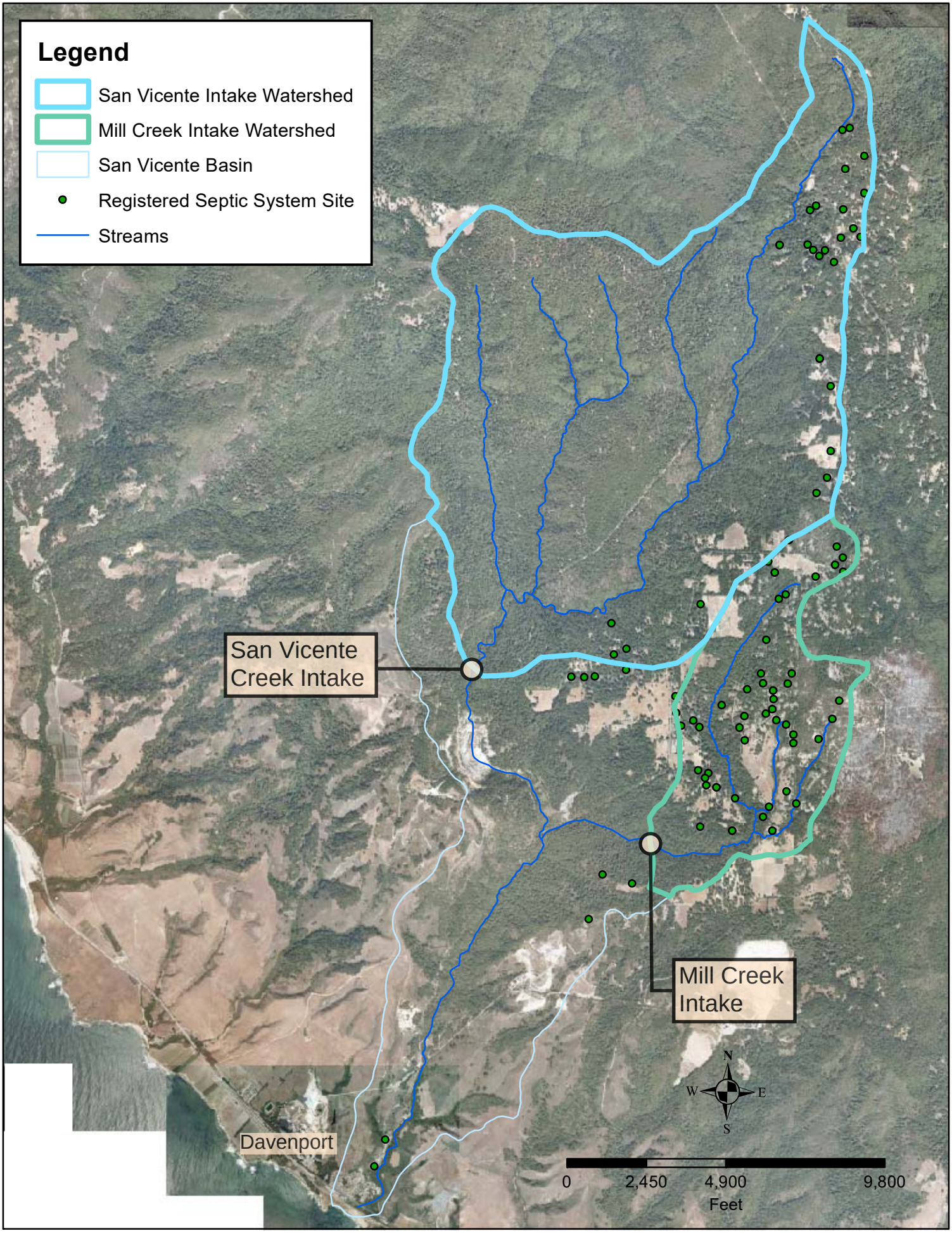
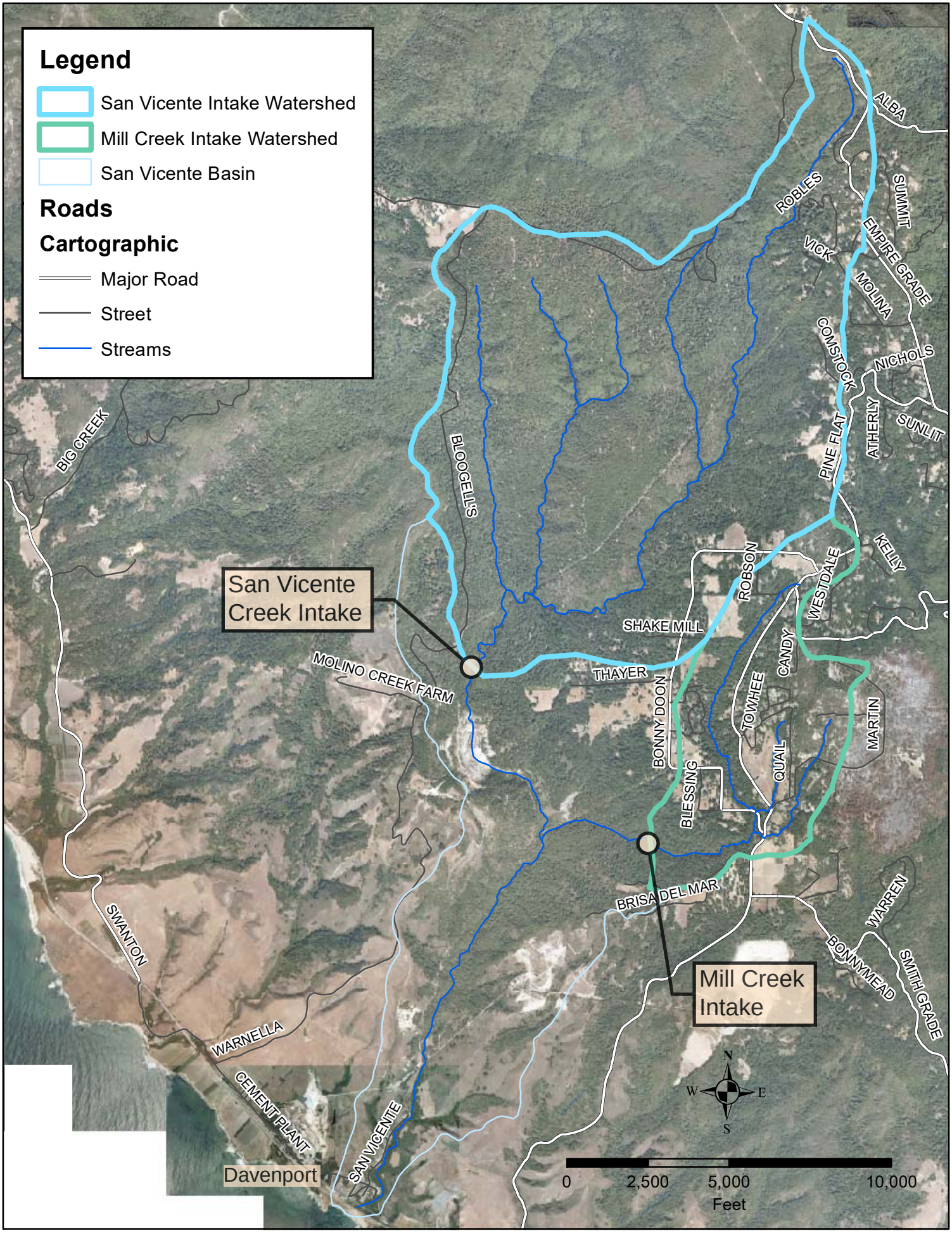
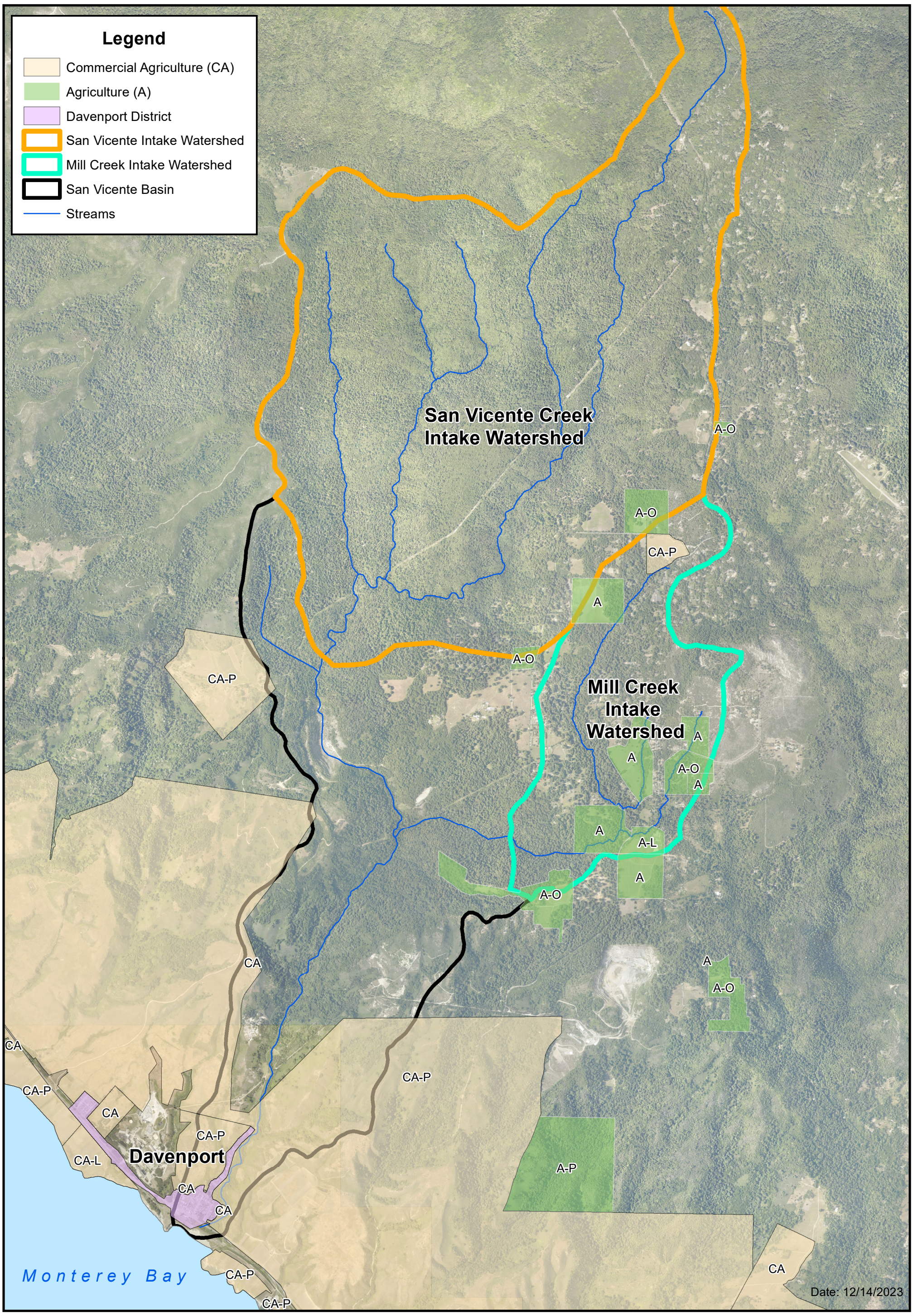


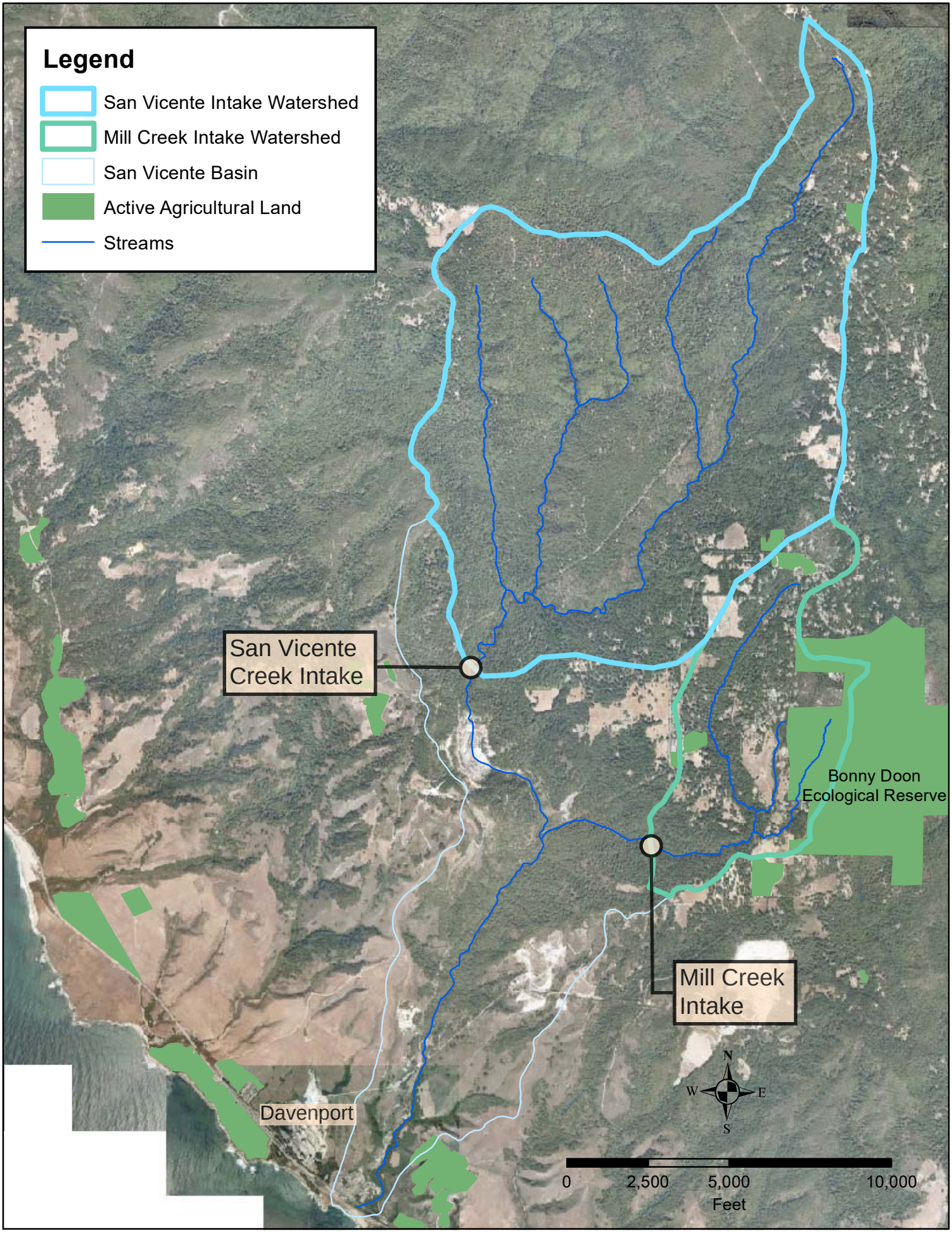
County and Private Roads in Watershed

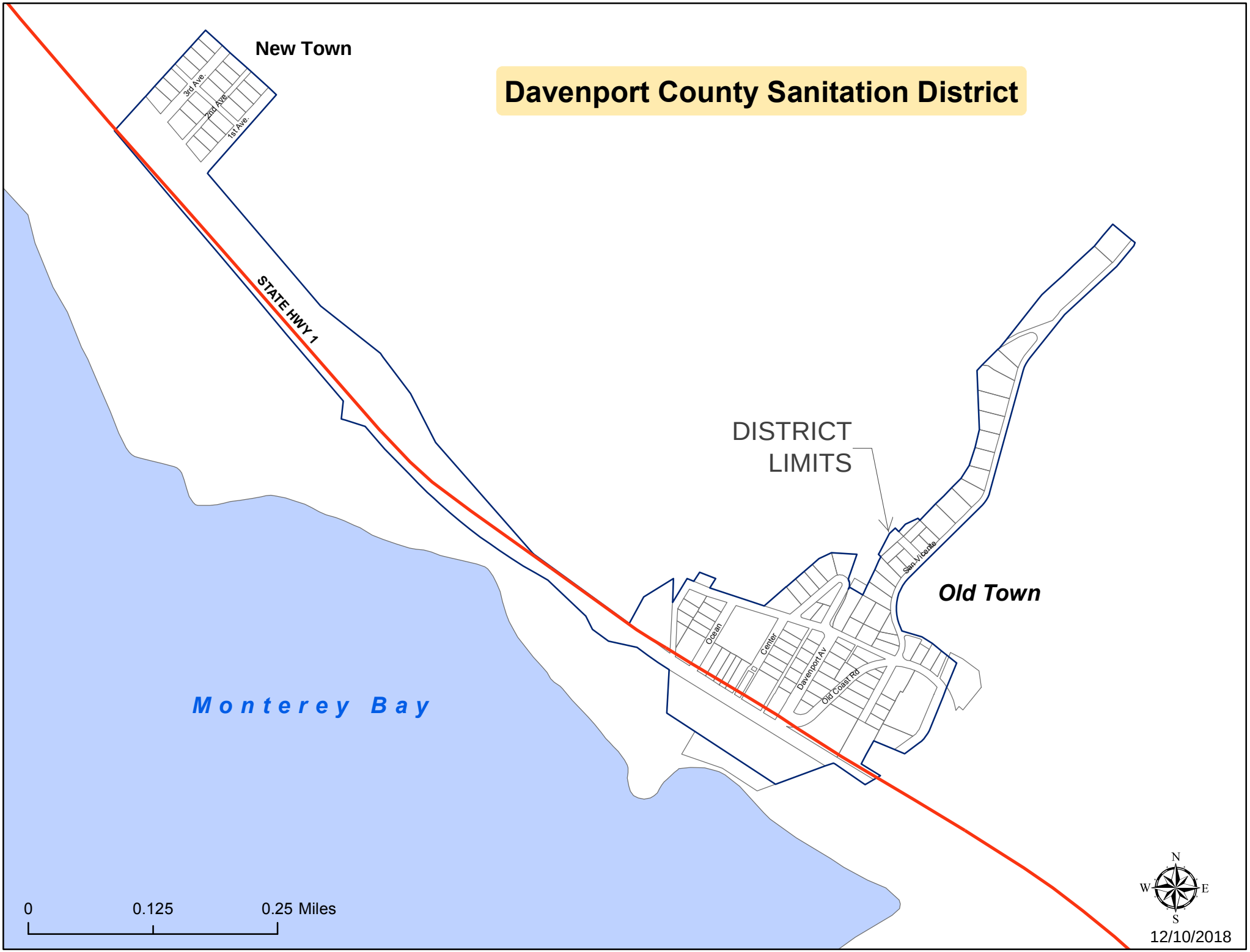


Agricultural Lands



Active Agricultural Lands




Davenport County Sanitation District
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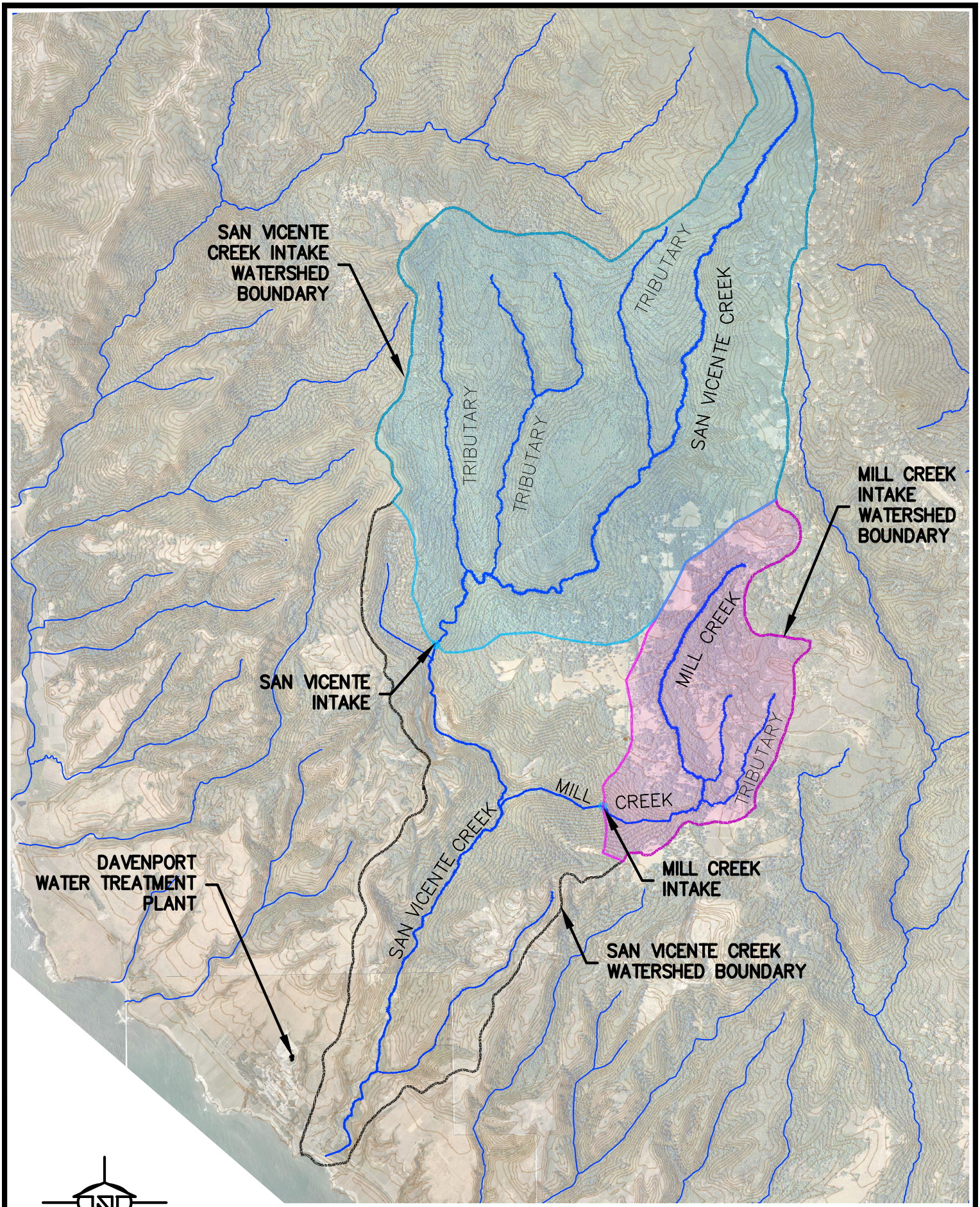

SCALE: 1"=4000'

WATERSHED BOUNDARY MAP

DATE: 12/06/2018

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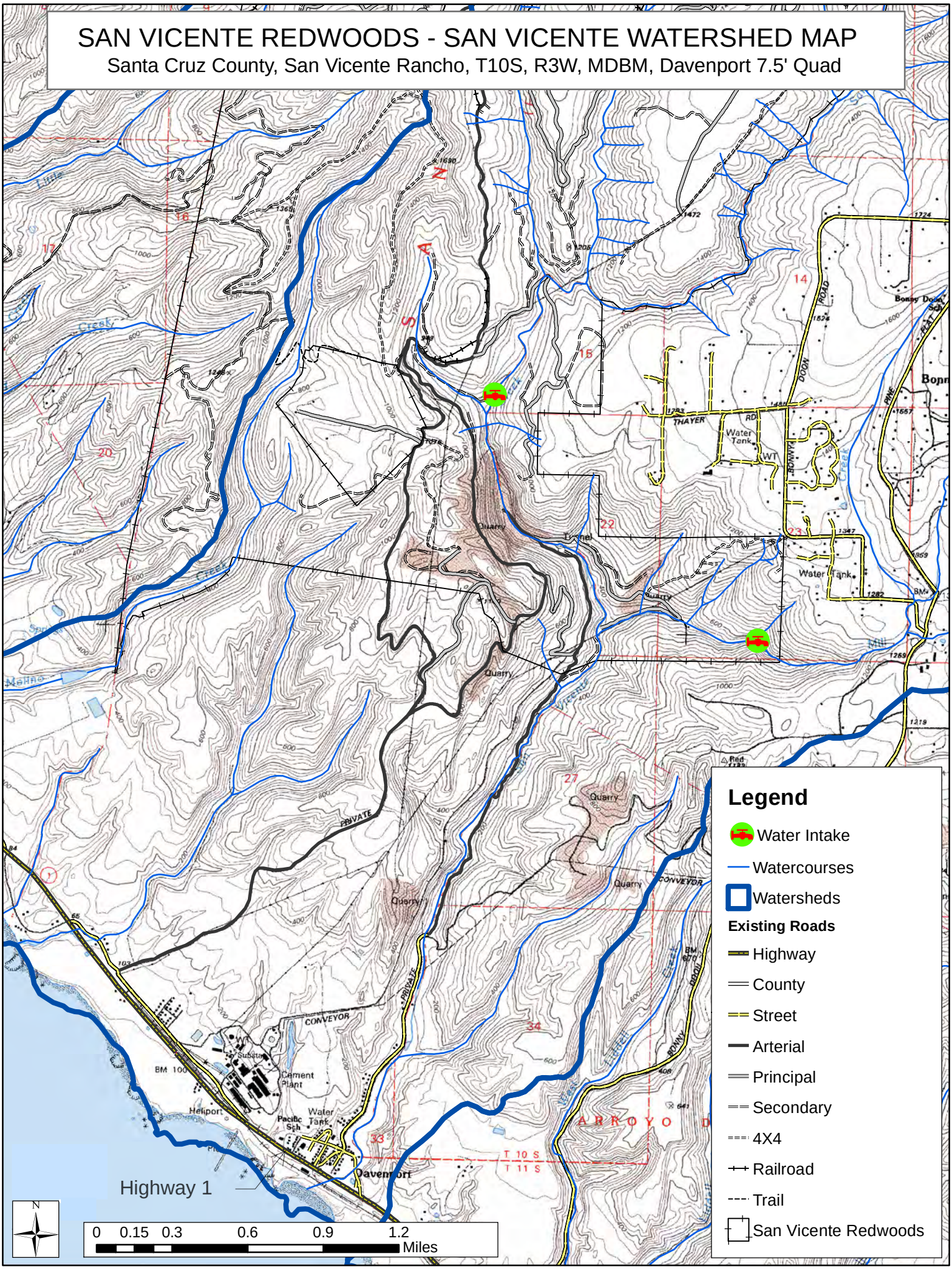
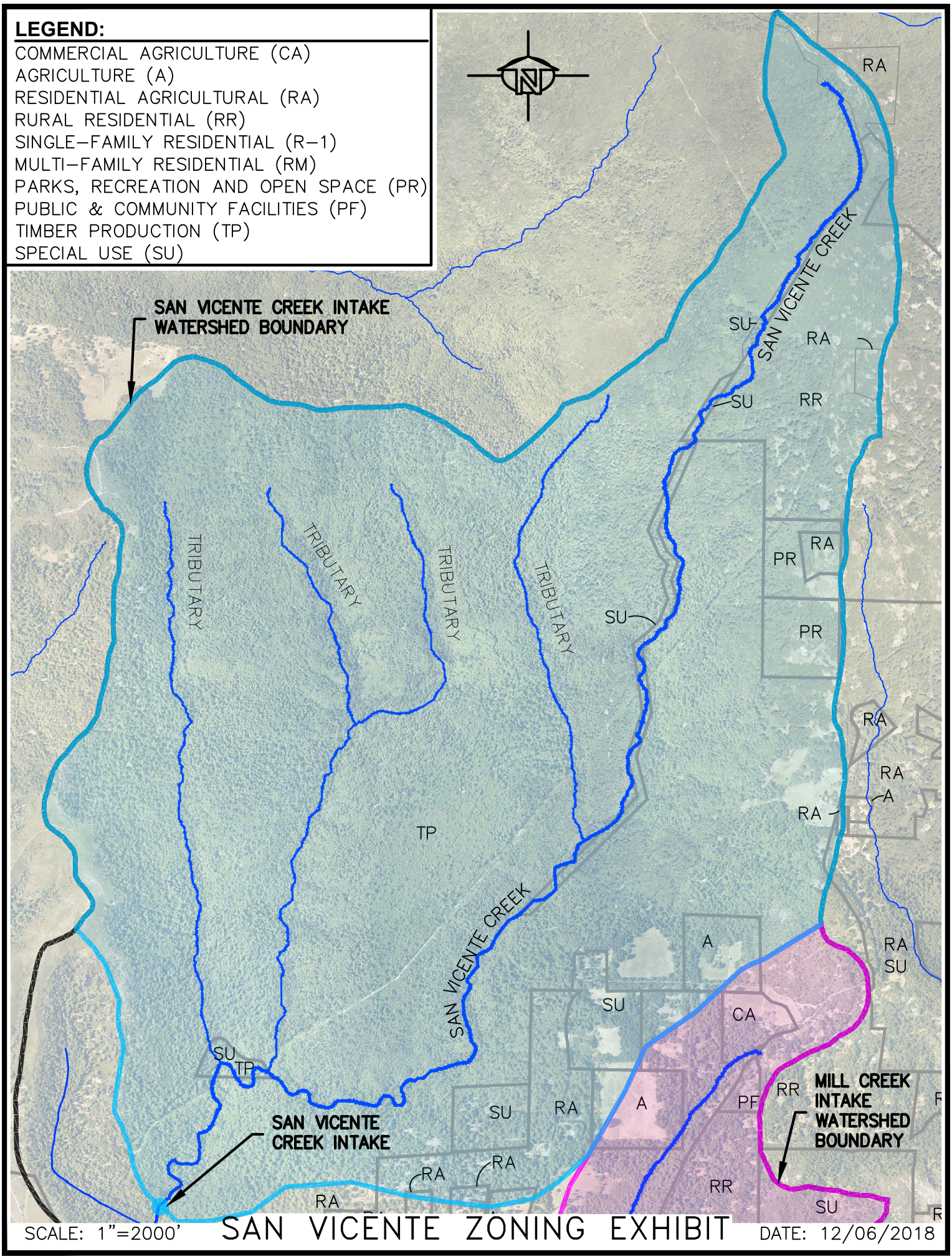
Santa Cruz County, San Vicente Rancho, T10S, R3W, MDBM, Davenport 7.5' Quad

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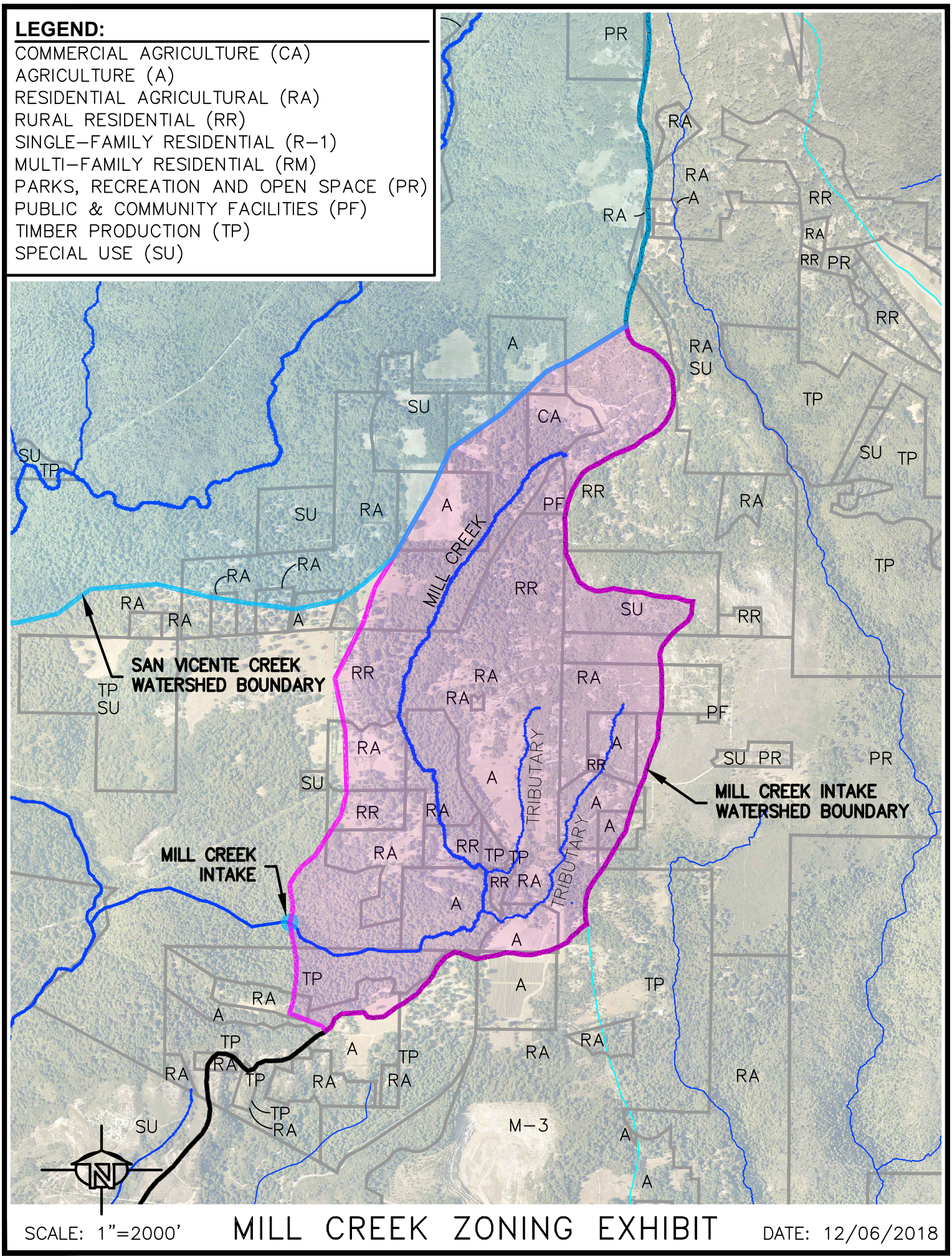

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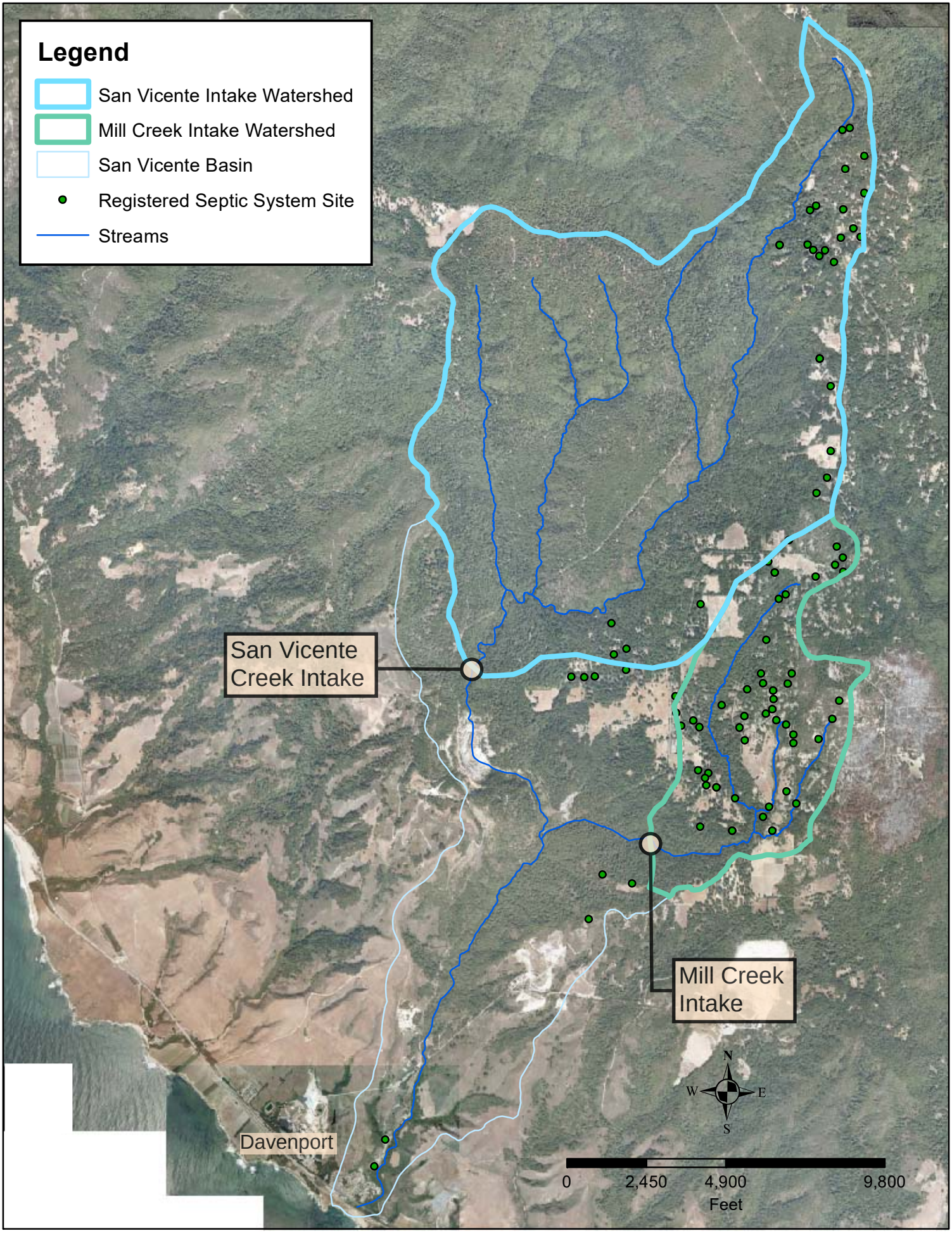
MILL CREEK ZONING EXHIBIT

DATE: 12/06/2018

Registered Septic Systems



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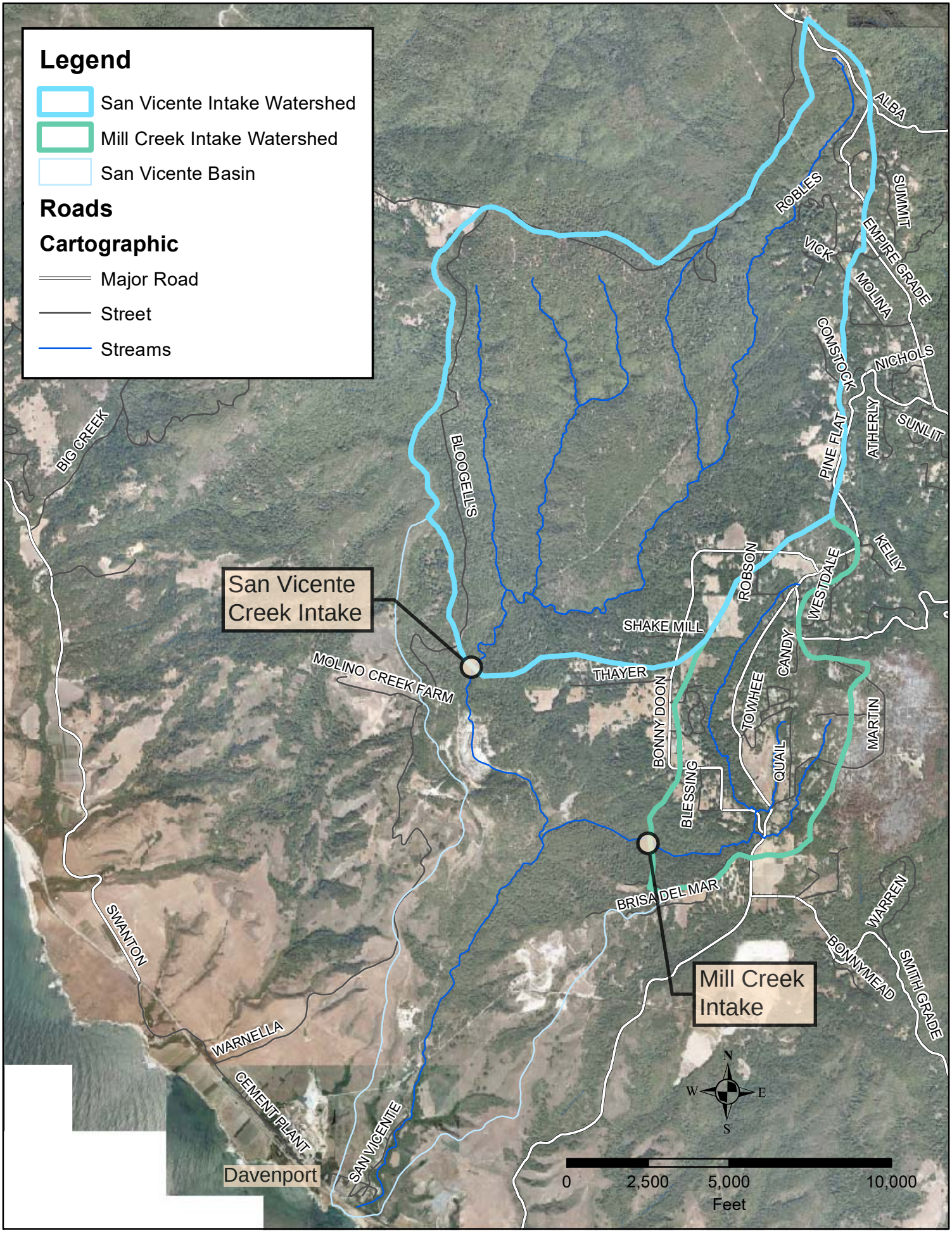

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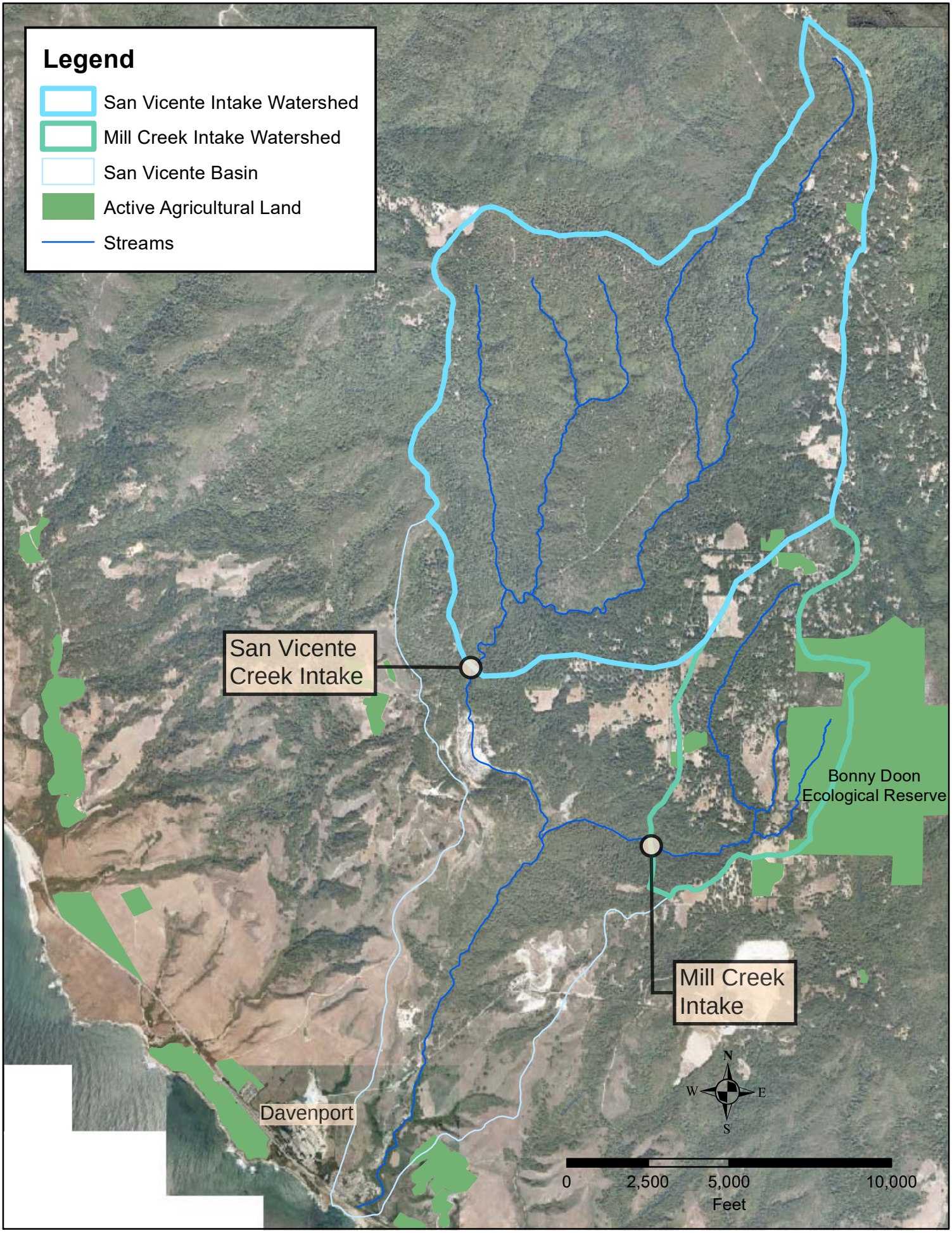
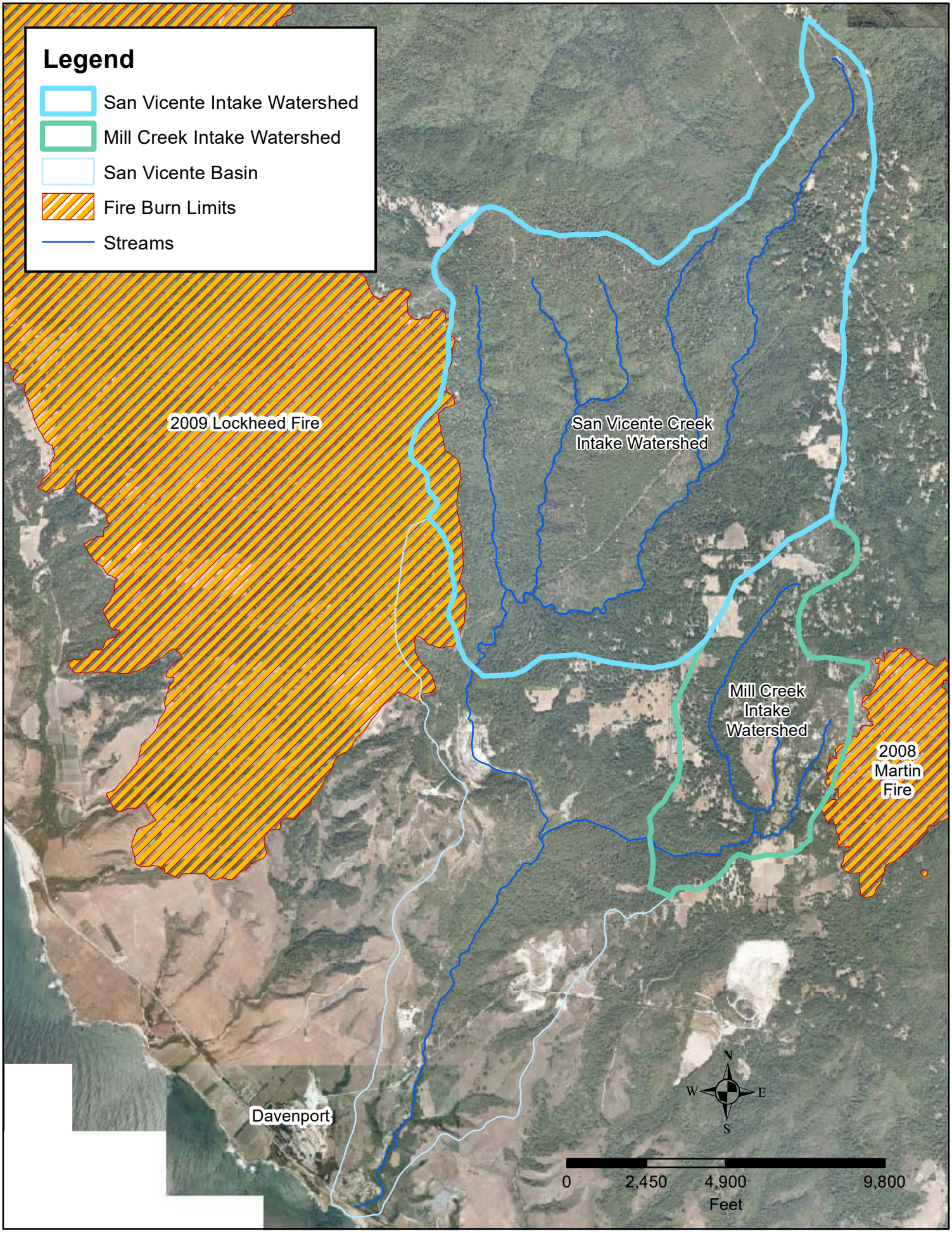
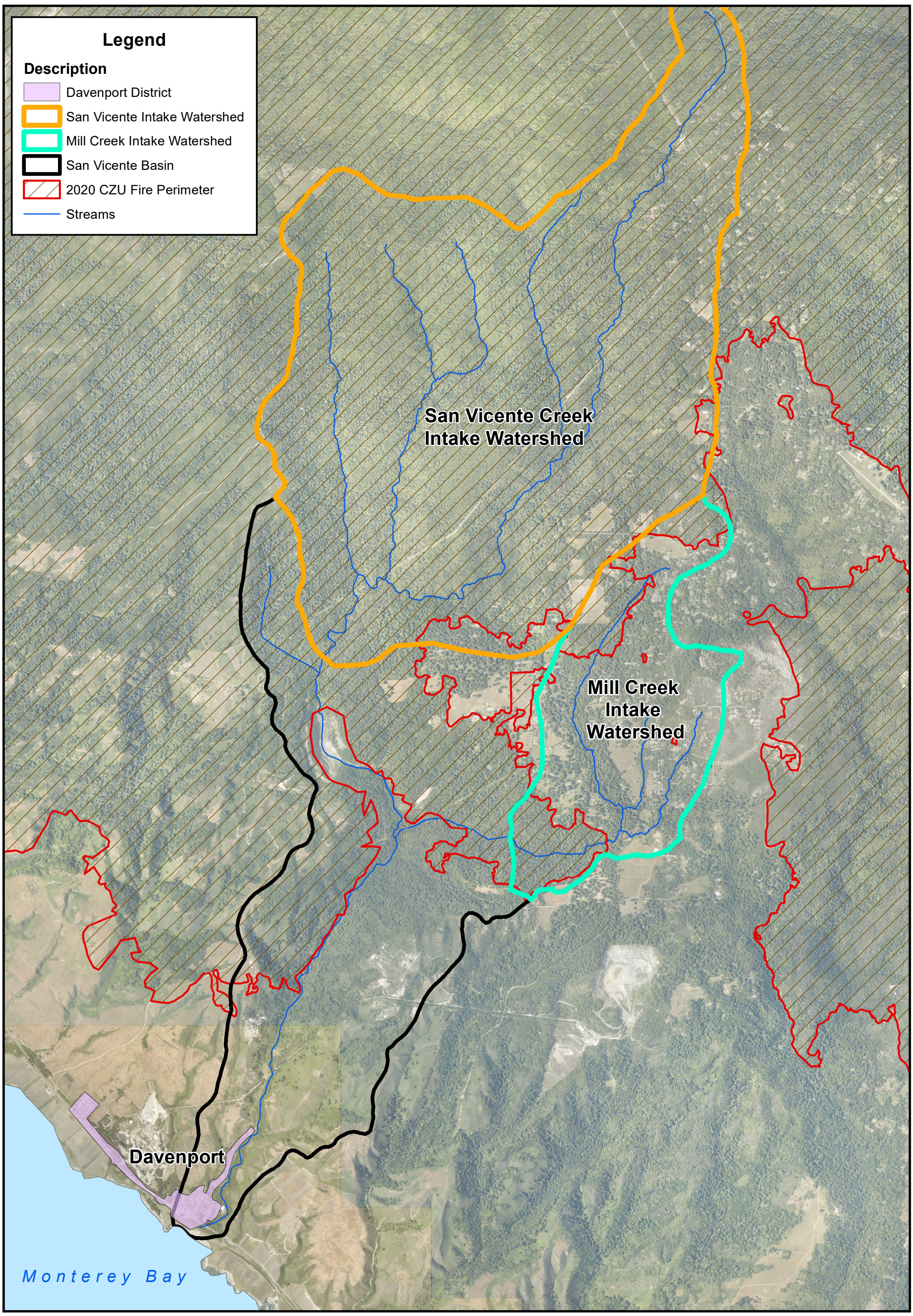


Lockheed and Martin Fire Burn Areas



CZU Fire Perimeter



Drinking Water Source Assessment

Water System

Davenport County Sanitation District Water System

Santa Cruz County

Water Source

San Vicente Creek

Assessment Date

December, 2023

California Department of Health Services
Drinking Water Field Operations Branch
DHS 5th District - Monterey

District No.	**5**
System No.	**CA4400571**
Source No.	**CA4400571-002**
PS Code	**CA4400571-002-002**

Assessment Summary

District Name Davenport County Sanitation District District No. 5 County Santa Cruz
System Name Davenport County Sanitation District Water System System No.CA4400571
Source Name San Vicente Creek Source No. CA4400571-002 PS Code: CA4400571-002-002

Completed by Renee Inlow Date December, 2023

Description of System and Source

The Davenport County Sanitation District water system is located in Santa Cruz County and serves the city of Davenport. There are approximately 128 service connections serving a population of 688.

The drinking water source for the Davenport County Sanitation District Water System, San Vicente Creek is located approximately 12 miles north of the City of Santa Cruz, east of Highway 1 on the west facing slope of the Santa Cruz Mountains. The San Vicente Creek Watershed includes approximately 1000 acres of tributaries. General land use in the watershed is timber production, agricultural, residential agriculture, rural residential, and parks / open space.

Assessment Procedures

The assessment of San Vicente Creek was conducted by Santa Cruz County. The following sources of information were used in the assessment: water system files, DHS files, County records, and previous study.

Procedures used to conduct the assessment include: file review, calculations, field review, meet with water system, run models, meet with other agencies, use GIS, etc.

Contents of this Assessment

Yes	Δ	**No**		**Assesment Summary**
Yes	Δ	**No**		**Vulnerability Summary**
Yes	Δ	**No**		**Source Location Form**
Yes		**No**	Δ	**Delineation of Protection Zones**
Yes	Δ	**No**		**Physical Barrier Effectiveness Checklist**
Yes	Δ	**No**		**Source Data Sheet**
Yes	Δ	**No**		**Inventory of Possible Contaminating Activities**
Yes	Δ	**No**		**Vulnerability Ranking**
Yes	Δ	**No**		**Assessment Map**

Vulnerability Summary

District Name Davenport County Sanitation District District No. 5 County Santa Cruz
System Name Davenport County Sanitation District Water System System No.CA4400571
Source Name San Vicente Creek Source No. CA4400571-002 PS Code: CA4400571-002-002

Completed by Renee Inlow Date December, 2023

THE FOLLOWING INFORMATION MUST BE INCLUDED IN THE SYSTEM CONSUMER CONFIDENCE REPORT

A source water assessment was conducted for San Vicente Creek of the Davenport County Sanitation District Water System in December 2023.

Discussion of Vulnerability

The source is considered most vulnerable to the following activities associated with contaminants detected in the water supply:

There have been no contaminants detected in the water supply from San Vicente Creek.

The source is considered most vulnerable to the following activities not associated with any detected contaminants:

Climate change effects: To reduce the impacts of climate change, the District secured grant funding to construct water storage tanks to offset effects from extreme weather events that can influence water availability, leading to droughts or floods that stress water resources.

Vandalism: To reduce the vulnerability of vandalism of the water system, access to the San Vicente intake is limited through gates, monitored video surveillance, hired patrol, and restrictive signage at primary access points.

Cyber-attacks: To reduce the vulnerability of cyber-attacks, data is encrypted, and access is controlled for Supervisory Control and Data Acquisition (SCADA) remote monitoring. The County Information Technology Department has implemented strong authentication protocols to prevent unauthorized access to SCADA. Staff are routinely trained in how to prevent cyber-attacks.

Delineation of Surface Water Protection Zones

Public water system: Davenport County Sanitation District Water System ID No.: CA4400571

Name of source: San Vicente Creek ID No.: CA4400571-002

Delineation date: December, 2023 Delineation conducted by Renee Inlow

The delineation of protection zones for a surface water source is optional. The source area for a surface water source is the watershed.

Delineation protection zones are not established for this watershed. This form is not applicable

Surface Water Physical Barrier Effectiveness (PBE)

District Name Davenport County Sanitation District District No. 5 County Santa Cruz

System Name Davenport County Sanitation District Water System System No. CA4400571

Source Name San Vicente Creek Source No. CA4400571-002 PS Code: CA4400571-002-002

Completed by Renee Inlow Date December, 2023

Drinking Water Source/ Watershed Information

Note: Most of the following information should be available from the Watershed Sanitary Survey of the water source.

1. Is the source an impounded reservoir or a direct stream intake?
   a. Reservoir
   b. Stream intake
   c. Other, describe: _____

2. Source Characteristics
   a. Area of tributary watershed: 3,840 acres or square miles
   b. Area of water body within watershed:_____acres or square miles
   c. Volume of water body: _____acre-feet
   d. Maximum rate of withdrawal through intake: Unknown gallons per day
   e. Are the primary tributaries seasonal, perennial or both?

3. What is the approximate travel time to the intake for water at farthest reaches of the water body?
   a. Source is direct intake, no impounded water body
   b. Less than 30 days
   c. More than 30 days and less than 1 year
   d. More than 1 year

4. What is the general topography of the watershed?
   a. Flat terrain (<10% slopes)
   b. Hilly (10 to 30% slopes)
   c. Mountainous (> 30% slopes)
   d. Not sure

5. What is the general geology of the watershed?
   a. Materials prone to landslides
   b. Materials not prone to landslides
   c. Not sure

6. What general soil types are on the watershed?
   a. Rock
   b. Loams, sands
   c. Clay
   d. Not sure

Surface Water Physical Barrier Effectiveness (PBE)

System Name Davenport County Sanitation District Water System System No. CA4400571

Source Name San Vicente Creek Source No. CA4400571-002 PS Code: CA4400571-002-002

7. What type of vegetation covers most of the watershed?
   a. Grasses
   b. Low growing plants and shrubs
   c. Trees
   d. Not sure

8. What is the mean seasonal precipitation on the watershed?
   a. More than 40 inches/year
   b. 10 to 40 inches/year
   c. Less than 10 inches/year
   d. Not sure

9. Is there significant ground water recharge to the water body?
   a. Yes
   b. No
   c. Not sure

Physical Barrier Effectiveness Determination

Parameters indicating **Low Physical Barrier Effectiveness** (LE)
(A source with <u>any</u> of the parameters listed below would be considered to have less effective physical barrier properties)

3a
4c or 4d
5a or 5c
7c or 7d
8a or 8d
9a

Parameters indicating **High Physical Barrier Effectiveness** (HE)
(A source would need to have <u>all</u> of the parameters listed below to be considered to have highly effective physical barrier properties)

3d and
4a and
5b and
7a and
8c and
9b

All other sources are considered to have **Moderate Physical Barrier Effectiveness**

Determination for this source:

Low (LE)
Moderate (ME)
High (HE)

SURFACE WATER DATA SHEET

Complete as much information as possible. Leave blank if information is not available, use N.A. if not applicable.

** Indicates items required for Source Water Assessment*

	(separate multiple entries in field with semi-colon)	Actual, Estimated or Default?
GENERAL INFORMATION		
System Name	Davenport County Sanitation District Water System	*from DHS database*
System Number	CA4400571	*from DHS database*
Source of Information *(well log, DHS/County files, system, etc)*	PS Code CA4400517-002-002	County Files
Organization Collecting Information *(DHS, County, System, other)*	Davenport County Sanitation District	County
Date Information Collected/Updated	December, 2023	
SOURCE IDENTIFICATION		
* Source Name	San Vicente Creek	*from DHS database*
* DHS Source Identification Number (**FRDS ID No.**)	PS Code CA4400571-002-002	*from DHS database*
Source Status (Active, Standby, Inactive)	Active	*from DHS database*
SOURCE LOCATION		
Inlet Ground Surface Elevation (ft above Mean Sea Level)	750’	Estimated
Street or Road	19000’ +/- North of 700 Highway 1	
Nearest Cross Street	Bloogell’s	
City	Town of Davenport	
County	Santa Cruz	
Site plan on file? ("YES" or "NO")	Yes	
TYPE OF SOURCE		
Type of Source: (Lake, Reservoir, River, Stream, Creek, Other)	Creek	
Production (gallons per year)	18-20 Million GPY	
Frequency of Use (hours/year)	8760	Estimate
LAKE/RESERVOIR DATA (If Applicable)		
Name of Lake or Impounding Reservoir	N.A.	
Date Dam Constructed	N.A.	
Dam Length (feet)	N.A.	
Dam Height (feet)	N.A.	
Dam Width - Base (feet)	N.A.	
Dam Width - Top (feet)	N.A.	
Surface Area when full (acres)	N.A.	
Capacity (acre-feet)	N.A.	
Reservoir Yield (gallons per day)	N.A.	
Yield Reliability (% of time the above yield can be supplied)	N.A.	
Outlet Location	N.A.	
Outlet Level(s) (distance below maximum water surface) (feet)	N.A.	
Multiple Outlet Depths Available? "YES" or "NO"	N.A.	
Outlet Distance to Inflow (feet)	N.A.	
Algae Control Measures	N.A.	
Type of Recreational Activities in Reservoir *(list all that apply: boating, swimming, fishing, water skiing, etc.)*	N.A.	
Distance to Nearest Sewage Facilities to Outlet (feet)	N.A.	
STREAM INTAKE DATA (If Applicable)		
Name of River, Stream or Creek	San Vicente Creek	
Intake Location	19,200+/- feet upstream from the treatment plant	Estimated

SURFACE WATER DATA SHEET (continued)		
STREAM INTAKE DATA (If Applicable) (continued)		
Stream Flow - Maximum (ft3/sec)	300	
Stream Flow - Minimum (ft3/sec)	1	During dry summers
Stream Flow - Average (ft3/sec)	Unknown	
Date Diversion Structure Constructed	1905	
Diversion Structure Type (direct, infiltration gallery, etc.)	Direct	County Records
Distance to Nearest Sewage Facilities to Diversion Structure (feet)	3060	Nearest Septic
WATERSHED DATA		
Area of Watershed (acres)	3850	County GIS
Area Owned or Controlled by Water System (acres)		
Primary Tributaries	Unnamed streams	
Topography *(list all that apply: flat terrain, hilly, mountainous, etc.)*	Mountainous	County GIS
Percent slopes (range)	5-75%	County GIS
Geology	50% Cretaceous Quartz Diorite, 50% Santa Margarita Sandstone	County GIS
Watershed prone to landslides? "YES" or "NO"	No	
Predominant Soil Types *(list all that apply: sand, loam, silt, clay, gravel, rock, fractured rock)*	Rock, Fractured Rock, Sand, Loam, Clay, Gravel	County Records
Predominant Vegetation *(list all that apply: grass, shrubs, chaparral, trees, forested, etc.)*	Trees, Shrubs, Grasses	County Records
Watershed prone to erosion? "YES" or "NO"	No	
Mean Seasonal Precipitation (inches/year)	36	NOAA
Significant Ground water Recharge? "YES" or "NO"	No	
* Neighborhood/Surrounding Area *(see Note 1)*	Ru, Re, A	
Wastewater measures (septic systems, sewer treatment, etc.)	Septic Systems	
Watershed control measures	See Watershed Sanitary Survey	
INTAKE PIPE		
Material	HDPE	
Diameter	6”	
Length	19,200	
Depth	Above Ground	
Pumped or Gravity flow	Gravity Flow	
Discharges to: *(i.e., distribution system, storage, etc.)*	Storage	
INTAKE PUMP INFORMATION		
Number	N.A.	
Make	N.A.	
Type	N.A.	
Size (hp)	N.A.	
* Capacity (gpm)	N.A.	
Lubrication Type	N.A.	
Type of Power: *(i.e., electric, diesel, etc.)*	N.A.	
Auxiliary power available? ("YES" or "NO")	N.A.	
Operation controlled by: *(i.e., level in tank, pressure, etc.)*	N.A.	
	N.A.	
REMARKS AND DEFECTS (use additional sheets as necessary)		

NOTES

1. Neighborhood/Surrounding Area (list all that apply): A= Agricultural, Ru = Rural, Re = Residential, Co = Commercial, I = Industrial, Mu = Municipal, P = Pristine, O = Other

Possible Contaminating Activities (PCA) Inventory Form

Surface Water Source

Public water system: Davenport County Sanitation District Water System ID No.: CA4400571

Name of source: San Vicente Creek ID No.: CA4400571-002

Inventory date: December, 2023 Inventory conducted by Renee Inlow

Name of Surface Water Body : San Vicente Creek

Indicate PCAs pertinent to the drinking water source, its source area (watershed) and protection zones (if established), from the following tables, as applicable:

Are zones established? YES or NO

PCA Checklist Table D-1, page 1 of 2						
COMMERCIAL/INDUSTRIAL						
	If Zones Established					
PCA (Risk Ranking)	No PCA in zones	PCA in Zone A?	PCA in Zone B?	PCA in Watershed	Unknown	Comments
Automobile-related activities						
Body shops (H)				N		
Car washes (M)				N		
Gas stations (VH)				N		
Repair shops (H)				N		
Boat services/repair/ refinishing (H)				N		
Chemical/petroleum processing/storage (VH)				N		
Chemical/petroleum pipelines (H)				N		
Dry cleaners (VH)				N		
Electrical/electronic manufacturing (H)				N		
Fleet/truck/bus terminals (H)				N		
Furniture repair/ manufacturing (H)				N		
Home manufacturing (H)				N		
Junk/scrap/salvage yards (H)				N		
Machine shops (H)				N		
Metal plating/ finishing/fabricating (VH)				N		
Photo processing/printing (H)				N		
Plastics/synthetics producers (VH)				N		
Research laboratories (H)				N		

PCA Checklist Table D-1, page 2 of 2						
COMMERCIAL/INDUSTRIAL						
	If Zones Established					
PCA (Risk Ranking)	No PCA in zones	PCA in Zone A?	PCA in Zone B?	PCA in Watershed	Unknown	Comments
Wood preserving/treating (H)				N		
Wood/pulp/paper processing and mills (H)				N		
Lumber processing and manufacturing (H)				N		
Sewer collection systems (H, if in Zones, otherwise L)				N		
Parking lots/malls (>50 spaces) (M)				N		
Cement/concrete plants (M)				N		
Food processing (M)				N		
Funeral services/graveyards (M)				N		
Hardware/lumber/parts stores (M)				N		
Appliance/Electronic Repair (L)				N		
Office buildings/complexes (L)				N		
Rental Yards (L)				N		
RV/mini storage (L)				N		
Other (list)						

PCA Checklist Table D-2, page 1 of 2						
RESIDENTIAL/MUNICIPAL						
	If Zones Established					
PCA (Risk Ranking)	No PCA in zones	PCA in Zone A?	PCA in Zone B?	PCA in Watershed	Unknown	Comments
Airports - Maintenance/ fueling areas (VH)				N		
Landfills/dumps (VH)				N		
Railroad yards/ maintenance/ fueling areas (H)				N		
Septic systems - high density (>1/acre) (VH if in Zones, otherwise M)				Y		
Sewer collection systems (H, if in Zones, otherwise L)				N		
Utility stations - maintenance areas (H)				N		
Wastewater treatment and disposal facilities (VH in Zones, otherwise H)				N		
Drinking water treatment plants (M)				N		
Golf courses (M)				N		
Housing - high density (>1 house/0.5 acres) (M)				Y		
Motor pools (M)				N		
Parks (M)				N		
Waste transfer/recycling stations (M)				N		

PCA Checklist
Table D-2, page 2 of 2

RESIDENTIAL/MUNICIPAL						
	If Zones Established					
PCA (Risk Ranking)	No PCA in zones	PCA in Zone A?	PCA in Zone B?	PCA in Watershed	Unknown	Comments
Apartments and condominiums (L)				N		
Campgrounds/ Recreational areas (L)				N		
Fire stations (L)				N		
RV Parks (L)				N		
Schools (L)				N		
Hotels, Motels (L)				N		
Other (list)						

PCA Checklist Table D-3, page 1 of 3						
AGRICULTURAL/RURAL						
	If Zones Established					
PCA (Risk Ranking)	No PCA in zones	PCA in Zone A?	PCA in Zone B?	PCA in Watershed	Unknown	Comments
Grazing (> 5 large animals or equivalent per acre) (H in Zones, otherwise M)				N		
Concentrated Animal Feeding Operations (CAFOs) as defined in federal regulation[1] (VH in Zones, otherwise H)				N		
Animal Feeding Operations as defined in federal regulation[2] (VH in Zones, otherwise H)				N		
Other Animal operations (H in Zones, otherwise M)				N		
Concentrated Aquatic Animal Production Facilities, as defined in federal regulation (VH in Zones, otherwise H)				N		
Other Aquatic Animal production operations (H in Zones, otherwise M)				N		
Managed Forests (VH in Zones, otherwise H) (unless additional detail provided*)				Y – See Watershed Survey		
Farm chemical distributor/ application service (H)				N		
Farm machinery repair (H)				N		

PCA Checklist Table D-3, page 2 of 3						
AGRICULTURAL/RURAL						
	If Zones Established					
PCA (Risk Ranking)	No PCA in zones	PCA in Zone A?	PCA in Zone B?	PCA in Watershed	Unknown	Comments
Septic systems – Low density (<1/acre) (H in Zones, otherwise L)				Y		
Lagoons / liquid wastes (H)				N		
Machine shops (H)				N		
Pesticide/fertilizer/ petroleum storage & transfer areas (H)					U	
Agricultural Drainage (H in Zones, otherwise M)					U	
Wells - Agricultural/ Irrigation (H)				Y		
Crops, irrigated (Berries, hops, mint, orchards, sod, greenhouses, vineyards, nurseries, vegetable) (M)				Y		
Sewage sludge/biosolids application (M)				N		
Fertilizer, Pesticide/ Herbicide Application (M)				Y		
Crops, nonirrigated (e.g., Christmas trees, grains, grass seeds, hay, pasture) (L) (includes drip-irrigated crops)				Y		
Other (list)						

PCA Checklist Table D-3, page 3 of 3						
AGRICULTURAL/RURAL						
	If Zones Established					
PCA (Risk Ranking)	No PCA in zones	PCA in Zone A?	PCA in Zone B?	PCA in Watershed	Unknown	Comments
* Additional Detail for Managed Forests The following categories can be used in lieu of the default risk ranking for Managed Forests:						
* Managed Forests - Broadcast fertilized areas (M in Zones, otherwise L)						
* Managed Forests - Clearcut harvested <30 years (VH in Zones, otherwise H)						
* Managed Forests - Partial harvested <10 years (H in Zones, otherwise M)						
* Managed Forests - Road density > 2 mi/sq. mi) (H in Zones, otherwise M)						

1. Concentrated Animal Feeding Operation: Animal Feeding Operation (requires NPDES permit) with greater than:

If pollutants discharged (directly or indirectly) to navigable waters	**If pollutants not discharged**
300 slaughter or feeder cattle	1,000 slaughter or feeder cattle
200 mature dairy cows	700 mature dairy cows
750 swine	2500 swine
150 horses	500 horses
3000 sheep or lambs	10,000 sheep or lambs
16,500 turkeys	55,000 turkeys
9,000 laying hens or broilers (liquid manure system)	30,000 laying hens or broilers (liquid manure system)
1500 ducks	5000 ducks
300 animal units	1000 animal units

2. Animal Feeding Operation: lot or facility where animals (other than aquatic) have been or will be stabled or confined and fed or maintained for total of 45 days or more in any 12 month period.

PCA Checklist Table D-4, page 1 of 3						
OTHER ACTIVITIES						
	If Zones Established					
PCA (Risk Ranking)	No PCA in zones	PCA in Zone A?	PCA in Zone B?	PCA in Watershed	Unknown	Comments
NPDES/WDR permitted discharges (H)				N		
Underground Injection of Commercial/Industrial Discharges (VH)				N		
Historic gas stations (VH)				N		
Historic waste dumps/ landfills (VH)				N		
Illegal activities/ unauthorized dumping (H)				N		
Injection wells/ dry wells/ sumps (VH)				N		
Known contaminant plumes (VH)				N		
Military installations (VH)				N		
Mining operations - Historic (VH)				Y		
Mining operations – Active (VH)				N		
Mining - Sand/Gravel (H)				N		
Wells – Oil, Gas, Geothermal (H)				N		
Salt Water Intrusion (H)				N		
Recreational area – surface water source (H)				N		
Snow Ski Areas (H in Zones, otherwise M)				N		
Recent (< 10 years) Burn Areas (H in Zones, otherwise M)				Y		

PCA Checklist Table D-4, page 2 of 3						
OTHER ACTIVITIES						
	If Zones Established					
PCA (Risk Ranking)	No PCA in zones	PCA in Zone A?	PCA in Zone B?	PCA in Watershed	Unknown	Comments
Dredging (H in Zones, otherwise M)				N		
Underground storage tanks						
Confirmed leaking tanks (VH)				N		
Decommissioned - inactive tanks (L)				N		
Non-regulated tanks (tanks smaller than regulatory limit) (H)				N		
Not yet upgraded or registered tanks (H)				N		
Upgraded and/or registered - active tanks (L)				N		
Above ground storage tanks (M)				N		
Wells – Water supply (M)				Y		
Construction/demolition staging areas (M)					U	
Contractor or government agency equipment storage yards (M)				N		
Transportation corridors						
Freeways/state highways (M)				N		
Railroads (M)				N		
Historic railroad right-of-ways (M)				N		
Road Right-of-ways (herbicide use areas) (M)					U	
Roads/ Streets (L)				Y		

PCA Checklist Table D-4, page 3 of 3						
OTHER ACTIVITIES						
	If Zones Established					
PCA (Risk Ranking)	No PCA in zones	PCA in Zone A?	PCA in Zone B?	PCA in Watershed	Unknown	Comments
Hospitals (M)				N		
Storm Drain Discharge Points (M)				Y		
Storm Water Detention Facilities (M)				N		
Artificial Recharge Projects						
Injection wells (potable water) (L)				N		
Injection wells (non-potable water) (M)				N		
Spreading Basins (potable water) (L)				N		
Spreading Basins (non-potable water) (M)				N		
Medical/dental offices/clinics (L)				N		
Veterinary offices/clinics (L)				N		
Surface water - streams/ lakes/rivers (L)				Y		
Other (list)						

	VULNERABILITY RANKING MASTER LIST - Surface Water w/o Zones				
	PCA	PCA Risk Points	Zone Points	PBE Points	Vulnerability Score
		VH = 7		L = 5	Risk + Zone + PBE points
		H = 5		M = 3	
		M = 3	Watershed = 5	H = 1	
Zone	PCA (Risk)	L = 1	Unknown = 0		
Watershed	Septic systems - high density (>1/acre) (VH in Zones, otherwise M)	7	5	3	15
Watershed	Septic systems – Low density (<1/acre) (H in Zones, otherwise L)	5	5	5	15
Watershed	Mining operations - Historic (VH)	7	5	3	15
Watershed	Managed Forests (VH in Zones, otherwise H) (unless details known*)	7	5	1	13
Watershed	Recent (< 10 years) Burn Areas (H in Zones, otherwise M)	5	5	3	13
Watershed	Housing - high density (>1 house/0.5 acres) (M)	3	5	3	11
Watershed	Wells - Agricultural/ Irrigation (H)	5	5	1	11
Watershed	Crops, irrigated (M)	3	5	3	11
Watershed	Fertilizer, Pesticide/ Herbicide Application (M)	3	5	3	11
Watershed	Wells – Water supply (M)	3	5	3	11
Watershed	Storm Drain Discharge Points (M)	3	5	3	11
Watershed	Surface water - streams/ lakes/rivers (L)	1	5	5	11
Watershed	Transportation Corridors- Roads/ Streets (L)	1	5	5	11
Watershed	Crops, nonirrigated (L) (includes drip-irrigated crops)	1	5	5	11
Unknown	Pesticide/fertilizer/ petroleum storage & transfer areas (H)	5	0	5	10
Unknown	Agricultural Drainage (H in Zones, otherwise M)	3	0	3	6
Unknown	Construction/demolition staging areas (M)	3	0	3	6
Unknown	Transportation Corridors- Road Right-of-ways (herbicide use) (M)	3	0	3	6

Drinking Water Source Assessment

Water System

Davenport County Sanitation District Water System

Santa Cruz County

Water Source

Mill Creek

Assessment Date

December, 2023

California Department of Health Services
Drinking Water Field Operations Branch
DHS 5th District - Monterey

District No.	**5**
System No.	**CA4400571**
Source No.	**CA4400571-003**
PS Code	**CA4400571-003-003**

Assessment Summary

District Name Davenport County Sanitation District District No. 5 County Santa Cruz
System Name Davenport County Sanitation District Water System System No. CA4400571
Source Name Mill Creek Source No. CA4400571-003 PS Code: CA4400571-003-003

Completed by Renee Inlow Date December, 2023

Description of System and Source

The Davenport County Sanitation District water system is located in Santa Cruz County and serves the city of Davenport. There are approximately 128 service connections serving a population of 688.

The drinking water source for the Davenport County Sanitation District Water System, Mill Creek is located approximately 12 miles north of the City of Santa Cruz, east of Highway 1 on the west facing slope of the Santa Cruz Mountains. The Mill Creek Watershed includes approximately 1000 acres of tributaries. General land use in the watershed is timber production, agricultural, residential agriculture, rural residential, and parks / open space.

Assessment Procedures

The assessment of Mill Creek was conducted by Santa Cruz County. The following sources of information were used in the assessment: water system files, DHS files, County records, and previous study.

Procedures used to conduct the assessment include: file review, calculations, field review, meet with water system, run models, contact with other agencies, use GIS, etc.

Contents of this Assessment

Yes	Δ	**No**	**Assessment Summary**
Yes	Δ	**No**	**Vulnerability Summary**
Yes	Δ	**No**	**Source Location Form**
Yes		**No** Δ	**Delineation of Protection Zones**
Yes	Δ	**No**	**Physical Barrier Effectiveness Checklist**
Yes	Δ	**No**	**Source Data Sheet**
Yes	Δ	**No**	**Inventory of Possible Contaminating Activities**
Yes	Δ	**No**	**Vulnerability Ranking**
Yes	Δ	**No**	**Assessment Map**

Vulnerability Summary

District Name Davenport County Sanitation District District No. 5 County Santa Cruz
System Name Davenport County Sanitation District Water System System No. CA4400571
Source Name Mill Creek Source No. CA4400571-003 PS Code: CA4400571-003-003

Completed by Renee Inlow Date December, 2023

THE FOLLOWING INFORMATION MUST BE INCLUDED IN THE SYSTEM CONSUMER CONFIDENCE REPORT

A source water assessment was conducted for Mill Creek of the Davenport County Sanitation District Water System in December, 2023.

Discussion of Vulnerability

The source is considered most vulnerable to the following activities associated with contaminants detected in the water supply:

There have been no contaminants detected in the water supply from Mill Creek.

The source is considered most vulnerable to the following activities not associated with any detected contaminants:

Climate change effects: To reduce the impacts of climate change, the District secured grant funding to construct water storage tanks to offset effects from extreme weather events that can influence water availability, leading to droughts or floods that stress water resources.

Vandalism: To reduce the vulnerability of vandalism of the water system, access to the Mill Creek intake is limited through gates, monitored video surveillance, hired patrol, and restrictive signage at primary access points.

Cyber-attacks: To reduce the vulnerability of cyber-attacks, data is encrypted, and access is controlled for Supervisory Control and Data Acquisition (SCADA) remote monitoring. The County Information Technology Department has implemented strong authentication protocols to prevent unauthorized access to SCADA. Staff are routinely trained in how to prevent cyber-attacks.

Delineation of Surface Water Protection Zones

Public water system: Davenport County Sanitation District Water System ID No.: CA4400571

Name of source: Mill Creek ID No.: CA4400571-003

Delineation date: December, 2023 Delineation conducted by Renee Inlow

The delineation of protection zones for a surface water source is optional. The source area for a surface water source is the watershed.

Delineation protection zones are not established for this watershed. This form is not applicable.

Surface Water Physical Barrier Effectiveness (PBE)

District Name Davenport County Sanitation District District No. 5 County Santa Cruz

System Name Davenport County Sanitation District Water System System No. CA4400571

Source Name Mill Creek Source No. CA4400571-003 PS Code: CA4400571-003-003

Completed by Renee Inlow Date December, 2023

Drinking Water Source/ Watershed Information

Note: Most of the following information should be available from the Watershed Sanitary Survey of the water source.

1. Is the source an impounded reservoir or a direct stream intake?
   a. Reservoir
   b. Stream intake
   c. Other, describe: _____

2. Source Characteristics
   a. Area of tributary watershed: 1,000 acres or square miles
   b. Area of water body within watershed:_____acres or square miles
   c. Volume of water body: _____acre-feet
   d. Maximum rate of withdrawal through intake: Unknown gallons per day
   e. Are the primary tributaries seasonal, perennial or both?

3. What is the approximate travel time to the intake for water at farthest reaches of the water body?
   a. Source is direct intake, no impounded water body
   b. Less than 30 days
   c. More than 30 days and less than 1 year
   d. More than 1 year

4. What is the general topography of the watershed?
   a. Flat terrain (<10% slopes)
   b. Hilly (10 to 30% slopes)
   c. Mountainous (> 30% slopes)
   d. Not sure

5. What is the general geology of the watershed?
   a. Materials prone to landslides
   b. Materials not prone to landslides
   c. Not sure

6. What general soil types are on the watershed?
   a. Rock
   b. Loams, sands
   c. Clay
   d. Not sure

Surface Water Physical Barrier Effectiveness (PBE)

System Name Davenport County Sanitation District Water System System No. CA4400571

Source Name Mill Creek Source No. CA4400571-003 PS Code: CA4400571-003-003

7. What type of vegetation covers most of the watershed?
   a. Grasses
   b. Low growing plants and shrubs
   c. Trees
   d. Not sure

8. What is the mean seasonal precipitation on the watershed?
   a. More than 40 inches/year
   b. 10 to 40 inches/year
   c. Less than 10 inches/year
   d. Not sure

9. Is there significant ground water recharge to the water body?
   a. Yes
   b. No
   c. Not sure

Physical Barrier Effectiveness Determination

Parameters indicating **Low Physical Barrier Effectiveness** (LE)
(A source with <u>any</u> of the parameters listed below would be considered to have less effective physical barrier properties)

3a
4c or 4d
5a or 5c
7c or 7d
8a or 8d
9a

Parameters indicating **High Physical Barrier Effectiveness** (HE)
(A source would need to have <u>all</u> of the parameters listed below to be considered to have highly effective physical barrier properties)

3d and
4a and
5b and
7a and
8c and
9b

All other sources are considered to have **Moderate Physical Barrier Effectiveness**

Determination for this source:

Low (LE)
Moderate (ME)
High (HE)

SURFACE WATER DATA SHEET

Complete as much information as possible. Leave blank if information is not available, use N.A. if not applicable.

** Indicates items required for Source Water Assessment*

	(separate multiple entries in field with semi-colon)	Actual, Estimated or Default?
GENERAL INFORMATION		
System Name	Davenport County Sanitation District Water System	*from DHS database*
System Number	CA4400571	*from DHS database*
Source of Information *(well log, DHS/County files, system, etc)*	PS Code CA4400517-003-003	County Files
Organization Collecting Information *(DHS, County, System, other)*	Davenport County Sanitation District	County
Date Information Collected/Updated	December, 2023	
SOURCE IDENTIFICATION		
* Source Name	Mill Creek	*from DHS database*
* DHS Source Identification Number (**FRDS ID No.**)	PS Code CA4400571-003-003	*from DHS database*
Source Status (Active, Standby, Inactive)	Active	*from DHS database*
SOURCE LOCATION		
Inlet Ground Surface Elevation (ft above Mean Sea Level)	650'	Estimated
Street or Road	700 Highway 1	Estimated
Nearest Cross Street	Via Venado	Estimated
City	Town of Davenport	
County	Santa Cruz	
Site plan on file? ("YES" or "NO")	Yes	
TYPE OF SOURCE		
Type of Source: (Lake, Reservoir, River, Stream, Creek, Other)	Creek	
Production (gallons per year)	24,100 GPY	
Frequency of Use (hours/year)	1 week/year	
LAKE/RESERVOIR DATA (If Applicable)		
Name of Lake or Impounding Reservoir	N.A.	
Date Dam Constructed	N.A.	
Dam Length (feet)	N.A.	
Dam Height (feet)	N.A.	
Dam Width - Base (feet)	N.A.	
Dam Width - Top (feet)	N.A.	
Surface Area when full (acres)	N.A.	
Capacity (acre-feet)	N.A.	
Reservoir Yield (gallons per day)	N.A.	
Yield Reliability (% of time the above yield can be supplied)	N.A.	
Outlet Location	N.A.	
Outlet Level(s) (distance below maximum water surface) (feet)	N.A.	
Multiple Outlet Depths Available? "YES" or "NO"	N.A.	
Outlet Distance to Inflow (feet)	N.A.	
Algae Control Measures	N.A.	
Type of Recreational Activities in Reservoir *(list all that apply: boating, swimming, fishing, water skiing, etc.)*	N.A.	
Distance to Nearest Sewage Facilities to Outlet (feet)	N.A.	
STREAM INTAKE DATA (If Applicable)		
Name of River, Stream or Creek	Mill Creek	
Intake Location	16,000+/- feet upstream from the treatment plant	Estimated

SURFACE WATER DATA SHEET (continued)		
STREAM INTAKE DATA (If Applicable) (continued)		
Stream Flow - Maximum (ft3/sec)	Unknown	
Stream Flow - Minimum (ft3/sec)	0	During dry summers
Stream Flow - Average (ft3/sec)	Unknown	
Date Diversion Structure Constructed	1910	
Diversion Structure Type (direct, infiltration gallery, etc.)	Direct	County Records
Distance to Nearest Sewage Facilities to Diversion Structure (feet)	1550	Nearest Septic
WATERSHED DATA		
Area of Watershed (acres)	1000	County GIS
Area Owned or Controlled by Water System (acres)		
Primary Tributaries	Unnamed streams	
Topography *(list all that apply: flat terrain, hilly, mountainous, etc.)*	Hilly / Mountainous	County GIS
Percent slopes (range)	5-75%	County GIS
Geology	50% Cretaceous Quartz Diorite, 50% Santa Margarita Sandstone	County GIS
Watershed prone to landslides? "YES" or "NO"	No	
Predominant Soil Types *(list all that apply: sand, loam, silt, clay, gravel, rock, fractured rock)*	Rock, Fractured Rock, Sand, Loam, Clay, Gravel	County Records
Predominant Vegetation *(list all that apply: grass, shrubs, chaparral, trees, forested, etc.)*	Trees, Shrubs, Grasses	County Records
Watershed prone to erosion? "YES" or "NO"	No	
Mean Seasonal Precipitation (inches/year)	36	NOAA
Significant Ground water Recharge? "YES" or "NO"	No	
* Neighborhood/Surrounding Area *(see Note 1)*	Ru, Re, A	
Wastewater measures (septic systems, sewer treatment, etc.)	Septic Systems	
Watershed control measures	See Watershed Sanitary Survey	
INTAKE PIPE		
Material	HDPE	
Diameter	6”	
Length	16,000	
Depth	Above Ground	
Pumped or Gravity flow	Gravity Flow	
Discharges to: *(i.e., distribution system, storage, etc.)*	Storage	
INTAKE PUMP INFORMATION		
Number	N.A.	
Make	N.A.	
Type	N.A.	
Size (hp)	N.A.	
* Capacity (gpm)	N.A.	
Lubrication Type	N.A.	
Type of Power: *(i.e., electric, diesel, etc.)*	N.A.	
Auxiliary power available? ("YES" or "NO")	N.A.	
Operation controlled by: *(i.e., level in tank, pressure, etc.)*	N.A.	
	N.A.	
REMARKS AND DEFECTS (use additional sheets as necessary)		

NOTES

1. Neighborhood/Surrounding Area (list all that apply): A= Agricultural, Ru = Rural, Re = Residential, Co = Commercial, I = Industrial, Mu = Municipal, P = Pristine, O = Other

Possible Contaminating Activities (PCA) Inventory Form

Surface Water Source

Public water system: Davenport County Sanitation District Water System ID No.: CA4400571

Name of source: Mill Creek ID No.: CA4400571-003

Inventory date: December, 2023 Inventory conducted by Renee Inlow

Name of Surface Water Body : Mill Creek

Indicate PCAs pertinent to the drinking water source, its source area (watershed) and protection zones (if established), from the following tables, as applicable:

Are zones established? YES or NO

PCA Checklist Table D-1, page 1 of 2						
COMMERCIAL/INDUSTRIAL						
	If Zones Established					
PCA (Risk Ranking)	No PCA in zones	PCA in Zone A?	PCA in Zone B?	PCA in Watershed	Unknown	Comments
Automobile-related activities						
Body shops (H)				N		
Car washes (M)				N		
Gas stations (VH)				N		
Repair shops (H)				N		
Boat services/repair/ refinishing (H)				N		
Chemical/petroleum processing/storage (VH)				N		
Chemical/petroleum pipelines (H)				N		
Dry cleaners (VH)				N		
Electrical/electronic manufacturing (H)				N		
Fleet/truck/bus terminals (H)				N		
Furniture repair/ manufacturing (H)				N		
Home manufacturing (H)				N		
Junk/scrap/salvage yards (H)				N		
Machine shops (H)				N		
Metal plating/ finishing/fabricating (VH)				N		
Photo processing/printing (H)				N		
Plastics/synthetics producers (VH)				N		
Research laboratories (H)				N		

PCA Checklist Table D-1, page 2 of 2						
COMMERCIAL/INDUSTRIAL						
	If Zones Established					
PCA (Risk Ranking)	No PCA in zones	PCA in Zone A?	PCA in Zone B?	PCA in Watershed	Unknown	Comments
Wood preserving/treating (H)				N		
Wood/pulp/paper processing and mills (H)				N		
Lumber processing and manufacturing (H)				N		
Sewer collection systems (H, if in Zones, otherwise L)				N		
Parking lots/malls (>50 spaces) (M)				N		
Cement/concrete plants (M)				N		
Food processing (M)				N		
Funeral services/graveyards (M)				N		
Hardware/lumber/parts stores (M)				N		
Appliance/Electronic Repair (L)				N		
Office buildings/complexes (L)				N		
Rental Yards (L)				N		
RV/mini storage (L)					U	
Other (list)						

PCA Checklist Table D-2, page 1 of 2						
RESIDENTIAL/MUNICIPAL						
	If Zones Established					
PCA (Risk Ranking)	No PCA in zones	PCA in Zone A?	PCA in Zone B?	PCA in Watershed	Unknown	Comments
Airports - Maintenance/ fueling areas (VH)				N		
Landfills/dumps (VH)				N		
Railroad yards/ maintenance/ fueling areas (H)				N		
Septic systems - high density (>1/acre) (VH if in Zones, otherwise M)				Y		
Sewer collection systems (H, if in Zones, otherwise L)				N		
Utility stations - maintenance areas (H)				N		
Wastewater treatment and disposal facilities (VH in Zones, otherwise H)				N		
Drinking water treatment plants (M)				N		
Golf courses (M)				N		
Housing - high density (>1 house/0.5 acres) (M)				Y		
Motor pools (M)				N		
Parks (M)				N		
Waste transfer/recycling stations (M)				N		

PCA Checklist
Table D-2, page 2 of 2

RESIDENTIAL/MUNICIPAL						
	If Zones Established					
PCA (Risk Ranking)	No PCA in zones	PCA in Zone A?	PCA in Zone B?	PCA in Watershed	Unknown	Comments
Apartments and condominiums (L)				N		
Campgrounds/ Recreational areas (L)				N		
Fire stations (L)				N		
RV Parks (L)				N		
Schools (L)				Y		
Hotels, Motels (L)				N		
Other (list)						

PCA Checklist Table D-3, page 1 of 3						
AGRICULTURAL/RURAL						
	If Zones Established					
PCA (Risk Ranking)	No PCA in zones	PCA in Zone A?	PCA in Zone B?	PCA in Watershed	Unknown	Comments
Grazing (> 5 large animals or equivalent per acre) (H in Zones, otherwise M)				N		
Concentrated Animal Feeding Operations (CAFOs) as defined in federal regulation[1] (VH in Zones, otherwise H)				N		
Animal Feeding Operations as defined in federal regulation[2] (VH in Zones, otherwise H)				N		
Other Animal operations (H in Zones, otherwise M)				N		
Concentrated Aquatic Animal Production Facilities, as defined in federal regulation (VH in Zones, otherwise H)				N		
Other Aquatic Animal production operations (H in Zones, otherwise M)				N		
Managed Forests (VH in Zones, otherwise H) (unless additional detail provided*)				Y – See Watershed Survey		
Farm chemical distributor/ application service (H)				N		
Farm machinery repair (H)				N		

PCA Checklist Table D-3, page 2 of 3						
AGRICULTURAL/RURAL						
	If Zones Established					
PCA (Risk Ranking)	No PCA in zones	PCA in Zone A?	PCA in Zone B?	PCA in Watershed	Unknown	Comments
Septic systems – Low density (<1/acre) (H in Zones, otherwise L)				Y		
Lagoons / liquid wastes (H)				N		
Machine shops (H)				N		
Pesticide/fertilizer/ petroleum storage & transfer areas (H)				N		
Agricultural Drainage (H in Zones, otherwise M)					U	
Wells - Agricultural/ Irrigation (H)				Y		
Crops, irrigated (Berries, hops, mint, orchards, sod, greenhouses, vineyards, nurseries, vegetable) (M)				Y		
Sewage sludge/biosolids application (M)				N		
Fertilizer, Pesticide/ Herbicide Application (M)				Y		
Crops, nonirrigated (e.g., Christmas trees, grains, grass seeds, hay, pasture) (L) (includes drip-irrigated crops)				Y		Christmas Trees
Other (list)						

PCA Checklist Table D-3, page 3 of 3						
AGRICULTURAL/RURAL						
	If Zones Established					
PCA (Risk Ranking)	No PCA in zones	PCA in Zone A?	PCA in Zone B?	PCA in Watershed	Unknown	Comments
* Additional Detail for Managed Forests The following categories can be used in lieu of the default risk ranking for Managed Forests:						
* Managed Forests - Broadcast fertilized areas (M in Zones, otherwise L)				N		
* Managed Forests - Clearcut harvested <30 years (VH in Zones, otherwise H)				N		
* Managed Forests - Partial harvested <10 years (H in Zones, otherwise M)				Y		
* Managed Forests - Road density > 2 mi/sq. mi) (H in Zones, otherwise M)				N		

1. Concentrated Animal Feeding Operation: Animal Feeding Operation (requires NPDES permit) with greater than:

If pollutants discharged (directly or indirectly) to navigable waters	**If pollutants not discharged**
300 slaughter or feeder cattle	1,000 slaughter or feeder cattle
200 mature dairy cows	700 mature dairy cows
750 swine	2500 swine
150 horses	500 horses
3000 sheep or lambs	10,000 sheep or lambs
16,500 turkeys	55,000 turkeys
9,000 laying hens or broilers (liquid manure system)	30,000 laying hens or broilers (liquid manure system)
1500 ducks	5000 ducks
300 animal units	1000 animal units

2. Animal Feeding Operation: lot or facility where animals (other than aquatic) have been or will be stabled or confined and fed or maintained for total of 45 days or more in any 12 month period.

PCA Checklist Table D-4, page 1 of 3						
OTHER ACTIVITIES						
	If Zones Established					
PCA (Risk Ranking)	No PCA in zones	PCA in Zone A?	PCA in Zone B?	PCA in Watershed	Unknown	Comments
NPDES/WDR permitted discharges (H)				N		
Underground Injection of Commercial/Industrial Discharges (VH)				N		
Historic gas stations (VH)				N		
Historic waste dumps/ landfills (VH)				N		
Illegal activities/ unauthorized dumping (H)				N		
Injection wells/ dry wells/ sumps (VH)				N		
Known contaminant plumes (VH)				N		
Military installations (VH)				N		
Mining operations - Historic (VH)				Y		
Mining operations – Active (VH)				N		
Mining - Sand/Gravel (H)				N		
Wells – Oil, Gas, Geothermal (H)				N		
Salt Water Intrusion (H)				N		
Recreational area – surface water source (H)				N		
Snow Ski Areas (H in Zones, otherwise M)				N		
Recent (< 10 years) Burn Areas (H in Zones, otherwise M)				Y		

PCA Checklist Table D-4, page 2 of 3						
OTHER ACTIVITIES						
	If Zones Established					
PCA (Risk Ranking)	No PCA in zones	PCA in Zone A?	PCA in Zone B?	PCA in Watershed	Unknown	Comments
Dredging (H in Zones, otherwise M)				N		
Underground storage tanks						
Confirmed leaking tanks (VH)				N		
Decommissioned - inactive tanks (L)				N		
Non-regulated tanks (tanks smaller than regulatory limit) (H)				N		
Not yet upgraded or registered tanks (H)				N		
Upgraded and/or registered - active tanks (L)				N		
Above ground storage tanks (M)				N		
Wells – Water supply (M)				Y		
Construction/demolition staging areas (M)					U	
Contractor or government agency equipment storage yards (M)				N		
Transportation corridors						
Freeways/state highways (M)				N		
Railroads (M)				N		
Historic railroad right-of-ways (M)				N		
Road Right-of-ways (herbicide use areas) (M)					U	
Roads/ Streets (L)				Y		

PCA Checklist Table D-4, page 3 of 3						
OTHER ACTIVITIES						
	If Zones Established					
PCA (Risk Ranking)	No PCA in zones	PCA in Zone A?	PCA in Zone B?	PCA in Watershed	Unknown	Comments
Hospitals (M)				N		
Storm Drain Discharge Points (M)				Y		
Storm Water Detention Facilities (M)				N		
Artificial Recharge Projects						
Injection wells (potable water) (L)				N		
Injection wells (non-potable water) (M)				N		
Spreading Basins (potable water) (L)				N		
Spreading Basins (non-potable water) (M)				N		
Medical/dental offices/clinics (L)				N		
Veterinary offices/clinics (L)				N		
Surface water - streams/ lakes/rivers (L)				Y		
Other (list)						

	VULNERABILITY RANKING MASTER LIST - Surface Water w/o Zones				
	PCA	PCA Risk Points	Zone Points	PBE Points	Vulnerability Score
		VH = 7		L = 5	Risk + Zone + PBE points
		H = 5		M = 3	
		M = 3	Watershed = 5	H = 1	
Zone	PCA (Risk)	L = 1	Unknown = 0		
Watershed	Septic systems - high density (>1/acre) (VH in Zones, otherwise M)	7	5	3	15
Watershed	Septic systems – Low density (<1/acre) (H in Zones, otherwise L)	5	5	5	15
Watershed	Mining operations - Historic (VH)	7	5	3	15
Watershed	Managed Forests (VH in Zones, otherwise H) (unless details known*)	7	5	1	13
Watershed	Recent (< 10 years) Burn Areas (H in Zones, otherwise M)	5	5	3	13
Watershed	Wells – Water supply (M)	3	5	3	11
Watershed	Housing - high density (>1 house/0.5 acres) (M)	3	5	3	11
Watershed	Schools (L)	1	5	5	11
Watershed	Wells - Agricultural/ Irrigation (H)	5	5	1	11
Watershed	Crops, irrigated (M)	3	5	3	11
Watershed	Fertilizer, Pesticide/ Herbicide Application (M)	3	5	3	11
Watershed	Crops, nonirrigated (L) (includes drip-irrigated crops)	1	5	5	11
Watershed	Transportation Corridors- Roads/ Streets (L)	1	5	5	11
Watershed	Storm Drain Discharge Points (M)	3	5	3	11
Watershed	Surface water - streams/ lakes/rivers (L)	1	5	5	11
Unknown	Pesticide/fertilizer/ petroleum storage & transfer areas (H)	5	0	5	10
Unknown	Agricultural Drainage (H in Zones, otherwise M)	3	0	3	6
Unknown	Construction/demolition staging areas (M)	3	0	3	6
Unknown	Transportation Corridors- Road Right-of-ways (herbicide use) (M)	3	0	3	6