County of Santa Cruz Health Services Agency
Environmental Health Division

Onsite Wastewater Treatment Systems

Local Agency Management Program

Approved by Central Coast Regional Water Quality Control Board,

October 14, 2021

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August 23, 2022

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Onsite Wastewater Treatment Systems (OWTS)

Local Agency Management Program (LAMP)

County of Santa Cruz

1 Introduction

This Local Agency Management Program (LAMP) for the County of Santa Cruz (County) describes permitting and oversight of Onsite Wastewater Treatment Systems (OWTS, also known as septic systems). This LAMP is produced in accordance with requirements set forth by the State Water Resources Control Board (State Board) in the State OWTS Policy (2013) for County permitting of OWTS.

The purpose of the LAMP is to provide for the continued use of OWTS in Santa Cruz County while providing protection of water quality and public health. Due to historical development patterns, local climate, geology and soils, a majority of the 27,700 existing OWTS cannot meet the State Tier 1 Standards for Low Risk systems. However, with appropriate standards and management approaches, systems can be upgraded and utilized to continue to meet housing needs, recharge groundwater basins, and protect water quality. This LAMP updates and expands the successful wastewater management approaches conducted by Santa Cruz County since 1985.

This LAMP applies to all unincorporated areas of Santa Cruz County. It is proposed that this LAMP would also apply within Santa Cruz, Scotts Valley and Capitola, given that these cities have delegated authority for regulation of OWTS in the city limits to the County Health Officer. The City of Watsonville does not issue permits for OWTS and has a small number of legacy OWTS in the city limits. County and city codes will be amended as needed to extend County authority over OWTS to cities, including written agreements extending the LAMP to the city area.

1.1 OWTS Oversight – State and County Requirements

Oversight and regulation of OWTS is specified in the federal Clean Water Act, the state Porter-Cologne Water Quality Control Act (a.k.a. California Water Code), the California Health and Safety Code, and the California Building Standards Code. A summary of the regulatory framework is provided in Table 1-1.

Table 1-1: Overview of Federal and State Codes Relevant to OWTS

Code	Key details	Relevance to Santa Cruz County
Federal Clean Water Act[1]	Requirements for control of wastewater discharges and protection of water quality, designates State as Primacy Agency. Restore and maintain the chemical, physical, and biological integrity of the Nation's waters.	Provides overarching requirements for wastewater treatment and water quality protection
Porter-Cologne Water Quality Act[2] (a.k.a. California Water Code, Division 7)	• Defines the right of every human being to safe, clean, affordable, and accessible water adequate for human consumption, cooking, and sanitary purposes. • Provides requirements for OWTS (Chapter 4.5)	• Requires the State Board to establish policies and programs for water quality protection. • Regional Water Quality Control Boards administer programs
Water Quality Control Plan for the Central Coastal Basin (Basin Plan, California Water Code, Division 7, Chapter 4.0)[3]	• The Central Coast Regional Water Quality Control Board (Regional Board) establishes requirements for OWTS installation and management. • Local regulatory agencies have oversight for individual OWTS with discharges less than 2,500 gallons per day (gpd).	Local regulatory agencies must comply with the minimum standards to maintain authority for regulatory permitting of OWTS
California Code of Regulations, Title 23. Waters	• Division 3. State Water Resources Control Board and Regional Water Quality Control Boards • Chapter 22. State Policy for Water Quality Control, Section 2924	Water Quality Control Policy for Siting, Design, Operation and Maintenance of Onsite Wastewater Treatment Systems (OWTS Policy)
California Health and Safety Code,[4] Division 5	• Requires effective sewage disposal for all homes and businesses. • Prohibits sewage discharge to the ground surface. • Delegates responsibility to the County Health Officer or their designee for ensuring effective sewage disposal within a county jurisdiction	The Santa Cruz County Environmental Health Division is responsible for enforcing requirements per assignment by the County Health Officer
California Building Standards Code (Plumbing Code) part 5 Title 24 of the California Code of Regulations[5]	• Provides California amendments to the Uniform Plumbing Code of the International Association of Plumbing and Mechanical Officials. • Plumbing Code requirements are optional.	Santa Cruz County has jurisdiction between the building and the OWTS. Santa Cruz County Code 12.10.235 adopts the Plumbing Code.

In 1999, the California State legislature passed Assembly Bill (AB) 885, which called for the State Board to develop statewide standards for regulation of OWTS. On June 19, 2012, the State Board

[1] https://www.epa.gov/wqs-tech/water-quality-standards-regulations-california
[2] https://www.waterboards.ca.gov/laws_regulations/docs/portercologne.pdf
[3] https://www.waterboards.ca.gov/centralcoast/publications_forms/publications/basin_plan/
[4] https://leginfo.legislature.ca.gov/faces/codes_displayText.xhtml?lawCode=HSC&division=6.&title=&part=2.&chapter=3.&article=3.
[5] http://epubs.iapmo.org/2019/CPC/index.html

adopted a State OWTS Policy, which became effective May 13, 2013. On May 30, 2013, the Regional Board adopted Resolution No. R3-2013-0005 which amended the Basin Plan to incorporate by reference the provisions of the OWTS Policy and delete redundant or conflicting onsite wastewater system criteria. On January 21, 2014, the State Water Board adopted Resolution No. 2014-0003 approving the amendment of the Basin Plan, which was subsequently approved by the Office of Administrative Law on June 3, 2014. Both the OWTS Policy and the Basin Plan include provisions for continued local regulation of OWTS pursuant to Tiers 0, 1, 3, and 4 requirements or Tier 2 requirements for a LAMP that is approved by the Regional Board.

The State OWTS Policy establishes five tiered classifications to regulate management of OWTS:

- **Tier 0** – Functioning: OWTS, existing and properly functioning.
- **Tier 1** – Low Risk: OWTS, new or replacement and low risk that can meet State-wide Standards.
- **Tier 2** – LAMP-compliant: OWTS, new or replacement, managed per Local LAMP standards, developed to reflect local conditions.
- **Tier 3** – Impaired Waters: OWTS potentially impacting federally listed impaired water sources.
- **Tier 4** – Failing: OWTS experiencing failure**.**

OWTS that do not meet the specifications for any of the five Tiers specified above, must be permitted by the Regional Board.

The Santa Cruz County Code Chapter 7.38 'Sewage Disposal' (Appendix A) specifies the standards for OWTS installation in unincorporated Santa Cruz County and the cities of Santa Cruz, Scotts Valley and Capitola. It was developed in conformance with prior Basin Plan requirements and is now being updated to meet the State OWTS Policy and 2014 amended Basin Plan. In addition to the design and operational standards for new conventional OWTS, the Santa Cruz County Code allows specific provisions for the management and repair or upgrade of existing OWTS, and for the use of enhanced treatment systems where design and operational standards for conventional systems cannot be met. Many critical elements of these design and operational standards were developed through review and collaboration with the Regional Board.

County EH engages in a broad spectrum of activities relevant to OWTS management including:

- evaluations and investigations of existing systems;
- review of building plans for new construction and remodels served by OWTS;
- design review of OWTS repairs and modifications;
- issuance of OWTS permits, including inspections of installations;
- investigation of citizen complaints;
- water quality monitoring;
- record searches and field surveys of existing OWTS;
- qualification of various providers of OWTS services;
- oversight and financing of septage disposal;

- inspection of septage vehicles and pumper certifications;
- maintenance of permanent records for parcels' OWTS history;
- public education and outreach; and
- management of special regional areas of concern.

The County established County Service Area No. 12 (CSA 12) that provides for collection of annual fees from properties served by OWTS to help finance these management efforts. Permit fees finance County EH review and oversight of individual OWTS installations.

1.2 Santa Cruz County Land Use, Topography, Geology, and Climate

Santa Cruz County has roughly 27,700 OWTS that serve about 22% of the population (61,000 people) in the rural and mountainous parts of the county. Approximately 92% of the OWTS serve single family residences, 4.5% serve multiple residential uses, 3% serve commercial uses and 1% serve motels or camps. Most of the OWTS are located in unincorporated areas, with an additional 445 systems in the City of Scotts Valley, 110 in the City of Santa Cruz, 40 in the City of Watsonville, 15 in City of Capitola, and 2,000 within county sewer/sanitation districts. (This information is based on records of septic tank pumping, permits, inspections and older unverified records. Some of these records may reflect tank pumping at the time of tank abandonment and connection to sewer.)

The County has diverse topography, geologic features, and soils, including coastal terraces and alluvial valleys, steep foothills and mountains, known and potential earthquake faults and seismic hazards, and a wide range of soil types with varying constraints (e.g., expansion, liquefaction, slow permeability and fast permeability). The County is in the Coast Range physiographic province of California, which was formed by plate tectonic forces associated with the San Andreas Fault system. The northwest-southeast structural grain of the Coast Ranges is controlled by a complex of active faults within the San Andreas fault system. This province is characterized by low mountain ranges, generally parallel to the coast, with elevations of 1,500 to 3,000 feet. The Santa Cruz Mountains are primarily underlain at depth by a large, elongated prism of granite and metamorphic basement rock types, bordered to the northeast by the San Andreas strike-slip fault system and to the southwest by the San Gregorio/Nacimiento strike-slip fault system. Much of the basement material is overlain by sedimentary formations of varying age, texture, and permeability. Some sandy formations have very fast permeability.

Along the coast, the ongoing tectonic activity is most evident in the gradual uplift of the coastline, as indicated by the series of uplifted marine terraces that sculpt the coastline. Coastal areas in the County are characterized by step-like marine terraces. The terrace deposits consist of sediments deposited below sea level; however, the terraces are above sea level now due to a combination of changing sea levels and uplift of the coastal land mass. The coastal terraces are generally characterized by older soils with dense clay subsoils, slow permeability and perched winter groundwater conditions.

Approximately 75 percent of the County lies within the Santa Cruz Mountains, which includes area of very steep slopes exceeding 30 percent. The mountain area, including the unincorporated

towns of Ben Lomond, Felton, and Boulder Creek, is characterized by deep valleys such as the San Lorenzo Valley and intervening ridges such as those along Skyline Boulevard. OWTS in this area are frequently constrained by steep slopes and landsliding on the ridges, with elevated groundwater and close proximity to streams in the valley bottoms. The north coast area, including the unincorporated towns of Davenport and Bonny Doon, is characterized by broad, gently sloping marine terraces that extend along the Pacific Ocean as well as steep foothills that rise into the Santa Cruz Mountains. Conditions for OWTS in the north coast area are generally favorable, although clayey soils and perched groundwater can occur on the marine terraces. The South County Region consists of valley lowlands such as within Pajaro Valley, terraces, rolling hills, sloughs, and floodplains that are intensively used for irrigated and dry-farm crops, as well as the more arid, chaparral dominated mountain range above Watsonville. Portions of this area are subject to clay soils and perched groundwater on old terraces.

The urban areas along the coast and in Scotts Valley are sewered, but the suburban communities in the San Lorenzo Valley are served by OWTS (Figure 1-1). The San Lorenzo Valley was originally developed in the early 1900's for summer homes on small lots, which subsequently were converted to year-round use. While significant amounts of new rural development occurred in the 1970's, the rate of rural development slowed significantly after the 1978 passage of Measure J, which mandated limits on the overall rate of growth and directed most growth into the urban areas with public services (Figure 1-2). The rate of new development served by OWTS has further declined in recent years, with only 11 new systems approved in 2017 and 17 approved in 2018. Most rural development activity is related to remodels and OWTS repairs. In 2018, 38 permits for system upgrades to serve building remodels were approved, and 223 permits to repair or replace existing systems were approved.

Figure 1-1: Santa Cruz County Land Use, Based on Assessor Land Use Records

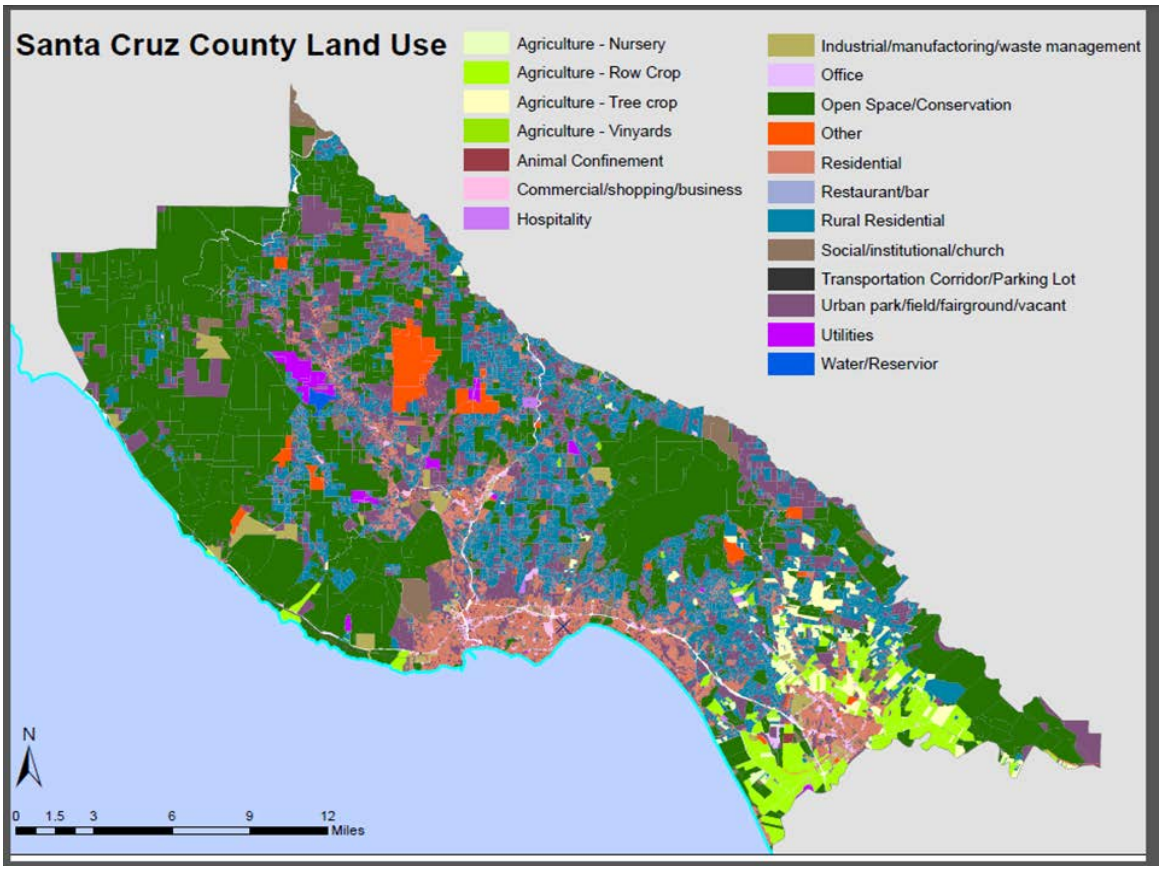
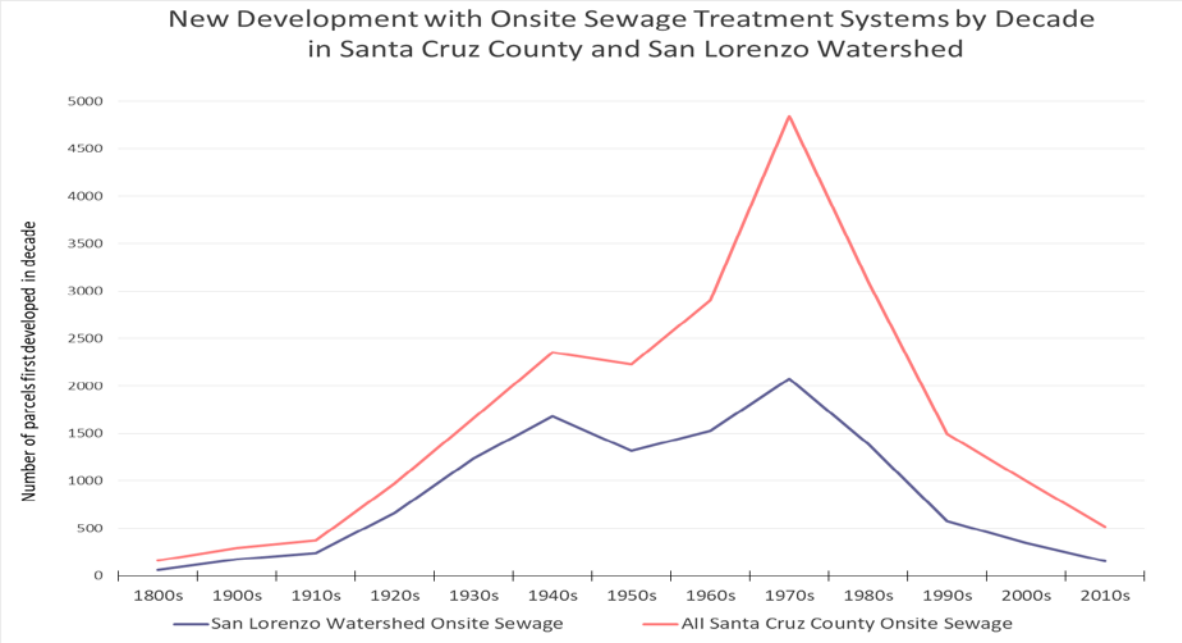


Figure 1-2: Development Trends in County and San Lorenzo Watershed



The average annual rainfall in the County varies from 20 inches in the southern lowlands to 60 inches in the mountains above Boulder Creek and Bonny Doon (Figure 1-3). Most of this rainfall occurs in 3 months and can often lead to elevated seasonal groundwater and transient saturated conditions. This causes soils to be fully saturated during storms and for several days afterward. Because most county soils are relatively well-drained and permeable, well-designed OWTS are able to continue to perform satisfactorily in the winter.

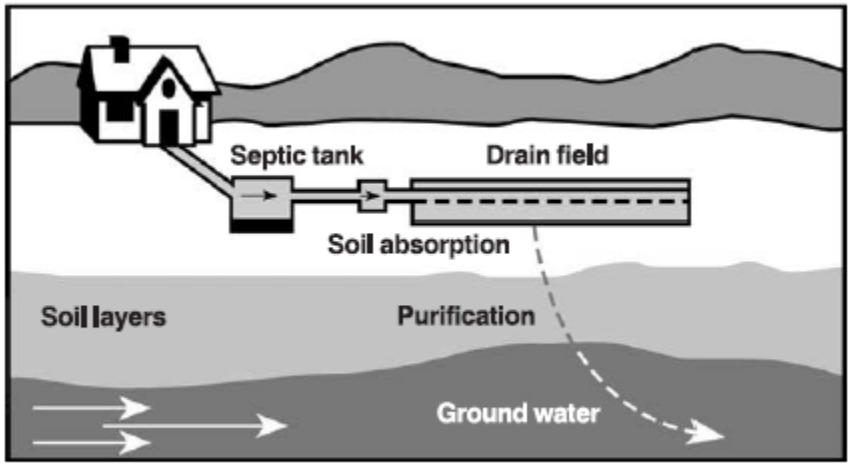
Figure 1-3: Average Annual Rainfall Distribution

1.3 Onsite Wastewater Treatment Systems Overview

Onsite Wastewater Treatment Systems (OWTS), commonly known as septic systems, are the primary method for treating and disposing sewage in rural areas where sewer systems are not available or too expensive to install. OWTS are designed to treat wastewater using a combination of physical processes for solid -liquid separation coupled with biological processes for inactivating pathogens and stabilizing organic matter and nutrients. Microorganisms in the soil also contribute to biodegradation mechanisms to prevent release of contaminants to the land surface and protect groundwater and surface water beneficial uses.

An OWTS typically consists of a septic tank and a leaching trench disposal system, such as a leachfield (Figure 1-4). The septic tank is usually 1,500-2,000 gallons in size and is designed to retain solids and grease and provide initial, primary treatment of the wastewater. The wastewater then typically flows by gravity to the dispersal system where the wastewater percolates into the soil and further treatment takes place.

Figure 1-4: Typical conventional OWTS



Source: NSFC, 2000.

Dispersal systems include perforated pipes set along the top of one or more gravel-filled trenches. The sides and bottom of the trench provide the absorption area for soil percolation. The total square footage of trench and absorption area needed is determined by the expected amount of wastewater flow into the system and absorption capabilities of the soil. A more permeable sandy soil requires less absorption area than a clay soil. Other types of dispersal systems include seepage pits, chamber systems, drip dispersal or mounded bed systems.

Besides the basic septic tank and dispersal system, an OWTS may include other components:

- A pump chamber and pump may be used to move wastewater to a higher, more suitable disposal area on the property. Pump systems include electrical controls, alarms, and excess storage capacity to ensure proper timing of pumping and safeguards in the event of power failures, pump breakdowns, or system overload.

- A distribution box or flow divider ensures that the wastewater is evenly distributed to all parts of the leaching trench disposal system. If this is not installed properly, one part of the system can be overloaded and fail, while other parts remain dry.
- Enhanced treatment systems may be used in place of or in addition to the septic tank to provide a much higher level of wastewater treatment before the wastewater is dispersed to the underground soils. Enhanced treatment reduces organic loading and suspended solids, some designs provide for nitrogen removal, and some designs provide disinfection for inactivation of pathogens.
- Alternative dispersal systems are used for subsurface release of treated wastewater where soil conditions or high groundwater are not appropriate for conventional systems. Alternative dispersal includes pressure distribution, drip dispersal, mounded beds, bottomless sand filters, or at-grade systems. These dispersal systems discharge the effluent subsurface.

Following is a table which shows information regarding the types of OWTS in Santa Cruz County, based on information in the County database. The database now includes detailed information for systems permitted countywide 1995 - 2019 and many of the pre-existing systems in the San Lorenzo Valley and Amesti Road areas that had information from older paper files. More generalized information is available in the database for the other systems.

Table 1-2: Types of OWTS in Santa Cruz County

Type of System	**Number**
Conventional	
Meets standards	6,175
Not meeting all standards	209
Pressure Distribution	24
Mounded Bed	52
Sand Filter	22
At-Grade	5
Enhanced Treatment System, proprietary	686
Haulaway	21
Large Systems, >2500 gpd	12
Older systems	
Performing satisfactorily	1,558
Pre- 1995, No information in database	18,983
Total OWTS in County	**27,747**

2 Conditions for Onsite Wastewater Disposal in Santa Cruz County

The complexities of geology, topography, soils, rainfall, and past development patterns pose challenges for OWTS in Santa Cruz County. Since the 1980's the County has developed specific policies to guide improvement of existing OWTS and minimize potential impacts from new OWTS serving new development. The County strives to balance the realities of site constraints, existing development patterns, cost and feasibility of system improvements, with the need to improve water quality and public health protection. Prior to the mid-1980s, system repairs were only required to meet standards to the maximum extent feasible, with no minimum standards. With oversight programs and minimum repair standards in place, the rate of observed system failures dropped from 13% to 1-2% and water quality also improved.

As a part of policy development, the County has also been sensitive to issues of affordability and fairness to property owners. Many of the rural areas of the County are inhabited by property owners of limited financial means. A large swath of the San Lorenzo Valley northeast of Boulder Creek is delineated as a Disadvantaged Community (DAC) as shown by the California Department of Water Resources' DAC Mapping Tool based on U.S. Census American Community Survey data from 2012 through 2016 (Figure 4-1, page 95). Although other areas have higher average incomes, there is considerable diversity, with well-off households intermixed with households of limited means to upgrade their OWTS. As a part of maintaining and expanding housing stock, the County wants to be able to allow building remodels and additions if the wastewater disposal system can be upgraded to meet minimum standards that provide for water quality protection.

Conserving water and energy are also important considerations for wastewater management. A properly functioning OWTS returns a significant amount of water to the groundwater basin. During the dry season, about 15% of the baseflow in the San Lorenzo River is estimated to be discharged from OWTS and has percolated through the soil to reach the River as clean groundwater. In the Mid-County Groundwater Basin, of the 1,000 acre-feet per year (af/y) of inland groundwater pumping, over 400 af/y is returned to the groundwater system as return flow from OWTS. This is an important water budget component in a basin that has been experiencing 1,500 af/y of overdraft. Regarding climate impacts and ongoing cost of operation, there is a benefit to utilizing OWTS technology with less energy requirements whenever possible.

The County's onsite wastewater management and policy development has been supported by extensive field work to measure water quality and assess actual field conditions. This work has included:

- County contribution to the U.S. Soil Conservation Service to update the County Soil Survey, 1980.
- Extensive water quality monitoring and investigation dating back to 1975, averaging approximately 2,100 samples per year countywide.
- Evaluation of shallow groundwater quality in 100 boreholes downgradient of disposal systems in various soil and groundwater conditions (1981-82).

- Installation of 200 boreholes to assess shallow groundwater levels in San Lorenzo Valley Communities (1986), ongoing monitoring of 20 holes, with water quality testing in 10.
- Lot-by-lot surveys of 2,200 properties in the San Lorenzo Valley and 300 properties in the Amesti Road area for indications of failing systems, with follow-up corrections as needed.
- Creation and analysis of a database of installation information, site information, inspection results, permits, complaints and pumping results for areas of concerns and eventually all onsite systems in the county.
- Follow-up investigations of systems with failing pumper reports.

The results of this work are reflected in the LAMP requirements and are discussed more fully in the following sections.

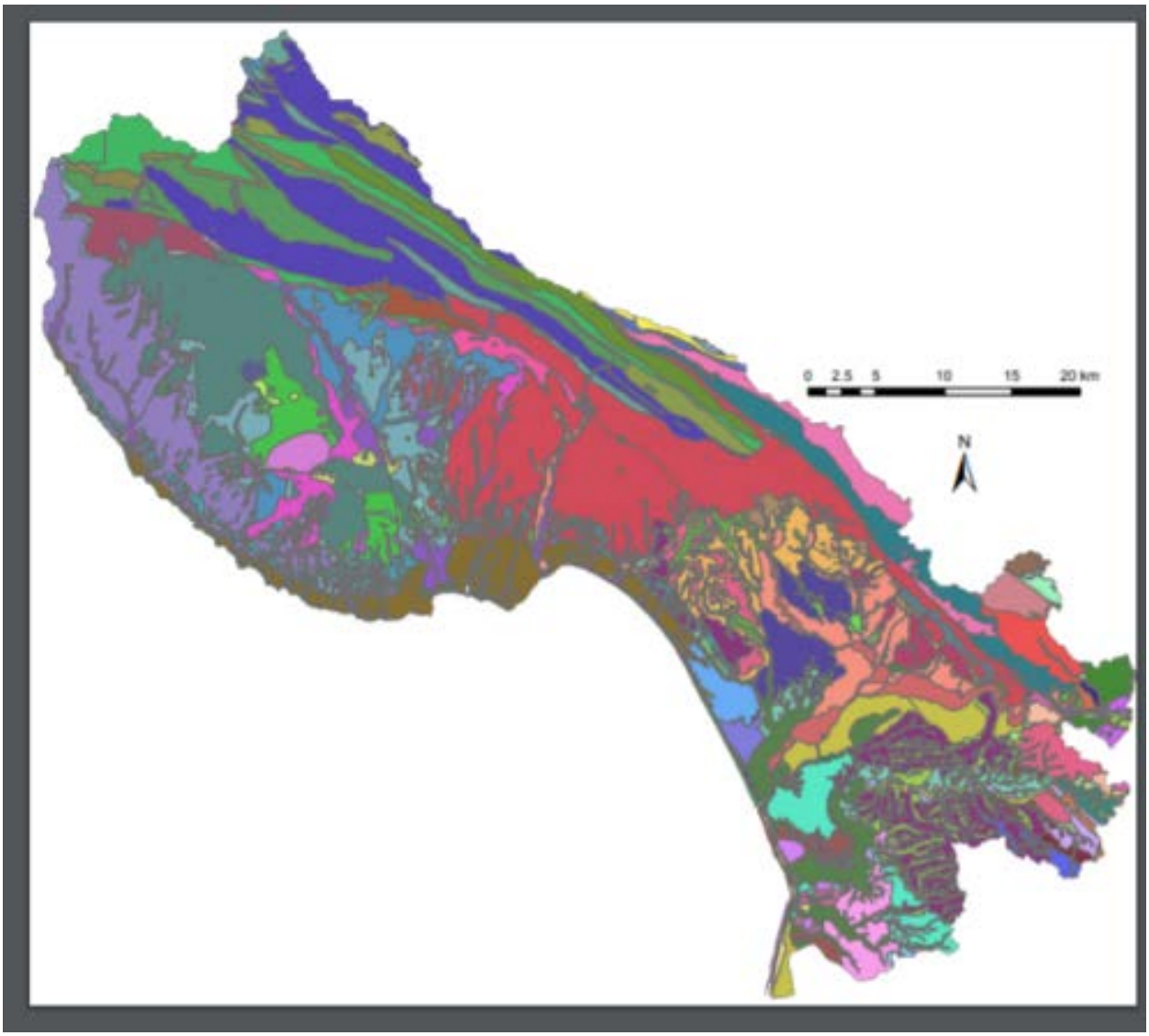
2.1 Hydrogeology

There is an interplay between onsite wastewater discharges and hydrogeology. Soil conditions, fractured bedrock, and shallow groundwater affect the hydrodynamics of wastewater discharges. In addition, wastewater discharges affect the quality and availability of local groundwater and surface water resources.

*Within Santa Cruz County, there are three major groundwater basins and four geologic regions, primarily divided by the three major faults in the county (**Figure 2-1**). The oldest sedimentary rocks occur along the entire northern part of the county. These are old, cemented sandstones and shales, with groundwater generally occurring sporadically in fractures. South of this zone, south of the Zayante fault, occur younger Santa Margarita and Lompico sandstones, which capture and store significant amounts of groundwater in the primary aquifers of the Santa Margarita Groundwater Basin (*

Figure *2-2*). Immediately to the east is the Purisima Formation and then the Aromas Formation, which both make up the Santa Cruz Mid-County Groundwater Basin. The Aromas extend under the deep alluvial deposits of the Pajaro Valley, which together make up the Pajaro Groundwater Basin. The western edge of the Santa Margarita Basin is defined by Ben Lomond fault and immediately to the west, the large granitic block of Ben Lomond Mountain. Deposits of Santa Margarita Sandstone and other young sedimentary rocks occur over the granite as it slopes gradually to the southwest toward the Pacific Ocean. Most of the granite is deeply weathered, but in places there are deposits of marble, which are honeycombed with caverns, solution channels, sink holes, springs, and other karst features.

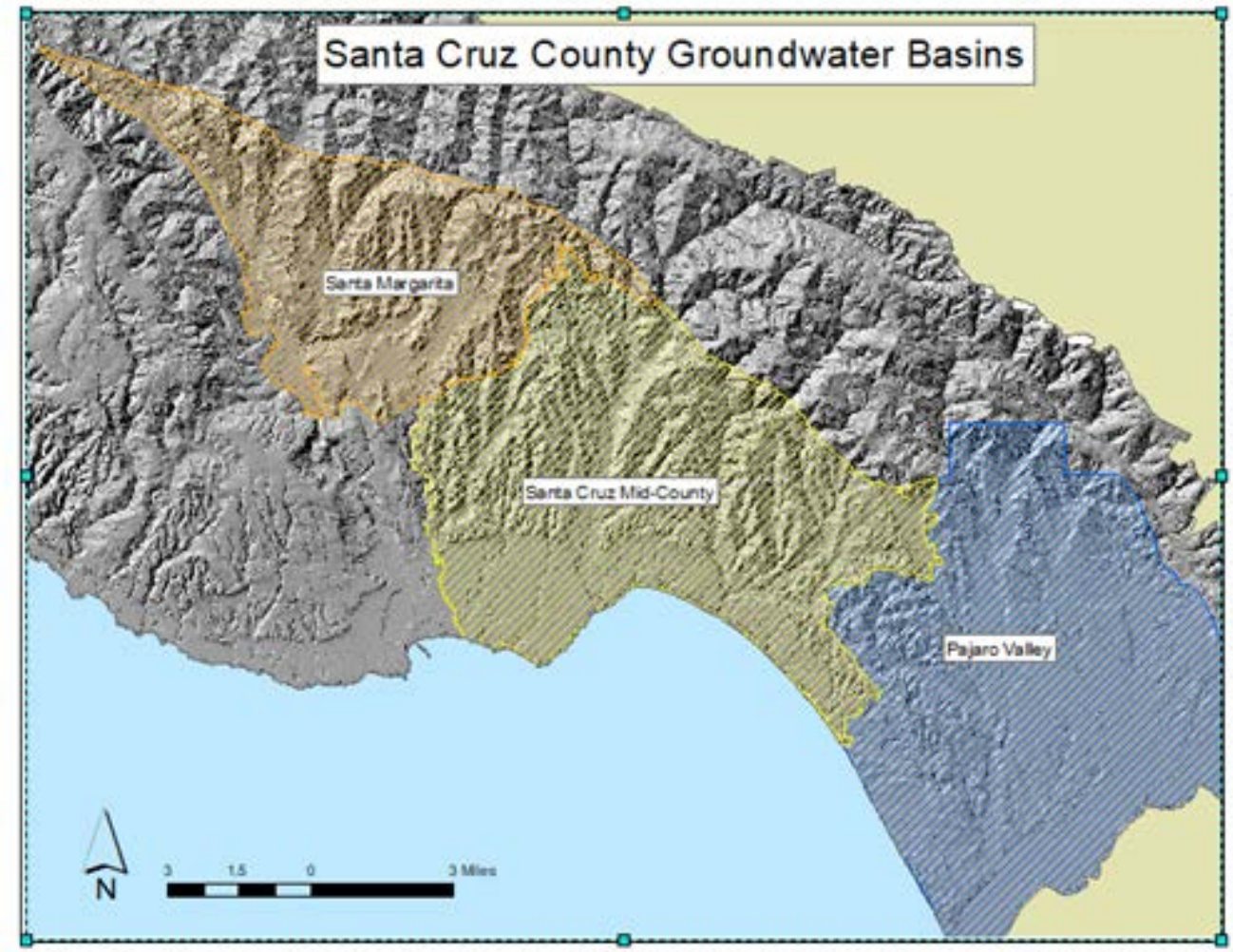
Figure 2-1: Geology of Santa Cruz County



2.1.1 Groundwater Basins

The three major groundwater basins in the County are being actively managed under the provisions of the Sustainable Groundwater Management Act (SGMA). Groundwater sustainability plans (GSPs) have been prepared for both the Pajaro Basin and the Santa Cruz Mid-County Basin. The GSP for the Santa Margarita Basin is due to be completed in 2022. County EH is a key partner to all three of the groundwater agencies governing the County's basins. PVWMA manages the Pajaro Basin that is shared by four counties including Santa Cruz, Monterey, San Benito and Santa Clara. PVWMA monitors water quality of its surface and groundwater sources. The California Department of Water Resources (DWR) designated this basin as being critically overdrafted.

Figure 2-2: Santa Cruz County Major Groundwater Basins



2.1.2 Domestic and Municipal Wells

OWTS discharge a plume of water into the subsurface that contains high concentrations of nitrogen, pathogens and other potential pollutants. The concentration of pollutants declines with distance and time of travel as biological treatment, filtration and dilution occur. A pumping well located too close to an OWTS may draw that plume of untreated water into the pumping well, degrading the quality of water produced. The potential for pollution is greater where wastewater effluent is discharged deeper into the subsurface through seepage pits. In order to prevent groundwater pollution, an adequate setback between wells and OWTS is required. Santa Cruz County Code has required a basic setback of 100 feet, which is expanded to 150 feet between seepage pits and public water system wells, and a minimum separation of 250 feet for a conventional OWTS located in fast percolating soil with a groundwater separation of less than 20 ft.

Increased setbacks to public water supply wells will now be required, as provided in the State OWTS policy:

1) 150 feet from a public water well where the depth of the effluent dispersal system does not exceed 10 feet in depth.
2) 200 feet from a public water well where the depth of the effluent dispersal system exceeds 10 feet in depth.
3) Where the effluent dispersal system is within 600 feet of a public water well and exceeds 20 feet in depth the horizontal setback required to achieve a two-year travel time for microbiological contaminants shall be evaluated and determined by a qualified professional. However, in no case shall the setback be less than 200 feet, where the dispersal depth exceeds 20 feet.

If any OWTS failure is found to occur within the above setbacks then the County EH staff will notify the operator of the affected public water system well and the State Board, Division of Drinking Water by telephone or email within 24 hours or no later than 72-hours. The water system will also be notified whenever an application is received for a new or replacement OWTS within the setback buffer of their well. The operator will be given a minimum of 10 business days to comment on the application. The County Geographical Information System (GIS) has spatial data on all public water supply wells and the County has contact information for all public water supply well owners. There are presently 170 public water supply wells that provide potable water to approximately 105 water systems in the County that serve more than 14 connections or that are non-community public systems. The County GIS also includes water supply well spatial data for another 30 state small systems with 5-14 connections.

The increased setbacks would likely prevent the elevated nitrate concentrations that have been detected in municipal supply wells in La Selva Beach, as indicated in Figure 2-5. There are three OWTS located inside the previously required 150-foot buffer, and there are many OWTS within the new 200 feet and 600-foot buffers. These OWTS utilize seepage pits for disposal, which are over 20 feet deep in fast percolation soils. Any future repair or replacement of those OWTS will require use of enhanced treatment systems at a minimum.

In addition to the public supply wells, there are an estimated 8,000 properties served by individual private domestic wells in rural areas of the County. Wastewater disposal for all of these properties is accomplished by OWTS. In most cases, these occur on relatively large lots that were developed individually over time. Since 1970, any new lot created must be at least one acre in size if it would be served by both an individual well and an individual OWTS. For older lots, the minimum parcel size with a water supply well is 15,000 square-feet (sf) and a 100-foot setback must be maintained between the well and the onsite dispersal system. Areas of higher density OWTS are served by public water systems and do not have onsite private water supply wells. There are several rural subdivisions in the rural Bonny Doon area, that have one acre lots with both individual private water supply wells and onsite disposal systems.

There are rare occasions with existing developed lots where it is not possible to maintain a 100-foot setback between an OWTS and a domestic well on the same property. Typically, this occurs on smaller lots, or lots with other site limitations and the only suitable locations for the domestic well and the disposal system are less than 100 feet apart. These situations become apparent

when either the domestic well or the disposal system needs to be replaced. If it is not possible to achieve separation, a number of measures are taken to reduce potential for impacts: 1) the existing domestic well will be tested to determine if there is any current impact from the disposal system, 2) the domestic well log will be reviewed to confirm presence of sanitary seal and subsurface conditions that would affect the potential movement of contaminants, 3) the replacement disposal system will be located no closer than the existing system, will be as shallow as possible, and may utilize an enhanced treatment system, 4) a new domestic well will utilize a 100 foot sanitary seal, 5) any old domestic well within the 100 foot setback will be properly destroyed, and 6) the property owner will sign an acknowledgement of the reduced separation and the need to have the domestic well periodically tested for any indication of pollution (nitrate and E. coli).

2.1.3 Advanced Groundwater Protection Management Program

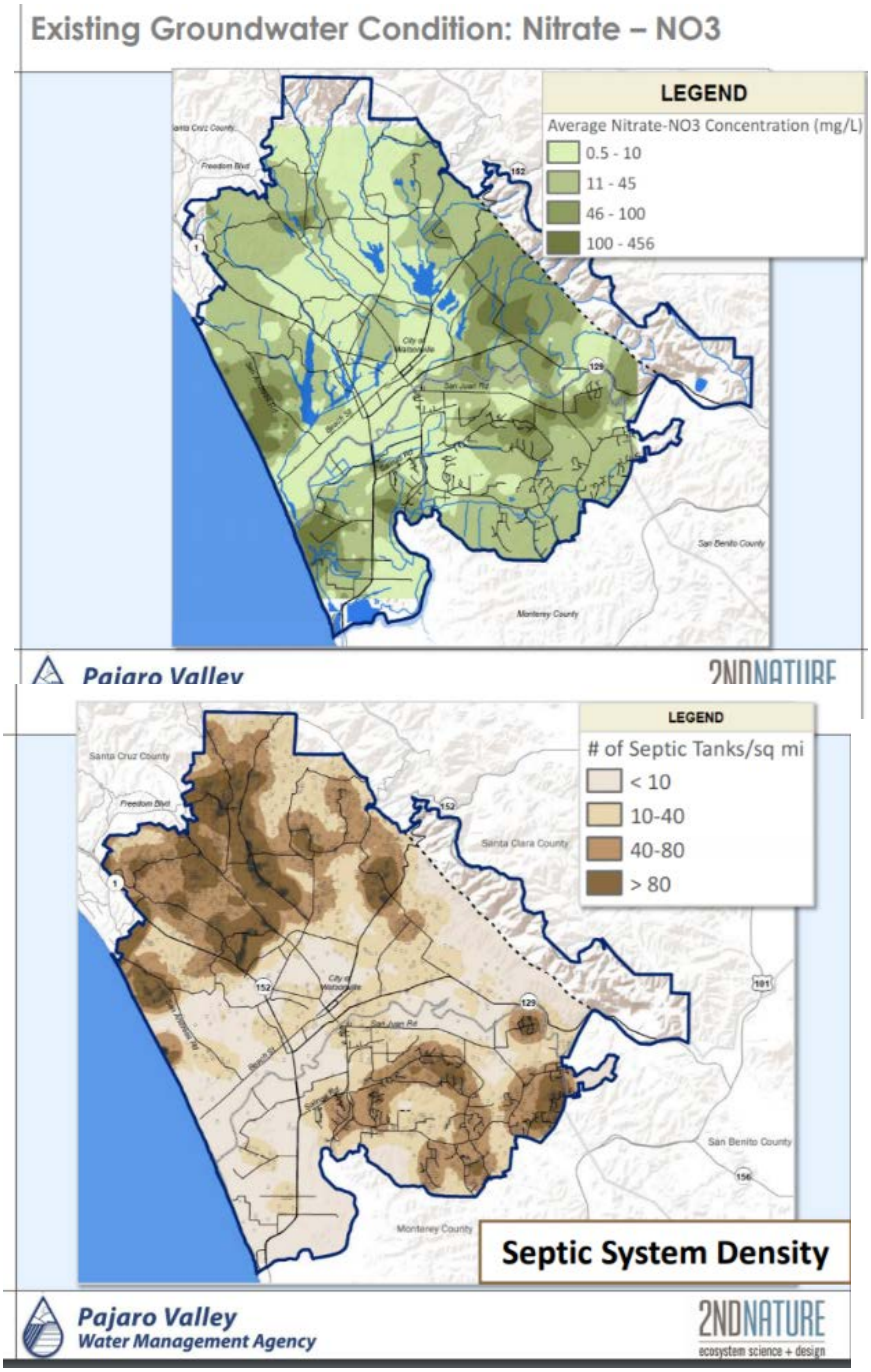
If at some point the County or Regional Board identifies a groundwater basin or sub-basin in Santa Cruz County where the use of OWTS is causing or contributing to significant degradation, the County will develop an Advanced Groundwater Protection Management Program (AGPMP) in close consultation with and approved by the Regional Board. During development of the AGPMP, the County and the Regional Board shall work together to identify the coverage area of the AGPMP (geographical area and site conditions where OWTS's are contributing to groundwater degradation). The AGPMP will require enhanced treatment for all new and replacement systems in such areas; mandatory, routine inspections and maintenance; connection to public sewers; shallow groundwater monitoring; or other appropriate actions. The enhanced treatment standards will be equivalent to Tier 3 requirements to the greatest extent practicable. The requirements for existing systems will be consistent with Tier 4 of the State OWTS Policy. The County will require conformance with current standards, including enhanced treatment standards, to the greatest extent practicable or as specified in the AGMP. Variances are not allowed for the requirements stated in sections 9.4.1 through 9.4.9 of the State OWTS Policy.

2.1.4 Nutrient and Salts Loading in Groundwater

OWTS are potential contributors of point source nitrate and salts to groundwater. As such, County EH and groundwater agencies track water quality of the three groundwater basins within Santa Cruz County. Of the three groundwater basins, only the Pajaro Basin is subject to significantly elevated levels of nitrate pollution from fertilizer, salt input from inland sources, and coastal seawater intrusion. The Pajaro Valley Water Management Agency (PVWMA) is utilizing recycled wastewater to address groundwater overdraft and has completed a Salt and Nutrient Management Plan (SNMP). Aside from seawater intrusion, salt and nutrients have not been identified as significant issues in the Mid-County GSP. The Santa Margarita Basin contributes significant baseflow to the San Lorenzo River, which is designated as impaired due to elevated nitrate concentrations. Nutrients in the Santa Margarita Basin are addressed through the San Lorenzo River Nutrient Total Maximum Load (TMDL). There are also some localized occurrences of elevated nitrate from OWTS in highly permeable soils.

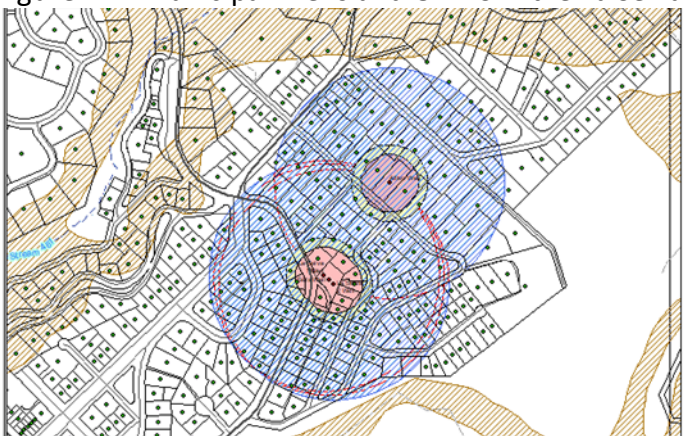
PVWMA developed its SNMP in 2016. Salt from seawater intrusion, and nitrate from agricultural fertilizer are the two primary water quality constituents of concern for Pajaro Basin groundwater. OWTS were determined to be less than 4% of the source of the aquifer's nitrate levels. According to a 2015 PVWMA study, the sources of nitrate pollution for the Pajaro Valley Groundwater Basin aquifer include: 87% agricultural, 5% stream runoff, 4% sewer leakage, and 4% septic systems. (Figure 2-3, PVWMA Salt and Nutrient Management Plan July 2, 2015).

Figure 2-3: Nitrate Levels and Sources of Nitrate in the Pajaro Groundwater Basin



Both Mid-County and Santa Margarita have experienced some localized occurrence of elevated nitrate from OWTS. In Mid-County, one municipal well has had nitrate levels approach drinking water standards and has been taken out of service (Figure 2-4). This well is located in the densely developed La Selva Beach area, with sandy soils, small lots and extensive use of seepage pits for onsite wastewater disposal. It appears that the well in question has at least three OWTS located within 150 feet, eight OWTS within 200 ft and 22 OWTS within 600 ft (Figure 2-4). In the Quail Hollow area of the Santa Margarita Basin, several municipal wells are surrounded by development on one half acre lots in very sandy soils (Figure 2-6). In the mid 1980's the Quail Hollow wells experienced an increase in nitrate levels but have remained well below drinking water standards (Figure 2-7).

Figure 2-4: Municipal Wells and OWTS in the La Selva Beach Area



The Altivo well is to the north and the Sells well to the south. Inner buffer is 150 ft and outer buffer is 600 ft. Black dots are parcels with OWTS.

Figure 2-5: Nitrate Levels in La Selva Beach Wells, mg-N/L

Sells Well, 1984-2010

Altivo Well, 1985-2019

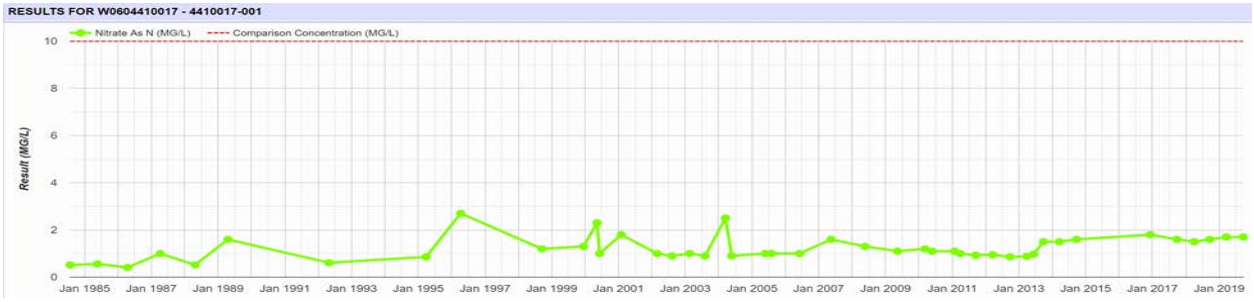


Figure 2-6: Quail Hollow Well Locations and OWTS (Dots)

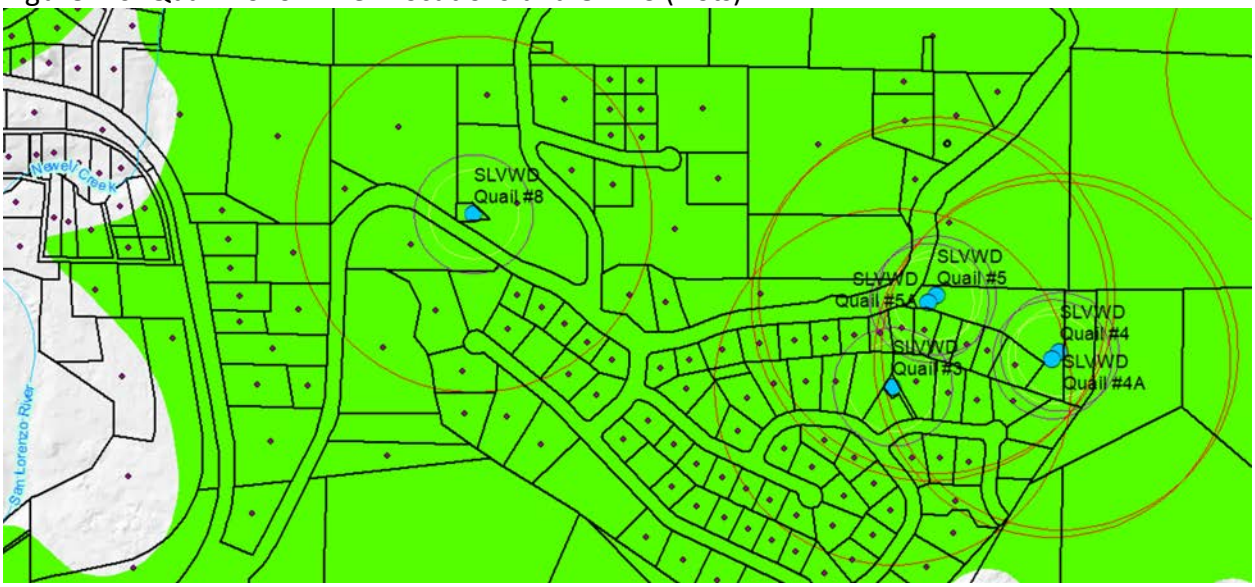
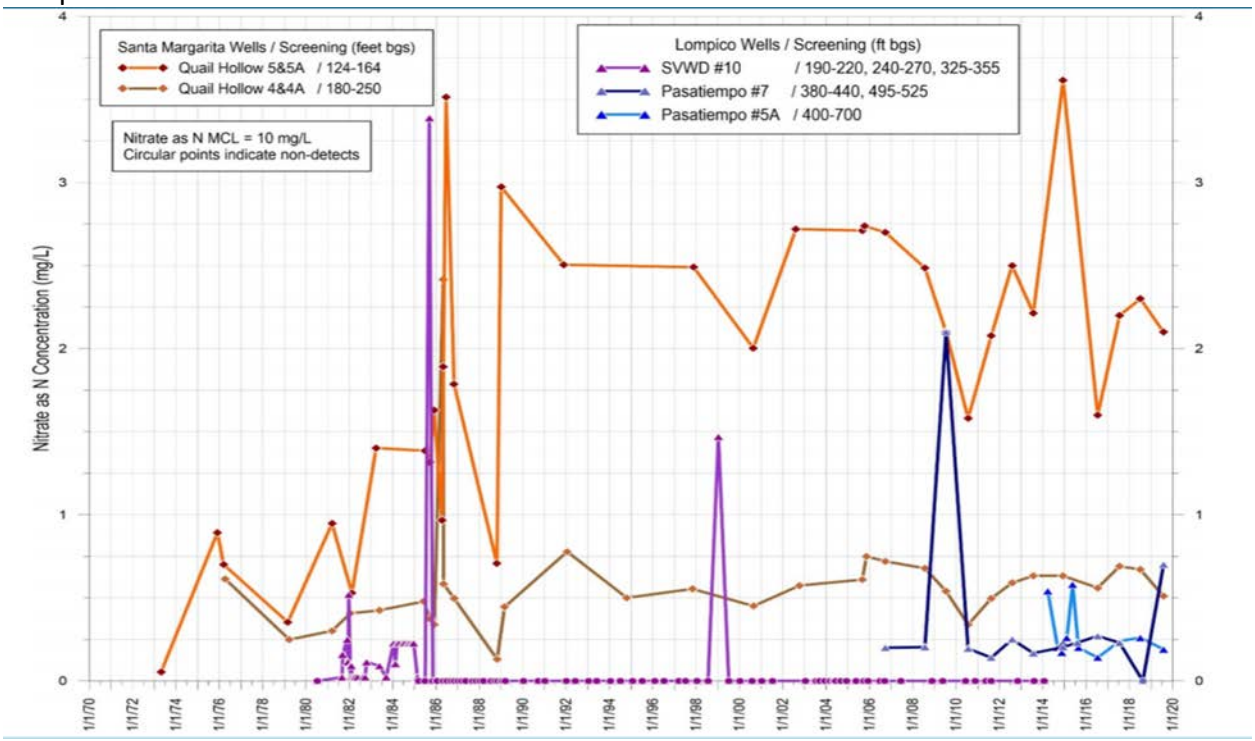


Figure 2-7: Nitrate Trends in Selected Santa Margarita Basin Wells, 1973-2020
Quail Hollow Wells, Santa Margarita Formation; and the Camp Evers/ Pasatiempo Areas Wells, Lompico Formation



Source: Montgomery and Associates, 2020

Santa Cruz County has required testing for nitrate, total dissolved solids, chloride, iron and manganese, for all new wells drilled since 2010. The new well data shows no significant nitrate pollution exceeding drinking water standards. Out of 257 wells, only 4 had values between 5.0 and 10 mg-N/L and only 25% had values between 5 and 1 mg-N/L. The State Groundwater Ambient Monitoring (GAMA) shows a similar pattern, with high nitrate levels only occurring in agricultural areas, and somewhat elevated levels in highly permeable soils.

Figure 2-8: Nitrate Measured in New Wells, 2010-2019.
Agricultural and turf parcels shown in yellow, highly permeable soils in green

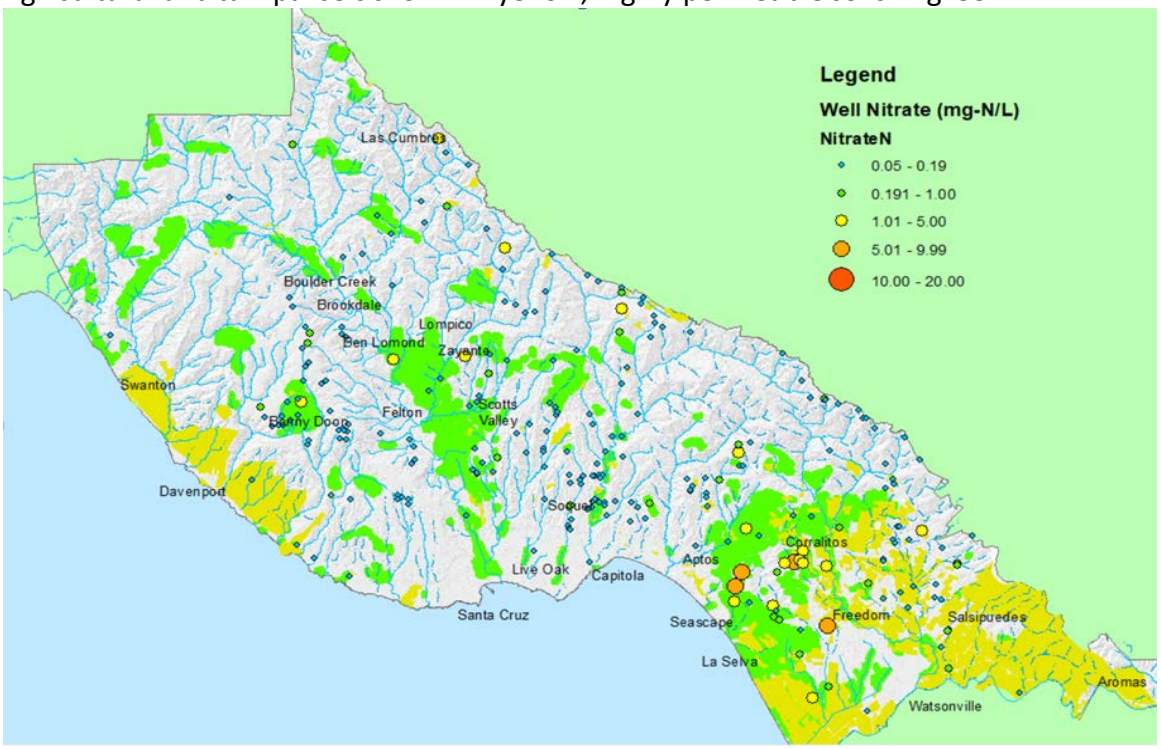
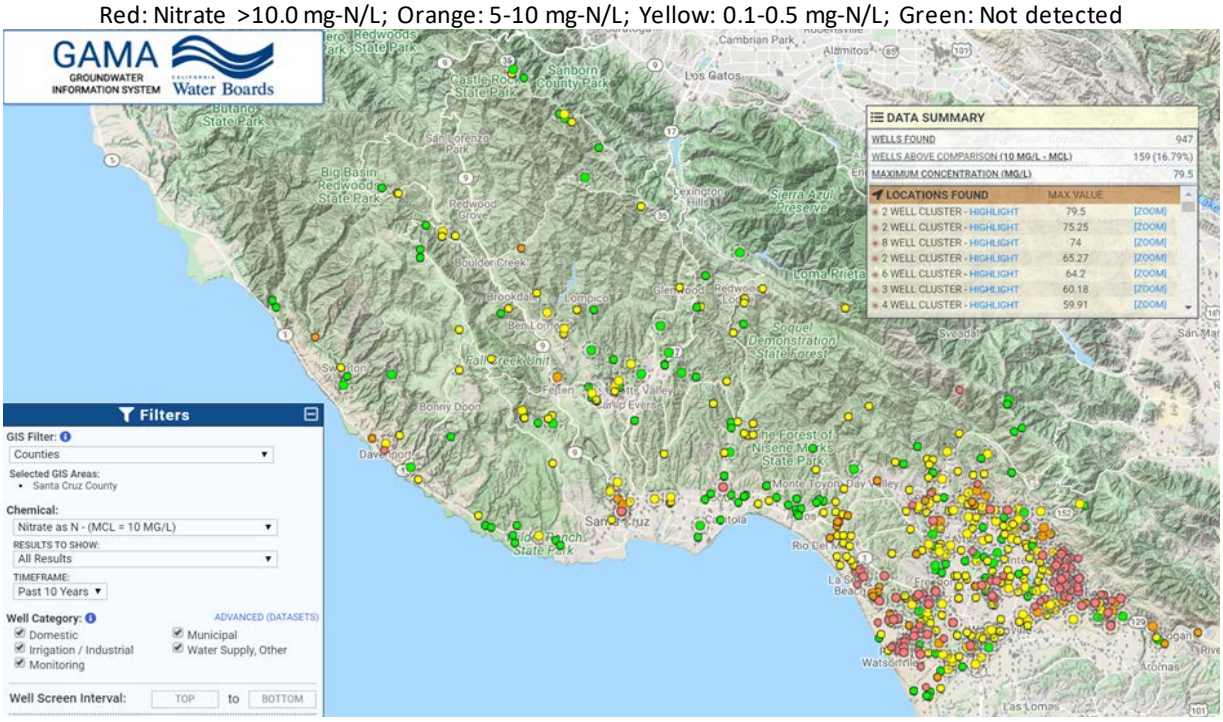


Figure 2-9: Nitrate Levels reported in State GAMA database, 2009-2019

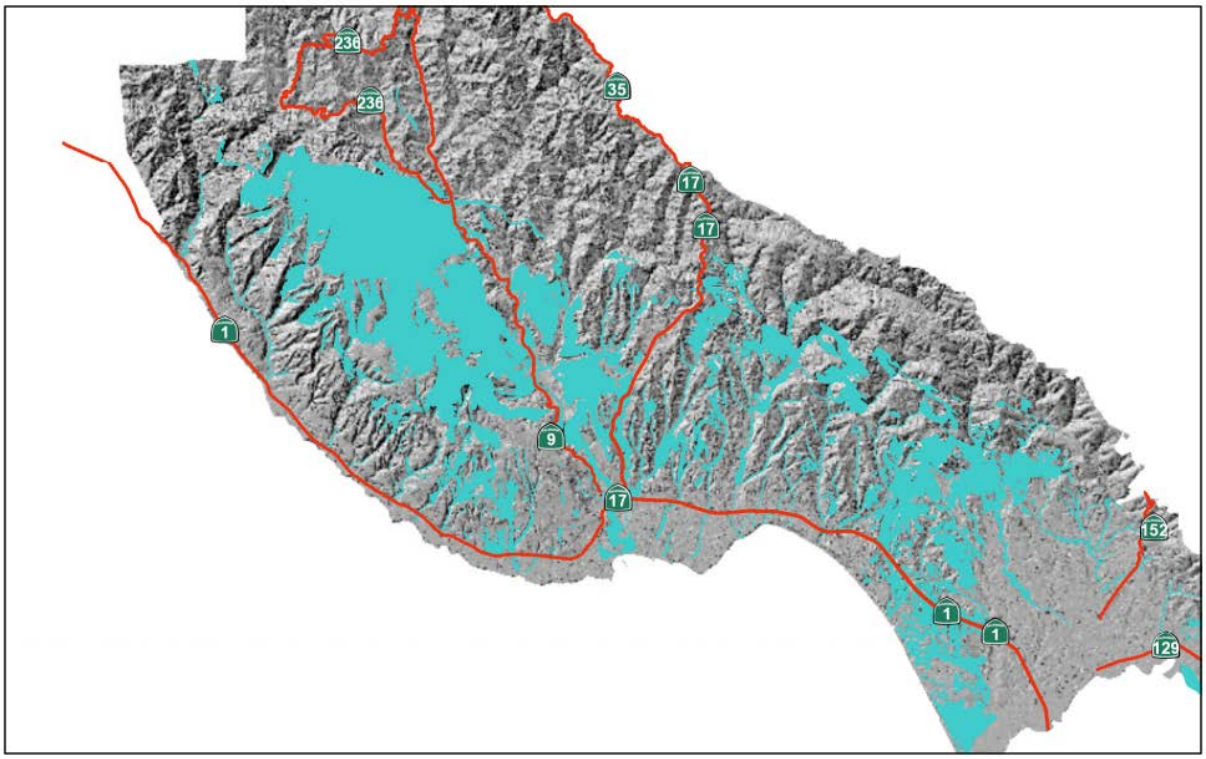
Red: Nitrate >10.0 mg-N/L; Orange: 5-10 mg-N/L; Yellow: 0.1-0.5 mg-N/L; Green: Not detected



2.1.5 Groundwater Recharge

The County has long recognized the importance of protecting the quantity and quality of waters recharging the county's groundwater basins. Primary groundwater recharge areas were mapped where moderately to highly permeable soils overlie important water bearing aquifer formations (Figure 2-10). The County established General Plan policies and provisions in the Santa Cruz County Code to protect recharge areas and to regulate wastewater disposal and other land uses overlying recharge areas. The objectives and effects of these policies is to maintain the quality and quantity of percolating waters. The County also recognizes the value of maintaining good quality groundwater recharge derived from the treated wastewater passing through OWTS. It is estimated for the Mid-County Groundwater Basin that 90% of the wastewater from properties served by OWTS returns to groundwater basin as recharge. Of the 1,000 af/yr pumped by inland private domestic wells, 400 af/yr is recharged back to the basin (SCMGA, 2019). Similarly, in the San Lorenzo Watershed it has been estimated that on average, 50% of the water used returns to the groundwater through OWTS (SCCHSA, 1995).

Figure 2-10: Primary Groundwater Recharge Areas in Santa Cruz County



2.1.6 Fractured Bedrock and Karst

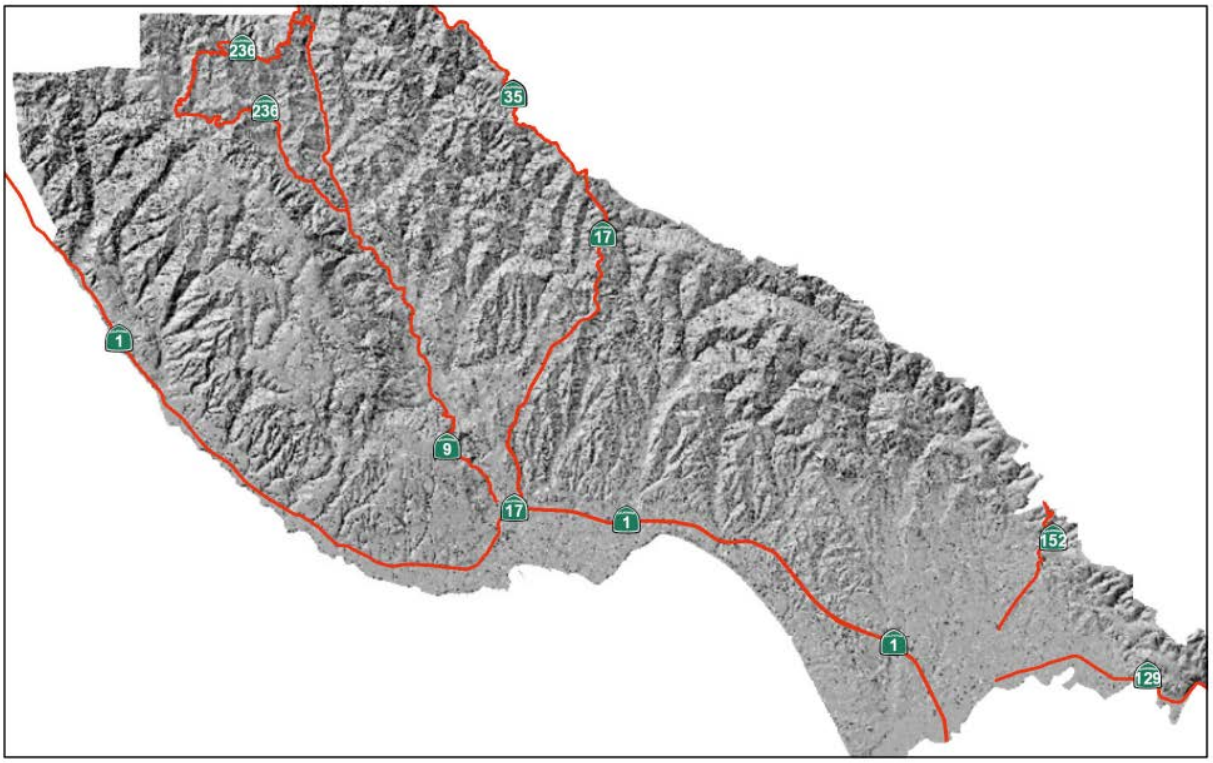
Where onsite wastewater disposal takes place in a location with limited soil depth over fractured bedrock, there is potential for the effluent to move rapidly for great distances with little treatment, resulting in groundwater pollution and/or surface water pollution where the water may exit the ground in springs or stream discharges. This is particularly a concern in karst areas underlain by marble or limestone. Karst occurs in some locations on Ben Lomond Mountain and karst springs are substantial sources of municipal water supply for the town of Felton and for the City of Santa Cruz from sources in the North Coast watersheds. The City of Santa Cruz and County embarked on a project to better map karst areas so that proper precautions could be taken in locating OWTS and other land uses that might contribute to pollution. Marble deposits and karst springs are now indicated in the County GIS and in the septic constraints layer. Provisions are being added to the County General Plan and Santa Cruz County Code Chapter 7.38, Sewage Disposal, to require geologic site evaluation if karst features are present and proper design to prevent adverse impacts of wastewater disposal. There is also a general provision to prohibit installation of a leachfield in fractured bedrock, wherever that may be found to occur. It has been seen occasionally, but rarely, in areas of Santa Cruz Mudstone and other hard sandstone or shale formations. In most cases underlying bedrock is deeply weathered as a result of the high rainfall and dense vegetation of the Santa Cruz Mountains. Presence of fractured bedrock would be identified on a case-by-case basis by soil observations and excessively rapid percolation test results.

2.1.7 Steep Slopes and Slope Stability

Over three quarters of Santa Cruz County is considered mountainous, with relatively narrow valleys, steep hillslopes, and mostly narrow ridgetops. Much of the geology is unstable and subject to slope failure and landsliding. OWTS cannot be located on excessively steep slopes due to construction challenges and threat of inducing further instability by introducing liquid into unstable slopes. There is also some concern of increased potential for effluent moving laterally and seeping out of steep slopes, although this has rarely been observed in Santa Cruz due to the prevalence of very deep soils. There are areas in mid-county where presence of clay lenses in the Aromas formation have caused localized saturation and slope failure even on slopes less than 30%.

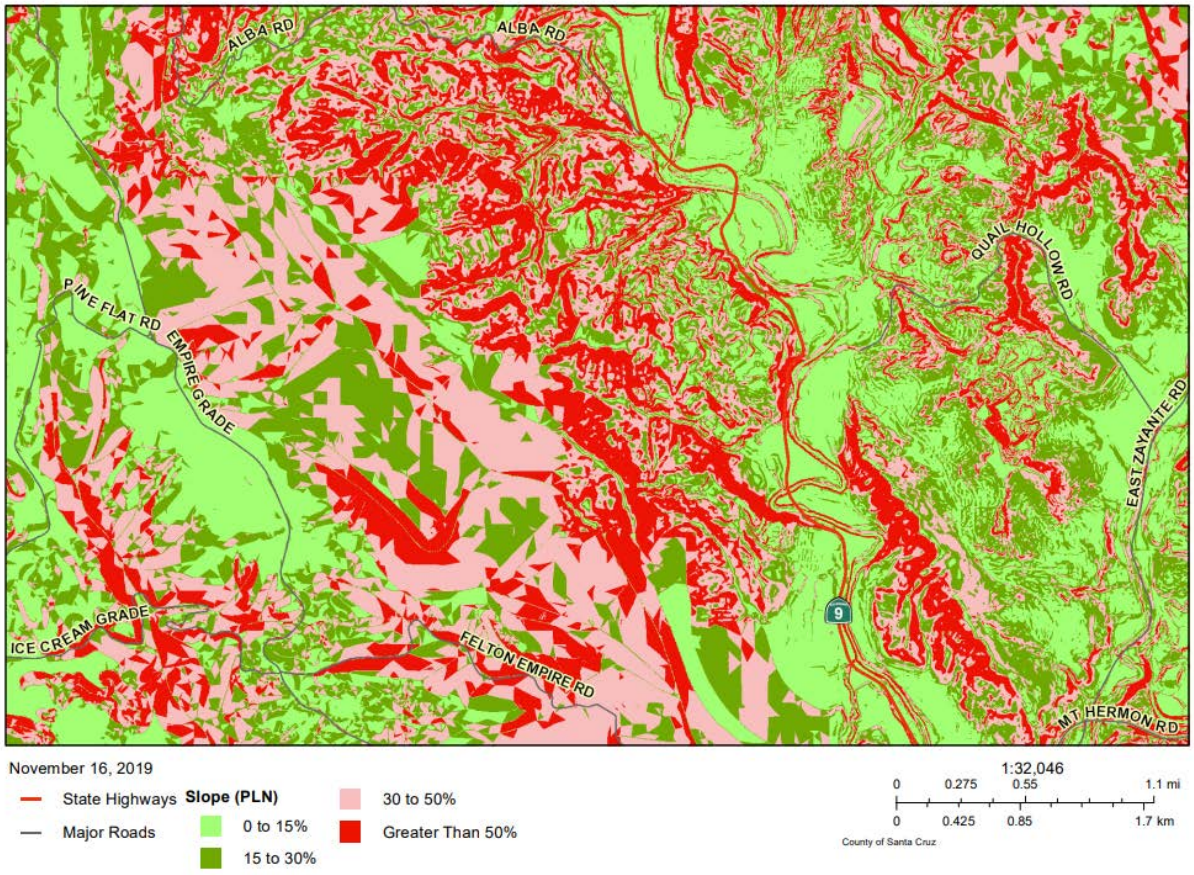
County code presently prohibits installation of OWTS to serve new development on slopes steeper than 30% but allows OWTS for repairs and replacements on slopes up to 50%. Systems cannot be placed in areas where grading was done to meet the slope requirements. Code also requires a safe setback from the edge of a steep slope, cut or embankment. Of the 28% of the records in the database that have information on slope in the area of the dispersal system 60% have slope less than 10%, 10% have slope 10-15%, 20% have slope15-30%, 7% have slope of 31-50%, and 3% are on slopes over 50% slope. Only 6% of the records indicate an embankment near the dispersal system requiring a set-back.

Figure 2-11: Steep Topography of Santa Cruz County



County EH staff work with the County Geologist and Environmental Planning staff to identify areas where slope stability is a concern and to review geologic reports addressing the necessary OWTS location and design to minimize impact on slope stability. Such reports will now be required whenever an OWTS is proposed on a slope over 30% and in other situations where there is evidence of other soil stability concerns. Slopes are assessed based on the 10-meter Digital Elevation Model incorporated in the County GIS. In the field, slopes are measured using clinometers and site-specific topographic surveys of each property. An example of the GIS slope map is shown below for the area northwest of Felton.

Figure 2-12: Example of County Slope Map for Area Northwest of Felton



2.2 Soils

Suitable soil is one of the most important aspects of OWTS design. The soil must be able to absorb and treat the effluent, eliminating pathogens before the effluent percolates to groundwater or downgradient surface water. Soil characteristics are a function of underlying geology, topography, climate and vegetation. Soils typically consist of an upper A horizon typically 12-18 inches deep rich in decaying plant material, organisms, and organic material. The deeper B horizon may extend to 3-6 feet below the surface, with less organic material and more clay, but with the presence of tree and shrub roots. The deeper C horizon transitions into weathered bedrock, which is frequently soft and permeable to a depth of 10-20 feet.

A U.S. Department of Agriculture Soil Conservation Service *Natural Resources Conservation Service* (USDA-NRCS) report - 'Soil Survey of Santa Cruz County, CA' (USDA-SCS, 1980) characterizes 84 soils classifications for Santa Cruz County. The soils information is accessed as a data layer in the County's GIS database that is viewed in conjunction with OWTS information for each parcel countywide. Most of the soils in Santa Cruz are very deep as a result of the high rainfall and dense vegetation cover, but there are localized occurrences of soils that may be thin, sandy or clayey, depending on the underlying geology. Because most soils in Santa Cruz County are relatively deep and consistent, a typical absorption trench for wastewater disposal is installed with the bottom of the trench at four feet, with 12 to 18 inches of cover over the top of the trench. Trenches may be

installed deeper if there is limited area on the site and/or if the soil conditions are more suitable at greater depths.

Figure 2-13: Example of a Soil Observation Pit, Zayante Coarse Sand

Prior to 1992, the standard disposal trench depth was 8-12 feet below the surface in most areas of the county if there was not a concern for presence of shallow groundwater. The use of the deeper trenches, with dispersal well below the shallow root zone, has contributed to the recharge of the groundwater basins from OWTS discharge. One of the trade-offs of moving to shallow dispersal systems will be the reduction of wastewater return flow contributing to groundwater recharge.

Soil permeability is a critical consideration for managing wastewater treatment and dispersal in OWTS. Santa Cruz County uses standardized USDA hydrologic soil classification[6] that ranges from high permeability, low runoff potential (Group A) to low permeability, high runoff potential (Group D) to determine dispersal area is needed for an OWTS (Figure 2-14):

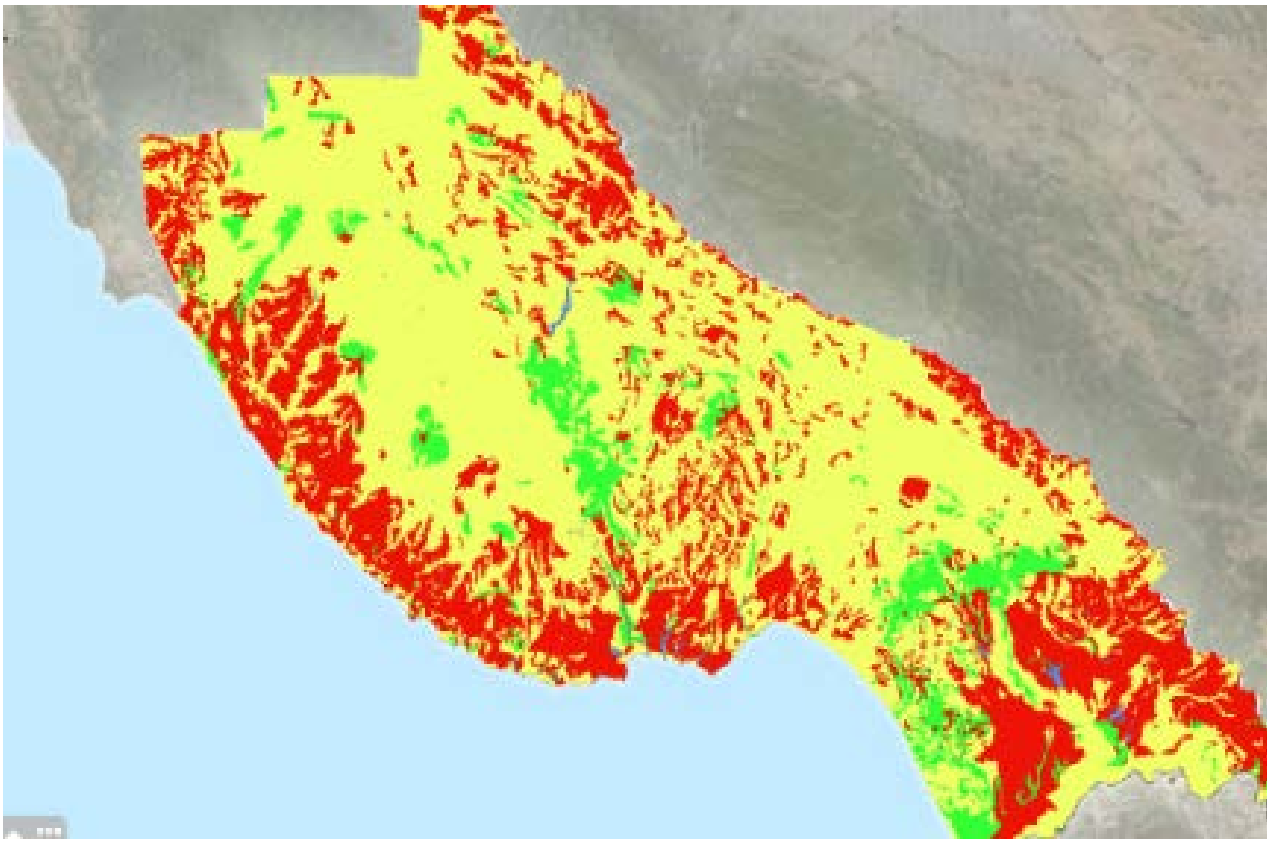
- Fast permeability sandy soils (percolation rate faster than 5 minutes per inch (MPI), permeability 6-20 inches/hour), hydrologic group A
- Moderate permeability loams (percolation 5-30 MPI, permeability 0.2-6 in/hr) hydrologic group B
- Slow permeability clayey soils (slower than 30 MPI, permeability less than 0.2 in/hr) hydrologic group C and D

In Santa Cruz County, OWTS have been sized based on the soil percolation category and the number of bedrooms and/or projected wastewater flow. A review of available data for installed or proposed OWTS in Santa Cruz County indicates the percentage of parcels with soils of various percolation categories:

- 0.1% - faster than 1 MPI
- 12.9% - 1-5 MPI
- 76.3% - 5-30 MPI
- 9.5% - 30-60 MPI
- 1.0% - 60-120 MPI
- 0.2% - slower than 120 MPI (unsuitable)

[6] https://directives.sc.egov.usda.gov/OpenNonWebContent.aspx?content=17757.wba

Figure 2-14: Soil Permeabilities Based on Hydrologic Group



Green: Very Permeable (Hydro Group A), Fast Percolation Rate (<5 minutes per inch (MPI))
Yellow: Permeable (Hydro Group B), Medium Percolation (5-30 MPI)
Red: Low to Very Low Permeability (Hydro Groups C/D), Slow to Very Slow Percolation Rate (>30 MPI)
Source: County GIS and USDA-SCS, 1980

To consider soil percolation rates for OWTS permits, the SC County Inspector conducts office research for soil maps, historical percolation tests, field observations and notes, and on-site inspection in the field to evaluate the soil conditions. File and database research, together with field inspection and testing, informs a general characterization of the soil's percolation rate for determining the leachfield size. Soil suitability for wastewater disposal is determined by a combination of reviewing soil maps, percolation test results, exploratory excavation soil logs and soil structural and textural characteristics. Laboratory analyses of soil texture may be required by the Health Officer. Percolation rate alone shall not determine soil suitability. Soil texture shall determine soil suitability where percolation test results are unclear or nonrepresentative.

2.2.1 Shallow Soils

Treatment of effluent is most effective in aerated followed by anaerobic soil conditions. It is thus important to have adequate soil depth beneath the horizon of disposal for percolation prior to the effluent reaching groundwater or an impermeable layer that can cause localized soil saturation or mounding. Saturated soils or mounding can occur where there is very shallow soil over hard bedrock, dense clay subsoil, or perched groundwater. Occurrence of perched groundwater is discussed in the following section on groundwater and poorly drained soils.

Given the generally deep weathering of soil and underlying bedrock in Santa Cruz County, there are few areas of extensive shallow soil. These conditions tend to on ridges of resistant rock where slopes are too steep for use of OWTS. Shallow soil depth also occurs on the Maymen and Boony Doon soil units that overly the Santa Cruz Mudstone geologic formation in the Pasatiempo and north coast areas. Some of the areas with hard sandstones also have localized areas of shallow soil, but deeper soils can often be found close by. Of the installation records, only 5% indicated an impervious layer less than 5 feet below the bottom of the dispersal field.

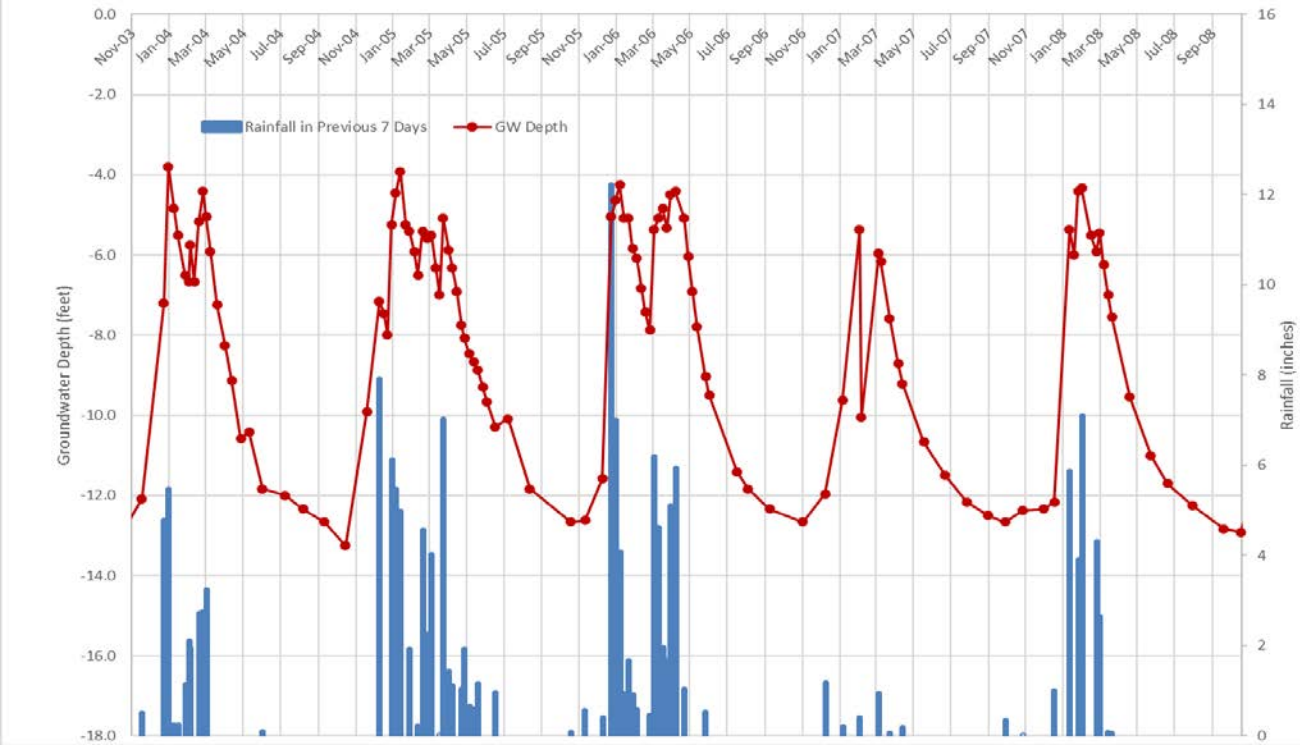
For undeveloped parcels or developed parcels with no subsurface soil information, soil excavation to a depth to at least the separation distances as provided in Table 3-4 below the bottom of the proposed dispersal system is required, and soils must be demonstrated to percolate at least 60 MPI within the first three feet below the dispersal system's point of dispersal. If acceptable soil depth is not adequate, the designer may propose an enhanced treatment system with improved effluent treatment and/or a shallower effluent dispersal system using pressurized drip, at-grade dispersal system, or mound technologies. All of these maintain at least 6-12 inches of soil cover over the dispersal system.

2.2.2 Poorly Drained Soils and High Groundwater

Treatment of effluent is not as rapid or effective in saturated soil conditions, and more time and distance of travel is needed for treatment and inactivation of potential pathogens such as viruses and bacteria. Soil saturation can also limit the absorption of effluent and lead to surfacing and discharge of untreated effluent, creating a public health hazard and degrading water quality. To prevent these adverse impacts, dispersal systems need to be located in soil zones that are not prone to becoming saturated, soils with an adequate percolation rate, and have an adequate separation to groundwater. Groundwater includes perched saturated zones, as well as the shallowest local hydraulically unconfined aquifer unit.

After steep slopes, the occurrence of shallow groundwater is probably one of the biggest constraints for locating OWTS in the county. Watsonville Loam, which occurs in 7% of the county on flat terrace deposits, tends to have perched groundwater during the winter. But elevated groundwater can occur during the winter with almost every other soil type, depending on topography and rainfall. Groundwater levels in Santa Cruz County often fluctuate over 20 feet from dry season to wet season. During extreme rainfall events, soils may be fully saturated for up to several days. Even though these soils experience transient saturation, most are well-drained with good permeability and can continue to absorb effluent and groundwater levels drop rapidly after the rains stop. An example of this is shown in the plot for one of the shallow monitoring wells (BC1) in downtown Boulder Creek for the period of 2004-2008, which included a wet winter (2006, 67.8 inches total annual rainfall) and a dry winter (2007, 25 inches total annual rainfall) (Figure 2-15). The average nitrate level in this well is 3.89 mg-N/L and the median level is 2.0 mg-N/L, based on 100 samples from 1988 to 2000.

Figure 2-15: Fluctuation of Groundwater in Response to Rainfall, Boulder Creek, 2004-2008 (BC1)



A study was conducted in 1981-82 to better understand the relationship between shallow groundwater, OWTS performance and water quality. Study participants collected 285 samples over two winters from 86 boreholes constructed at various distances downgradient from leachfields under various shallow groundwater levels. An analysis of the results showed no statistically significant occurrence of fecal coliform at distances greater than 25 feet from a leachfield, even when the leachfields were partially intruded by groundwater (Table 2-1, Figure 2-16). Within 25 feet, fecal coliform levels were statistically greater when leachfields were saturated, but that effect was not observed beyond 25 ft. All boreholes showed a significant increase in fecal coliform during rainfall events, but that also included control boreholes that were not under the influence of any nearby leachfields. Downgradient nitrate levels were actually higher when the leachfields were deeper and when there was greater groundwater separation (SCCHSA, 1989, An Evaluation of Wastewater Disposal and Water Quality in the San Lorenzo River Watershed). In this study, nitrate levels were much higher in sandy soils (mean of 3.06 mg-N/L) than in clay soils (mean of 0.83 mg-N/L). At distances greater than 25 feet from a leachfield, soil texture and permeability have a much greater influence on nitrate concentration than groundwater separation or horizontal setback.

County EH has made a strong effort to characterize areas subject to persistent, shallow, seasonal groundwater. File information includes observations of the date and depth of presence or absence of groundwater. In the San Lorenzo Valley, some 70 boreholes were drilled in 1986-88, and some 25 of these have been maintained for ongoing monitoring throughout the winter season.

Where high seasonal groundwater is suspected based on observed field conditions and/or file information, winter water table testing is generally required as a part of site analysis required for approval of a new OWTS to serve new development. The consultant is required to install several piezometers and make multiple observations over the wet season in order to characterize the range of groundwater occurrence. Winter water table observations will only be accepted if there has been at least 6 inches of rain in the previous 30 days AND at least 60% of the average annual rainfall has occurred. During the 2020 winter water table testing period, 35 parcels were subject to winter groundwater observations.

Table 2-1: Water Quality Results for Shallow Groundwater Monitoring Wells, 1981-82
Wells were downgradient of leachfields in various soil types in the San Lorenzo Valley.

FECAL COLIFORM DATA (MPN/100 ml)-- Logmean
Range
Number of Observations

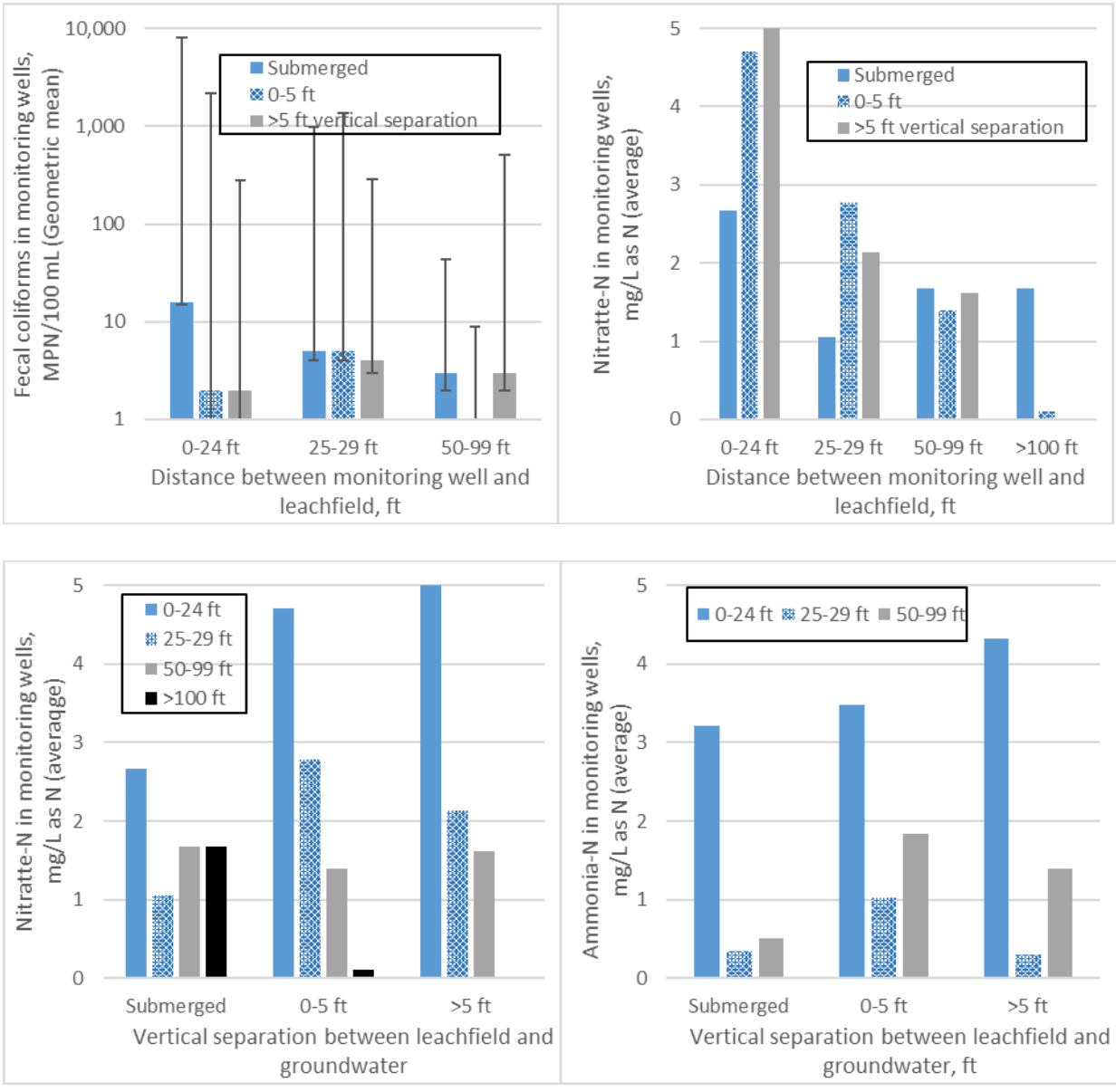
Separation of Leachfield from Groundwater	Distance of Monitoring Well from Leachfield		
	0-24 feet	25-49 feet	50-99 feet
Less than 0 feet (Submerged)	16 *** 0 - 8100 54	5 0 - 980 31	3 0 - 40 9
0 - 5 feet	2 0 - 2182 21	5 0 - 1360 21	1 0 -8 19
Greater than 5 feet	2 0 - 280 11	4 0 - 280 7	3 0 - 509 19

NITROGEN DATA (mg-N/L): Nitrate: Mean (Maximum)
Ammonia: Mean (Maximum)

Separation of Leachfield from Groundwater	Distance of Monitoring Well from Leachfield			
	0 -24 feet	25 - 49 feet	50 -99 feet	over 100 feet
Less than 0 feet (Submerged)	2.67 (21.9)*** 3.21 (42.1)***	1.06 (8.5) 0.35 (4.8)	1.68 (8.4) 0.51 (2.3)	0.44 (1.54) 0.74 (2.5)
0 -5 feet	4.71 (41.8)*** 3.48 (48.3)***	2.78 (34.3) 1.03 (11.2)	1.39 (12.1) 1.84 (17.4)	0.11 (0.2) 0.12 (0.23)
Greater than 5 feet	5.05 (16.0)*** 4.33 (36.9)***	2.13 (8.7) 0.30 (0.96)	1.61 (9.8) 1.40 (9.3)	

*** Denotes groups with mean water quality parameters significantly different from other groups. Differences among undesignated groups are not statistically significant at the 0.05 probability level.

Figure 2-16. Graphical Summary of Shallow Monitoring Well Data Downgradient of Leachfield.
Fecal coliforms (geometric mean of samples from 1980-1981) and nitrate-N (average of samples collected from 1980-1981). Data represent about 200 samples; 48% of observations are from wells near submerged leachfields, 32% from wells near leachfields with less than 5 ft separation, and 20% of observations from wells near leachfields with over 5 ft vertical separation.



When system replacements occur outside of the winter water table testing period, the designer and EH staff estimate the expected groundwater level based on available groundwater information from surrounding parcels or from extrapolated groundwater information that has been developed for some parts of the San Lorenzo Valley. The EHLUIS database contains site information for approximately 15,000 of the OWTS in the county, including groundwater information for about half of those sites. Twenty percent of that information is based on direct

observations at the site and the rest is based on extrapolations from available data. Based on the information from sites with groundwater information, 6% have seasonal groundwater less than 3 feet from the surface, 14% have groundwater at 3-6 feet, 37% have groundwater at 6-10 feet, and 22% have groundwater at 10-15 feet.

Once the expected highest level of persistent seasonal groundwater is established, the OWTS design must provide an adequate separation, or an enhanced treatment system may be proposed with shallow effluent dispersal technology and enhanced treatment to mitigate a reduced separation to groundwater. The County used to approve a minimum one-foot separation, but under the State OWTS policy, the County will not approve a separation less than 2 feet. Table 3-4 defines the allowed minimum distance to groundwater depending on site conditions.

2.2.3 Sandy Soils and Nitrate

OWTS located in sandy soils release higher concentration of nitrate to underlying groundwater and downstream waterways. This is due to the rapid permeability and rapid movement of effluent, aerobic conditions, and limited occurrence of saturated or anaerobic conditions that would lead to denitrification. Investigations in the San Lorenzo Watershed determined that OWTS in sandy soils contributed 10-15 times as much nitrate to the San Lorenzo River as OWTS in less permeable soils (SCCHSA, 1995b). Elevated nitrate levels have also been observed in other areas of the County with OWTS in sandy soils: Bonny Doon, Valencia Creek and La Selva Beach. Drinking water standards for nitrate have been exceeded in groundwater in La Selva Beach, although that may be partially attributable to past agriculture in the area, or to direct interception of a plume(s) from nearby seepage pits.

In order to prevent any increase in nitrate levels in the San Lorenzo River, which is a municipal drinking water source, enhanced treatment systems with nitrogen reduction are required for all new, repairs, and upgraded OWTS in sandy soils in the San Lorenzo Watershed. This requirement will be extended to other sandy soils areas in the county that show evidence of elevated nitrate levels from OWTS discharge in groundwater or surface water.

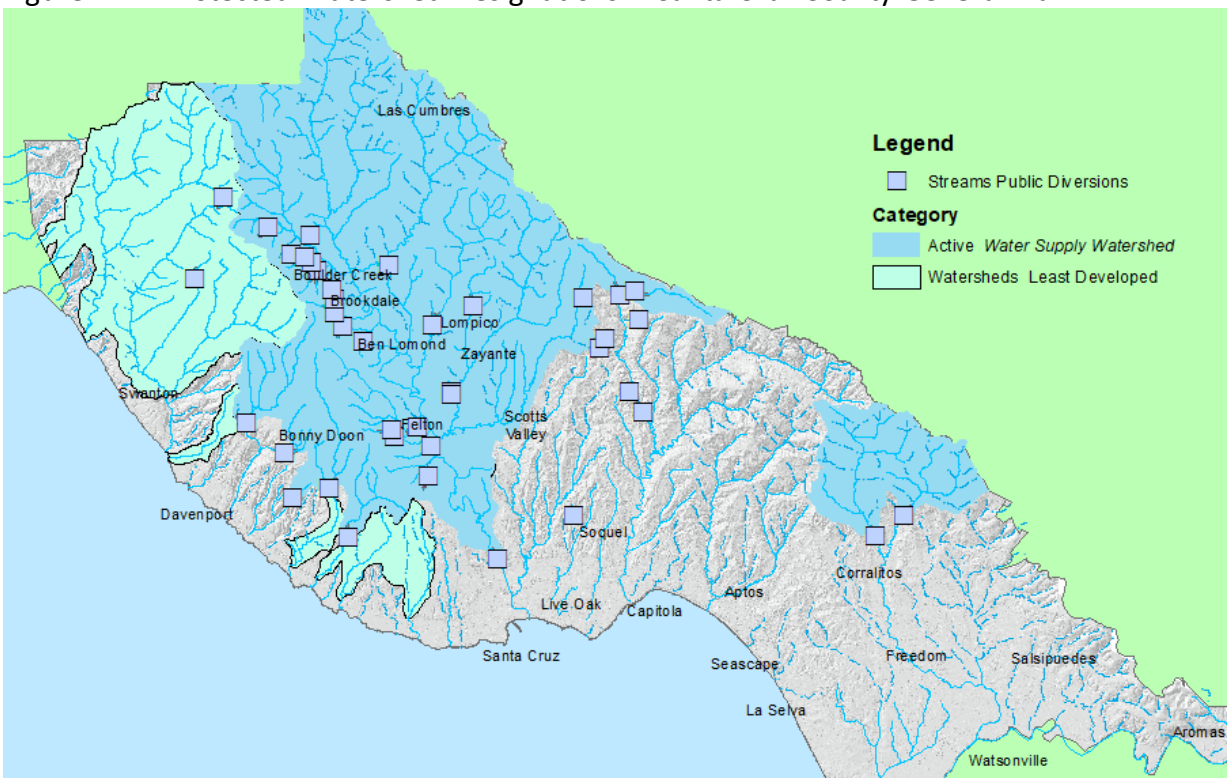
2.3 Surface Water and Watersheds

Santa Cruz County has a number of important surface water bodies and watersheds and multiple interrelated policies and regulations to protect and improve surface water quality relative to operation of existing and new OWTS. The City of Santa Cruz relies on surface water for 95% of its supply and the San Lorenzo Valley Water District obtains on average about 50% of its supply from surface water. Additionally, virtually all county streams support recreational use and threatened salmonid habitat. Some streams have been designated as impaired, in some cases due to OWTS, and programs are being implemented to protect and improve water quality.

2.3.1 Water Supply Sources and High-Quality Waters

The County of Santa Cruz General Plan designates water supply watersheds and least distrubed watersheds, and establishes numerous policies and programs for their protection and improvements. Many of these policies involve wastewater disposal and are carried over into Santa Cruz County Code. For new construction, the County has established limits that specifically protect water resources in terms of proximity to floodplains, groundwater recharge areas, and water supply watersheds for drinking water. These water resource protections prevent potential impacts from OWTS. In particular, two limits to parcel size establish protections for drinking water (Figure 2-17).

Figure 2-17: Protected Watershed Designations in Santa Cruz County General Plan



- Water Supply Watersheds: To protect countywide water resources, the County General Plan requires a 10-acre minimum for creating new parcels in watersheds that supply drinking water. These areas include most of the San Lorenzo, North Coast and Corralitos watersheds. In the San Lorenzo and North Coast water supply watersheds, new development using OWTS is prohibited on existing parcels less than one acre in size, leaving many existing parcels unbuildable. The area within 1 mile upstream of the north coast water supply intakes is designated as a "Water Quality Constraint Area" and a 2.5-acre minimum parcel size is required for new development on existing parcels.

- Least Disturbed Watersheds: The County's 'Least Disturbed Watershed' (Least Developed) designation establishes a 40-acre minimum limit to parcel size for new parcels in certain areas to protect "clear and running streams."

Additional requirements are added for the operation and repair of existing OWTS located within close proximity to water supply intakes:

- Where the effluent dispersal system is within 1,200 feet from a public water systems' surface water intake point, within the catchment area and upstream of the intake point, the dispersal system shall be located more than 400 feet from the high-water mark of the stream.
- Where the effluent dispersal system is located more than 1,200 feet but less than 2,500 feet from a public water system's surface water intake point, within the catchment area and upstream of the intake point, the dispersal system shall be located more than 200 feet from the high-water mark of the stream.
- For replacement OWTS that do not meet the above horizontal separation requirements, the replacement OWTS shall meet the horizontal separation to the greatest extent practicable. In such case, the replacement OWTS shall utilize enhanced treatment and other mitigation measures, unless the Health Officer finds that there is no indication that the previous system is adversely affecting the public water source, and there is limited potential that the replacement system could impact the water source based on topography, soil depth, soil texture, and groundwater separation.
- For new OWTS, installed on parcels of record existing as of May 13, 2013, that cannot meet the above horizontal separation requirements, the OWTS shall meet the horizontal separation to the greatest extent practicable and shall utilize enhanced treatment for pathogens so that effluent from the enhanced treatment does not exceed a 30-day average total suspended solids of 30 mg/L and shall further achieve an effluent fecal coliform bacteria concentration less than or equal to 200 Most Probable Number (MPN) per 100 milliliters and any other mitigation measures prescribed by the Health Officer.

The County GIS has all of the public water system surface intakes mapped (Figure 2-17), along with the required setback zones described above. If County EH staff become aware of any OWTS failure within those zones then they will notify the operator of the public water system and the State Board, Division of Drinking Water by telephone or email within 24 hours or no later than 72-hours upon knowledge of OWTS failure. The public water system operator will also be notified in the event that an application is received for a new or replacement OWTS within the setback buffer of the intake and will be given a minimum of 10 business days to comment on the application.

2.3.2 Impaired and Vulnerable Surface Water

This LAMP is intended to address OWTS that are contributing to impairment of county waterbodies due to pathogens or nutrients. Impaired surface waters are those waterbodies that have been formally designated as impaired pursuant to Section 303(d) of the Clean Water Act. For these surface waters, the presence of some contaminant has caused water quality degradation to the point that it is threatening a beneficial use of that waterbody. Vulnerable surface waters are waterbodies near points of wastewater discharge that may become impaired if pollution control

measures are not enforced. While there are a number of designated impaired waterways in Santa Cruz County, other waterbodies could be considered vulnerable, and programs should be in place and enforced to provide vital water quality protection.

Once a waterbody is listed as impaired, a Total Maximum Daily Load (TMDL) is developed for that waterbody. A TMDL establishes the maximum amount of a pollutant allowed in a waterbody, determines the sources of those pollutants, and establishes numeric targets to reduce or eliminate impairment. The TMDL also includes an implementation plan and serves as the starting point or planning tool for restoring water quality. Multiple waterbodies in Santa Cruz County are considered impaired and are included on the federal 303(d) list of impaired waterbodies. Several TMDLs have been developed and others are planned for the future, with a focus on mitigating sediment, pathogens, and nutrient loading to impaired water bodies. Table 2-2 ranks the significant controllable sources of impairment for each waterbody, as indicated by the Regional Board in the TMDL staff reports with loading calculations for various sources.

Table 2-2: Summary of Impaired Waterbodies and Pollutant Sources Within Santa Cruz County
For listing of specific water bodies in each watershed, see the Section 303(d) List.

Sources, in order of importance, with 1 the most important, when determined. ND= Not Determined										
Water Body	Constituent	MS4, Urban lands	Sewers and Laterals	Home-less	Pets	Live-stock	Onsite Systems	Agricul. Manure Fertilizer	Landfill runoff	Extent of Impairment
Aptos/Valencia Creek	Pathogens	1	3	ND	2	4	ND	ND	ND	Aptos downstream of Valencia Cr, Valencia Cr. downstream of Cox Rd and Valencia Rd, Trout Gulch
Corralitos Cr	Pathogens	1	6	2	3	4	5	ND	ND	Downstream of Browns Valley Rd and Salsipudes Cr.
Pajaro River	Fecal Coliform	1	3	ND		2	ND	ND	ND	Pajaro River
Pajaro River	Sediment	Yes						ND	ND	Pajaro River and Corralitos Cr.
Pajaro River	Nitrate/ Nutrients	2	3			3		1	ND	Various streams in Pajaro Watershed
Pinto Lake	Phosphorus/ Cyanotoxins	2				4	2	1	ND	Pinto Lake Watershed
San Lorenzo Estuary	Pathogens	2	1	4	3	6	5	ND	ND	
San Lorenzo, Lompico	Pathogens	2	3	5	4	6	1	ND	ND	
Branciforte	Pathogens	1	3	4	2	6	5	ND	ND	
Carbonera, Camp Evers	Pathogens	1	6	3	2	5	4	ND	ND	
San Lorenzo Watershed	Nitrate	4	2			3	1	ND	ND	
San Lorenzo Watershed	Sediment	Yes						ND	ND	
Soquel Creek and Lagoon	Pathogens	1	2	4	3	3	ND	ND	ND	Soquel Creek downstream of Porter St. and Noble Gulch
Watsonville Sloughs	Pathogens	Yes	Yes			Yes		Yes	Yes	Watsonville, Harkins, Hanson, Gallighan, Struve

Note: MS4 refers to municipal separate storm sewer systems from urban areas.

Table 2-3 presents a summary of the data for the major waterbodies potentially impacted by OWTS outside of the San Lorenzo River Watershed. Sample locations are shown in Figure 2-19. A comparison of fecal bacterial and nitrate data for the major waterbodies outside of the San

Lorenzo River Watershed is shown in Figure 2-18. Valencia Creek shows elevated nitrate compared to Soquel and Aptos Creek. This is likely related to the sandy soils of the Valencia Creek Watershed, but there is no evidence of impairment. There are 2,140 OWTS in the Aptos and Valencia watersheds, mostly in Valencia, and 3,000 OWTS in the Soquel watershed. Both Soquel and Aptos/Valencia Creeks have TMDLs for pathogens, but the impairment is in the lower urbanized watersheds and not attributed to OWTS. Water quality of the San Lorenzo watershed is discussed in Section 2.3.4.

Table 2-3: Summary of Nitrate and Fecal Indicator Data for Selected Santa Cruz County Waterbodies

Locations: Aptos, Soquel and Watsonville sites	Years of E.coli Record	Geomean E.coli	Years of NO3N Record	Average NO3N Concentration (mg-N/L)
APTOS CREEK @ MOUTH (A0)	30	925	8	0.17
APTOS CREEK @ VALENCIA CREEK (A2)	26	131	8	0.03
VALENCIA CREEK @ APTOS CREEK (A1)	22	834	10	0.64
SOQUEL CREEK @ BATES CREEK (S4)	15	161	12	0.04
WEST BRANCH SOQUEL C @ SAN JOSE-OLIVE SPRINGS (S6)	23	138	11	0.07
PINTO LAKE @ BOAT RENTAL	29	59	3	0.21

Figure 2-18. Bacteria and Nitrate-N Levels in Aptos and Soquel Creek Watersheds.

The horizontal line across each graph represents the target level (400 MPN/100 mL for fecal coliforms [or E. Coli], 0.33 mg/L as N for nitrate-nitrogen). The box represents 75% of the data for each time period and the 95% confidence interval is represented by the horizontal lines above and below the box. The horizontal line within the box represents the median value. The height of the box reflects the range of data. The datapoints above the 95% confidence interval represent outliers.

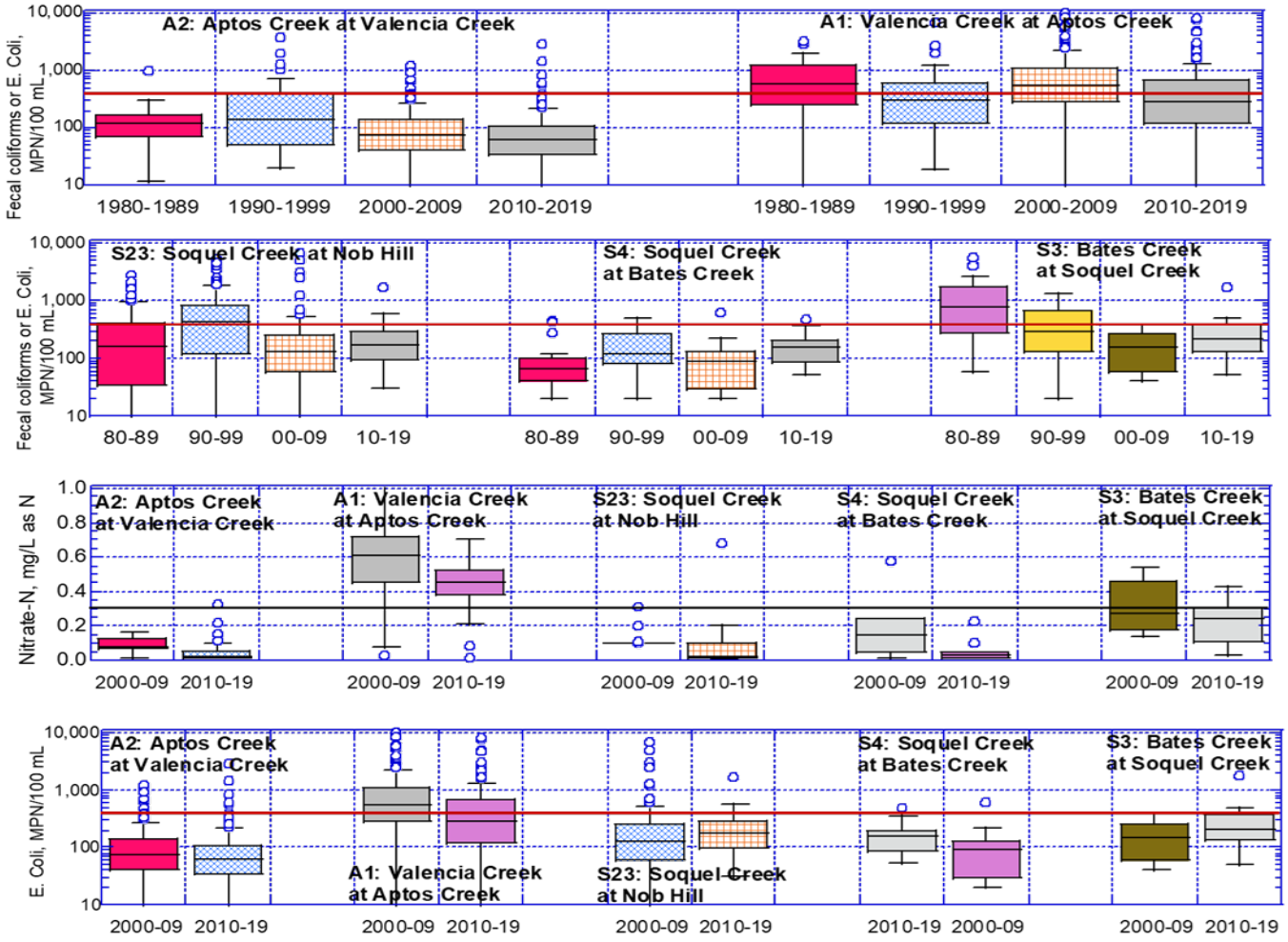
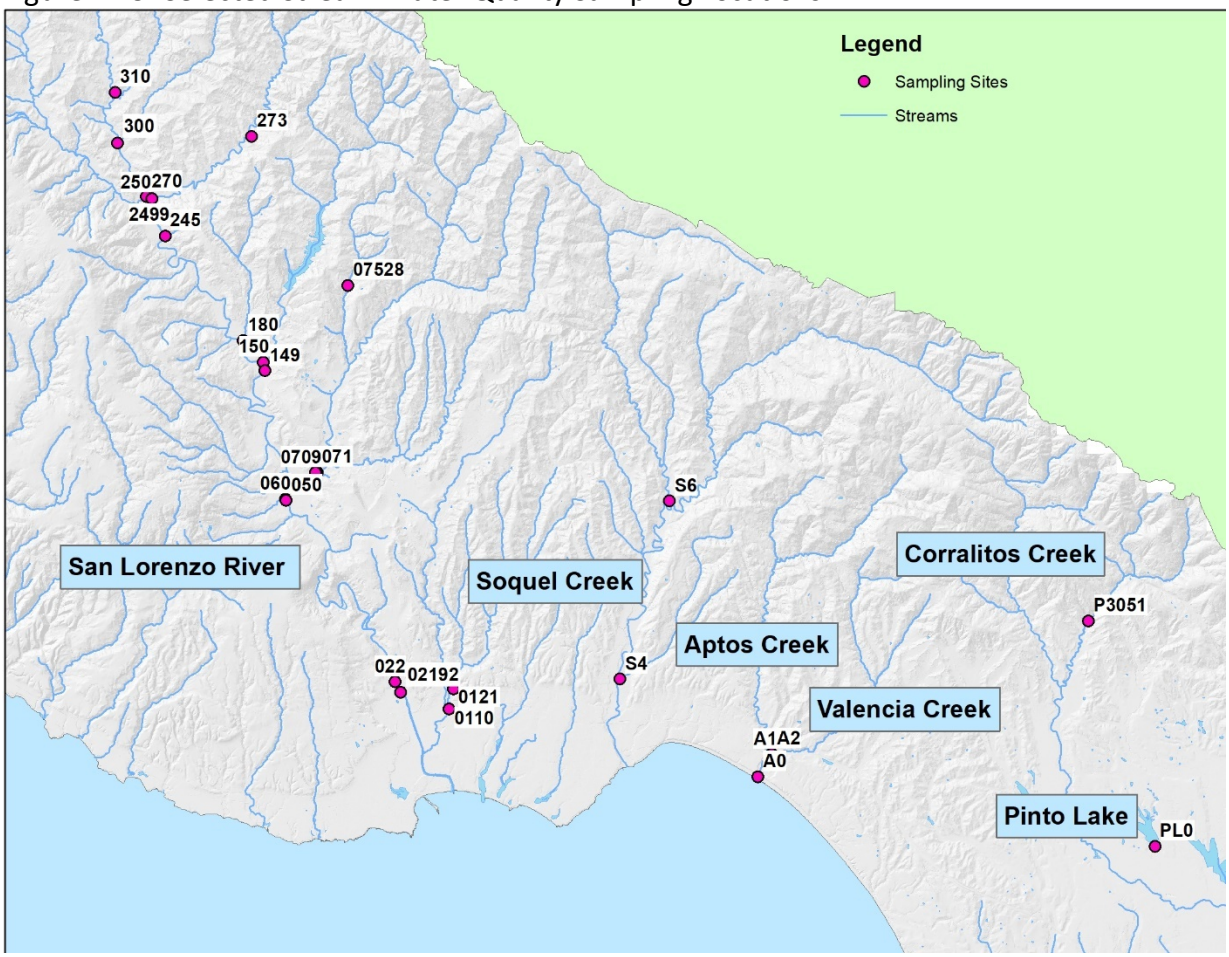


Figure 2-19: Selected Stream Water Quality Sampling Locations



2.3.3 Watershed Management

OWTS have historically been managed in Santa Cruz County in the context of larger watershed management and regional water management programs. Many of the OWTS policies in Santa Cruz County Code were originally developed as a part of the 1979 San Lorenzo River Watershed Management Plan, and then also incorporated into the County's Local Coastal Plan and 1980 General Plan, along with many other water resource protection policies and programs. More recently, onsite wastewater management is also considered as a component of the Santa Cruz Integrated Regional Water Management Plan and the Sustainable Groundwater Management Plan for the Santa Margarita Groundwater Basin, and to a lesser extent in the Mid-County Basin and the Pajaro Basin.

County EH staff have also worked closely with other agencies and community groups to promote good onsite wastewater management in conjunction with other management efforts:

- Resource Conservation District of Santa Cruz County
- Land Trust of Santa Cruz County
- Valley Women's Club (San Lorenzo Valley)
- Coastal Watershed Council
- San Lorenzo Valley Water District
- City of Santa Cruz Water Department
- Rural Bonny Doon Association
- Onsite Wastewater Technical Advisory Committee

2.3.4 San Lorenzo River Watershed

The San Lorenzo River Watershed is an area that has received a higher level of OWTS oversight as it presents many challenges for ongoing OWTS management:

- It is a water supply watershed, providing water supply for 95,000 people.
- It is designated as impaired due to OWTS, with TMDLs for nitrate and pathogens.
- Areas of the watershed have some of the highest densities of OWTS in the state, well in excess of the recommended 1-acre parcel size.
- The large majority of development in the San Lorenzo Watershed (85%) pre-dates current OWTS standards, and most parcels could not meet those standards.
- There have been numerous attempts to sewer the watershed, but all have ultimately failed due to high cost and anticipated environmental impact.
- Since 1986, the San Lorenzo Watershed has been the focus of a targeted onsite wastewater management program that has shown great success in terms of reduced failure rate and improved water quality.

The San Lorenzo River Watershed contains 15,200 of the 27,700 OWTS in Santa Cruz County. The great majority of these OWTS are over 40 years old and are located on parcels that could not fully meet today's standards for installation of a new OWTS due to small lot size, close proximity to a stream, high groundwater, steep slope, or clay soil. Many of these systems have been repaired or replaced at least once. However, many of the repairs were done prior to 1986 when there were little or no standards for OWTS repairs. There were no minimum size requirements and systems were allowed to be installed very deep, with little regard to soil conditions or winter groundwater levels.

Poor OWTS conditions in the San Lorenzo Valley during the 1970's and early 1980's led to frequent failures and elevated nitrate and bacteria levels in the watershed's major perennial stream, the San Lorenzo River, which also serves as the City of Santa Cruz's main drinking water source As a result, in 1982, the Regional Board issued Resolution 82-10, an order limiting new development and prohibiting the continued use of existing OWTS in the San Lorenzo Valley, calling for implementation of a municipal sewer system for the area. However, in 1985, the proposed sewer

project failed, due to high cost, lack of grant funds, and substantial community opposition to sewering.

In 1986, County EH proposed an alternative solution, whereby OWTS could be allowed to continue their use, provided that they were upgraded over time to meet a minimum set of standards necessary to improve the water quality in the San Lorenzo River. These standards were the precursor for many of the provisions in this LAMP for countywide operations of OWTS. In May 1995, the Regional Board lifted the septic system prohibitions for this region and adopted the San Lorenzo Wastewater Management Plan, which is essentially an APMP for the watershed. Subsequently County EH applied most of the same standards and procedures to all OWTS in the county.

The following impacts from existing disposal systems were observed prior to 1989, at the onset of the program (SCCHSA, 1989):

- Episodes of bacterial pollution occurred occasionally at locations throughout the Watershed, but no stations persistently exceeded standards as a result of onsite wastewater disposal.
- An estimated 6-12% of the samples collected from the River and its tributaries during 1986-1989 showed evidence of fecal coliform pollution from wastewater.
- About 25% of the violations of recreational water fecal indicator standards were estimated to have resulted from wastewater pollution. Other causes of elevated bacteria levels include waterfowl, domestic animals, and cumulative urban nonpoint pollution unrelated to wastewater disposal.
- During area surveys from 1986-89, 3-6% of the systems were found to be failing, discharging untreated wastewater to the ground surface; another 7-9% were illegally discharging graywater which also has a high bacteria and pathogen level.
- Failing systems were observed in locations throughout the San Lorenzo Watershed, discharging wastewater to roadside ditches, public right of ways, or other areas where there was significant risk of public contact.
- Onsite wastewater disposal in sandy soils led to elevated nitrate levels in Quail Hollow area groundwater (about a 4 to10 fold increase over baseline levels).
- Nitrate levels in the San Lorenzo River had potentially increased 2-3 times since the mid 1960's (although early nitrate data may be suspect). There was concern that elevated nitrate was possibly causing increased biological growth that could be adversely affecting the quality of the water supply for the City of Santa Cruz. OWTS, particularly in sandy soils are the primary source of the increased nitrate.

Since the County EH began its wastewater management program in 1986, OWTS failure rates in the San Lorenzo watershed, and countywide have dropped from 13% to 1-2% (Figure 2-20). The records sometimes show a slight uptick in failures from during wetter years, as indicated by both septic pumping records (2017) and county inspections (2006). In recent years there have not been enough county inspections performed to draw conclusions about failure rates.

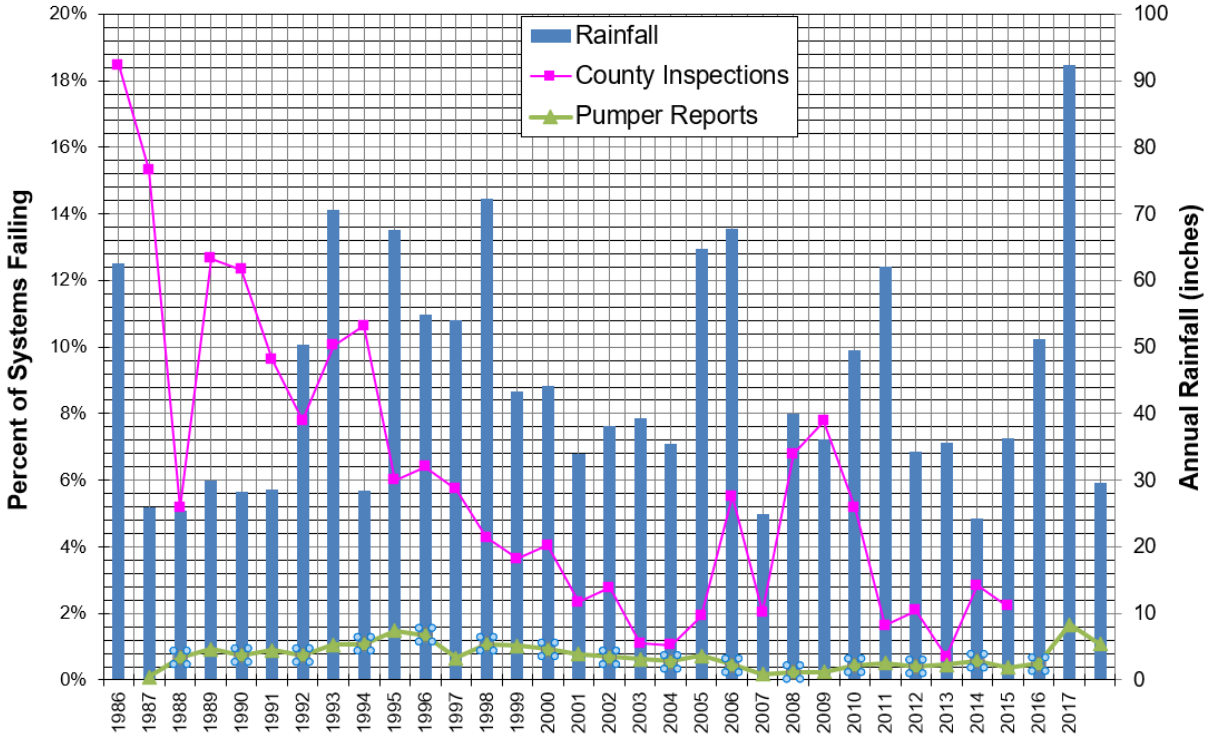
Over this time, more than 5,200 systems have been repaired or upgraded and 85% of these have been able to fully meet the repair standards for a conventional system. Those systems that

couldn't fully meet standards either installed enhanced treatment systems or have used non-conforming systems that require rigorous water conservation and regular inspections to confirm satisfactory performance. Reassessment of upgraded OWTS during the wet winter of 1992-93 and potential problem systems showed very low levels of failures (less than 2%) in areas already subject to management program activities. Ongoing work continues through collaboration among County EH, contractors, and property owners, to upgrade all systems over time.

Figure 2-20: Percentage of OWTS Observed Failures in San Lorenzo Watershed

Percentage of County EH inspections/surveys observed to be failing

Percentage of total systems in watershed reported failing in pumpers reports



Water quality in the San Lorenzo River has somewhat improved since the wastewater program began implementation in 1986. As indicated in Figure 2-23, summer nitrate concentrations declined in the upper watershed (Station 245 below Boulder Creek and Station 180, at Ben Lomond) and have been stable in the lower watershed (Station 060, Felton at Big Trees). See Figure 2-19 for sample station locations.

Water quality in the San Lorenzo River is influenced by numerous factors including precipitation patterns, land-use, stormwater, and other activities within the watershed. A forty year timeseries (1980-2019) of nitrate and fecal coliform (or E.coli) levels in the lower watershed (Station 060, Felton at Big Trees and Station 02192, Santa Cruz) is shown in Figure 2-21 along with flow and rainfall data for the same timeframe. See Figure 2-19 for sample station locations. Nitrate levels tend to be slightly higher at the upstream site (Big Trees) and range from 0.05 to 0.8 mg/L as N (median 0.5 mg/L as N for 209 observations). Nitrate levels at Station 02192 (City of Santa Cruz Water Intake) range from 0.01 to 0.7 mg/L as N (median 0.3 mg/L as N for 235 observations). This

decline can likely be attributed to the denitrification that takes place in the River as it flows an undisturbed reach in Henry Cowell State Park.

Boxplot comparisons of nitrate and indicator bacteria levels are shown in Figure 2-22 in 10-year increments for five sites in the San Lorenzo watershed. The frequency of sampling has varied throughout the years from quarterly to weekly, however the trends are fairly consistent. For the two stations in the lower watershed, there is not a significant difference across the decades from 1990 to 2019 for either site, with the exception of data from 1980-1989, when reported nitrate concentrations were lower for both sites (mean value about 0.2 mg/L as N). For the upstream site (Big Trees), fecal coliform levels were slightly higher in the 1980s than subsequent decades. Bacterial levels fluctuate seasonally, and elevated levels of coliform bacteria tend to occur in the aftermath of storm events (Figure 2-27).

A summary of summer (May 1-Sept 30) nitrate levels at four stations in the San Lorenzo watershed is shown in Figure 2-23 in 10-year increments. The trends are similar to those observed for the annual data (see Figures 2-24 and 2-25). The nitrate TMDL targets summer nitrate concentration, with an objective of 0.33 mg-N/L. That target is not met at Big Trees or Boulder Creek, but it is met for the San Lorenzo River upstream of Love Creek, where the influx of nitrate from the sandy soils of the Santa Margarita Groundwater Basin begins to occur.

Another approach for evaluating year-to-year changes in nitrate loading to the San Lorenzo is estimating changes in nitrate load or flux (mass of nitrate in the river at a specific location per time). The median annual flux at the Big Trees monitoring station is shown in Figure 2-24 in comparison to annual rainfall. There is not a statistically significant trend in nitrate flux over this forty-year period, even though the population of Santa Cruz County has increased about 25% in the intervening years. Year-by-year comparisons of nitrate concentrations are shown in Figure 2-25 for the same time period. In general, nitrate concentrations tend to be lower in high rainfall years.

Figure 2-21: Nitrate, Bacteria, Flow, and Rain in the Lower San Lorenzo River Watershed, 1980-2019.
Monitoring data provided by the City of Santa Cruz Water Department, flow data from USGS, and rainfall data from CIMIS. Horizontal lines represent target levels per TMDLs.

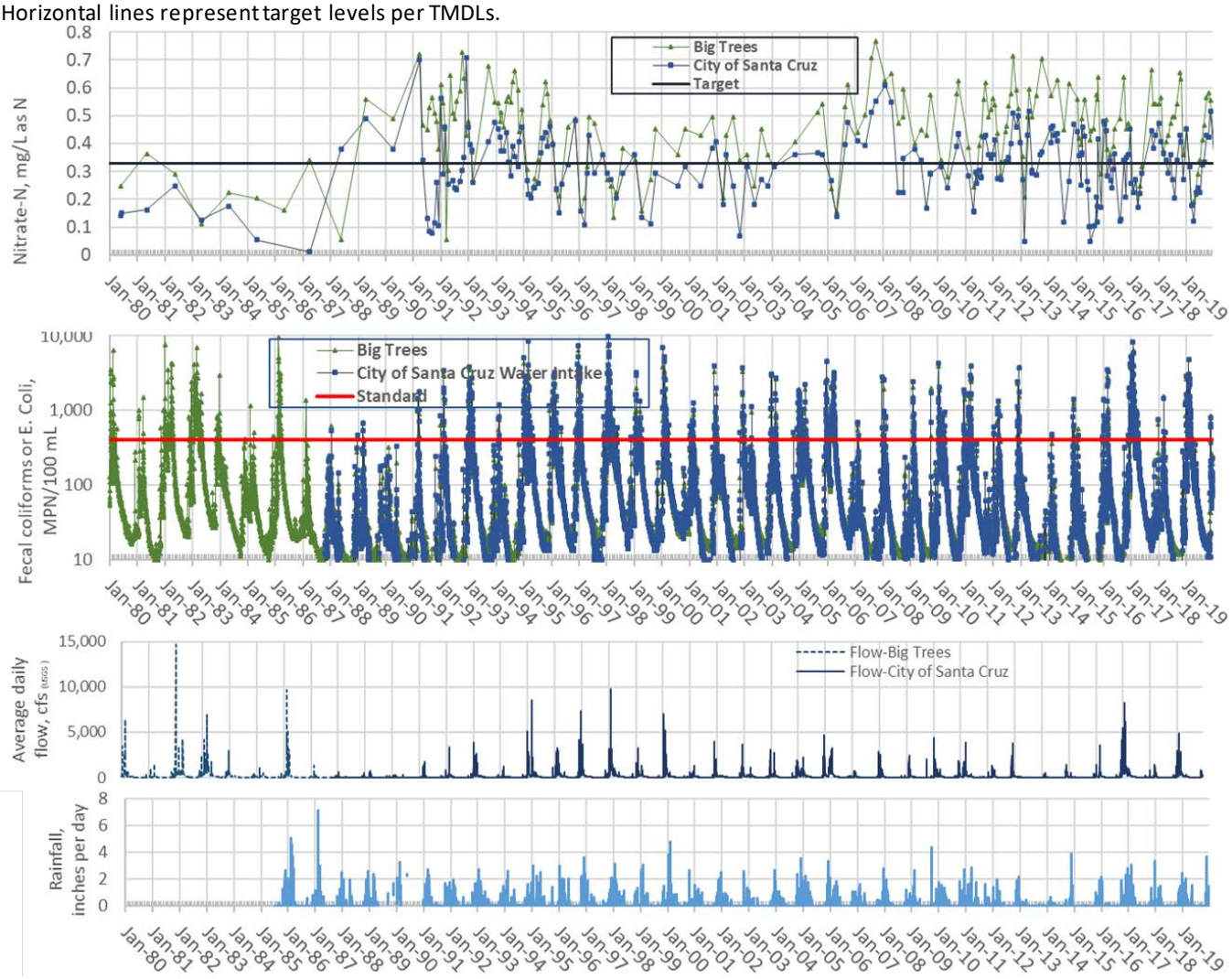


Figure 2-22. Nitrate and Fecal Coliform, San Lorenzo River, 1980-2019.

Boxplot comparisons of nitrate and fecal bacteria levels at five stations in the San Lorenzo River Watershed (Three upstream stations: 300, 250, and 180) and two stations in the lower San Lorenzo River (data for sites 060 and 02192 are from City of Santa Cruz). The red horizontal line represents the recreational water standard of 400 MPN/100 mL. The dark horizontal line in the nitrate plots represents the target nitrate concentration of 0.33 mg/L as N. The box represents 75% of the data for each time period and the 95% confidence interval is represented by the horizontal lines above and below the box. The horizontal line within the box represents the median value.

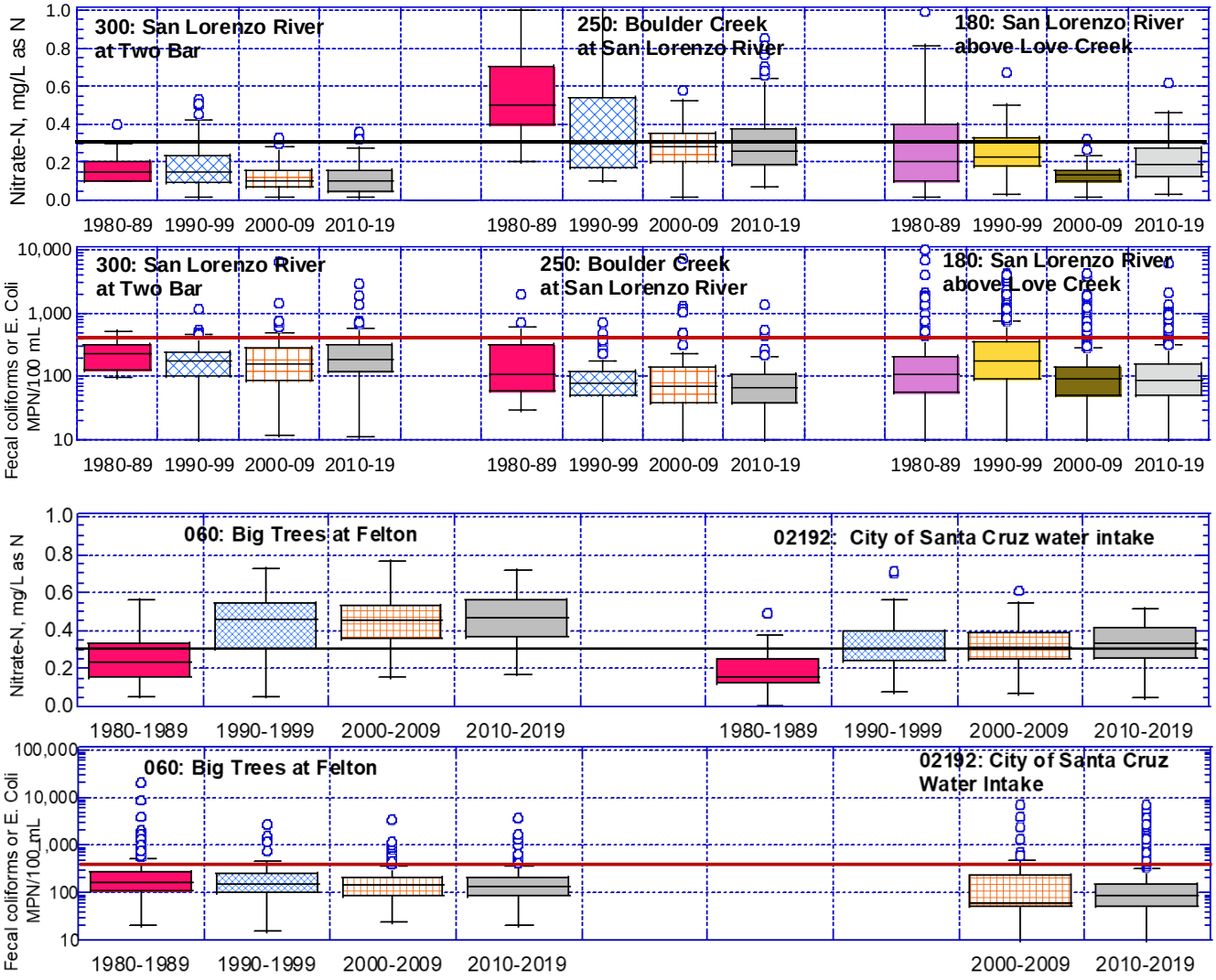


Figure 2-23: Summer Nitrate Concentrations, San Lorenzo River, 1980-2019

Boxplot comparisons of summer (May 1-Sept 30) nitrate levels at four stations in the San Lorenzo River Watershed (Three upstream stations: 300, 250, and 180) and two stations in the lower San Lorenzo River (data for sites 060 and 02192 are from City of Santa Cruz). The horizontal line represents the target nitrate concentration of 0.33 mg/L as N.

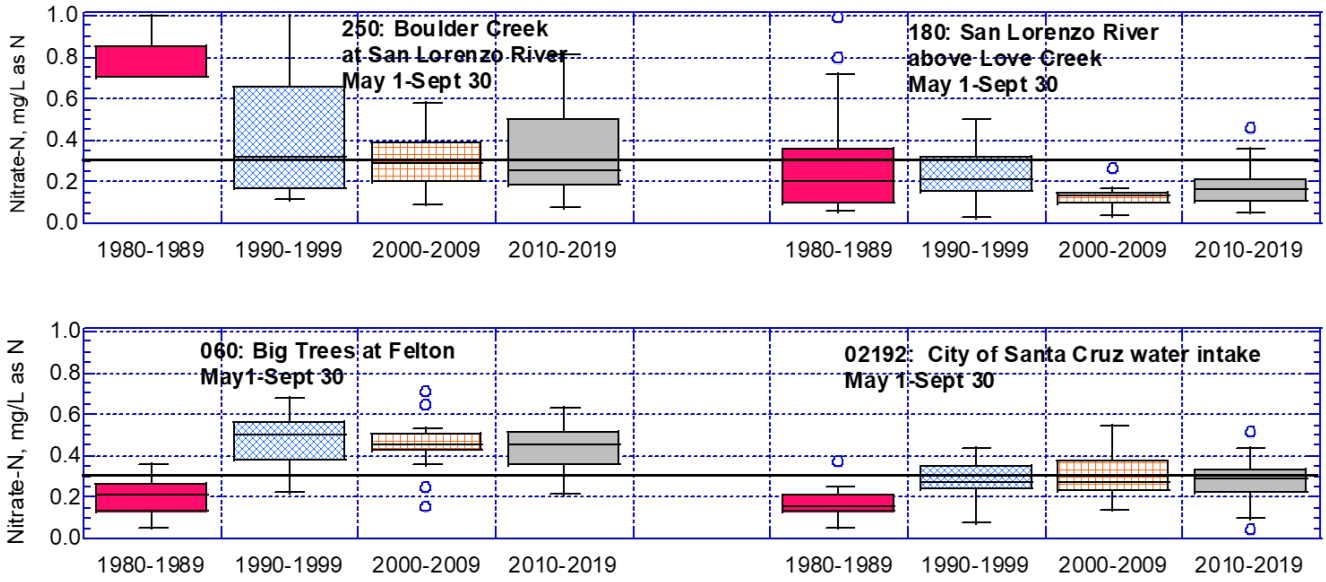


Figure 2-24: Summer Nitrate Load, San Lorenzo River at Big Trees.

Median annual nitrate flux at Big Trees monitoring station (060) between 1980 and 2019 in comparison to annual rainfall. Flow data from USGS[7] gage at Big Trees. Rainfall data are from the California Irrigation Management Information System (CIMIS), site 104 (De Laveaga).

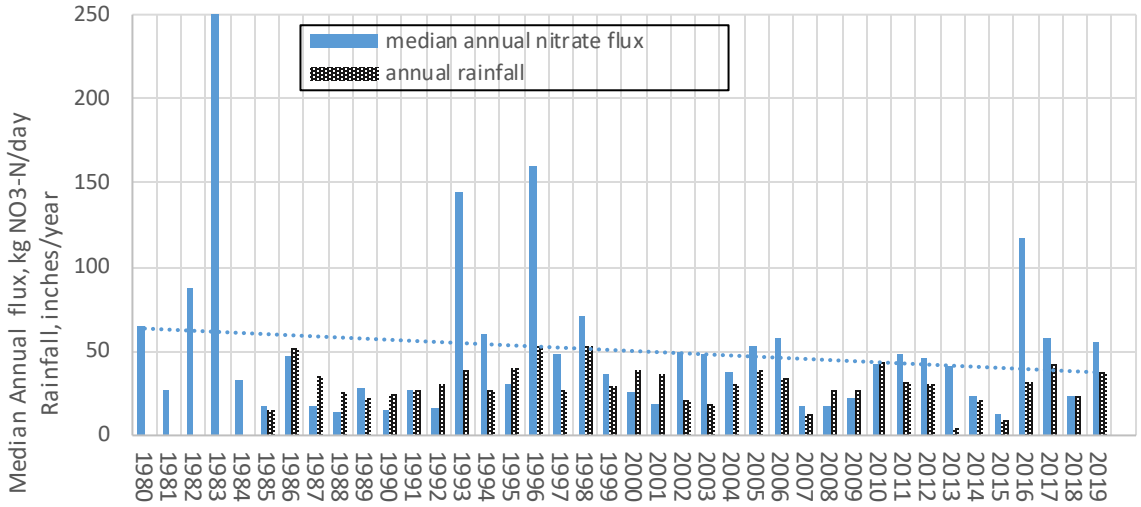
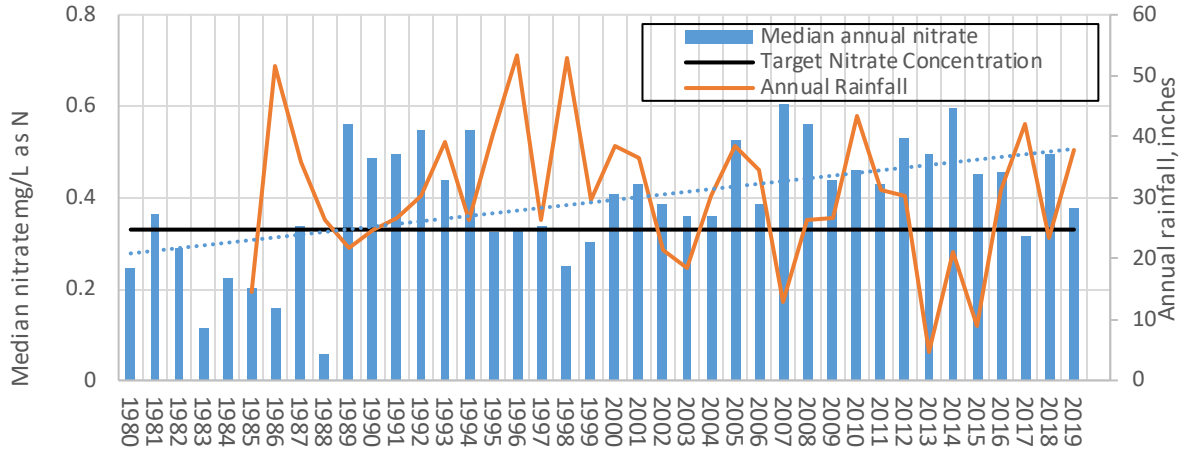


Figure 2-25: Summer Nitrate Concentration, San Lorenzo River at Big Trees

Median annual nitrate concentration at Big Trees monitoring station (060) between 1980 and 2019 in comparison to annual rainfall. Monitoring data from the City of Santa Cruz. Rainfall data are from the California Irrigation Management Information System (CIMIS), site 104 (De Laveaga). The dark horizontal line represents the target nitrate concentration (mg/L as N)



[7] https://waterdata.usgs.gov/nwis/rt

Figure 2-26: Exceedance of E. coli Objective for San Lorenzo River at Big Trees, 2011-18

Summary of annual exceedances of E. Coli goal for single sample (400 MPN/100 mL) and geometric mean (200 MPN/100 mL) at the Big Trees monitoring site (060) between 2011 and 2018. Annual rainfall amounts are also shown. E. Coli data are from weekly grab samples taken by the County of Santa Cruz Environmental Health Program. Rainfall data are from the California Irrigation Management Information System (CIMIS), site 104 (De Laveaga).

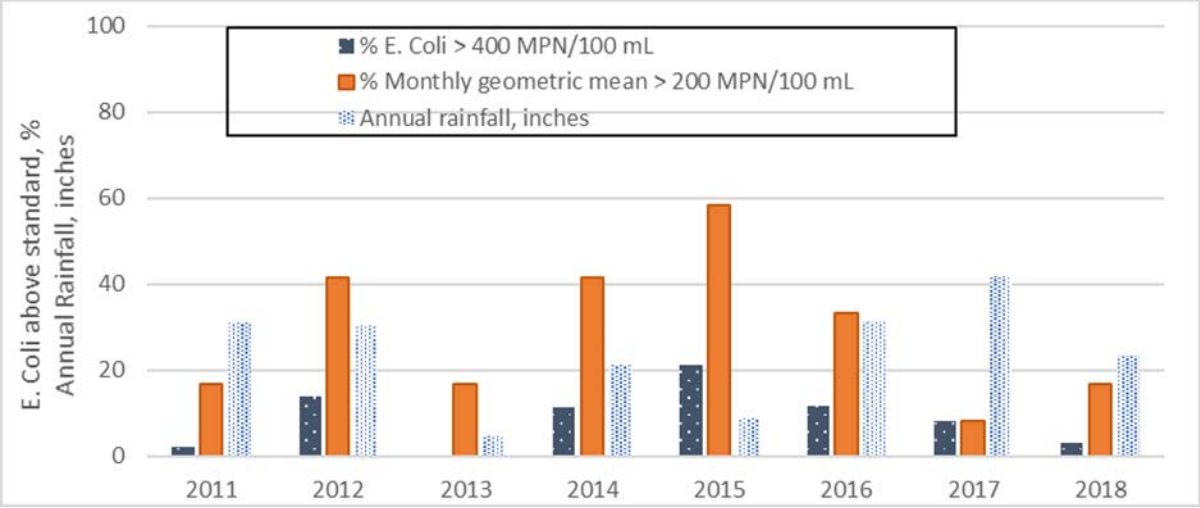
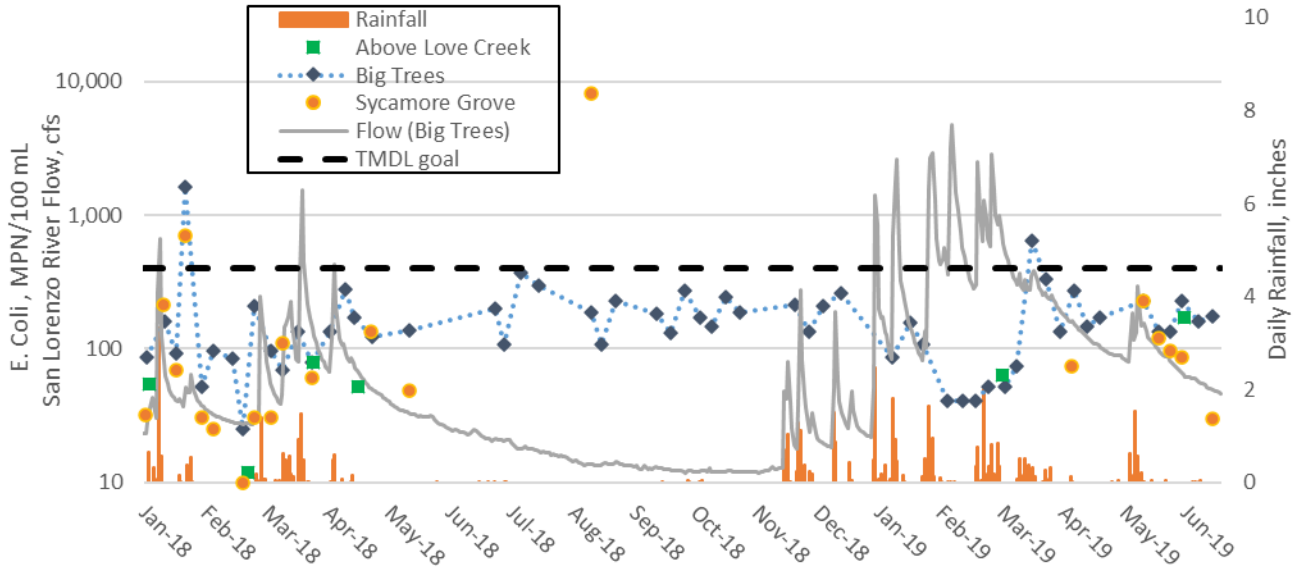


Figure 2-27: Fluctuation of E. coli levels, San Lorenzo River, January 2018-June 2019

Summary of E. Coli monitoring data for upstream sites (Love Creek [180], Big Trees [060], and Sycamore Grove [022]) from January 2018 through June 2019. Monthly rainfall amounts are also shown. E. Coli data are from weekly grab samples taken by the County of Santa Cruz Environmental Health Program. Rainfall data are from the California Irrigation Management Information System (CIMIS), site 104 (De Laveaga).



Most of the San Lorenzo River Watershed and the North Coast Streams serve as municipal water supply sources (Figure 2-17). State drinking water regulations require that sanitary surveys be conducted every five years to evaluate potential sources of pollution that might

threaten the water source or require a higher level of treatment. The first survey was conducted in 1996 and has been updated approximately every 5 years since then. These surveys have identified discharge of nitrate and pathogens from OWTS as potentially significant sources of pollution to the municipal water supply. The 2013 Sanitary Survey (City of Santa Cruz Water Department, 2013) concurred with previous County findings that birds are the major source of fecal coliform pollution and that fecal coliform from OWTS results from surface failures rather than any cumulative pollution of groundwater. OWTS in sandy soils are a significant source of nitrate in the River and since San Lorenzo River water is pumped to Loch Lomond reservoir, the linkage between nitrate, algae production and the resulting odors and disinfection-by-product precursors will continue to be a challenge, especially for the Santa Cruz Water Department as well as for the San Lorenzo Valley Water District.

The 2018 Sanitary Survey (Kennedy/Jenks, 2018) also concluded that the large majority of existing OWTS are not a major source of dry-season microbial concentrations measured in surface waters, except for localized impacts from OWTS failures. However, bacterial contributions from OWTS are probably greater during or following wet periods when runoff can convey surfacing wastewater from failing systems to the San Lorenzo River. Efforts made since 1995 to improve OWTS performance have reduced the septic failure rate and therefore the water quality degradation related to OWTS.

The San Lorenzo River and many of its tributaries continue to experience elevated levels of fecal indicator bacteria, but these levels come from many sources besides onsite wastewater disposal. Levels continue to be periodically above the threshold considered impaired (10% of samples exceeding standards). Analyses using ribotyping for microbial source tracking done in 2002-04 indicated no human pollution present in the San Lorenzo River during the summer months, but 25% of the samples showed presence of human pollution during the wet winter months (SCCHSA, 2006). Recent testing by the City of Santa Cruz also showed presence of some “contaminants of emerging concern” pharmaceuticals and other compounds originating from humans in the San Lorenzo River (City of Santa Cruz, 2016). Of the 96 constituents tested only 20 were detected, predominantly in the wet periods. The types of CEC’s present in the San Lorenzo surface water were also very different from the types found in groundwater in the La Selva Beach area (Carollo, 2017). These results indicate the ongoing need to prevent surface failures by oversight of OWTS, water quality testing, follow-up investigations to identify and correct failing systems, and encouragement of property owners to continue to voluntarily upgrade their failing systems to meet basic requirements.

2.4 Existing Development Conditions

Santa Cruz County Assessor records show that 78% of the developed properties with OWTS were developed before 1983, when many of the current OWTS standards went into effect (Figure 1-2). In the early half of the 20th century, much of the development occurred along valley bottoms and along stream corridors. Much of the development at the time was originally for summer vacation homes. By the 1970s, most of the vacation homes were converted to year-round use and a number of small lot rural subdivisions were created. Rapid

rural development peaked in 1979, with over 700 homes built that year on OWTS. During the last decade, the average rate of new rural development served by OWTS has been 50 homes/year.

There are several areas in the county with high density of OWTS on small lots (less than 15,000 sf). These are listed in section 2.6. In the last thirty-five years, County EH has conducted parcel by parcel investigations in four of these areas, San Lorenzo Valley, Pasatiempo, Amesti Road, and the Delaney/Salsipuedes subdivisions, in an effort to identify failing OWTS and require them to be brought up to the repair standards that were adopted in 1986. Feasibility studies have been conducted for sewering those four areas but have not proceeded due to high cost and in some cases environmental concerns. There are a number of areas of high density OWTS in the Aptos area that are within the urban services line and the Sanitation District Sphere of Influence, but presently outside the sanitation district. Several other areas of high density OWTS are well outside the urban services area and at some distance from any sewer lines: Monte Toyon and La Selva Beach. There are also two pockets of high density OWTS to the west of Watsonville in the Buena Vista and Manfre Road area, that are within the sanitation district sphere of influence. There are presently no active efforts to extend sewer service to those areas, but County EH will look for potential opportunities for funding assistance or other incentives for sewering (see Section 4.6).

Because 78% of the parcels were developed before 1983, and predate current standards, a large number of the OWTS do not meet current standards and many parcels cannot meet current standards. Seepage pits were installed extensively in Pasatiempo, Aptos, La Selva Beach and the Amesti Road area. Cesspools were never permitted and there are no known areas where cesspools occur. If a cesspool is found, it will be required to be abandoned and replaced with an OWTS that meets current requirements.

Most older development originally occurred along stream corridors. A review of County GIS information and the OWTS database indicates that about 15-25% of the parcels with OWTS also have streams or drainageways on them. On the older, smaller lots it was often not possible to achieve a 100-foot setback between the OWTS and a stream. Approximately 6%, or 560 of the OWTS with site information in the database are located between 50 and 100 feet from a stream, and 80 (less than 1%) have a stream setback between 25 and 50 feet.

Approximately 60 existing OWTS are located within the 400-foot setback buffer 1200 feet upstream from a public water system surface water intake and an additional 24 OWTS are within the 200-foot buffer between 1200 and 2500 feet upstream of an intake. Some 50 OWTS may be located within 150 feet of a public water supply well, 40 are located between 150 and 200 ft, and 700 are between 200 and 600 feet from a public well, although it cannot be determined if these are in violation of the setback requirements without further analysis and a determination of the existing dispersal depth. A number of these wells and surface diversions wells are currently in an inactive status. OWTS that are located within protective setbacks will be evaluated at the time that a system failure occurs or there is otherwise a need for system replacement. Systems located near surface water intakes will be investigated for any sign of current system failure.

2.5 Policies for New Rural Development

New rural development in Santa Cruz County is limited by a number of policies, including restrictions on both existing lots of record and the creation of new lots. Since 1978, all new rural lots served by OWTS had to be at least one acre in size. Between 1970 and 1978, the minimum parcel size was 15,000 sf if public water was available, but one acre if a well was to be used. After 1978, following passage of Measure J, the Growth Management measure, a number of policies were enacted to focus growth in urban areas and limit the impacts of growth in rural areas. Minimum parcel sizes for new parcels were enacted for Water Supply Watersheds (10 acres) (Figure 2-17) , Groundwater Recharge Areas (10 acres) (Figure 2-10) and Least Disturbed Watersheds (40 acres) (Figure 2-17). The rural development matrix was established, which determined the minimum parcel size based on the extent of constraints and critical resources that occurred on a parcel. Since 1998, there have been no rural subdivisions served by OWTS, other than the occasional minor land division of four lots or less.

The allowable average densities under the State OWTS Policy for new lots is related to average annual rainfall and is one acre for 25-35 inch per year (in/yr) and one-half acre for average rainfall over 40 in/yr. With average annual rainfall in Santa Cruz County ranging from 25-60 inches, County policies for new parcels easily meet the State OWTS Policy.

Santa Cruz County also limits new development on existing parcels of record under several circumstances, with no exception available even when utilizing enhanced treatment systems:

- Within a water supply watershed, the minimum parcel size is one acre and 2.5 acres when within one mile of the intake for the north coast watersheds.
- For parcels without public water supply, the minimum parcel size is 15,000 sq. ft.
- For parcels on some older subdivisions in the Aptos area, the minimum parcel size is 15,000 sf ft.
- Parcels must also meet the technical standards of stream setback (100 ft), slope (less than 30%), and outside the flood plain. If any of those three standards cannot be met, the parcel is deemed unbuildable.

2.6 Summary of OWTS Conditions and Limitations by Area

Following is a brief description of conditions relative to onsite wastewater disposal in various areas of Santa Cruz County, from North to South. The descriptions represent noteworthy conditions, but many of these areas have a mix of opposite conditions in different parts of the areas. (The number of OWTS refers to the approximate number of parcels with OWTS.)

North Coast-Bonny Doon: 1,450 OWTS; Water Supply Watersheds, Least Disturbed Watersheds, individual wells, large parcels, localized areas of high groundwater, karst, sandy soils, and clay terrace soils.

San Lorenzo Valley: 12,000 OWTS; Water Supply watershed, pathogen and nitrate TMDL, older dense communities with public water supply, some shallow groundwater, streams, and areas of sandy soils.

Pasatiempo: 800 OWTS; small lots, public water, inside urban services area with nearby sewer line, mix of sandy soils, clay soils, perched groundwater, shallow bedrock, and seepage pits.

Carbonera/Branciforte: 2,100 OWTS; pathogen and nitrate TMDL, older homes, larger lots, some sandy soils, and some shallow groundwater.

Soquel Watershed: 2,620 OWTS; older homes, larger lots, wells, some shallow groundwater, and some clay soils

Aptos/Valencia Watershed: 3,360 OWTS; older homes, larger lots, sandy soils, and some small lot (7,000-15,000 sf) subdivisions (Bonita, Huntington, Monte Toyon, Rio del Mar Lodge) on public water with seepage pits, somewhat near sewer lines.

Corralitos Watershed: 1,560 OWTS; water supply watershed, narrow canyons, larger lots, some older small lots, some public water, and agriculture.

Pinto Lake/Amesti Road: 500 OWTS; small lots, public water, clay soils perched groundwater, seepage pits, and generally long travel distance to lake.

Salsipuedes/Delaney: 75 OWTS: small lots (15,000 sf), small lots, small public water system, clay soils, perched groundwater, and low-income community near sewer.

Manfre/Buena Vista Road: 240 OWTS; small lots, public water, clay soils, designated disadvantaged community.

La Selva Beach: 850 OWTS; very small lots (5,000-12,000 sf), seepage pits, sandy soils, public water, high nitrate in groundwater, one mile from sewer, and outside urban services area.

2.7 GIS Mapping of Septic Constraints

The County's GIS provides a useful tool for OWTS management. All parcels with records of permits, septic tank pumping, or investigations are identified with the associated information available by selecting a parcel's polygon and viewing the information digitally. This information can be viewed in relation to OWTS density, relationship to well density, streams, soils, and other attributes. Most of the OWTS constraints and other information described in this LAMP are also mapped:

- Steep slopes
- Suspected landslide areas
- Streams
- Public water sources and setback zones
- Karst Areas
- Sandy Soils
- Clay soils
- Floodplains
- Sanitary sewer lines
- Stormdrains and ditches
- Nitrate Concern Areas

3 New and Replacement OWTS

This LAMP is intended to provide an explanation and summary of the requirements for system design, installation, and maintenance. However, for details and legal specifics, the County code and adopted regulations should be consulted. Santa Cruz County Code Chapter 7.38, Sewage Disposal, provides the basic requirements for OWTS design, installation and use in the county. It also provides the authority for specific variances from the new system standards for the repair or replacement of existing systems, including minimum thresholds and prohibitions. The basic standards and allowable variances are described in the County's Appendix A Chapter 7.38 Sewage Disposal (takes precedence), Appendix C Summary of Onsite Wastewater Treatment System Requirements, and Appendix D Enhanced Treatment System Regulations. The upgrade and repair standards and allowable variances in these documents apply to 78% of the properties in the county that were developed prior to September 16, 1983, which is the date that stricter standards for onsite wastewater disposal were adopted into the Basin Plan. They are designed to guide the trade-offs between continued use of existing systems, improvements needed for water quality and public health protection, addressing housing needs, and manageable costs for property owners to continue to encourage them to properly repair and upgrade their systems at the first indications of failure.

Where requirements for a standard system cannot be met, in many cases the deficiency can be mitigated by use of an enhanced treatment system and/or alternative method of dispersal. The specific requirements for enhanced treatment systems are described in a separate set of regulations. Since enhanced treatment systems began to be allowed in 1989, a total of 775 systems have been installed, with 25% serving new development, 25% for system upgrades to support remodels, and 50% for repair of failing systems.

3.1 System Categories

A permit is required for new OWTS installation or upgrade, relocation, and repair including tank replacement, subject to approval by County EH, under authority delegated by the County Health Officer. Santa Cruz County has established requirements for different categories of OWTS. These requirements recognize that there are many developed parcels in the County that cannot fully meet the current standards for new development. Although OWTS installations will meet all the requirements as specified in County Code Sections 7.38.042-7.38.186 to the greatest extent possible, minimum requirements are established for different categories of OWTS, as defined for Santa Cruz County:

- New OWTS is an onsite wastewater treatment and dispersal system that is installed to serve a new structure or new use on a parcel where there are no pre-existing legal structures or legal OWTSs.
- Replacement system is an onsite wastewater treatment and/or dispersal system that is installed to serve an existing legal use or development. Replacement systems include both repairs and upgrades.

- Upgrade System is a replacement system or addition to an existing system that is needed to serve an expansion of an existing legal use, including a bedroom addition, accessory dwelling unit, or residential remodel greater than 500 sq. ft. System upgrades to current standards are required in order do a major remodel.
- System Repair (or Major Repair) is a replacement of the treatment and/or dispersal system in order to correct a failure of an existing dispersal system. It may also include a replacement of the septic tank, if the tank requires replacement.
- Minor Repair includes the installation or replacement of a distribution device, diversion valve, damaged or clogged dispersal pipe resulting in a re-pipe but not replacement of a trench within the existing trench, greywater disposal system, or other repair work requiring a minor repair permit. Minor maintenance activities such as replacement of sanitary tees, effluent filters, lids, etc. do not require a permit.
- Tank Replacement is a replacement of septic tank, grease trap, or other treatment unit that is required due to failure, old age, and/or inadequate size.

Systems are also classified depending on the history of the system, the characteristics of the property, and the potential to upgrade the structure served (Table 3-1):

1. A Standard System meets all of the standard requirements for a conventional system of septic tank and dispersal device as specified in County Code Sections 7.38.095-7.38.180 and enables building additions consistent with the number of bedrooms for which the OWTS is sized, and consistent with building and zoning department regulations. No construction may occur over the OWTS and/or expansion area.
2. Nonstandard System (formally designated as "System with Special Operating Characteristics") does not meet all the requirements for a conventional standard system, but it does meet the more specialized requirements for the different types of nonstandard systems. Approval of a nonstandard system requires recordation of a "Notice of Onsite Sewage Disposal System with Special Operating Characteristics" on the deed and payment of an annual inspection fee to fund ongoing oversight of the system (the fee is waived for Limited Expansion Systems). Four types of nonstandard systems are recognized:
    a. An Enhanced Treatment System is a wastewater treatment system that utilizes special designs and/or additional technology to provide effluent treatment or dispersal to a much better level than a conventional system. This can allow reduced dispersal area, dispersal to otherwise unsuitable soils, reduced groundwater separation, specialized shallow dispersal in high groundwater areas, OWTS installation within public water source set-back buffers, or compliance with TMDLs and Advanced Management Programs. Enhanced treatment systems are specifically required in the following circumstances:
        (1) For new and replacement OWTS in sandy soils in the San Lorenzo Watershed, and any other areas of sandy soils with current or anticipated elevated nitrogen levels in surface or groundwater, including Valencia Creek Watershed, Mill Creek Watershed (Bonny Doon), and La Selva Beach.

(2) For Large OWTS that serve more than 5 residential units, or which have peak daily flows greater than 2500 gpd but less than 10,000 gpd, and are located in the areas described above.

b. A Limited Expansion System is a permitted system repair that meets all the requirements for a standard conventional system except for availability of adequate system replacement area. Use of a Limited Expansion system requires water conservation measures and enables only a one-time addition of up to 500 sq. ft. of habitable space with no bedroom additions, and no increase in the volume of wastewater discharge. If the system performs well, no annual inspection fee is charged.

c. A Low-Flow System is a permitted system repair that meets the requirements for a standard conventional system except for the required amount of dispersal area. A Low-Flow system requires water conservation measures and enables only a one-time addition of up to 500 sq. ft. of habitable space with no bedroom additions, and no increase in volume of wastewater discharge. An annual fee is charged on the tax bill and the property will be periodically checked for signs of failure.

d. A Non-Conforming Interim System is a repair to a failing system that does not fully meet standards due to dispersal size or deferred installation of enhanced treatment. No building additions will be allowed and the system will need to be brought up to standards at the time of property transfer. An annual fee is charged on the tax bill and the property will be periodically checked for signs of failure.

e. A Haulaway System is a system that requires that effluent be pumped out on a seasonal or basis to prevent failure, and/or ensure that requirements for groundwater separation are met. No building additions will be allowed. An annual fee is charged on the tax bill, pumping reports are monitored by County EH, and the property will be periodically checked by County EH for signs of failure or wastewater discharge to an unapproved dispersal device.

3. A Prestandard System is an existing OWTS installed prior to 1983 which shows no indication of failure, but which does not meet all requirements for a standard system. Without any further upgrade (but with a satisfactory septic pumpers inspection report), such a system enables a one-time addition of up to 500 sq. ft. of habitable space with no bedroom additions or no increase in volume of wastewater discharge, unless the system is upgraded to meet conventional or enhanced treatment standards as defined in Section 3-2 and County Code Sections 7.38.095-7.38.186.

Table 3-1: Types of Systems, Requirements, and Building Allowances

System Type	Conditions[a]	Requirements	Building Allowed
New	Conventional: meets standards	Minimum Parcel size (7.38.045)	New residence; Possible ADU
	Enhanced Treatment for: reduced groundwater separation, fast or slow soil percolation	• Minimum Parcel size • Maintenance Contract • Deed recordation, Periodic Inspection, annual fee	
Upgrade	Conventional, meets upgrade standards		ADU; Bedroom Addition; and/or >500 sf addition
	Enhanced Treatment for: • reduced groundwater or surface water separation, • fast or slow soil percolation • under pavement • reduced dispersal area • existing seepage pits	• Maintenance Contract • Deed recordation, Periodic Inspection, annual fee	
Repair: Replaces old or failing system	Conventional, meets standards as much as possible, improvement over old system and old system not causing impairment, uses allowances for repairs;	• Meets conventional standards as much as possible • Must comply with Prohibitions (7.38.042)	One-time addition less than 500 sf
	Enhanced Treatment for: • reduced groundwater or surface water separation, • fast or slow soil percolation • under pavement • reduced dispersal area up to 50% • existing seepage pits	• Maintenance Contract • Deed recordation, Periodic Inspection, annual fee	
	Limited Expansion System	• Water efficiency • Deed Recordation	Addition <500 sf
	Low-Flow System	• Water efficiency • Deed recordation, Periodic Inspection, annual fee	Addition <500 sf
	Nonconforming Interim (deferred enhanced treatment) Haulaway System	• Water efficiency measures installed • Must comply with Prohibitions (7.38.042) • Must install enhanced treatment at time of property transfer • Deed recordation, Periodic Inspection, annual fee	No Addition
Existing System	• Meets standards for water separation • Not failing, good pumper report • Not seepage pit or flow depth >10 ft	• Ongoing maintenance	If dispersal size adequate[b]: • Bedroom Addition, ADU • >500 sf addition
	• Does not fully meet standards • Not failing, good pumper report	• Ongoing maintenance	One-time addition less than 500 sf
	Failing: surfacing effluent	Repair required	Depends on Repair

[a] Standards for conventional systems are specified in County Code Section 7.38.095-180; Additional requirements for enhanced treatment systems and conventional non-standard systems are specified in Sections 7.38.182-186.

[b] A qualified professional must demonstrate to the satisfaction of the Health Officer that the system can accommodate the increased flow for the addition without adversely impacting water quality based on an evaluation of the existing leachfield trenches, soil characteristics and percolation rates. County staff will also consider other risk factors including but not limited to OWTS density, depth to groundwater and proximity to drinking water wells.

3.2 Summary of Design Requirements

Following is a summary of the key requirements for new and replacement systems. Detailed requirements are contained in Santa Cruz County Code Chapter 7.38 (Appendix A) and key elements are summarized in Appendix C.

3.2.1 Dispersal Area Requirements

The amount of required infiltration area for conventional dispersal systems is a function of the infiltration capacity of the soils, wastewater BOD concentration, and the expected wastewater flow based on the number of bedrooms per residential unit or projected design flow for commercial uses. Infiltration capacity is a function of the soil texture and structure. Acceptable wastewater application rates are typically assigned based on soil texture and/or percolation test results. A considerable margin of safety is usually built into conventional OWTS design standards and takes into account that the infiltration rate will be reduced considerably by formation of biological mat at the infiltrative surface as a result of wastewater organic loading, and potentially anaerobic saturated conditions. For example, a percolation test result of 5 minutes per inch (MPI) would be equivalent to 41.3 gallons per square foot per day. (This assumes you take into account the sidewall area during the perc test.) However, for dispersal system design purposes, a soil with a percolation rate of 5 MPI is typically assigned a conventional dispersal system wastewater application rate of 0.43-1.2 gal/sf/day, depending on the jurisdiction.

5 minutes for a 1 inch drop in a 6 inch diameter 6 inch deep perc hole
= 2.8 inches per square inch per hour
x 144 square inches per square foot = 403 cubic inches per square foot per hour
x 1/1728 cubic foot per cubic inches = 0.23 cubic foot per square foot per hour
x 24 hours per day = 5.6 cubic feet per square foot per day
x 7.48 gallons per cubic foot = 41.3 gallons per square foot per day

The State OWTS Policy and EPA OWTS Manual specifies the relationship between percolation rate and/or soil texture and wastewater application rate. The EPA Manual also provides for an increased application rate with the use of treated effluent, which is approximately double the application rate for untreated effluent. Santa Cruz County has consistently allowed a doubling of the application rate for treated effluent (BOD less and 30 mg/L), and it is proposed that this continues.

Table 3-2 presents a summary of the application effluent rates from Table 3 of State OWTS policy and also shows the allowed increase for treated effluent in a simplified table that can be used for sizing new and replacement OWTS in Santa Cruz County. However, the detailed application rates specified in Tables 3 and 4 of the State OWTS policy may also be used. Soil texture and structure is not proposed to be used to determine effluent application rates, except in the case of replacement systems, where there is available site information.

Alternative dispersal systems (drip, chambers, mounds, etc.) will typically require the same square footage of dispersal area, but some may have a different minimum infiltration area

requirement than presented below in Table 3-2, depending on manufacturer's guidelines. The OWTS designer must ensure appropriate infiltration areas are calculated based on the proposed disposal system and level of effluent treatment.

If there is inadequate room on a developed parcel to accommodate a conventional dispersal system for repair, OWTS, installation of 60 – 99% of the standard dispersal area may be allowed as a nonstandard low-flow system, provided, water conservation measures are installed, water use is monitored to ensure that flows are kept within the reduced design flows, and a notice is recorded on the deed regarding the limitations on remodels and use of the system.

Soils percolating faster than 5 MPI must use an enhanced treatment system that provides for nitrogen reduction; disinfection may be required based on vertical separation to groundwater. See Table 3-4 for conditions requiring nitrogen and pathogen reduction. Nitrogen reduction may be waived for soils percolating 1-5 MPI in specific areas where nitrogen is not a concern as long as all other setbacks and separation to groundwater are met. Soils with a percolation rate slower than 60 MPI are non-standard and not in compliance with SCCC 7.38.095 through 7.38.180, therefore are not suitable for a new standard OWTS. System replacements on existing parcels may occur in soils percolating 60-120 MPI. Enhanced treatment may also be recommended for soils percolating slower than 60 MPI.

Table 3-2: Dispersal System Application Rates

From State OWTS Policy Table 3. Some application rates may be doubled for enhanced treatment with effluent less than 30 mg/L BOD as noted in the following table. Application rates may be interpolated if the percolation rate falls between the indicated values. Application rates from Table 3 and 4 of the State OWTS Policy may be utilized for conventional systems. Those application rates may be doubled with enhanced treatment that reduces Biological Oxygen Demand (BOD) and Total suspended solids (TSS) to less than 30mg/L.

Percolation Rate - MPI (minutes per inch)	Application gal/sf/day	
	BOD=150 mg/L	BOD<=30 mg/L
<1	--	1.60
1	1.20	1.60
5	1.20	1.60
10	0.80	1.60
15	0.73	1.46
20	0.66	1.32
25	0.59	1.18
30	0.53	1.06
35	0.48	0.96
40	0.42	0.84
45	0.37	0.74
50	0.31	0.62
55	0.26	0.52
60	0.20	0.40
90-120	--	0.20

Table 3-3: Design Flow per Bedroom

Number of Bedrooms	1	2	3	4	5	6	Per Additional Bedroom
Standard Design Flow (gpd)	250	300	375	450	525	600	75
Low Flow System (gpd) Repair Only, with Limitations*	150	200	250	300	350	400	50

*Low Flow Systems require water conservation devices, flow monitoring, deed recordation, annual fee, periodic inspection, and limits on remodels. Low flow systems with enhanced treatment would not be eligible to also double the application rate, and further reduce the size of the dispersal area.
Alternative design flows for enhanced treatment systems may be proposed by the designer in order to ensure proper operation of the treatment components, provided the hydraulic capacity for soil absorption of peak design flows is maintained.

3.2.2 Dispersal Depth and Expansion Area

Effluent treatment takes place in the soil and is aided by the presence of oxygen. Treatment is optimized by shallow and dispersed effluent disposal. With minor exceptions allowed for repaired dispersal systems, standard dispersal trenches will have a maximum depth of 4 feet and a maximum infiltration area of 4 square feet per linear foot (sf/lf). In situations where slopes are steeper or surface soils are dense clay, the trenches may be set a maximum of ten feet below the surface but will maintain the dispersal area of 4 sf/lf. Deeper trenches with enhanced treatment may be used for new development and system upgrades for bedroom additions that have adequate separation to surface waters and groundwater as defined in Table 3.4, and adequate separation from public water sources as provided in Sections 9.4.10, 94.11 and 9.4.12 of the State OWTS Policy.

For repaired dispersal systems on parcels with limited suitable disposal area, deeper trenches up to a depth of 10 feet below the ground surface with up to 10 sf/lf of infiltrative area will be considered on a case-by-case basis, with adequate justification provided by a qualified professional. See Table 3-4 for conditions requiring nitrogen and pathogen reduction.

Conventional dispersal systems are expected to have a limited lifetime of 20-40 years, as infiltrative surfaces become clogged with biomat and roots. Because of that, approval of new and replacement OWTS requires designation and protection of expansion area on the parcel to accommodate a replacement dispersal system that meets current requirements. Due to the many constraints on small lots in the county, preserving expansion area may require use of deeper dispersal systems with protective separations to groundwater or with enhanced treatment systems. A property that cannot demonstrate 100% expansion area is not eligible for a major remodel or bedroom addition.

Chamber leaching devices approved by County EH may be utilized in lieu of gravel trenches. Use of such devices will allow the required dispersal area to be reduced by no more than 30% if the chamber leaching device is IAPMO certified. This is consistent with the State OWTS Policy, Uniform Plumbing Code and practice in other jurisdictions. (See Appendix E)

3.2.3 Seepage Pits:

Seepage pits shall not be permitted for new installations. Seepage pits may be used to repair an existing individual OWTS, or to expand an existing system in conjunction with a building addition, alteration, expansion or reconstruction, if the existing system utilized seepage pits and when leaching trenches cannot be installed due to unsatisfactory soil conditions or lack of sufficient space. Enhanced treatment with nitrogen reduction is required for all replacement seepage pits or where existing seepage pits are used to support a bedroom addition, major remodel or other increase in wastewater flow. The separation to groundwater may not be less than 10 feet.

3.2.4 Minimum Setbacks to Dispersal System and Separation from Groundwater

Treatment of effluent for removal of pathogens, nutrients and other contaminants requires adequate time in the soil for treatment. To that end, dispersal systems need to be located at sufficient distances from embankments or steep slopes to prevent surface discharge of inadequately treated effluent and to prevent discharge of pathogens or nitrate to wells or waterways. Adequate separation from groundwater is also important because wastewater is more rapidly treated in unsaturated soil and the presence of shallow groundwater or an impermeable layer can promote more rapid lateral movement of inadequately treated effluent. Soil permeability is also an important factor in that effluent can move more readily through a sandy permeable soil, with less time for treatment and attenuation of contaminants. Inadequate separation from groundwater or impermeable layer can also limit the ability of the soil to absorb effluent and lead to surfacing effluent.

With the high variability of factors that can affect the movement of contaminants, there is considerable variation in established standards for groundwater separation. The EPA (2002) indicates that 2-4 feet is adequate for pathogen treatment. The State OWTS policy calls for 5-20 ft, depending on soil permeability, and specifies an absolute minimum of 2 feet. Other states generally require from one to four-foot separation (Hall, 1990). A 1982 study of shallow monitoring wells in the San Lorenzo Valley showed no significant occurrence of fecal coliform in shallow groundwater beyond 50 ft from leachfields even when groundwater separation was less than 5 feet. In that study the amount of groundwater separation had no relationship to the amount of nitrate measured in downgradient wells, which showed somewhat elevated levels of nitrate up to 100 feet from the leachfields (SCCHSA, 1989).

Limited groundwater separation, slopes and waterway setback are some of the most significant constraints for siting OWTS in Santa Cruz County. Additionally, there are many properties that were developed before current standards were established, and that cannot meet current standards for stream setback and groundwater separation. Although they can't fully meet current standards, replacing and upgrading those systems results in a significant improvement in water quality protection and at least 90% of the year they fully meet current groundwater separation standards. Because these factors are so widespread and influential, it is important to establish standards that are not overly protective but that provide the

minimum protection of water quality that is needed. Santa Cruz County has expended considerable effort to map areas with high groundwater and measure the levels that occur. Because groundwater levels can fluctuate 10-20 feet from the dry season to the wet season, winter groundwater determination is limited to periods when there has been at least 60% of average annual rainfall and there has been at least 6 inches of rain in the previous 30 days.

Given all these considerations, Santa Cruz County established standards for groundwater separation and stream setback that have been implemented since 1995. Standards have been made more stringent now to meet the required two foot minimum separation and other requirements of the State OWTS Policy as presented in Table 3-4 and the subsequent section, Other Important Setbacks. Table 3-4 presents stream setback and treatment requirements relative to groundwater depth. Other water feature setback requirements are specified below. See Enhanced Treatment Table 3-5 Appendix D for specifications on type of treatment required. Table 3-4 provides OWTS design setback and treatment conditions for existing, new, and replacement OWTS that are within the Pajaro River Watershed, Soquel Lagoon Watershed, Aptos Creek Watershed, San Lorenzo River Watershed, and Corralitos/Salsipuedes Creek Watershed that comply with the Human Fecal Material Discharge Prohibition in section 5.4.2.2 of the Basin Plan.

Table 3-4: Groundwater Separation Based on Stream Setback, Treatment, and Soil Percolation (Minutes per Inch (MPI))

Horizontal Setback to Stream	25-50 Feet	50 - 100 Feet	> 100 Feet
Conventional Systems:			
New System on undeveloped parcel	Not Permitted	Not Permitted	<1 MPI – Not Permitted 1-5 MPI Not permitted in nitrate concern area 1-5 MPI =20 feet outside nitrate concern area 5-29.9 MPI = 8 feet 30-60 MPI = 5 feet >60 MPI – Not Permitted
Upgrade System, increase in flow by ADU, bedroom addition or major remodel	Not Permitted	Not Permitted	<1 MPI – Not Permitted 1-5 MPI Not permitted in nitrate concern area 1-5 MPI = 20 feet outside nitrate concern area 5-29.9 MPI = 8 feet 30-60 MPI = 5 feet >60 MPI – Not Permitted
Repaired System, no increase in flow	Not Permitted	<1 MPI – Not Permitted 1-5 MPI Not permitted in nitrate concern area 1-5 MPI – 20 feet outside nitrate concern area 5-29.9 MPI = 5 feet 30-60 MPI = 5 feet >60 MPI – Not Permitted	<1 MPI – Not Permitted 1-5 MPI Not permitted in nitrate concern area 1-5 MPI = 8 feet outside nitrate concern area 5-29.9 MPI = 5 feet 30-60 MPI = 5 feet >60 MPI – Not Permitted
Greywater Sump	5 feet	5 feet	3 feet
Enhanced Treatment System [a,b] (BOD, TSS, TN <30 mg/L;-Fecal coliform/E.coli Reduction to 200 MPN/100 ml)			
New System on undeveloped parcel	Not Permitted	Not Permitted	2 feet
Upgrade System, increase in flow by ADU, bedroom addition or major remodel	Not Permitted	2 feet	2 feet
Repaired System, no increase in flow	4 feet	2 feet	2 feet
Seepage Pit-Repair/Upgrade Only	Not Permitted	Not Permitted	10 feet

[a] Enhanced treatment with nitrogen reduction is required for all new, repaired, and replacement OWTS with soils that percolate faster than 5 MPI in nitrate concern areas (see Figure 3-1, Sec.3.2.6)

[b] Groundwater separation less than 2 ft can only be approved by Regional Water Board

Figure 3-1: Nitrate Concern Areas

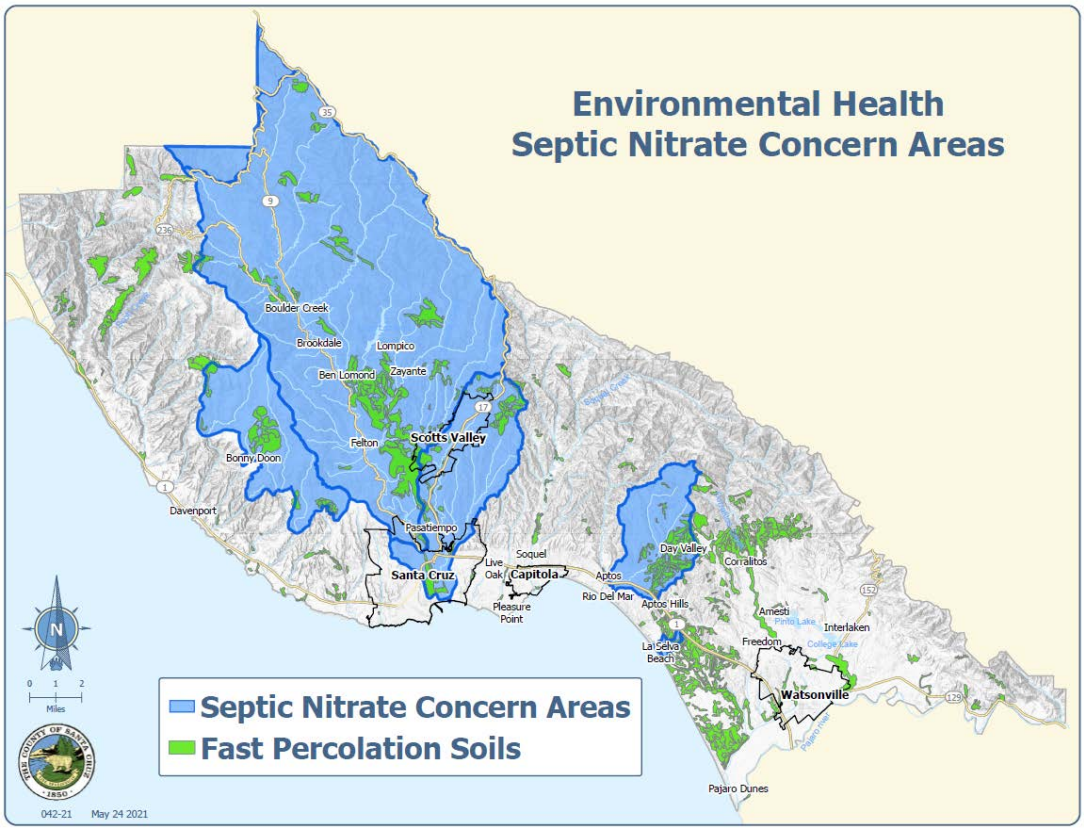


Table 3-5*:* Other Important Setbacks (for Septic Tanks and Dispersal Systems):

Where setbacks to streams, wells, karst features, drainageways, and stormwater infiltration devices cannot be met, enhanced treatment shall be utilized, consistent with Table 3-4.

The minimum separation shall be 10 feet from the bottom of the dispersal device to an impermeable layer that percolates slower than 120 MPI. With enhanced treatment and shallow drip dispersal, that separation can be reduced to not less than 3 feet.

Private individual, water line	10 feet
Water Main	25 feet
Stream, well, spring, watercourse [a], private water supply well, well site [b], sinkhole or other karst feature that may rapidly convey water	100 feet
Public water supply well	150 feet/200- feet[e]
Vernal pools, wetlands, lakes, ponds, ocean, or other surface water bodies	200 feet
Stormwater Pipeline Tightline, upgradient ditch or swale	10 feet
Drainageway that carries stormwater less than 12 hours after significant rainfall, stormwater infiltration device	25 feet
Drainageway that carries water 12 hours to 7 days after significant rainfall or curtain drain down-gradient from dispersal device	50 feet
Steep Slope[c]	25 feet
Embankment[d]	4 times height of bank to maximum of 25 feet

[a] The edge of the watercourse is the natural or levied bank for creeks and rivers.

[b] Well site would include any potential well location on an adjacent property that is 50 feet from the property line.

[c] Steep slope is a slope of greater than one and one-half feet horizontal to one foot vertical (67 percent).

[d] Fifty feet if slope area is composed of fractured material or if slope area or embankment is intersected by impermeable strata or shallow groundwater.

[e] 200 feet from a public water well where the depth of the effluent dispersal system exceeds 10 feet in depth. If the dispersal system depth exceeds 20 feet below grade and is within 600 feet of a public water well, then a horizontal setback is required to achieve a two-year travel time for microbiological contaminants as evaluated by a qualified professional. However, in no case, shall the setback be less than 200 feet.

3.2.5 Slopes, Embankments and Unstable Areas

Much of the Santa Cruz Mountains consist of steep slopes, and unstable geology. Many of the properties have cuts and embankments. Lateral movement and surfacing of effluent have been rarely documented, but there are a number of situations where effluent disposal from OWTS has contributed to slope failure. Although County code has restricted the installation of new OWTS on slopes steeper than 30% for many years, older systems do occur on steeper slopes and system replacements have been allowed on slopes up to 50%. The State OWTS

policy and this LAMP prohibit the installation of dispersal systems on slopes greater than 30% or within 100 ft of unstable land masses unless allowed through a geotechnical report prepared by a qualified professional. Such a report could also address reduced setbacks to embankments, if necessary. If deemed suitable by a qualified professional, installations on slopes between 30% and 50% will be allowed for repairs, upgrades and ADU's.

3.2.6 Enhanced Treatment Systems

An enhanced treatment system is required in the following situations:

- For new or replacement OWTS in Zayante or Baywood Soils, or any soil that percolates faster than 5 MPI. See Table 3-4 for setback requirements and conditions requiring nitrogen and pathogen reduction. This requirement can be waived for parcels that are greater than 10 acres or outside the nitrate concern areas of San Lorenzo Watershed, North Coast Water Supply Watersheds, Valencia Watershed and La Selva Beach area (Figure 3-1); and maintain a private well setback of more than 150 ft.
- For repair or upgrade of any large system serving more than 5 residential units or discharging more than 2500 gpd but less than 10,000 gpd, regardless of soil type.
- For new or replacement OWTS to mitigate conditions where standard system requirements cannot be met: reduced dispersal area, reduced separation to groundwater.
- For replacement OWTS where reduced setback to a stream or well is required.

Use of an approved enhanced treatment system requires the installation and continuous operation of monitoring telemetry; an ongoing service contract with an approved service provider; water quality monitoring; submittal of biannual reports for the first two years of operation and thereafter annual reports of system operation, maintenance and monitoring results; and, periodic inspections by County EH to confirm satisfactory performance. Specific requirements for enhanced treatment are described in Appendix D.

3.2.7 Minimum parcel size for new development

Santa Cruz County has a number of restrictions on parcel size for new development. For creation of parcels served by an OWTS, the General Plan and Code requires a minimum parcel size of at least one acre. The State OWTS Policy specifies an allowable subdivision density based on average annual rainfall. With the annual average rainfall in areas of Santa Cruz County varying from 25 inches in Watsonville to 60 inches above Boulder Creek, the allowable density would be 0.5 to 1.0 acre per dwelling unit. Other limits on parcel size for new development include:

- 1-acre minimum parcel size required for new development on existing lots of record in San Lorenzo and North Coast/Bonny Doon water supply watersheds.
- 2 ½ acre minimum parcel size required for new development on existing lots in North Coast/Bonny Doon water supply watersheds where the parcel is located within 1 mile of the water supply intake (designated as Water Quality Constraint Areas).

- Pursuant to policies in the General Plan, new parcels created must be 1 to 40 acres in size, depending on zoning and presence of resources and constraints.
- Any new lot created must be demonstrated to be capable of meeting requirements for onsite sewage disposal. Previously, only conventional systems were allowed, but it is proposed that enhanced treatment systems will be acceptable for creation of new lots, if requirements are met.

3.2.8 Variances

There are a number of situations where a variance to the requirements for a new standard OWTS may be allowed for replacement systems under specific conditions as described in the LAMP, Santa Cruz County Code and regulations. Standard systems must meet the requirements to the greatest extent possible and must meet the alternative minimum requirements with mitigations or site conditions needed to protect water quality and public health as discussed elsewhere in this document. The following types of variances may be allowed for replacement systems on developed parcels:

- Setback to Foundation or Property Lines – less than 5 ft, as authorized by Building Official or Health Officer.
- Setback to water mains from 25 to 10 ft and to less than 10 ft for private individual water lines if water line is double sleeved.
- Setback to embankments – less than 25-50 ft., if allowed by geologist's report
- Setbacks to waterways for system repairs, if required and mitigated by enhanced treatment and/or site conditions.
- Easements for repairs/upgrade/lot lines for buildable lots.
- Slope in dispersal area from 30% up to 50% for replacement, if approved by a geologist report.
- Winter groundwater separation down to 2-3 ft. mitigated by enhanced treatment and greater separation from waterways.
- Depth of dispersal system, if soil conditions require and minimum groundwater separation is maintained.
- Dispersal area, if mitigated by water conservation and enhanced treatment
- Leaching allowed under paving mitigated with enhanced treatment and if required to accommodate required dispersal area.
- Use of reduced dispersal area for low flow system with water conservation measures, limits on building, deed recordation and periodic inspections.
- Use of an interim nonconforming system with deferred installation of enhanced treatment to time of property transfer, with water conservation measures, limits on building, deed recordation and periodic inspections.

For new development on undeveloped properties, variances to requirements for standard systems may be allowed if an enhanced treatment system is used, and if none of the prohibitions specified below apply.

Records will be maintained in the permit database any time one of these variances is approved and will be reported as a part of the annual reporting. Additionally, minor deviations may be approved by the inspector in the field, required by field conditions, when an inspection in the field makes clear that no individual or cumulative public health hazard will result, and when only slight changes in approved plans are required. These changes are noted in filed notes and on as-built plans.

3.2.9 Prohibitions:

In no case will a variance be allowed or an individual OWTS be permitted by the County in any of the following circumstances:

(A) Where the property line of the parcel upon which the system is proposed to be constructed is within 200 feet of a public sewer and connection to the sewer thereto is determined to be feasible. "Feasible" means that sewer service is both (a) available by annexation to or contract with an existing sanitation district, County service area or city under existing Local Agency Formation Commission spheres of influence and County land use policies, and (b) that connection is technically feasible based on engineering and technical factors.

(B) Where the parcel upon which the system is proposed to be constructed is undeveloped and less than the required minimum size specified in Code Section 7.38.045.

(C) Where the system is proposed to be installed on a parcel other than the parcel upon which the use to be served by the system is located, except as provided in SCCC 7.38.060.

(D) Where the system utilizes a cesspool of any kind or size.

(E) Where the separation of the bottom of dispersal system to groundwater is less than 2 feet, except for seepage pits, which shall not be less than 10 feet.

(F) Where the system receives wastewater discharge from whole-house water treatment systems or backwash from swimming pool or spa.

(G) Where the parcel is undeveloped, and the proposed system would be located on slopes over 30% or within 100 feet of a well or water body.

(H) The following types of systems may not be permitted under this LAMP by the County, but may be permitted by the State Water Boards:

1) OWTSs receiving a projected flow over 10,000 gpd.

2) OWTSs that utilize any form of effluent disposal that discharges on or above the post installation ground surface such as sprinklers, exposed drip lines, free-surface wetlands, or a pond.

3) OWTSs dedicated to receiving significant amounts of wastes dumped from RV holding tanks.

4) Systems which receive wastewater other than domestic wastewater, such as medical and dental office wastewater, food and beverage industry wastewater, winery waste or brewery waste.

5) OWTS that receive high-strength wastewater.

(I) Except as provided for in paragraphs 6 and 7 below, new or replacement OWTS are prohibited with minimum horizontal setbacks less than any of the following:

1) 150 feet from a public water well where the depth of the effluent dispersal system does not exceed 10 feet in depth.

2) 200 feet from a public water well where the depth of the effluent dispersal system exceeds 10 feet in depth.

3) Where the effluent dispersal system is within 600 feet of a public water well and exceeds 20 feet in depth the horizontal setback required to achieve a two-year travel time for microbiological contaminants shall be evaluated. A qualified professional shall conduct this evaluation. However, in no case shall the setback be less than 200 feet.

4) Where the effluent dispersal system is within 1,200 feet from a public water systems' surface water intake point, within the catchment of the drainage, and located such that it may impact water quality at the intake point such as upstream of the intake point for flowing water bodies, the dispersal system shall be no less than 400 feet from the high-water mark of the reservoir, lake or flowing water body.

5) Where the effluent dispersal system is located more than 1,200 feet but less than 2,500 feet from a public water systems' surface water intake point, within the catchment area of the drainage, and located such that it may impact water quality at the intake point such as upstream of the intake point for flowing water bodies, the dispersal system shall be no less than 200 feet from the high-water mark of the reservoir, lake or flowing water body.

6) For replacement OWTS that do not meet the above horizontal separation requirements, the replacement OWTS shall meet the horizontal separation to the greatest extent practicable. In such case, the replacement OWTS shall utilize an enhanced treatment system and other mitigation measures, unless a qualified professional provides information to the satisfaction of the Health Officer that there is no indication that the previous system is adversely affecting the public water source, and there is limited potential that the replacement system could impact the water source based on topography, soil depth, soil texture, and groundwater separation.

7) For new OWTS, installed on parcels of record existing as of May 13, 2013, that cannot meet the above horizontal separation requirements, the OWTS shall meet the horizontal separation to the greatest extent practicable and shall utilize enhanced treatment for pathogen and total nitrogen concentration reduction and any other mitigation measures prescribed by the Health Officer.

3.2.10 Proximity of Collection Systems to New or Replacement OWTS

Sewer systems are operated in Santa Cruz County's urban areas by the Cities of Santa Cruz, Scotts Valley, and Watsonville, various Sanitation Districts operated by the County of Santa Cruz, and the private Salsipuedes Sanitary District (Figure 3-2). The County General Plan establishes an Urban Service Boundary, where all new development should be served by public sanitation. Sewer lines are not intended to be extended outside of the Urban Service Boundary and are generally not to be extended outside the sphere of influence of the City of Santa Cruz or sanitation district. In some cases, the Local Agency Formation Commission (LAFCO) has approved annexations or extraterritorial service

to serve individual parcels close to an existing sewer line that may have a failing OWTS. However, this is not generally done to support new development on individual parcels unless it is part of a much larger General Plan land use amendment.

Figure 3-2: Primary Sewered areas of Santa Cruz County
Grey: Municipal; Lime: Santa Cruz Sanitation District; Purple: Freedom Sanitation District; Red: Salsipuedes Sanitary District

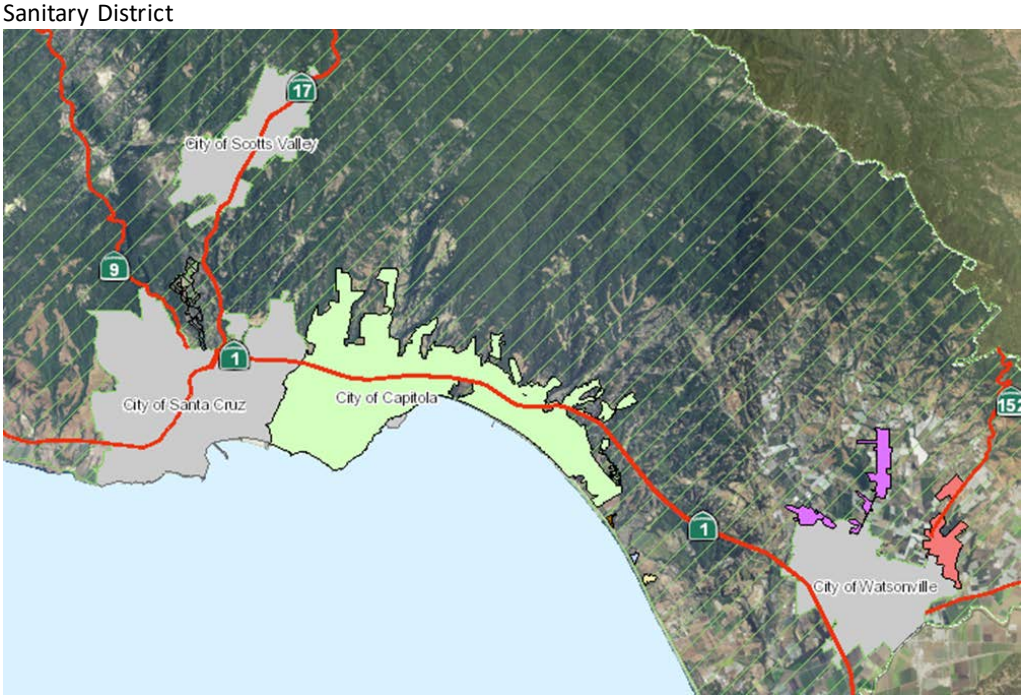
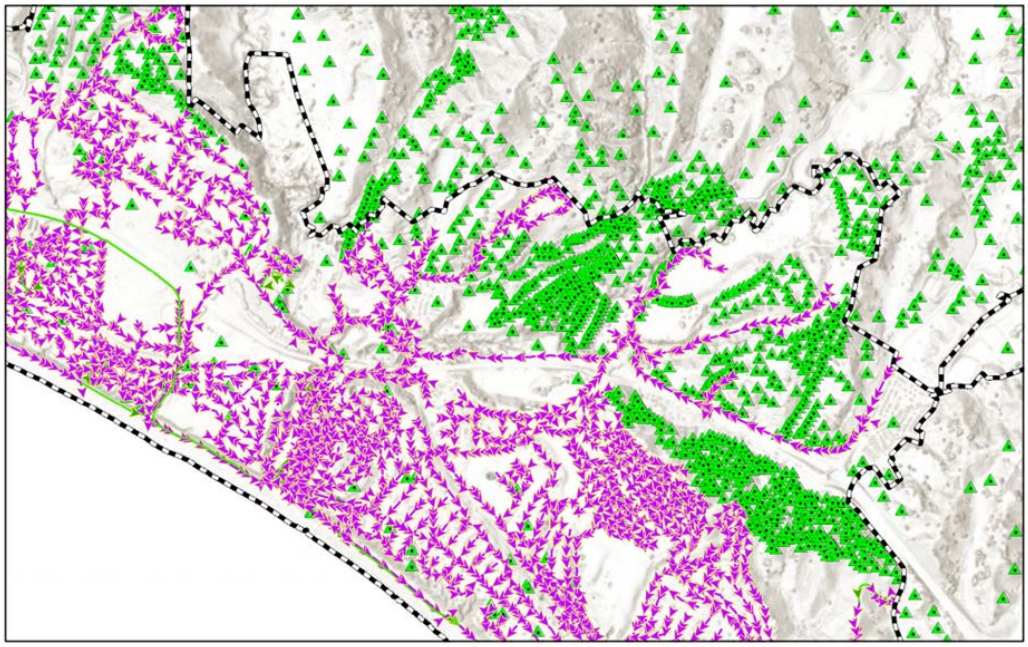


Figure 3-3: OWTS in Relation to Sewer Lines: Sanitation District sphere of influence
(Black and white line), sewer lines (purple) and location of OWTS (green) in Aptos area.



3.3 Site Evaluation

For all new and replacement OWTS installations, a site evaluation and soil characterization by a qualified professional and witnessed by County EH staff will be required. This includes a soil profile excavation to the minimum depth of required groundwater separation below the bottom of the proposed dispersal device and percolation testing in the area of the disposal field and expansion area. The maximum depth of observation may be reduced if enhanced treatment is proposed with a reduced separation to groundwater or impermeable layer. The requirements for percolation tests may be waived if a qualified professional can provide adequate information to document the soil texture, soil structure, and soil grade to establish a maximum soil application rate to the satisfaction of the Health Officer. The specific soil profile requirements are contained in the code (Appendix A) and the soil test procedures (Appendix F).

Based on mapped information, file information, and observations of site soils and topography, staff will determine whether or not shallow winter groundwater is likely to be present, and if so, winter water table observation will be required pursuant to the Winter Water Table Testing Procedures (Appendix F). Site testing for groundwater will be required unless the system designer demonstrates to the satisfaction of Environmental Health staff that there is already adequate information regarding the location to determine that groundwater separation requirements can be met. During the field visits, EH staff will measure slope, setbacks to streams, wells, and embankments and make observations of other issues such as slope stability concerns. EH Staff will also utilize the Santa Cruz County GIS database for other information such as nearby public water sources, proximity to sewer lines, presence of karst, or other issues that may influence the location and design of the OWTS. If an OWTS is proposed within 200 feet of a public water supply source, the operator of the public water supply source will be notified.

3.4 Qualifications for Persons Who Work on OWTS

Specific qualifications and licenses are required to design, construct, maintain, repair and/or replacement of an OWTS in Santa Cruz County. Design, construction, maintenance, repair and replacement of an OWTS shall be conducted by a qualified professional or service provider in accordance with the following requirements:

- Site evaluations, soil investigations and percolation testing for system design shall be conducted by a registered California professional, including Civil Engineer, Professional Geologist, Certified Engineering Geologist, Registered Environmental Health Specialist, or other qualified professional as approved by EH
- Reports justifying installation on a steep slope, reduced setback to an embankment or other concern of slope stability shall be prepared by a California registered Professional Geologist or Engineering Geologist.
- System designs, including site evaluation, will be prepared by a California registered Civil Engineer, registered Geologist or registered Environmental Health Specialist, or other qualified professional as approved by EH.

- Qualified installers that install an OWTS must be a contractor duly licensed by the California State Contractor's Board to install OWTS. Acceptable licensure types are Class A, Class B, Class C-36, and Class C-42. The Class B license holder is limited to installing an OWTS in conjunction with a new construction projects as appropriate under applicable State contractor's law.
- Liquid waste haulers are required to maintain a separate license to operate in Santa Cruz County and shall comply with all the requirements of Chapter 7.42 (Appendix B).
- Onsite System Service Providers (OSSP) are an individual or company approved by County EH and certified by an OWTS manufacturer or proprietor to conduct maintenance and replace needed parts for each type of enhanced treatment or alternative dispersal system they service, or other qualified OSSP as approved by County EH.
- County EH has a certification program for OSSPs and a registration program for liquid waste haulers. County EH will develop a Qualified Professional annual registration program for all qualified professionals to demonstrate that their qualifications are in good standing and based on demonstrated experience and satisfactory performance.

County EH maintains a directory of Qualified Persons to work on OWTS. This information is included as part of the web-based resources maintained on the County's OWTS website. This lists the name, address and phone contact information for professional services providing septage disposal, maintenance services, system design, and permitting assistance. County EH intends to require registration of qualified professionals to work in the County, similar to other jurisdictions. That registration can be suspended for violations of County code and permit requirements.

4 Operation of Existing Systems

In order to ensure satisfactory OWTS performance, County EH implements various components to promote operation and maintenance of existing OWTS, to provide for inspections and evaluations as needed to identify problem systems, to require the correction of failing systems, to provide for upgrade of systems at the time of building remodels. The County also conducts more in-depth oversight through advanced protection management programs in areas that impact impaired or vulnerable waterbodies and groundwater. Those programs typically include evaluation of potential for developing or connecting to community wastewater disposal systems and opportunities for financial assistance to address OWTS problems.

4.1 Operation and Maintenance

Operation and maintenance of existing OWTS is ultimately the responsibility of the property owner. The County promotes this through education and outreach, facilitating septic tank pumping and sludge disposal, and overseeing service providers for enhanced treatment systems. Compilation of file information on permit history, inspections, and pumping and making that information available also provides more information to qualified professionals and property owners, particularly those that may be interested in purchasing a house with an OWTS.

4.1.1 Education and Outreach for OWTS Owners

Public information regarding OWTS is generated by County EH and then disseminated to the public through County EH watershed groups, Realtors, or other County agencies relative to the building permitting process. Within the past five years, an OWTS brochure was mailed to all residents in the San Lorenzo Watershed.

County EH provides periodic web-based news articles and brochures regarding OWTS construction, performance, and maintenance with special emphasis on the benefits of water conservation. Also, hard copy brochures on water conservation, graywater disposal, and general OWTS use are produced and are widely distributed. Accordingly, County EH provides this information on the County's webpage, and through in-person meetings with owners and operators, either during front desk walk-in questions, or during a permit process consultation.

County EH provides site-specific education for OWTS users tailored to the specific parcel and system. During these consultations, information on proper OWTS use and maintenance is provided to make sure the users have a clear understanding of how to identify and respond to maintenance and repair issues. County EH emphasizes the importance timely responses to OWTS failures and provides checklists for maintenance, repair, or replacement of critical items. County EH provides to OWTS owners and buyers low-cost evaluations of OWTS through file reviews and site inspections. These evaluations analyze the status of a parcel's OWTS. Additionally, County EH staff will review proposed plans and designs for replacement or repair of OWTS to advise potential permit applicants in advance of the OWTS owner formally initiating a permit application. These services are regularly provided to the public, or

to consultants and contractors employed by owners for assistance with OWTS design, permitting, or simple maintenance.

File Reviews: County EH provides as a public service a full evaluation and interpretation of all available information on properties served by OWTS and/or private water systems. This evaluation answers question such as:

- Has the OWTS had problems during the winter or in the past?
- What system upgrades might be needed to add bedrooms?
- Will the property likely need an enhanced treatment system?
- What is the age and construction of the private water supply well?

This service helps to protect prospective home buyers from problems and surprises related to private water supply wells and OWTS after real estate purchases and help to prevent protect home sellers and buyers from surprises, lawsuits, or failed sales. Just getting a septic tank pumper's report is not enough to characterize a parcel's OWTS. County EH recommends that a seller obtain the OWTS file review and system review early in the process of selling a property in order to make those reports available to all prospective buyers, and to provide early notice of any problems that might need attention in order to successfully complete a sale.

On-Site System Review: An on-site review of the property and system can be performed by County EH staff or the approved contractors and consultants currently on the list maintained by the County EH office. Information from an OWTS site review will be provided to the applicant on a standard report completed by EH staff or by a qualified professional.

To ensure that new home buyers are properly informed prior to purchasing an OWTS, and to ensure that older OWTS are evaluated, it is proposed that an OWTS evaluation be required prior to a real estate transaction, with deficiencies addressed during the transfer or the new owner taking responsibility to correct the deficiencies. Such evaluations are already required when a building permit for a remodel is obtained. Within sewered areas, an evaluation of the sewer lateral is already required at the time of sale by all the sewer agencies in the county. If deficiencies are found, those can be corrected during the transfer or the new owner may agree to take responsibility to correct the deficiencies.

4.1.2 Septic Tank Pumping and Septage Disposal

Septic tanks must be periodically pumped out to remove accumulated solids and grease to prevent discharge of solids that would clog the dispersal system. The recommended frequency of pumping is 5-10 years, depending on occupancy, water use, presence of garbage disposal and lifestyle. Septic tanks can only be pumped by a licensed liquid waste hauler in good standing with the County. The hauler must also be approved to discharge septage at an approved disposal facility. There are two approved facilities within Santa Cruz County: the Santa Cruz City Wastewater Treatment Plant and the Watsonville City Wastewater Treatment Plant. Pumpers also go to a disposal site in Marina (Monterey County) or to another approved out-of-county disposal site. From 2010 to 2018, 46 million gallons of septage and grease were generated (9% was grease trap waste). The septage and

grease were distributed among the disposal facilities as follows: 71% went to Santa Cruz, 12% to Watsonville, 12% to Marina, and the remaining 5% went out of county.

The Santa Cruz City Wastewater Treatment Plant septage disposal facility was developed in 1986 and became operational around 1988. Prior to that time, most of the septage went to two approved land disposal sites on ridgetops above the San Lorenzo Valley. Those sites have been closed and Santa Cruz County Code no longer allows for land disposal sites. There appears to be more than adequate disposal capacity at the treatment plants. The septage is mixed in and treated with the incoming wastewater flow. Prior to 1988, Santa Cruz City Wastewater Treatment Plant did not take septage, but because it received grant funding as a regional treatment plant, the plant was upgraded to take septage and the County agreed to administer the billing and collecting disposal fees from the septage haulers.

Santa Cruz County Code Chapter 7.42 was amended in 1987 to establish the requirements for septic tank pumping and septage disposal. It was subsequently amended in 2019 to eliminate the provisions for approval of land disposal sites and to make other minor revisions (Appendix B). Since 1987, septic tank pumpers have been required to provide a report to the property owner and County EH for every tank pumped that indicates:

- Size, material, and condition of the tank, baffles, lids, inlets and outlets
- Indications of leachfield failure, back-up, or greywater bypass
- Volume pumped and disposal location
- Diagram of tank location

This information is entered into the Environmental Health Land Use Information System (EHLUIS) and is available for review by inspectors and members of the public. The database also calculates the number of septic tank pumps for each parcel in the last 1, 3 and 7 years. Frequent pumping, particularly during winter months, can be an indication of a system that is not functioning properly.

A current septic tank pumping report from within 3 years is required to be submitted whenever a building permit is applied for in order to indicate whether the OWTS is performing satisfactorily. Additionally, most real estate transactions require a satisfactory pumpers report as a condition of a real estate transaction. Although these reports, may include a hydraulic load test of the leachfield, they may not be indicative of performance of the OWTS during wet winter conditions or possible increased loading from a new homeowner, particularly if the home has not been occupied.

4.1.3 Nonstandard and Enhanced Treatment Systems

Nonstandard systems include enhanced treatment systems, alternative dispersal systems, and conventional systems that cannot fully meet standards. Enhanced treatment and alternative dispersal systems require routine inspection and maintenance. This is best done by a qualified and approved OSSP. County EH maintains a list of approved OSSP for different types of systems. The permits for enhanced treatment and alternative dispersal systems require that the property owner have and maintain a service contract with a qualified OSSP. The OSSP in turn is required to submit to County EH an annual report of system condition and maintenance performed. These are maintained in the files and in a database. Some systems

require water quality testing of effluent and influent quality, and this information is maintained in a separate database. Nonstandard OWTS are inspected by County EH at least every 3 years to verify the information submitted by the OSSP. If a service contract lapses and/or annual reports are not submitted, County EH inspections are conducted annually and the annual service charge for the system is increased from $167 to $501.

Enhanced treatment systems and other approved nonstandard systems are subject to a number of other requirements to ensure proper management and adequate performance:

- restriction on volume of water use, property use, and/or future development to ensure the capacity of the OWTS is not exceeded;
- requirement of a service contract with an OSSP and regular monitoring and maintenance of any pumps, filters, grease traps, alarm systems, disposal system monitoring risers, groundwater monitoring wells, and other OWTS components;
- regular inspection and monitoring by the property owner, OSSP and County staff;
- payment of an annual fee by the property owner to cover the costs of the County for OWTS inspection;
- signed acknowledgement by the property owner accepting these conditions and limitations; and,
- recordation on the deed of a notice notifying potential buyers and future owners of the presence and limitations of the nonstandard system.

When a permit for a nonstandard system is issued, the County notifies the owner of its limitations and the requirements for satisfactory operation and the owner is required to sign an acknowledgment accepting those conditions prior to permit approval. When the installation is complete, the conditions are specified in a "Notice of System with Special Operating Requirements and Limitations" which the County records on the deed. Annual inspection and administration fees are collected through the special charge on the property tax bill under County Service Area 12 (CSA 12N).

There are different levels of charge for the annual inspection, depending on the type of OWTS, the amount of monitoring required, and whether the OWTS is subject to a service agreement with a certified OSSP. For the 2019-2020 fiscal year, the charges are as follows:

- Managed Enhanced Treatment Systems (with OSSP) (Level 6) $167.00
  Level 6 is for an enhanced treatment system which is receiving annual maintenance and reporting by an OSSP.
- Enhanced Treatment Systems (No OSSP) (Level 3) $501.00
  Level 3 is for systems where there is no OSSP and/or the service contract and reporting has lapsed. These require a higher level of County oversight and enforcement to require compliance with OSSP requirements.
- Nonconforming OWTS (Level 4) $101.00
  Level 4 is for a conventional system that does not fully meet the standards for disposal area and requires inspection every three years. This includes Low Flow Systems and Nonconforming Interim Systems.
- Limited Expansion OWTS (Level 5) No Charge
  Level 5 systems substantially meet all standards except for expansion area.

Level 1 and 2 are previous designations that are no longer used.

4.2 OWTS Inspection and Evaluation

Improved OWTS maintenance and management is a critical element contributing to the long-term effectiveness of the wastewater management program. This will be accomplished through re-inspection programs, and various efforts to promote adequate maintenance by property owners. After the initial evaluations and upgrades have been completed, properties will continue to be checked for indications of OWTS failure as needed. The frequency of inspection will vary depending on the type of OWTS, the condition and past performance of the OWTS, and the presence of site constraints.

Existing OWTS are subject to performance evaluation and inspection under any one of the following circumstances:

- Septic tank pumping
- Property transfer
- Building permit application
- Periodic inspection as a condition of a permit for a nonstandard system
- Investigation in response to a complaint or observed water quality degradation
- Follow-up inspection in response to a failing pumpers report
- Area-wide survey of OWTS as a part of an APMP (Section 4.5)
- Winter rechecks to follow up on a potentially marginal condition observed in a previous inspection

OWTS subject to a winter re-inspection are low flow OWTS and OWTS which are identified during surveys or complaint investigations for follow-up inspections. Other OWTS subject to a recheck are those in which a graywater bypass has been required to be reconnected to a substandard OWTS, the washer has been required to be removed, a onetime intermittent failure has been observed, the OWTS has had frequent pumping and/or signs of failure identified in a pumper's report, or any others where the inspector believes a follow-up investigation during wet conditions is warranted. A graywater bypass is an indication of back-up or failure that induces the owner to disconnect the washer, shower or other plumbing fixture from the OWTS in order to reduce loading on the OWTS. Enhanced treatment OWTS and low flow OWTS are subject to an inspection every two to three years.

OWTS needing annual inspection or recheck are identified in the computer database and re-inspections are done during wet weather to ensure that the OWTS are working properly under conditions when they would be most likely to fail. During the visit, aspects of OWTS operation and appropriate methods of water conservation/flow reduction, if needed, will be discussed with the occupant of the home. If the OWTS is not operating properly, additional maintenance efforts (i.e. more stringent water conservation) or OWTS improvements will be required. Based on the results of the re-inspection, the frequency of follow-up inspections may be reduced if no problems are found or expected. However, if there are still problems with the OWTS, and it appears that closer supervision will be necessary to ensure proper

functioning, the OWTS will be required to be upgraded, incorporated into the nonstandard system program, and/or the levels of inspection and the annual inspection charge may be increased if it is already in the program.

OWTS evaluations start with a report that identifies the OWTS needing inspection, and which extracts relevant information from EHLUIS database records for those systems, including system characteristics, past pumping results and past inspection results. Staff may further consult EHLUIS, County electronic file records (Laserfiche) for the parcel, and/or GIS maps of land use and site information:

- **EHLUIS Database – OWTS System Components, Site Conditions, and History:** The EHLUIS database stores OWTS records by parcel number. Each parcel's period of record is reviewed to examine data for permits, installations, siter characteristics, pumping records, complaints, inspections, and non-permit-related parcel surveys. This information includes a characterization of each OWTS's physical components, and general geophysical characteristics of the parcel such as ground surface slope, soil profiles, and proximity to surface and groundwater resources. In 1987, the County adopted an ordinance requiring submittal of a pumping and inspection report to the property owner and to the County every time a septic pumper pumps a tank. This allows the County and the property owners to maintain a maintenance record for each parcel. Pumpers' Reports are reviewed for pumping operators' information regarding the status of the system's current operational health, including any noted observations of the OWTS observed when a OWTS is serviced. With pumping records in the database, pumping efforts are monitored, and if necessary, additional action may be taken to ensure adequate pumping.
- **Geographic Information Systems (GIS) Mapping - Parcel land use characterizations:** Parcel-specific land use data is maintained within the County's GIS database including records for OWTS. A parcel considered for operation of an OWTS is examined within the County GIS mapping system for analysis of the parcel's characterizations including things such as: soils, water resources, well locations, elevation contours, protected biological status of various flora and fauna, geology, jurisdictional boundaries, easements, building structures, land use code, ownership, and others. Data for every permit record related to a parcel's OWTS management is exported from the County EH OWTS database and converted to a three-tiered GIS layer for a OWTS's component information. This GIS layer is a matter of public record, searchable as a data layer that stores an overall OWTS system characterization for each parcel. In this way, County EH integrates its OWTS database with the countywide GIS system that is shared with other County land use departments regulating parcels through development review permits, such as the Public Works Department, Cannabis Licensing Office, and Planning Department.
- **Paper Files and Electronic Laserfiche Files–**Current parcel-specific OWTS records are stored by County EH in hard copy until: 1) they are scanned as digital files to be permanently stored for the parcel's period of record; and 2) their primary system characterization data and geophysical characteristics are entered into the County EH OWTS database, EHLUIS, for reporting and analysis. If a parcel's historical data has not

yet been translated into EHLUIS, then its scanned digital files are viewed within the County's digital document management software system, Laserfiche, in order to most fully inform analysis of a parcels' current status.

After a review of background data, the inspector will make a site visit, contacting the occupant of the property and making observations for signs of surfacing effluent, soggy soils, greywater discharge, high level alarms, effluent level in risers, and status of any electrical control panel. Santa Cruz County Code Section 7.38.215 establishes the right of the County Health Officer, and the Officer's delegated authorities within County EH, to conduct field investigations for any suspected operations relating to OWTS, with proper notification of the occupant of the property. For any approved nonstandard system, the right to conduct inspections is also included in the terms of the acknowledgment that the owner signs and that is recorded on the deed.

4.3 Failing Systems and Repairs

OWTS are considered to have operational problems when conditions are found such as surfacing effluent, discharge of graywater, plumbing backing up into the house, or water quality degradation of nearby water resources, as indicated by water quality sampling or complaints. Required solutions may include immediate temporary actions as well as long term improvements. When a problem is identified either through the survey/inspection process or through complaint investigations, a series of actions are taken to have the situation corrected by the property owner. In most cases the property owner is cooperative, and the County's role is to provide assistance and oversee the work. However, if the property owner does not respond to the request to repair their system, follow-up actions become progressively more stringent and punitive.

When a problem is first identified and/or a complaint is received, it is entered into the computer database for tracking and the assigned staff person investigates the situation. If the owner is present when the inspection is conducted, the problem is discussed, and many corrections can be initiated by this minimal enforcement effort.

If the owner is not present when a problem is identified, or if they fail to take action after the initial verbal contact, a Notice to Repair Septic System is mailed to the owner of record giving not more than 15 calendar days from the date of mailing to respond with a proposal to correct the problem. The notice also requires immediate pumping of the septic tank as needed to prevent surface discharge of wastewater. For situations where the failure is creating a significant health hazard, the owner is given only 3 days to start corrective actions. Most owners respond to the first notice and begin to take action to correct the problem. On the average, the repair is completed within 30 days of discovery of the failure.

If no response to the first notice is received, a second and final Notice to Repair Septic System is mailed, and a violation re-inspection fee is levied against the owner. If there is still no response after an additional 15 days, another field inspection is made, and another violation re-inspection fee is levied against the owner. An administrative hearing with the County Director of Environmental Health is then scheduled and the owner of record is duly noticed. If

the hearing is ignored by the owner, or if the hearing produces no action from the owner, the matter is referred to the District Attorney or County Counsel for criminal or civil prosecution.

During the enforcement process, if the owner fails to respond to official notices, an overt OWTS failure with surfacing effluent that directly endangers the public health can be abated through the County Emergency Abatement Process. The house can also be posted as unfit for occupancy.

During installation of a new or replacement OWTS, there may be violations of the standards or permit conditions. In some cases, work being done without County permit or approval may be discovered. Because these do not necessarily result in surface discharge of wastewater, civil or criminal action may not be effectively brought to secure compliance. In these cases, if after due process the owner fails to comply, a notice of violation will be recorded against the property, which clouds the title and warns any prospective buyer or lender of inadequacies of the OWTS. A notation will also be made in the County Planning Department permit information system that will prevent the owner from obtaining any other County permit for building, etc., until the violation is corrected. If work is started without permit approval, double fees for the permit will be charged.

The large majority (92%) of OWTS repairs or upgrades do not result from a County inspection and are voluntarily initiated by the property owner. These may result from a home improvement, a property transfer, recommendations made by a septic tank pumper, or the homeowner's own observation that their OWTS is in 'pre-failure' or other problematic condition. Problems may be indicated by slow drains, frequent pumping required, odor, soggy ground, or occasional surfacing effluent during times of heavy loading. OWTS repairs and replacements are required to conform to the Regulations for the Repair and Upgrade of Septic Systems.

4.4 Remodels and System Upgrades

County EH reviews all building permit applications on properties that are served by an OWTS and that involve, additions, increases in bedrooms, or other construction the property that could impact the OWTS or the replacement area. Before applying for a building permit, the property owner should contact County EH to address any septic issues, including locating and avoiding primary and replacement dispersal areas, pumping the tank to document satisfactory system performance, or obtaining a permit for necessary system upgrades. Once County EH requirements are met, County EH issues a "Clearance to Apply for Building Permit" and the applicant may submit plans and apply for the building permit. During building permit review, the plans are routed to County EH to verify that the building plans are still in conformance with County EH requirements. At that time County EH may also place a hold on the building permit to ensure that all County EH requirements are fully satisfied before the project is completed and signed off.

Following are the County EH requirements for building remodels:

- A one-time addition of up to 500 sq. ft. with no bedroom addition is allowed if the existing OWTS does not show any history of problems and is shown to be functioning

well as indicated by a satisfactory pumper's report within the last 3 years. The building addition cannot encroach into required OWTS replacement area.

- Bedroom additions and additions greater than 500 sq. ft. can be approved if the OWTS is working satisfactorily, meets groundwater separation and horizontal setback requirements, is adequately sized for the proposed number of bedrooms and has adequate expansion area. If these conditions are not met, the OWTS must be upgraded to meet the upgrade standards, including the possible use of an enhanced treatment system.

4.5 Advanced Protection Management Program

Advanced protection management programs (APMP) are a required management program for all OWTS located near a water body that has been listed as impaired due to nitrogen or pathogen indicators pursuant to Section 303(d) of the Clean Water Act. APMPs are implemented to provide a more comprehensive approach to OWTS management and oversight for areas that impact impaired or vulnerable waterbodies. Such programs may also be called for in the TMDL that has been adopted to address the impairment. The requirements of an APMP will be in accordance with a TMDL, if one has been adopted, which supersedes all other requirements in Tier 3 of the OWTS Policy. This LAMP requires a higher level of OWTS oversight in the San Lorenzo River Watershed, the Amesti Road area (Pinto Lake Watershed), and Delaney subdivision (Salsipuedes Creek area). Implementation for other areas as presented in Table 2-2 will be conducted as needed if additional areas are identified with significant surface water or groundwater impairment. Areas within Pinto Lake Watershed, Valencia Creek Watershed, Mill Creek Watershed (Bonny Doon), and La Selva Beach will be considered.

The APMP includes the following elements:

- File review and entry of all historical file information into EHLUIS, the OWTS database. This allows an assessment of area wide conditions and history, and identification of particular areas or OWTS for further assessment.
- Water quality sampling and data analysis of surface water bodies, roadside ditches, and private water supply wells in order to better characterize water quality conditions and problematic areas.
- Parcel by parcel inspections for signs of OWTS failure or greywater discharges.
- Required repair and upgrade of failing OWTS.
- Special studies to investigate sources and causes of degraded water quality.
- Development of specific approaches and technologies that will result in significantly reducing impairment caused by OWTS. This includes the requirement for nitrogen reduction for fast percolation soils in areas with elevated nitrate. This will also include working with Water Board staff to assess technologies and approaches to reduce phosphorus discharge from OWTS to Pinto Lake.
- Groundwater separation requirements of the LAMP (Table 3-4) should be more than adequate to prevent fecal contamination of groundwater and surface water from new and replacement OWTS. The primary method to reduce fecal contamination in

impaired waterways will be to prevent, identify and correct surface failures with discharge of inadequately treated effluent.

- Feasibility study of the potential use of centralized wastewater collection and treatment.
- Distribution of information and community meetings to discuss with residents and owners, the program, the findings, and the options for improved OWTS management or developing community sewers.
- Continued oversight of OWTS through water quality monitoring and rechecks of marginal systems.
- Analysis and reporting of OWTS performance and water quality information.

4.6 Connection to Community Disposal Systems

When a failing OWTS is found or there is a proposal for an upgrade as a part of a building permit, County EH staff consult mapped information for nearby community sewer systems. Sewer connection is required if a sewer is within 200 feet and it is feasible to connect. For problematic areas with larger concentrations of substandard systems, consideration is also given to extending sewer service, or developing new community wastewater collection systems. To date, sewer line extensions have been evaluated for Amesti Road (Pinto Lake), Delaney Subdivision (Salsipuedes), and Pasatiempo/Rolling Woods (San Lorenzo Watershed). The development of new community disposal systems has also been evaluated for the major communities of the San Lorenzo Valley that includes the unincorporated communities of Boulder Creek, Ben Lomond, Glen Arbor and Felton. In general, community collection systems have been found to be very expensive, and property owners were not in favor of pursuing a project. There are presently low-interest loans, but no grant funds for sewering and any projects must be funded by assessment districts, subject to the approval of a majority of the property owners. Sewer feasibility for downtown Boulder creek is now being re-evaluated in response to requests from the community.

In the past 20 years, sewer line extensions to areas served by OWTS have been completed in the following areas:

- Graham Hill Road, Rolling Woods, Orchard Drive (San Lorenzo)
- County Fairgrounds (Salsipuedes)
- North Polo Drive in Aptos (Valencia Creek)
- There is currently interest in the Boulder Creek business community to re-evaluate the feasibility of sewering downtown Boulder Creek.

Where a concentration of OWTS problems is found, with site conditions which limit the potential for successful OWTS repair, County EH staff will take the following steps:

- Document extent of system failures and non-compliance with current standards for upgrade and repair.
- Document extent of water quality impacts.
- Evaluate potential availability of grants or loans.
- Prepare high level feasibility study of the cost of developing a community collection system.

- Share information with all property owners in the affected area and determine support for proceeding with a project.
- Work with County Sanitation District staff to form an assessment district with majority support to initially fund the local cost of designs and environmental review.
- Pursue funding assistance if available.
- If there continues to be majority support from property owners for funding the project, proceed with funding and construction.

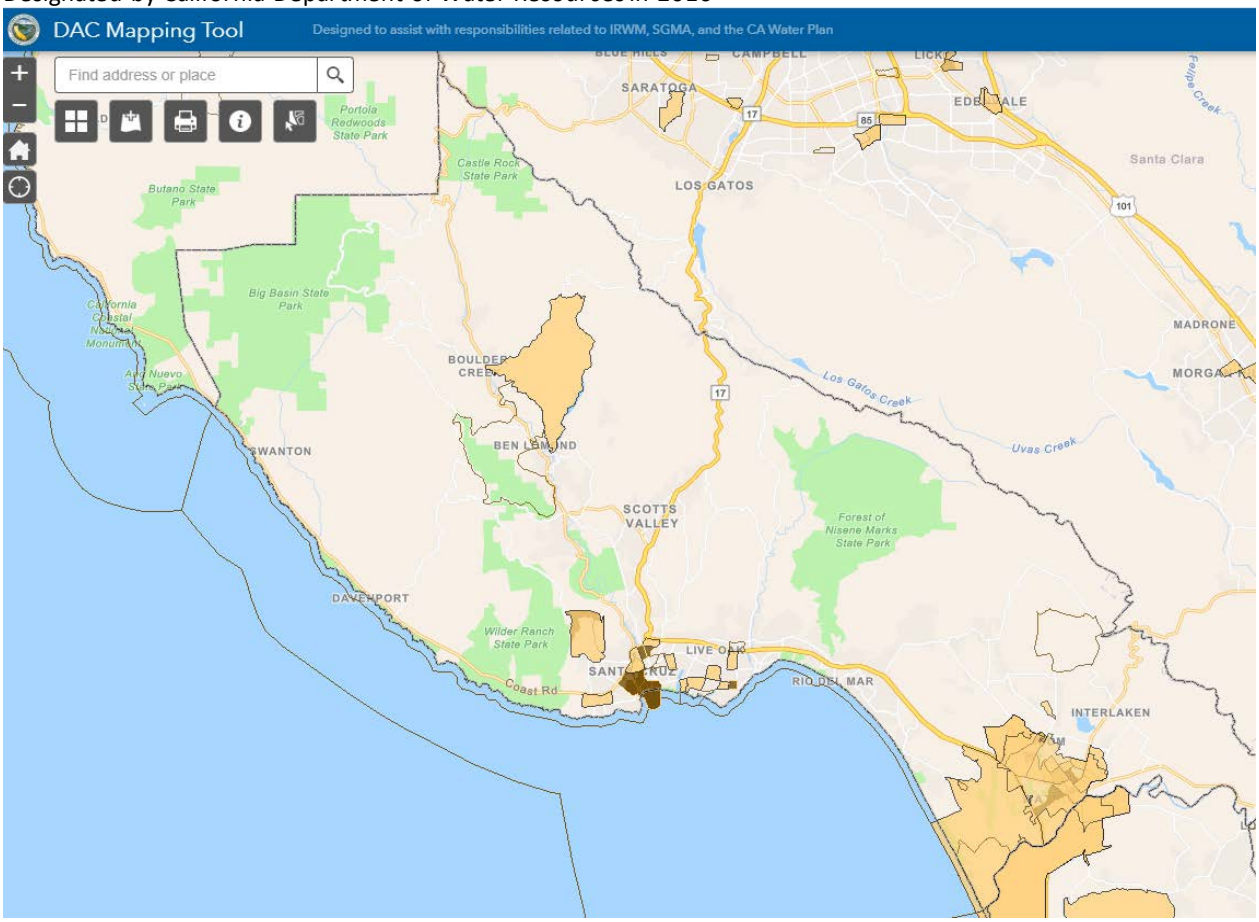
If there is a feasible potential and property owner support for developing community centralized treatment and disposal systems, interim improvements of existing OWTS will be required while County EH staff evaluates the potential for a community centralized treatment and disposal system approach. Interim measures usually involve water conservation, use of nonconforming repairs, and/or seasonal pumping of the tank as necessary to prevent surfacing of effluent until a final solution can be developed.

4.7 Financial Assistance

Construction and financing of the necessary improvements to individual OWTS are primarily the responsibility of the individual property owner. The role of County EH is to require that improvements be performed according to County standards, provide information on financing assistance, provide technical advice, and generally help facilitate and support the project. The County has also sought out ways to provide financial assistance as many homeowners ae challenged by the cost of OWTS replacement, which can range from $20,000 for a simple conventional system to $70,000 for an enhanced treatment system. There are some areas of the county designated as disadvantaged communities (Figure 4-1) and there are many other low-income homes and neighborhoods that would meet the income definition of disadvantaged, but which are located in larger more affluent census blocks.

Immediate financial assistance can be provided through the nuisance abatement process, although this ultimately costs the homeowner more due to administrative costs. The County has conducted considerable past research on state, federal and local opportunities to help fund improvements. The County did implement a low-cost loan program from 2004 to 2009 using Clean Water Act Funds to help fund costs of design and construction for use of enhanced treatment systems to replace failing OWTS in the San Lorenzo Watershed. A total of eleven replacements were funded. Despite extensive public outreach, only 12% of the available $2.2 million was utilized. At the end of the program, the collapse of the real estate market during the recession left homeowners with inadequate equity to qualify for loans. County EH staff will continue to seek out and pursue possible mechanisms for funding assistance through grants or low interest loans. Potential sources include State Revolving Fund, Community Development Block Grants, or other housing development funds.

Figure 4-1: Disadvantaged Communities in Santa Cruz County
Designated by California Department of Water Resources in 2016



5 Water Quality Monitoring and Assessment Program

The Santa Cruz LAMP provides for ongoing water quality monitoring to track the potential impact of OWTS use on groundwater and surface water as well as the effectiveness of this LAMP in addressing those impacts. Water quality monitoring also ensures that the water quality is suitable for beneficial uses as defined by the Basin Plan that includes drinking water, recreational use, fisheries habitat, and ecosystem services. Santa Cruz County's water supply is derived locally from within the county, without importing water from outside its boundary. Countywide non-agricultural water supply is 40% surface water and 60% groundwater, with northern half of county residents served primarily by surface water.

Nitrate and fecal indicator bacteria are the two most significant water quality parameters that County EH monitors to track the potential effects of stormwater, sewer leaks, OWTS, and other sources. County EH utilizes a variety of data sources to monitor these and other water quality constituents within its watersheds for both surface water and groundwater:

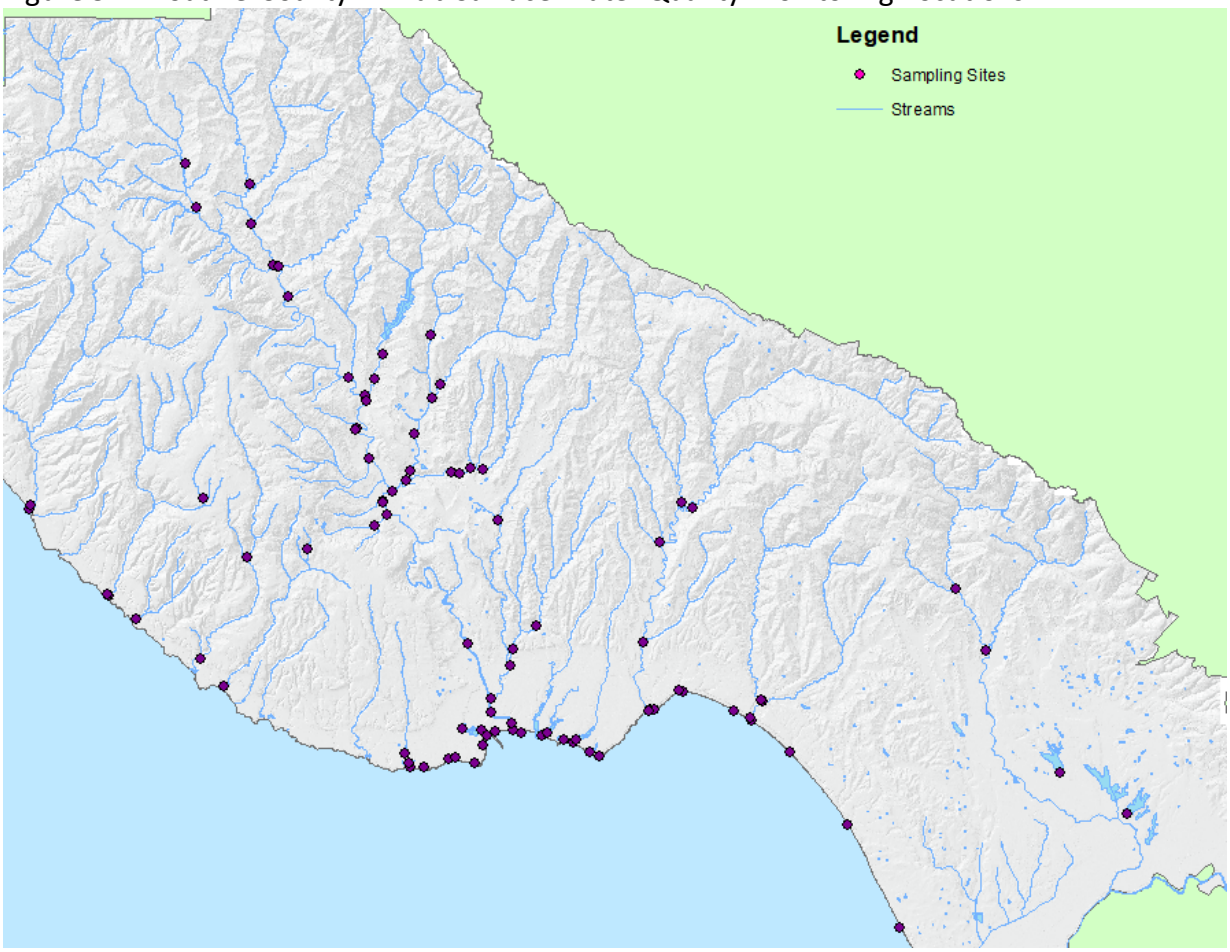
- Surface water data is mostly provided by the County Water Quality Lab, which has monitored water quality of beaches, natural bathing areas, streams and some groundwater since the 1970's.
- Surface water quality data is also provided by other entities, including City of Santa Cruz monitoring of their surface water sources, citizen monitoring programs, stormwater monitoring efforts, and others.
- Groundwater quality is provided by required testing or private wells upon installation, source water monitoring of small and large public water systems, and state and federal monitoring programs with a number of datasets that provide surface and groundwater quality data.

County EH reviews all available data to evaluate water quality trends, compliance with objectives, and assessment of potential sources of pollution, including OWTS. Numerous reports have been presented on overall watershed health, beach water quality, effectiveness of the San Lorenzo Wastewater Management program, stormwater program effectiveness and progress in achieving TMDL objectives. The State OWTS policy provides for assessment of water quality trends relative to OWTS every five years.

5.1 Surface Water Quality Monitoring

The County EH Lab monitors surface waters countywide, including streams and ocean beaches, per CA Health & Safety Code §115885, as well as some limited shallow monitoring wells for tracking groundwater. Monitoring sites occur within the County's five principal watersheds: North Coast (Waddell, Scott, San Vicente, Laguna, Majors Creeks) San Lorenzo River and tributaries, Soquel Creek, Aptos Creek, and Pajaro (Corralitos Creek, Salsipuedes Creek, Pinto Lake, Pajaro River and Watsonville Sloughs).

Figure 5-1: Routine County EH Lab Surface Water Quality Monitoring Locations

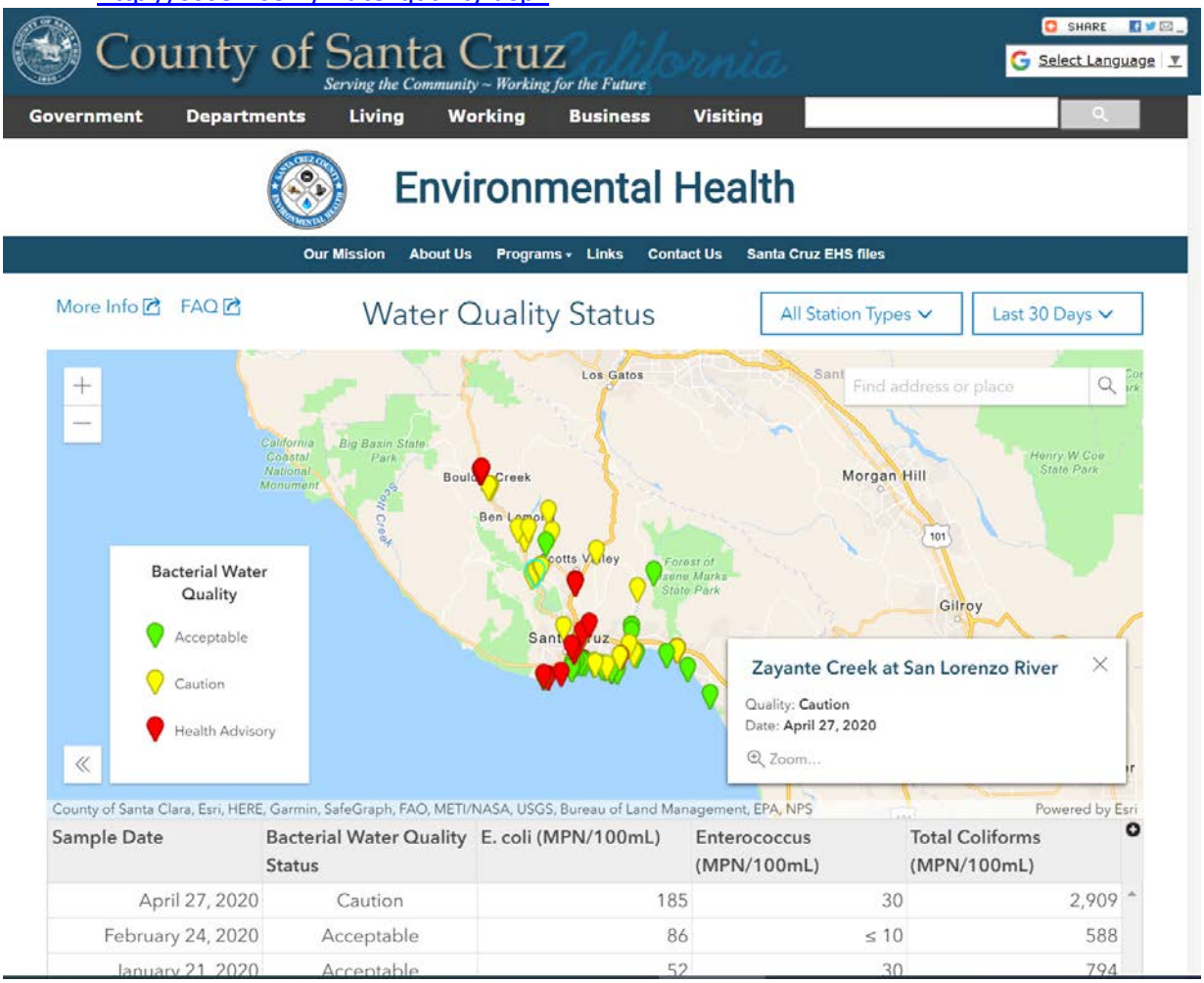


County EH conducts routine monitoring of nitrate and fecal indicator bacteria and other water quality parameters throughout the year. Additional samples are collected from ditches, storm drain outfalls and other stream locations as a part of source investigations or in response to complaints.

The County EH Lab posts results of fecal indicator bacteria on a public website [8] hosted by County EH, reporting three bacterial types: 1) *Escherichia* coli (E. coli); 2) Enterococcus; and 3) Total Coliforms. The website posts data for over 100 sampling locations under the categories: Ocean, Streams, Urban Streams, Sloughs, and Lakes and Ponds.

[8] http://scceh.com/waterquality.aspx

Figure 5-2: EH Surface Water Quality Website for Fecal Indicator Bacteria
http://scceh.com/waterquality.aspx



Sample Date	Bacterial Water Quality Status	E. coli (MPN/100mL)	Enterococcus (MPN/100mL)	Total Coliforms (MPN/100mL)
April 27, 2020	Caution	185	30	2,909
February 24, 2020	Acceptable	86	≤ 10	588
January 21, 2020	Acceptable	52	30	794

The County EH Lab provides comprehensive support for the County EH OWTS program and for the annual water quality data reporting requirements of this LAMP. The County EH Lab conduct field sample collection, laboratory analysis, and data management and reporting. The EH Lab is state certified for recreational water and drinking water microbiology and inorganic chemistry. An overview of analytical capabilities is given in Table 5-1.

Table 5-1: Overview of Analytical Capabilities of the Santa Cruz County EH Lab

Category	Test	Purpose or Application
Microbiology tests		
	Indicator Bacteria	
	Coliforms-ELAP certified	
	Drinking Water: Total Coliforms and E. Coli	Safe Drinking Water Act Compliance (rTCR)
	Total Coliforms and E. Coli enumeration-ELAP certified	Recreational water, illicit discharges, TMDLs
	Fecal Coliforms (44.5 C)	E. Coli verification
	Enterococci-ELAP certified	Recreational water, illicit discharges, TMDLs
	Heterotrophic Plate Count -ELAP certified	Groundwater, surface water, and drinking water screening
	Bacterial and coliphage screening (Iron bacteria)	
	Bacterial screening (Pseudomonas, Legionella, Vibrio)	Triggered by illness or indicator test results
	Microbiological investigations	
	Microbial Profiling	Isolate DNA for investigations
	Microbial Source tracking	Identify potential sources of microorganisms
	Coliform or Enterococci speciation	Identify dominant bacteria
	Cyanobacteria	Cyanotoxin screening
Geochemical parameters		
	pH, conductivity, Turbidity	General characterization; solids proxy
	Alkalinity	Carbonate in freshwater samples
	Hardness (Total and Calcium); Magnesium (calculation)	Calcium and magnesium (freshwater)
	Chlorine, Free and Total	Drinking water or chlorinated water systems
	Dissolved anions: chloride, fluoride, bromide, sulfate	Dominant anions (freshwater)
	Dissolved minerals: potassium, sodium	Baseline and temporal screening
	Reduced Minerals (Iron, Manganese)	Groundwater screening
	Boron	Irrigation water, illicit discharges, or stormwater
	Copper, Zinc	Stormwater and illicit discharges
Nutrients		
	Nitrogen	
	Ammonia-Nitrogen	Spills and illicit discharges
	Nitrate-Nitrogen , Nitrite-Nitrogen	TMDLs, Freshwater and stormwater monitoring
	Total-Nitrogen	Nitrogen balance
	Ortho-Phosphate (as P)	Mitigation of algal blooms
	Total-Phosphorus	Phosphorus balance
Organics		
	UV-absorbance	Surrogate for dissolved organics
	Algal toxins	Health risks, NPDES, TMDLs
	Microcystins and Nodularins	
	Anatoxin-a	
	Cylindrospermopsin	
	Saxitoxins	
	Pesticides	Freshwater investigations
	Glyphosate	
	Pyrethroids, Fipronil, 2,4-D	
Specialized tests		
	Irrigation suitability: pH, alkalinity, conductivity, calcium, magnesium, sodium, potassium, boron, chloride, sulfate nitrogen	Water quality evaluation for irrigation systems
	Storm drain analysis: Compliance and investigatory	Site investigations
	On-site wastewater treatment: pH, conductivity, indicator bacteria, nutrients, boron, potassium, anions	Field investigations of treatment efficacy and alternative technologies

The EH Lab routinely uploads beach water quality data to State's Beach Water Quality database, which eventually is loaded into California Environmental Data Exchange Network

(CEDEN). The EH Lab has recently updated the County's water quality database and is developing capabilities to upload all freshwater data to CEDEN. The EH Lab also provides analysis of data, trend analysis and compliance review in support of the County stormwater program, beach water quality program and TMDL compliance.

Surface water quality data related to OWTS performance is also provided to the City of Santa Cruz Water Department (City), other public water systems that use surface water, Pajaro Valley Water Management District (PV Water), various stormwater and discharger programs, several citizen and academic monitoring efforts, and the Water Board's Central Coast Ambient Monitoring Program (CCAMP).

The City conducts routine monitoring of its raw water sources on the San Lorenzo River at Felton and at the City Limits (Tait Street), as well as at its North Coast sources on Laguna, Majors and Liddell creeks. Constituents of interest potentially related to OWTS are nitrogen, indictor bacteria, total organic carbon, and taste and odor. The City has conducted special studies testing for disinfection byproducts, constituents of emerging concern (pharmaceuticals, pesticides, etc.) and specific pathogens such as giardia and cryptosporidium. City staff have also conducted regular monitoring of the San Lorenzo Lagoon for fish numbers, nutrients, dissolved oxygen, algae growth, stratification and other parameters related to condition of the lagoon for fish habitat. City and County EH staff communicate regularly and share data and observations regarding the quality of the water sources and potential impact of OWTS.

Other large and small public water systems conduct routine monitoring of their drinking water supply sources, but most of these drinking water supply sources are located in relatively undisturbed watershed areas with limited presence of OWTS. Three sources that would have some influence by OWTS are: Mill Creek, water source for Davenport that captures some of the Bonny Doon area; and, Corralitos Creek and Browns Creek, which serve the City of Watsonville. Data from these sources can be accessed by EH staff from the state's drinking water database.

- PV Water conducts monitoring of surface and groundwater for nutrients and salts. They readily share data with County EH.
- The stormwater jurisdictions in the county conduct monitoring of storm drains and receiving waters as a part of the municipal stormwater program. Data is shared and presented in a joint annual report prepared by County EH and city staff. Much of the EH Lab monitoring data is incorporated into the annual stormwater report. The City of Watsonville conducts monitoring in the slough system. Scotts Valley and Capitola contract with the County EH Lab to conduct additional monitoring within their areas. The City of Santa Cruz Public Works Department conducts monitoring of ocean waters, storm drains, the San Lorenzo River, Branciforte and Carbonera Creeks for fecal indicator bacteria (FIB), nutrients, caffeine and some other constituents as a part of their stormwater management program and compliance with their wastewater discharge permit. Although most of the stormwater monitoring relates to urban runoff in sewered areas, OWTS are identified as potential sources of pollutants and OWTS

management is specified as one of the components of the County Stormwater Management Program.

- CCLEAN is a long-term effort funded by the City of Santa Cruz, City of Watsonville, and other wastewater dischargers, to measure the relative effects on Monterey Bay water and sediment quality of discharges from wastewater plants, rivers and stormwater.
- The Coastal Watershed Council conducts citizen monitoring along the San Lorenzo River and other nearby streams for Snapshot Day.
- Watsonville Wetlands Watch conducts monitoring of the slough system for FIB and nutrients; some locations have some limited influence from OWTS.
- UCSC has monitored harmful algal blooms and algal toxins at Pinto Lake and the San Lorenzo River Lagoon, CSUMB has also conducted monitoring efforts at Pinto Lake and Watsonville Sloughs.
- CCAMP provides routine and periodic and in-depth sampling of surface waters for a variety of constituents. Data is uploaded to CEDEN and reported on the CCAMP website where data analysis and comparison can be done.

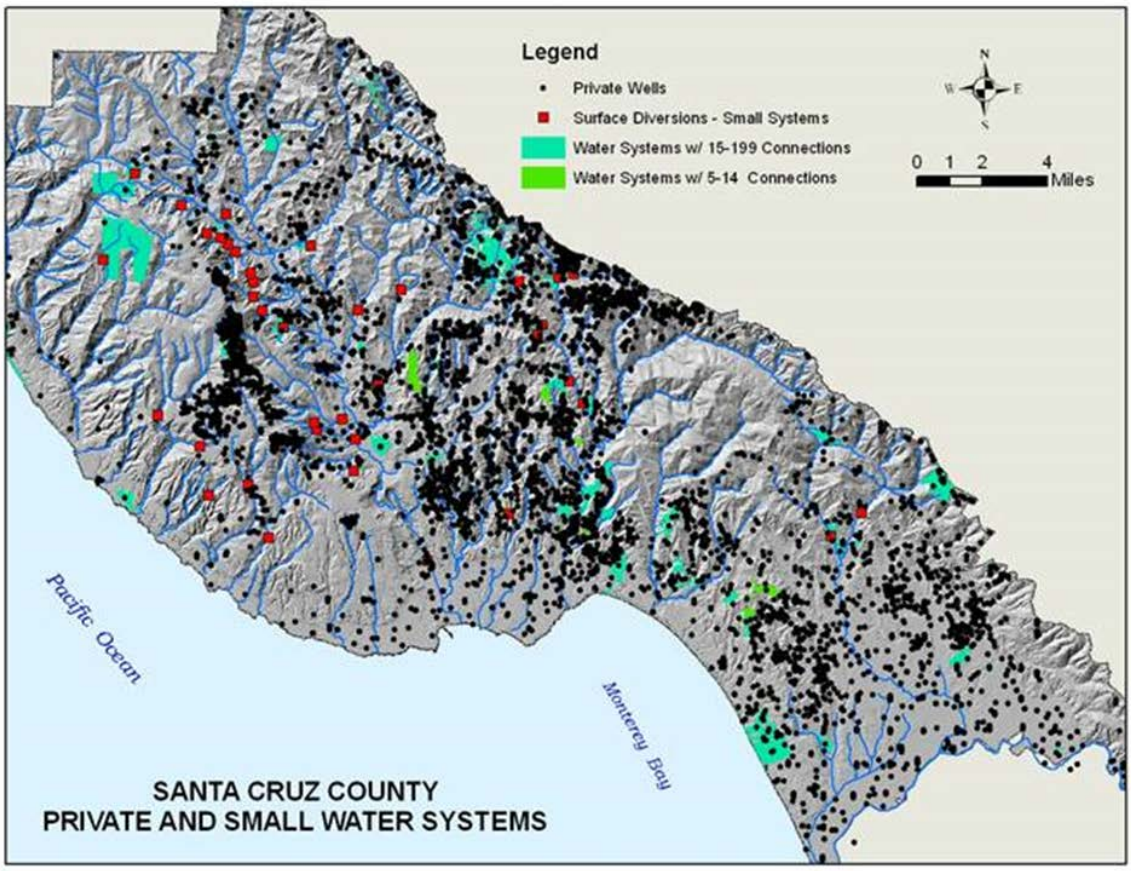
5.2 Groundwater Monitoring

Groundwater quality data is available from several different sources, including sampling of new wells and individual water systems, routine testing of wells serving public water systems, monitoring programs conducted by groundwater sustainability agencies, monitoring of contaminated sites, and some past testing by the EH Water Quality Lab. Much of this data is made available through the Water Board's GAMA Groundwater information System (Figure 2-9). Since 2010, County EH has required water sampling for all wells at the time of initial drilling installation. For Individual Water System (IWS) Permits (1-4 connections), sampling is required initially and again if an additional property is developed and sharing the well and the previous data is over three years old. Testing is done for total dissolved solids, chloride, nitrate, iron and manganese. For an IWS permit, testing is also required for yield, total coliform and E. coli. Since 2010, the chemistry data has been entered in a spreadsheet and the data can be plotted to show geographic distribution of results.

There are presently 200 public water supply wells that provide potable water to approximately 105 water systems in the County that serve more than 14 connections or that are non-community public systems. The County GIS also includes water supply well spatial data for another 30 state small systems with 5-14 connections. For State Small systems, broader sampling is done initially, and then bacteriologic sampling is done quarterly. For small public water systems (15 to 199 connections), water quality sampling occurs periodically at a frequency that varies from monthly to triennially, depending on the type of water system, the constituent, and sampling history. The data is maintained in the state's Safe Drinking Water Information System (SDWIS) and can be accessed by staff through Water Quality Inquiry or through Drinking Water Watch, which is accessible to the public. Sampled constituents include:

- Total Coliform Bacteria Most Probable Number
- Fecal Coliform or E. coli
- E. coli
- Lead and Copper (as needed)
- Sodium
- Hardness
- Nitrate (as nitrogen, N)
- Chlorine Residual
- Total Chromium or Hexavalent Chromium
- Chloride
- Sulfate
- Total Dissolved Solids (TDS)
- Iron
- Manganese
- Turbidity
- Total Organic Carbon, as needed
- Total Trihalomethanes, as needed

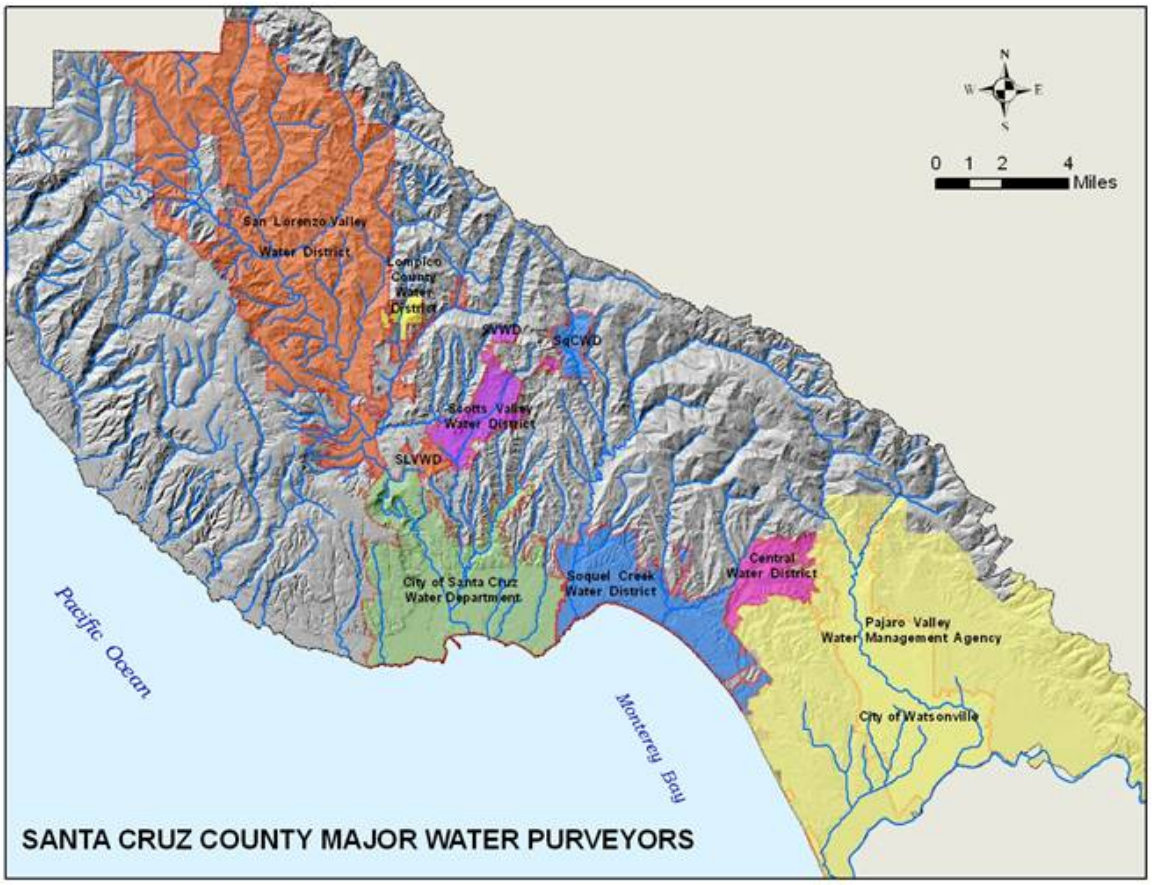
Figure 5-3: Private Wells and Small Water Systems in Santa Cruz County



Santa Cruz County contains nine Large Public Water Systems (LWS) with more than 200 connections operated by various water districts or agencies (Figure 5-4). Each LWS monitors their surface and groundwater sources for water quality and publishes annual Consumer Confidence Reports (CCRs) to attest to compliance with State drinking water standards. The nine LWSs in Santa Cruz County are:

- San Lorenzo Valley Water District (SLVWD)
- Scotts Valley Water District (SVWD)
- Santa Cruz Water Department (City SC)
- Soquel Creek Water District
- Central Water District
- City of Watsonville
- Big Basin Water Company
- Mt. Hermon Association
- Forest Lakes Mutual Water Company

Figure 5-4: Large Public Water Systems in Santa Cruz County



Water System water quality data can be extracted from WQI and utilized to monitor for potential impacts of OWTS. In 2019, there were 389 analyses for nitrate from 135 sources and 86 systems. This also included surface water sources. Most (241) of the results were less than 1 mg-N/L, while 74 were greater than 5 mg-N/L, all within the agricultural area of the Pajaro Valley.

Under the Sustainable Groundwater Management Act (SGMA) there are three Groundwater Sustainability Agencies (GSAs) in the county that are now conducting groundwater monitoring and annual reporting to document compliance with the water quality goals of their groundwater sustainability plans. These include Pajaro Valley Water Management Agency, Santa Cruz Mid-County Groundwater Agency and the Santa Margarita Groundwater Agency. Much of this monitoring represents a continuation of monitoring historically conducted by their member agencies, but the monitoring does include additional monitoring wells. Monitoring includes nitrate.

Groundwater quality data is collected from monitoring efforts during the investigation and remediation of contaminated sites. Some of this data includes information of interest relative to potential impacts of OWTS. This information is available through the State Geotracker

program and much of it is also published on the GAMA website and can be downloaded for further analysis.

The County EH Lab has historically monitored groundwater quality in some deeper supply wells throughout the county and in shallow groundwater (2-15 feet) in the San Lorenzo Valley as a part of developing the San Lorenzo Wastewater Management Plan. Over 500 samples were analyzed from 30 different shallow monitoring wells in Valley communities. The mean values were all less than 10 mg-N/L, with only 4 having a mean value greater than 5 mg-N/L. This program was discontinued but may be started up again if new surface or groundwater quality data indicates that there is water quality impairment indicating a need for further investigation.

5.3 Data Reporting and Assessment

Fecal indicator bacteria data obtained by the County EH Lab are validated and reviewed to identify anomalies and determine if follow-up testing is needed. If levels of indicator bacteria exceed the state standards, sites are resampled to identify potential causes. The data are posted to the County's water quality website. All data are summarized and inspected regularly to evaluate trends and optimize sampling frequencies for the beach water quality program, stormwater program, TMDLs, and the annual LAMP reporting. Every 5 years more detailed trend analysis will be conducted and reported. This analysis will utilize available datasets for surface and groundwater. A summary of available current and historical water quality data related to OWTS performance is contained in Section 2 of the LAMP.

County EH is continuing work already underway to establish procedures that can efficiently integrate the County's water quality data with that of CEDEN and with the State's Water Quality Assessment Database. County EH is investigating ways to better access and coordinate datasets maintained by the County and the State regarding drinking water quality. The County is also working with the other agencies in the GSAs to establish new data management systems to maintain all data required by SGMA. It is anticipated that this will be completed by 2021.

6 Program Management

In Santa Cruz County, OWTS are managed by the Environmental Health Division of the Health Services Agency. Within Environmental Health, permitting and inspection is completed by the Land Use Program staff, with assistance from the Water Quality Laboratory (EH Lab) and the Water Resources Program staff. County EH staff participates with the Planning Department on building permit review, discretionary permit review, geologic hazard assessment and biotic resource review. County EH works with Public Works Department staff on stormwater management, establishing consistent policies for separation between OWTS and stormwater conveyance and infiltration devices, and reviewing individual building proposals for compliance with those requirements. EH staff also work with DPW Sanitation staff on considering the potential for extending sewer service to properties currently on OWTS. County EH wastewater management activities are funded by permit fees and annual service charges collected on the tax bill of properties served by OWTS through CSA 12.

6.1 OWTS Data Compilation

County EH maintains records of OWTS activities in several different systems:

- Paper files are created when a permit application is received, or a complaint investigation is initiated. An electronic record is also initiated. Once the complaint is resolved and an installation is complete and signed-off, the paper file is scanned, the relevant information is entered in the database, and the paper file is purged. During the active life of a project, paper files are available for review by the public at the counter.
- All records are permanently maintained as scanned records in an electronic filing system (Fortis, or Laserfiche). This includes permit records, pumper reports, plot plans, inspection records, emails, correspondence, field notes, and notes from discussions at the counter. There is some delay between the time a paper record is generated and the time it takes to be scanned and entered into the electronic database. The electronic records are available from terminals at the counter and are also available online over the internet: https://www.scceh.org/NewHome/EnvironmentalHealthDocuments.aspx
- Records of all activities are entered into an electronic database the Environmental Health Land Use Information System (EHLUIS) that can be used to summarize information for a parcel, track problem systems, analyze trends and provide for reporting of activities. EHLUIS is available to staff but is not available to the public. EHLUIS includes the following elements:
  - Background Summary Records are created for each OWTS (there may be multiple OWTS on one parcel). Records are also included for vacant parcels or sewered parcels where there has been some related activity, such as grease trap pumping, water quality complaint investigation, or permit application.
  - History by APN shows a listing of all the records for that parcel on one screen. These records can be selected for more in-depth inquiry.
  - Permit information is shown for all OWTS permits, well permits, building application clearances, requests for system evaluations, and individual water system permits. A permit record is created at the time of application submission and is updated as the project proceeds to permit approval and completion. All permits have been entered

since July 1, 1991, and there are now over 31,000 permit records. OWTS permits were entered going back to 1983. Data entry fields will be modified to capture information on variances that are allowed for individual permits.

- Installation Records capture information on the nature of the OWTS and the site conditions, including tank size and material, date of installation, dispersal system size and depth, slope, soil, percolation rate, groundwater depth, stream setback, well setback, embankment setback, and use of other system components such as pumps, distribution box, valves, greywater sump, etc. Installation records have been entered for all systems installed between 1991 and 2018, with older installations back to 1968 entered for special study areas including the San Lorenzo Valley and Amesti Road area. There are 18,200 installation records in the database, some of them representing multiple installations over time on one parcel.
- Pumping records are entered for each time an OWTS is pumped indicating the tank size, material and conditions and any signs of failure or greywater discharge, past high level or liquid flowback when pumping. There are presently 35,000 records in the database going back to October of 1987, when pumping reports were first required to be submitted.
- Inspection records are entered for complaint investigations, area surveys of individual parcels, rechecks, or the routine inspections required for nonstandard systems. There are currently 14,300 inspection records going back to January 1984.

- The County Geographic Information System (GIS) displays some 100 layers of information, much of which is relevant to OWTS. A significant amount of this is publicly available over web-based GIS application, GISWeb: https://gis.santacruzcounty.us/gisweb/. Some of the most relevant layers include:
  - Parcels with OWTS and links to information from EHLUIS
  - Domestic wells, public water system wells, public water systems surface diversions, water supply watershed boundaries, and water system service areas
  - Streams, watersheds, groundwater basins and groundwater recharge areas
  - Soils, geology, slope, landslides, geologic reports
  - Biotic resources
  - Sanitation districts and sewer lines
  - OWTS constraints: clay soils, sandy soils, public water sources, karst
- The Envision data system is used to track permit records, complaints, individual systems, and time accounting of staff time spent on permits, complaints, facilities, and the outcomes.
- Records of enhanced treatment systems are maintained in a spreadsheet, including system type, OSSP, date of service contract, and date of most recent inspection report. A separate spreadsheet tracks the water quality results for enhanced treatment system monitoring.
- The Water Quality Database contains records of County water quality sampling going back to the 1970's. It also includes flow data and monitoring data of shallow groundwater levels. This database has some 220,000 records of fecal indicator bacteria, nitrate, temperature, dissolved oxygen, conductivity, turbidity, geochemical data, nutrient speciation, cyanotoxins, flow and groundwater level, among other parameters.

6.2 Data Management and Reporting

All the County data systems have provisions for relating and exporting data in order to summarize data, evaluate trends, and relate various factors such as variations from standards. From 1986 through 2016, reports have been provided of OWTS management activities relative to the San Lorenzo Wastewater Management Program. Pursuant to the State OWTS Policy, data will be extracted to provide by February 1 annually reports on:

- Number and location of complaints received pertaining to OWTS operation and maintenance, investigations and inspections conducted, results of inspections, and outcomes.
- Septic Tank pumping records, including volumes pumped, frequency of pumping, indications of system malfunction, and applications and registrations issued as part of the local septic tank cleaning registration program pursuant to Section 117400 et seq. of the California Health and Safety Code.
- Number, location, and Tier of permits for new and replacement systems, including variances approved.
- Summary of water quality data obtained as required per section 9.3.2 et. al of the State OWTS Policy.

Every five years, the County will prepare an analysis of the water quality data and system data to provide an assessment of overall OWTS performance, with recommendations for any further management needs for protection of water quality. All permanent records of County permitting actions will be made available within 10 working days upon written request for review by a Regional Board. The records for each permit will reference the Tier under which the permit was issued.

6.3 Program Administration and Funding

The OWTS program is conducted by primarily by the Land Use Program, which consists of one Program Manager, 5 district inspectors and 2 clerical staff. Approximately 1 full time equivalent (FTE) is devoted to permitting of wells and water systems, but the remainder is devoted to OWTS permitting, and oversight, including building permit review for properties served by OWTS. Water Resources staff provide about 1.5 FTE for water quality monitoring, data analysis, and reporting. Efforts were somewhat reduced in 2008-10 and 2018-19 due to staff vacancies in both programs. Approximately half of the revenues come from permit fees and the other half comes from annual service charges collected from properties served by OWTS within the countywide onsite wastewater district, CSA 12.

CSA 12 was originally created to provide OWTS oversight to two relatively small subdivision in the San Lorenzo Watershed. In 1989, CSA 12 was expanded to cover the entire county outside the boundaries of the cities and the existing sewer sanitation districts. At the same time, a special Zone A (CSA 12A) was created within the San Lorenzo Watershed to fund the additional oversight activities of the San Lorenzo Wastewater Management Program. Charges were first collected in Fiscal Year 1990-1991. In 1993 a third category of fees was added for oversight of Nonstandard systems (CSA 12N). Fees are established and levied each year by resolution of the Board of Supervisors. The CSA 12 and 12A fees pre-date Proposition 218 and

have not been increased since 1996. The CSA 12N fees are considered development related fees and can be increased but have been stable since 2009-10.

Every OWTS-owning parcel in the county pays the CSA 12 fee. Every OWTS parcel in the San Lorenzo watershed pays an additional CSA 12A fee, and every parcel with a permitted nonstandard system pays an additional CSA 12N Fee. A parcel can fall into the first, second, or all three of the fee categories. The fee levels for Fiscal Year 2019-20 are as follows:

1. CSA 12: $6.90 per parcel - County wide Septic System Maintenance.
2. CSA 12A: $18.54 per parcel - Zone A- San Lorenzo Wastewater Management.
3. CSA 12 N: $101.00; $501.00; or $167.00 – three tiers for Nonstandard Systems, depending on the type of system, maintenance of a service contract and reporting, and degree of oversight required.

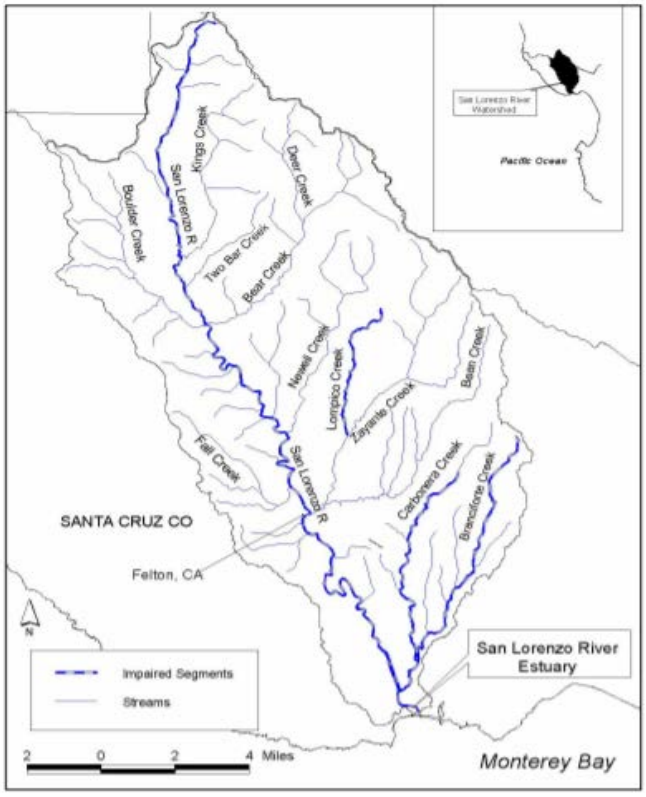
The charges fund the following activities:

- development and operation of septic tank sludge disposal facilities,
- development and maintenance of a computerized information system to track OWTS performance and maintenance,
- water quality monitoring to evaluate impacts of wastewater disposal,
- educational programs for property owners, realtors and others for enhanced OWTS management.
- oversight of existing systems including inspections, evaluations, investigations, and monitoring of nonstandard systems.
- data management and reporting.

Figure 6-1: Boundaries of County Service Area No. 12 (CSA 12), Septic Maintenance

The CSA12 fee of $6.90/year (FY 20-21) is charged to all parcels operating an OWTS. For septic tanks to be properly maintained, they must be pumped out regularly to remove accumulated solids. Regular pumping is dependent on the availability of a suitable location for disposal of the septic tank sludge. The CSA 12 fees provide funding to pay for countywide OWTS program permitting management; administration, collection and treatment of septic tank sludge at the City of Santa Cruz Sewage Treatment Plant; public education on OWTS maintenance; and maintenance of the computerized record keeping database systems for tracking septic tank pumping, inspections, and permitting.

Figure 6-2: Boundaries of CSA 12 Zone A, San Lorenzo Septic Management



The additional CSA12A fee of $18.54/year (FY 20-21) is charged to all parcels operating an OWTS within the San Lorenzo River Watershed. The San Lorenzo River Watershed area has the highest need for proper OWTS management within the County. Accordingly, County EH has managed this region for the last twenty-three years with a concentrated planning and management regime according to the SWRCB's approval of the County's 1995 Wastewater Management Plan for the San Lorenzo River Watershed, following a period of strict wastewater discharge prohibitions imposed by the State from 1982-1995. This Management Plan provides a comprehensive wastewater management program for the San Lorenzo Watershed which includes regular water quality testing to identify problems; field inspections and evaluations of all OWTS approximately once every six years; and other efforts to promote better wastewater management. This increased level of management is partially funded by the added annual fee paid by all properties with OWTS in this watershed.

Beginning in 1993-94, an additional charge under CSA 12N is collected for those parcels served by nonstandard OWTS. This charge pays the costs of the County's monitoring efforts, which are needed to ensure that the systems are continuing to perform adequately. Over 860 nonstandard OWTS have been approved for use in Santa Cruz County. The additional CSA 12N fee is charged to parcels served by nonstandard wastewater disposal systems (enhanced treatment systems, alternative dispersal systems, haul away systems, or nonconforming systems) as designated by the County Health Officer pursuant to Chapter 7.38 of the Santa Cruz County Code, depending on the type of system and whether the system is subject to a service agreement with a certified onsite system service provider (OSSP), and where payment of a charge is required as a condition of a sewage disposal system permit. These CSA12N charges for the FY 20-21 are:

- $ 167.00: Managed Alternative Dispersal/Enhanced Treatment Systems (with OSSP) (Level 6)
- $ 501.00: Alternative Dispersal/Enhanced Treatment Systems (with no OSSP) (Level 3)
- $ 101.00: - Nonconforming Conventional Systems (Level 4)

7 Definitions

(A) "Abatement" means the installation, construction, alteration, enlargement, reconstruction, replacement, improvement or reconditioning of any OWTS, or the filling in and abandonment of any OWTS which cannot be repaired, and/or the construction, alteration, enlargement, reconstruction or replacement of any required building sewer line connecting with a public sewer, so as to eliminate a violation of this chapter.

(B) "Bedroom". For the purposes of sizing an OWTS, any room that could be utilized as a bedroom shall be counted as a bedroom as determined by the Health Officer, including any room in a dwelling that is at least 70 square feet in area, that by its design can furnish the minimum isolation necessary for use as a sleeping area .

(C) "Cesspool" means an excavation in the ground receiving domestic wastewater, designed to retain the organic matter and solids, while allowing the liquids to seep into the soil. Cesspools differ from seepage pits because cesspool systems do not have septic tanks and are not authorized for continued use. The term cesspool does not include pit-privies and out-houses.

(D) "Construction" means the installation, major repair, alteration, enlargement, replacement, improvement or relocation of an OWTS.

(E) "Curtain drain" means a trench filled with drain rock that is designed to intercept and divert ambient groundwater with surface discharge via piping to another location. Curtain drains are typically used to dewater areas upslope of a retaining wall or a foundation and lower the water table. Curtain drains are also known as French drains.

(F) "Dispersal system" or "disposal system" means a leachfield, seepage pit, mound, at-grade, subsurface drip field, evapotranspiration and infiltration bed, or other type of system for wastewater subsurface discharge. Alternative dispersal system means a dispersal system that is not a trench or seepage pit and includes mounded bed, drip dispersal, or at-grade systems. Chambers in trenches are not considered alternative dispersal systems.

(G) "Domestic wastewater" means wastewater with a measured strength less than high-strength wastewater and is the type of wastewater normally discharged from, or similar to, that discharged from plumbing fixtures, appliances and other household devices including, but not limited to toilets, bathtubs, showers, laundry facilities, dishwashing facilities, and garbage disposals. Domestic wastewater may include wastewater from commercial buildings such as office buildings, retail stores, and some restaurants, or from industrial facilities where the domestic wastewater is segregated from the industrial wastewater. Domestic wastewater may include incidental recreational vehicle (RV) holding tank dumping but does not include wastewater consisting of a significant portion of RV holding tank wastewater such as at RV dump stations. Domestic wastewater does not include wastewater from industrial processes.

(H1) "Drainageway" means a natural or artificial channel that flows for no more than seven days after significant rainfall

(H2) "Drainage Device" means a ditch, swale or stormwater facility that carries stormwater for less than 12 hours after significant rainfall and that is used for the treatment and/or dispersal of roof runoff or other site drainage, such as a vegetated swale and infiltration/percolation trench or basin.

(I) "Finding of compliance" means a determination by the Health Officer that the design and specifications for an OWTS to serve a property for which it is intended are in conformance with standards in effect at the time the finding is made.

(J) "Environmental Health Division" means the Environmental Health Division of the Santa Cruz County Health Services Agency.

(K) "Expansion Area" means a designated area on a parcel where there is adequate room and soil conditions to accommodate a replacement of the dispersal systems that meets the requirements of County Code Chapter 7.38.

(L) "Health Officer" means the Santa Cruz County Health Officer or their authorized representative.

(M) "High-strength wastewater" means wastewater having a 30-day average concentration of biochemical oxygen demand (BOD) greater than 300 milligrams-per-liter (mg/L) or of total suspended solids (TSS) greater than 330 mg/L or a fats, oil, and grease (FOG) concentration greater than 100 mg/L prior to the septic tank or other OWTS treatment component.

(N) "Infiltrative area" means the infiltrative area below the distribution pipe where effluent may leach into the soil through the trench sides and bottom. Infiltrative area is expressed as square feet of infiltrative area per linear feet of trench. The depth between the pipe and the bottom of the trench is also referred to as "effective depth," or "flow depth."

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(O) "Karst" means a type of underlying geology that may have the presence of subsurface fissures, caverns, sinkholes or other features resulting from dissolution of limestone or marble that could lead to the rapid subsurface movement of untreated sewage.

(P) "Lot or parcel size" means the total horizontal area included within the property lines of the lot(s) or parcel(s) upon which an OWTS is installed; provided, that the area of any rights-of-way for vehicular access may be deducted for purposes of determining the size of any lot(s) or parcel(s) having a gross area less than one acre, where the Health Officer has determined that the vehicular access would have an adverse impact on the OWTS.

(Q) "Major repair" or "repair" means a replacement of an old or malfunctioning OWTS.

(R) "Minor maintenance" means replacement of septic tank tees, ells, filter, lids, sewer tight lines, pump, valve, electrical component, or other minor maintenance work not specified as a minor repair.

(S) "Minor repair" means installation of a distribution device, diversion valve, damaged or clogged dispersal pipe, greywater system, or other minimal repair work requiring a minor repair permit as determined by the Health Officer.

(T) "New System" or "New development" means an OWTS that is installed to serve a new structure or new use on a parcel where there are no pre-existing legal structures or legal OWTS.

(U) "Nitrate Concern Areas" are those areas where effluent discharge from OWTS in fast percolating soils have caused elevated levels of nitrate in surface water or groundwater, including the San Lorenzo River Watershed, North Coast Water Supply Watersheds, Valencia Creek Watershed and La Selva Beach area, as shown on the map of Nitrate Concern Areas maintained by the Director of Environmental Health.

(V) "Onsite Wastewater Treatment System (OWTS)" means individual treatment and disposal systems, community collection and disposal systems, and alternative collection and disposal systems that use subsurface disposal of sewage. These may include any of the following types of systems:

(1) "Conventional system" means a system which utilizes a septic tank (with or without a lift pump) and leaching trench dispersal system or seepage pits.

(2) "Standard system" means a conventional system which is constructed in accordance with the specifications for a standard system as described in SCCC 7.38.095 through 7.38.180.

(3) "Nonstandard system" means a system which is not in conformance with all the standards contained in SCCC 7.38.095 through 7.38.180 or which utilizes enhanced treatment. Nonstandard systems include enhanced treatment systems, nonconforming interim sewage disposal systems, limited expansion systems, low-flow systems, and haulaway systems.

(4) "Nonconforming interim sewage disposal system" means a conventional system design that provides for insufficient leaching area that is not in compliance with SCCC 7.38.150(A)(3), that is in soils that percolate in the range 60 to 120 MPI, that requires seasonal haulaway of effluent to function properly and meet required groundwater separation, or which is not in compliance with other requirements for a standard system contained in SCCC 7.38.095 through 7.38.180. Use of a nonconforming interim sewage disposal system requires use of water conservation devices.

(5) A Low-Flow System is a permitted system repair that meets the requirements for a standard conventional system except that it has a reduced amount of dispersal area and requires water conservation measures to keep the flow within design capacity and enables only a one-time addition of up to 500 sq. ft. of habitable space with no bedroom additions, no increase in volume of wastewater discharge, and must monitor average monthly flows with a wastewater meter. An annual fee is charged on the property tax bill and the property will be periodically checked for signs of failure.

(5) "Limited expansion system" means a conventional system that has sufficient leaching area but does not have sufficient area to accommodate a replacement system in compliance with the requirements for a standard system contained in SCCC 7.38.095 through 7.38.180.

(6) "Enhanced treatment system" means a system that utilizes an additional component (except a septic tank or dosing tank), that performs additional wastewater treatment so that the effluent is of a higher quality prior to discharge of effluent into the soil. An enhanced treatment system may utilize a wastewater treatment system that reduces pathogen, nitrogen, total suspended solids and biological oxygen demand concentrations and/or nonconventional means of dispersal such as mounded beds, pressure-distribution, at-grade dispersal, or drip dispersal.

(7) "Alternative dispersal system" means a dispersal system that is not a trench or seepage pit and includes mounded bed, drip dispersal, or at-grade systems. Chambers in trenches are not considered alternative dispersal systems.

(8) "Haulaway system" means an existing sewage system for which the Health Officer has ordered that the outlet of the septic tank, or other sewage holding container, be permanently or seasonally sealed, and the accumulated sewage pumped out and hauled away to an approved disposal site.

(9) "Greywater system" means a system for the year-round disposal of greywater originating from a clothes-washer, laundry sink, shower, bathtub, hand sink or similar source of low strength wastewater. This does not include "greywater" irrigation reuse systems pursuant to Health and Safety Code Section 17922.12

(W) "Pollution" means the introduction of a substance into surface or groundwater that degrades the quality of water so that it is in violation of established water quality standards or otherwise diminishes the suitability for beneficial uses.

(X) "Public Water System" is a water system regulated by the California Division of Drinking Water or a Local Primacy Agency pursuant to Chapter 12, Part 4, California Safe Drinking Water Act, Section 116275 (h) of the California Health and Safety Code.

(Y) "Public Water Well" is a groundwater well serving a public water system. A spring which is not subject to the California Surface Water Treatment Rule (SWTR), CCR, Title 22, sections 64650 through 64666 is a public well.

(Z) "Qualified Professional" means an individual licensed or certified by a State of California agency or the Health Officer to design, install, and/or maintain OWTS and to practice as professionals for other associated reports, as allowed under their license or registration. Qualified professionals must obtain an annual registration from the Environmental Health Division.

(AA) "Replacement System" means an existing OWTS that has its treatment capacity expanded, or its dispersal system replaced or added onto. This includes major repairs, upgrades and additions.

(BB) "San Lorenzo Watershed" means all of the land area that drains into the San Lorenzo River upstream of its mouth at the Pacific Ocean.

(CC) "Sewage" means waste substance, liquid or solid, which is associated with human occupancy, or which contains, or may be contaminated with human or animal excretion or excrement, offal or feculent matter, or matters or substances that may be injurious or dangerous to health.

(DD) "Soil" consists of the natural organic and inorganic material near the earth's surface which, in contrast to the underlying rock material, has been formed over time by the interactions between climate, relief, parent materials and living organisms.

(EE) "Stormwater infiltration device" means a subsurface trench, pit or bed or a surface rock bed designed to infiltrate stormwater and/or dissipate the flow at the discharge point of a pipe or ditch carrying stormwater.

(FF) "Upgrade or Addition" means partial or total replacement of an OWTS or addition of dispersal area or treatment components in order to meet current standards and support a remodel or addition to the structure or use that system serves. Installation of an additional OWTS to serve an accessory dwelling unit on a developed parcel is considered an upgrade.

(GG) "Water Body" means a body of non-flowing water, including vernal pools, ponds, lakes, tidal areas, and the ocean.

(HH) "Water supply watershed" means that area of a watershed that contributes surface water flow to a public water system water supply intake located in the San Lorenzo River Watershed or North Coast or Bonny Doon planning areas.

(II) "Watercourse" means a perennial or intermittent stream fed from permanent or natural sources, including rivers, creeks, runs, and rivulets, usually flowing in a particular direction (for at least seven days after rainfall) in a definite channel having a bed or banks, and usually discharging into some other stream or body of water.

(JJ) "Water quality constraint area" means the following areas which are located within one mile of intakes used for public water supply and are located within the watersheds of those intakes:

(1) City of Santa Cruz intakes on Reggiardo, Laguna, and Majors Creeks, and Liddell Spring;

(2) Bonnymeade Mutual intake on Reggiardo Creek;

(3) Davenport water system intakes on Mill and San Vicente Creeks.

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9 Appendices

A. Santa Cruz County Code Chapter 7.38. Sewage Disposal (Updated)
B. Santa Cruz County Code Chapter 7.42, Septic Tank Pumping and Liquid Waste Transport
C. Summary of Onsite Wastewater Treatment System (OWTS) Requirements (Updated)
D. Enhanced Treatment System Regulations
E. Septic Tanks, Distribution Boxes and Chamber Leaching Systems Approved for Use in Santa Cruz County
F. Site Evaluation and Soil Testing Procedures
G. State OWTS Policy
H. LAMP Completeness Checklist

Chapter 7.38
SEWAGE DISPOSAL

Sections:

7.38.300 Promulgation of policies.

7.38.010 Scope.
This chapter shall apply to all territory embraced within the unincorporated area of the County of Santa Cruz, State of California.

7.38.020 Intent and purpose.
The Board of Supervisors finds that comprehensive regulations are required for the installation and use of onsite sewage treatment and disposal facilities in the County, in order to protect the public health, safety and welfare of the inhabitants thereof, to protect the environment and water resources' beneficial uses, and to implement the General Plan, Local Coastal Program Land Use Plan, the Water Quality Control Plan for the Central Coast Basin (Basin Plan), and the Water Quality Control Policy for Siting, Design Operation and Maintenance of Onsite Wastewater Treatment Systems, as adopted by the State Water Resources Control Board on June 19, 2012. Therefore, in order to provide the aforementioned protections, the Board of Supervisors of the County of Santa Cruz hereby adopts the provisions of this chapter relating to sewage treatment and disposal.

7.38.025 Amendment.
Any amendment to this chapter which applies to the Coastal Zone shall be reviewed by the Executive Director of the California Coastal Commission to determine whether it constitutes an amendment to the Local Coastal Program. Such revision shall be processed pursuant to the hearing and notification provisions of SCCC 13.03, and shall be subject to approval by the California Coastal Commission.

7.38.030 Definitions.
The following words and phrases used in this chapter shall have the meanings set forth in this section:

(A) "Abatement" means the installation, construction, alteration, enlargement, reconstruction, replacement, improvement or reconditioning of any OWTS, or the filling in and abandonment of any OWTS which cannot be repaired, and/or the construction, alteration, enlargement, reconstruction or replacement of any required building sewer line connecting with a public sewer, so as to eliminate a violation of this chapter.

(B) "Bedroom" means, for the purposes of sizing an OWTS, any room that could be utilized as a bedroom as determined by the Health Officer, including any room in a dwelling that is at least 70 square feet in area, that by its design can furnish the minimum isolation necessary for use as a sleeping area.

(C) "Cesspool" means an excavation in the ground receiving domestic wastewater, designed to retain the organic matter and solids, while allowing the liquids to seep into the soil. Cesspools differ from seepage pits because cesspool systems do not have septic tanks and are not authorized for continued use. The term cesspool does not include pit-privies and out-houses.

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(F) "Dispersal system" or "disposal system" means a leachfield, seepage pit, mound, at-grade, subsurface drip field, evapotranspiration and infiltration bed, or other type of system for wastewater subsurface discharge.

(G) "Domestic wastewater" means wastewater with a measured strength less than high-strength wastewater and is the type of wastewater normally discharged from, or similar to, that discharged from plumbing fixtures, appliances and other household devices including, but not limited to toilets, bathtubs, showers, laundry facilities, dishwashing facilities, and garbage disposals. Domestic wastewater may include wastewater from commercial buildings such as office buildings, retail stores, and some restaurants, or from industrial facilities where the domestic wastewater is segregated from the industrial wastewater. Domestic wastewater may include incidental recreational vehicle (RV) holding tank dumping but does not include wastewater consisting of a significant portion of RV holding tank wastewater such as at RV dump stations. Domestic wastewater does not include wastewater from industrial processes.

(H) "Drainageway" means a natural or artificial channel that flows for no more than seven days after significant rainfall (generally two inches or more after soils have become saturated).

(I) "Drainage Device" means a ditch, swale or stormwater facility that carries storm runoff for less than 12 hours after significant rainfall and that is used for the treatment and/or dispersal of roof runoff or other site drainage, such as a vegetated swale and infiltration/percolation trench or basin.

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(K) "Environmental Health Division" means the Environmental Health Division of the Santa Cruz County Health Services Agency.

(L) "Expansion Area" means a designated area on a parcel where there is adequate room and soil conditions to accommodate a replacement of the dispersal systems that meets the requirements of this chapter.

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(N) "High-strength wastewater" means wastewater having a 30-day average concentration of biochemical oxygen demand (BOD) greater than 300 milligrams-per-liter (mg/L) or of total suspended solids (TSS) greater than 330 mg/L or a fats, oil, and grease (FOG) concentration greater than 100 mg/L prior to the septic tank or other OWTS treatment component.

(O) "Infiltrative area" means the infiltrative area below the distribution pipe where effluent may leach into the soil through the trench sides and bottom. Infiltrative area is expressed as square feet of infiltrative area per linear feet of trench. The depth between the pipe and the bottom of the trench is referred to as "effective depth," or "flow depth."

(P) "Karst" means a type of underlying geology that may have the presence of subsurface fissures, caverns, sinkholes or other features resulting from dissolution of limestone or marble that could lead to the rapid subsurface movement of untreated sewage.

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(R) "Major repair" or "repair" means a replacement of an old or malfunctioning OWTS.

(S) "Minor maintenance" means replacement of septic tank tees, ells, filter, lids, sewer tight lines, pump, valve, electrical components, or other minor maintenance work not specified as a minor repair.

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(V) "Nitrate Concern Areas" are those areas where effluent discharge from OWTS in fast percolating soils have caused elevated levels of nitrate in surface water or groundwater, including the San Lorenzo River Watershed, North Coast Water Supply Watersheds, Valencia Creek Watershed and La Selva Beach area, as shown on the map of Nitrate Concern Areas maintained by the Director of the Environmental Health Division.

(W) **"**Onsite Wastewater Treatment System" or "OWTS" means individual treatment and disposal systems, community collection and disposal systems, and alternative collection and disposal systems that use subsurface disposal of sewage. These may include any of the following types of systems:

(1) "Conventional system" means a system which utilizes a septic tank (with or without a lift pump) and leaching trench dispersal system or pits.

(2) "Standard system" means a conventional system which is constructed in accordance with the specifications for a standard system as described in SCCC 7.38.095 through 7.38.180.

(3) "Nonstandard system" means a system which is not in conformance with all the standards contained in SCCC 7.38.095 through 7.38.180 or which utilizes enhanced treatment. Nonstandard systems include enhanced treatment systems, nonconforming interim sewage disposal systems, low-flow systems, limited expansion systems, and haulaway systems.

(4) "Nonconforming interim sewage disposal system" means a conventional system design that provides for insufficient leaching area that is not in compliance with SCCC 7.38.150(A)(3), that is in soils that percolate in the range of 60 to 120 minutes per inch, or which is not in compliance with other requirements for a standard system contained in SCCC 7.38.095 through 7.38.180. Use of a nonconforming interim sewage disposal system requires use of water conservation devices. No building additions will be allowed, and the system will need to be brought up to standards at the time of property transfer. An annual fee is charged on the tax bill and the property will be periodically checked for signs of failure.

(5) "Low-Flow System" means a permitted system repair that meets the requirements for a standard conventional system except that it has a reduced amount of dispersal area, requires water conservation measures to keep the flow within design capacity, and enables only a one-time addition of up to 500 sq. ft. of habitable space with no bedroom additions and no increase in volume of wastewater discharge. An annual fee is charged on the property tax bill and the property will be periodically checked for signs of failure.

(6) "Limited expansion system" means a conventional system that has sufficient leaching area but does not have sufficient area to accommodate a replacement system in compliance with the requirements for a standard system contained in SCCC 7.38.095 through 7.38.180.

(7) "Enhanced treatment system" means a system that utilizes an additional component (other than a septic tank or dosing tank) that performs additional wastewater treatment so that the effluent is of a higher quality prior to discharge of effluent into the soil. An enhanced treatment system may utilize a wastewater treatment system that reduces pathogen, nitrogen, phosphorus, total suspended solids and/or biological oxygen demand concentrations; and/or uses a nonconventional means of dispersal such as mounded beds, pressure-distribution, at-grade dispersal, or drip dispersal. Enhanced treatment systems also include those systems previously designated as alternative systems. An annual fee is charged on the property tax bill, a maintenance contract is required, and the property will be periodically checked for signs of failure.

(8) "Haulaway system" means an existing sewage system for which the Health Officer has ordered that the outlet of the septic tank, or other sewage holding container, be

permanently or seasonally sealed, and the accumulated sewage pumped out and hauled away to an approved disposal site. An annual fee is charged on the property tax bill and the property will be periodically checked for signs of failure.

(9) "Greywater system" means a system for the year-round disposal of greywater originating from a clothes-washer, laundry sink, shower, bathtub, hand sink or similar source of low strength wastewater. This does not include "greywater" irrigation reuse systems pursuant to Health and Safety Code Section 17922.12.

(X) "Public Water System" means a water system regulated by the California Division of Drinking Water or a Local Primacy Agency pursuant to the California Safe Drinking Water Act, Chapter 12, Part 4, Section 116275(h) of the California Health and Safety Code.

(Y) "Public Water Well" means a groundwater well serving a public water system. A spring which is not subject to the California Surface Water Treatment Rule (SWTR), CCR, Title 22, sections 64650 through 64666, is a public well. Other domestic water wells with fewer users are considered Non-Public Water Wells.

(Z) "Qualified Professional" means an individual licensed by a State of California agency or certified by a State of California agency to design, install, and/or maintain OWTS and to practice as professionals for other associated reports, as allowed under their license or registration. A Health Officer is a qualified professional. Qualified professionals must obtain an annual registration from the Environmental Health Division, pursuant to SCCC 7.38.190.

(AA) "Replacement System" means an existing OWTS that has its treatment capacity expanded, or its dispersal system replaced or increased. This includes major repairs, upgrades and additions.

(BB) "San Lorenzo Watershed" means all of the land area that drains into the San Lorenzo River upstream of its mouth at the Pacific Ocean.

(CC) "Sewage" means waste substance, liquid or solid, which is associated with human occupancy, or which contains, or may be contaminated with, human or animal excretion or excrement, offal or feculent matter, or matters or substances that may be injurious or dangerous to health.

(DD) "Soil" means the natural organic and inorganic material near the earth's surface which, in contrast to the underlying rock material, has been formed over time by the interactions between climate, relief, parent materials and living organisms.

(EE) "Stormwater infiltration device" means a subsurface trench, pit or bed or a surface rock bed designed to infiltrate stormwater and/or dissipate the flow at the discharge point of a pipe or ditch carrying stormwater.

(FF) "Upgrade or Addition" means partial or total replacement of an OWTS or addition of dispersal area or treatment components in order to meet current standards and support a

remodel or addition to the structure or use that the system serves. Installation of an additional OWTS to serve an accessory dwelling unit on a developed parcel is considered an upgrade.

(GG) "Water Body" means a body of non-flowing water, including vernal pools, ponds, lakes, tidal areas, and the ocean.

(HH) "Water supply watershed" means that area of a watershed that contributes surface water flow to a public water system water supply intake located in the San Lorenzo River Watershed or North Coast or Bonny Doon planning areas.

(II) "Watercourse" means a perennial or intermittent stream fed from permanent or natural sources, including rivers, creeks, runs, and rivulets, usually flowing in a particular direction (for at least seven days after rainfall) in a definite channel having a bed or banks, and usually discharging into some other stream or body of water.

(JJ) "Water quality constraint area" means the following areas which are located within one mile of intakes used for public water supply and are located within the watersheds of those intakes:

(1) City of Santa Cruz intakes on Reggiardo, Laguna, and Majors Creeks, and Liddell Spring;

(2) Bonnymede Mutual intake on Reggiardo Creek; and

(3) Davenport water system intakes on Mill and San Vicente Creeks.

7.38.035 Requirement of adequate sewage disposal.

Every person owning, leasing, occupying or using any building that has plumbing fixtures conveying sewage shall be required either to provide and maintain a properly functioning OWTS or to provide and maintain an adequate connection to a public sewer for such building. An OWTS shall provide for the disposal of sewage in a manner that does not create a public health hazard and does not degrade surface or groundwater quality. All OWTS both existing and new, and all parts thereof, shall be maintained in a safe and sanitary condition at all times. The owner, lessee, occupant, user, or their designated agent, shall be responsible for the maintenance of such systems. Where permitted, an OWTS shall be provided for each building designed for human habitation, except that a group of attached buildings, designed for habitation, occupying land in one ownership and having a yard or court in common, may be serviced by a single OWTS. The use of vault toilets or semi-permanent Portable Toilets at a temporary use non-residential publicly-accessed site (e.g., beach, park, trailhead, campground) may be allowed by the Health Officer where installation of an OWTS is not feasible and a vault toilet or semi-permanent Portable Toilet is determined by the Health Officer to provide the safest and most acceptable method of sewage disposal. The vault toilet shall be maintained by a public entity or by the property owner, who shall be required to maintain a service contract with a licensed liquid waste hauler.

7.38.040 Onsite wastewater treatment system—Permits.

(A) Permit Required. No person shall construct, reconstruct, or undertake any repair, addition, or upgrade of any OWTS or any portion thereof on any property within the unincorporated area of the County without having first obtained a permit to do so from the Health Officer; provided, however, that this provision shall not apply to emergency work necessary due to the immediate failure of the existing system, when it shall be proved to the satisfaction of the Health Officer that such work is urgently necessary and that it is not practical to obtain a permit before commencement of the work. In all such cases, prior approval shall be obtained from the Health Officer and an application for permit must be submitted within three business days after commencement of the work. Minor maintenance may be made without permit.

(B) Penalty. Any person who commences or completes any work for which a permit is required without first having obtained a permit therefor shall, if subsequently permitted to obtain a permit, pay double the permit fee established by resolution of the Board of Supervisors for such work.

7.38.042 Prohibitions.

Except as may be otherwise provided in this chapter, an OWTS shall not be permitted in any of the following circumstances:

(A) Where the property line of the parcel upon which the system is proposed to be constructed is within 200 feet of a public sewer and connection to the sewer thereto is determined to be feasible. "Feasible" means that sewer service is both (a) available by annexation to or contract with an existing sanitation district, County service area or city under existing Local Agency Formation Commission spheres of influence and County land use policies, and (b) that connection is technically feasible based on engineering and technical factors. A connection ban or moratorium in and of itself shall not make a connection infeasible;

(B) Where the parcel upon which the system is proposed to be constructed is undeveloped and less than the size specified in SCCC 7.38.045;

(C) Where the system is proposed to be installed on a parcel other than the parcel upon which the use to be served by the system is located, except as provided in SCCC 7.38.060;

(D) Where the system utilizes a cesspool of any kind or size;

(E) Where the separation of the bottom of dispersal system to groundwater is less than two (2) feet, except for seepage pits, which shall not be less than 10 feet;

(F) Where the system receives wastewater discharge from whole-house water treatment systems or backwash from swimming pool or spa;

(G) Where the parcel is undeveloped and the proposed system would be located on slopes over 30% or within 100 feet of a well or water body; and

(H) The following types of systems shall not be permitted under this chapter by the County, but may be permitted by the State Water Boards:

(1) OWTS receiving a projected flow over 10,000 gallons per day;

(2) OWTS that utilize any form of effluent disposal that discharges on or above the post installation ground surface such as sprinklers, exposed drip lines, free-surface wetlands, or a pond;

(3) OWTS dedicated to receiving significant amounts of wastes dumped from RV holding tanks;

(4) OWTS which receive non-domestic wastewater such as medical and dental office wastewater, food and beverage production wastewater, winery waste or brewery waste; and

(5) OWTS that receive high-strength wastewater.

7.38.043 Protection of Public Water Supplies.

(A) Except as provided for in paragraphs (B) and (C) below, new or replacement OWTS are prohibited with minimum horizontal setbacks less than any of the following:

(1) 150 feet from a public water well where the depth of the effluent dispersal system does not exceed 10 feet in depth;

(2) 200 feet from a public water well where the depth of the effluent dispersal system exceeds 10 feet in depth;

(3) Where the effluent dispersal system is within 600 feet of a public water well and exceeds 20 feet in depth the horizontal setback required to achieve a two-year travel time for microbiological contaminants shall be evaluated. A qualified professional shall conduct this evaluation. However, in no case shall the setback be less than 200 feet;

(4) Where the effluent dispersal system is within 1,200 feet from a public water system's surface water intake point, within the catchment of the drainage, and located such that it may impact water quality at the intake point such as upstream of the intake point for flowing water bodies, the dispersal system shall be no less than 400 feet from the high-water mark of the reservoir, lake or flowing water body; and

(5) Where the effluent dispersal system is located more than 1,200 feet but less than 2,500 feet from a public water system's surface water intake point, within the catchment area of the drainage, and located such that it may impact water quality at the intake point such as upstream of the intake point for flowing water bodies, the

dispersal system shall be no less than 200 feet from the high-water mark of the reservoir, lake or flowing water body.

(B) For replacement OWTS that do not meet the above horizontal separation requirements, the replacement OWTS shall meet the horizontal separation to the greatest extent practicable. In such case, the replacement OWTS shall utilize enhanced treatment and other mitigation measures, unless a qualified professional provides information to the satisfaction of the Health Officer that there is no indication that the previous system is adversely affecting the public water source, and there is limited potential that the replacement system could impact the water source based on topography, soil depth, soil texture, and groundwater separation.

(C) For a new OWTS, installed on parcels of record existing as of May 13, 2013, that cannot meet the above horizontal separation requirements, the OWTS shall meet the horizontal separation to the greatest extent practicable and shall utilize enhanced treatment for pathogen and total nitrogen concentration reduction and any other mitigation measures prescribed by the Health Officer.

7.38.045 Lot size requirements for existing lots of record.

(A) An OWTS may be permitted on a parcel of less than one acre in size if the parcel is an existing lot of record which complies with the requirements of this section, and if all other requirements of this chapter are satisfied.

(B) For the purpose of permitting the installation of an OWTS on an existing lot of record, the minimum lot size requirements shown in subsection (D) of this section shall apply, based on the date of recordation of the existing lot and subject to the conditions identified in said subsection.

(C) Separate lots of record and lots shown on a map of recorded subdivision shall be deemed to be lots in existence for the purposes of this section as of the date said lots were created by recorded deed, parcel map or final map. If an owner of record of a lot can furnish satisfactory proof that they were the purchaser of a lot pursuant to a bona fide contract of sale, the date of purchase of said lot as shown in such contract of sale shall be deemed satisfactory proof of the date of existence of the lot.

(D) Regardless of the date of recordation, the following are minimum lot size requirements for existing lots of record:

TABLE 7.38.045: Minimum Lot Size for Existing Lots of Record

		Less than 6,000 sq. ft.	6,000 sq. ft.	15,000 sq. ft.	0.5 acres	1 acre	2.5 acres
1. Lots in existence prior to 12/17/70 and not under any of the conditions of item 4 of this table	Lots with public water supply	X[1]	X				
	Lots with private water supply			X[2]			
2. Lots created after 12/17/70 and before 10/31/78 and not under any of the conditions of item 4 of this table	Lots with public water supply			X			
	Lots with private water supply					X	
3. Lots created after 10/31/78 and not under any of the conditions of item 4 of this table	All Lots					X	
4. Regardless of the date of recordation, the following are minimum lot size requirements for the areas listed below:							
a. Kristen Park Subdivision (Assessor's Book Page 62-17), and Water Quality Constraint Areas	All Lots						X[3,4]
b. Water supply watershed in the San Lorenzo River Watershed and in the Coastal Zone, North Coast Planning Areas or Bonny Doon Planning Areas (excluding Kristen Park and water quality constraint areas)	All Lots					X[5]	
c. Rio Del Mar Lodge Sites Nos. 1 and 2; Monte Toyon Subdivision No. 1; Assessor's Book Page 40-14, blocks 1 and 2	Lots with public water supply			X			
	Lots with private water supply					X	

NOTE: Property owners should be aware that other land use constraints may prevent the development of parcels, especially parcels of 6,000 square feet or less.

NOTES FOR TABLE 7.38.045

(1) Lots of less than 6,000 square feet may be used for OWTS only if the lot has not, at any time since December 17, 1970, been held by the same owner of any contiguous undeveloped property which could have been combined with the lot to increase its area to at least 6,000 square feet.

(2) Lots of less than one acre but more than 15,000 square feet may use both an OWTS and onsite water supply if the applicant demonstrates that a public water supply cannot be obtained and that contiguous land cannot be acquired to enlarge the lot to at least one acre.

(3) For lots of less than two and one-half acres in the Kristen Park Subdivision, the applicant for an onsite sewage disposal permit must submit documentary evidence they have encumbered from future development, and prohibited and restricted, as evidenced by a document on file with the Recorder, all rights to construct any improvements which would be located upon at least one other separate lot of record, whether contiguous or noncontiguous, within the Kristen Park Subdivision.

(4) Exceptions to the two and one-half acre minimum lot size for parcels within water quality control areas other than the Kristen Park area may be made where one of the following conditions is met:

  (i) The lot is combined with a contiguous undeveloped property to form one parcel of at least two and one-half acres; or

  (ii) The applicant submits documentary evidence that they have legally encumbered from future development, and prohibited and restricted, as evidenced by a document on file with the Recorder, all rights to construct any improvements which would be located on an existing contiguous or noncontiguous parcel, or part of a parcel, located within the same watershed so that the total acreage of the parcel intended for development and the parcel or part of parcel which shall be legally encumbered from development, shall equal or exceed two and one-half acres.

(5) Within water supply watersheds, existing parcels of record less than one acre in size may be approved for development utilizing an OWTS for commercial use if the parcel meets all of the following criteria:

  (i) The parcel has a designation of Community Commercial, Neighborhood Commercial, Office, or Service Commercial, in the General Plan that was adopted on May 24, 1994;

  (ii) It is to be developed for commercial use;

  (iii) It is within the rural services line;

  (iv) The OWTS will meet all the standards contained in SCCC 7.38.120 through 7.38.186 and the OWTS utilizes the enhanced treatment provided for in SCCC 7.38.152.

(E) Parcels less than one acre in size may be approved for development if they are created through subdivision after October 12, 2000, and meet all of the following requirements:

(1) The average parcel size of the subdivision, including common areas and open space, but excluding roadways, is greater than one acre;

(2) The parcel is not located in a water supply watershed;

(3) The proposed subdivision utilizes clustering of development, with reservation of common open space; and

(4) The Health Officer determines that the property to be used for sewage disposal meets all standards contained in this chapter and can provide satisfactory sewage disposal without creating pollution, a health hazard, or a nuisance condition.

7.38.060 Exceptions allowing easements for OWTS.

(A) Notwithstanding the provisions of SCCC 7.38.042(C), the Health Officer may permit the use of an easement for repair or upgrade of an OWTS provided all the conditions listed below are met:

(1) The Health Officer determines that a satisfactory repair or upgrade of the existing OWTS cannot be obtained on the property upon which it is located; and

(2) The Health Officer determines that the property to be used for sewage disposal can provide satisfactory sewage disposal without creating a health hazard or nuisance condition; and,

(3) A recorded easement or easements shall guarantee access for use and maintenance of the OWTS and transmission piping for as long as needed by the building served by the system. The easement shall be recorded against the deeds of both properties and can only be removed with prior approval of the Health Officer. If a repair is proposed in a right-of way, written permission shall be obtained from the entity having jurisdiction over that right-of-way or from all owners of property with legal rights to use of that right-of-way.

(B) Notwithstanding the provisions of SCCC 7.38.042(C), the Health Officer may permit the use of an easement for installation of a new OWTS for parcels created through subdivision after January 1, 2001, provided all the conditions listed below are met:

(1) The average parcel size of the subdivision, excluding roadways, will be greater than one acre;

(2) The parcels are not located within a water supply watershed;

(3) The proposed subdivision utilizes clustering of development, with reservation of common open space;

(4) The Health Officer determines that the property to be used for sewage disposal meets all standards contained in this chapter and can provide satisfactory sewage disposal without creating pollution, a health hazard, or a nuisance condition; and

(5) A recorded easement or easements shall guarantee access for use and maintenance of the OWTS and transmission piping for as long as needed by the building served by the system. The easement shall be recorded against the deeds of all affected properties and can only be removed or modified with prior approval of the Health Officer.

(C) Notwithstanding the provisions of SCCC 7.38.042(C), the Health Officer may permit the use of an easement for an OWTS to serve a publicly owned facility where technical or minimum parcel size standards cannot be met for sewage disposal at the site of the facility.

7.38.080 Existing system—Building alterations.

(A) General. The sewage disposal system for additions, alterations, or replacements of buildings or structures shall comply with all the requirements for new buildings or structures except as specifically provided in this section. No addition, alteration, or replacement building permit shall be issued without review and approval of the Health Officer.

(B) Building Additions, Remodels, and Replacements.

(1) A one-time addition per parcel to any legal residential structure of up to 500 square feet of habitable space with no increase in bedrooms may be approved with no change required to the existing OWTS provided all the conditions listed below are met:

(a) The addition does not encroach on the existing OWTS or expansion area;

(b) Adequate information exists as to the location, construction and proper function of the existing OWTS;

(c) The limit of one addition per parcel shall commence on January 1, 1993, and shall apply to all building permit applications on file as of that date; and

(d) The existing OWTS is functioning without failure.

(2) Additions of more than 500 square feet of habitable space and/or increases in the numbers of bedrooms to any legal residential structure and/or the creation of an accessory dwelling unit pursuant to SCCC 13.10 may be approved, provided the OWTS meets (or is upgraded to meet) the requirements for a standard system or enhanced treatment system as specified in SCCC 7.38.095 through 7.38.186 for the total number of bedrooms and dwelling units in the proposed project (including existing bedrooms and dwelling units). Bedroom additions may be approved utilizing an existing dispersal system approved prior to June 1, 2018 if that system meets all requirements for groundwater separation, well setback, stream setback and dispersal area provided that said dispersal systems that have a flow depth between 2 and 10 feet may only be given credit for an infiltrative area of up to 10 square feet per linear foot if it is determined by a qualified professional that the system can accommodate the increased flow and there will be no significant adverse impact on water quality. Existing dispersal systems that have a flow depth deeper than ten feet or that do not meet other requirements may be utilized with the addition of enhanced treatment that meets requirements.

(3) Replacement of a legal structure with an equivalent structure may be approved, provided that:

(a) The OWTS to serve the reconstruction meets or is upgraded to meet the standards as provided in SCCC 7.38.095 through 7.38.186;

(b) During the three-year period prior to application under this subsection the legal structure has been continuously used or fully capable of being continuously used for either residential or commercial use, including the maintenance of utility hook-ups; and

(c) during the full three-year period prior to application under this subsection the legal structure has been continuously assessed as an active residential or commercial use by the County Assessor.

(4) For purposes of this subsection, "legal structure" means a structure, including any remodel or addition, which was constructed pursuant to an approved building permit, or constructed at a time prior to the requirement of a building permit.

(5) Any parcel for which an addition, remodel, or replacement meets all the provisions of this subsection shall not be required to meet the minimum lot size provisions of this chapter.

(6) Prior to submittal of the application, the Environmental Health Division shall review and provide approval of all building permit applications that propose any increase of site disturbance or potential increase in potential wastewater flow on a parcel served by an OWTS. The conditions stated in subsections (B)(1)(a) and (b) of this section shall be satisfied prior to such approval. Projects such as simple foundation replacement with no change in footprint, rewiring, replumbing, reroofing, interior and exterior remodels that do not increase bedrooms or change building footprint, shall not require review and approval by the Environmental Health Division.

(C) Accessory Dwelling Units

Creation of an accessory dwelling unit pursuant to SCCC 13.10 may be approved, provided the OWTS meets (or is upgraded to meet) the requirements for a standard system or enhanced treatment system as specified in SCCC 7.38.095 through 7.38.186 for the total number of bedrooms and dwelling units in the proposed project (including existing bedrooms and dwelling units). An accessory dwelling unit shall be considered a separate unit for the purposes of calculating design flow. Installation of an additional or expanded OWTS to serve an accessory dwelling unit on a developed parcel is considered an upgrade. For a new detached accessory dwelling unit, the second unit may have a separate OWTS provided that the OWTS for the main structure meets standards or may utilize a combined system that meets or is upgraded to meet standards for the combined flows and each unit is served by its own septic tank. A combined tank may be allowed for enhanced treatment systems as a part of the treatment system if it meets the specifications for the design flow.

(D) Reconstruction of Occupied Structures Destroyed by Fire or Calamity.

Reconstruction of any legal structure partially or wholly destroyed by fire, flood, land movement, other natural calamity, or any other calamity beyond the control of the owner of such structure will not be considered new development for the purposes of this chapter if all of the following conditions are met:

(1) On the date of the calamity damage, the legal structure was either actually used or fully capable of being used for residential or commercial use and assessed as an active residential or commercial use by the County Assessor. "Legal structure" as used in this subsection means a structure, including any remodel or addition, which was constructed under an approved building permit, or constructed at a time prior to the requirements of a building permit.

(2) Application for a permit to reconstruct the structure must be made within 10 years of the date of the calamity damage. If more time has elapsed since the date of the calamity damage and all permits and applications for permits to reconstruct the structure have expired, pursuant to subsection (C)(1) of this section, no further application for a permit to reconstruct the structure may be made, and current standards and minimum parcel sizes as specified in SCCC 7.38.045 for new construction will apply.

(3) The OWTS to serve the reconstruction must meet or be upgraded to meet the standards as provided in SCCC 7.38.095 through 7.38.186 and must not be prohibited under SCCC 7.38.042.

(4) Any contiguous undeveloped properties of the owner must be combined to achieve a minimum parcel size of at least 15,000 square feet.

(E) Any proposed new use or proposed expansion of an existing use on a developed parcel served by one or more OWTS can only be approved if all existing and proposed uses on the parcel can be served by an OWTS that meets the requirements for a standard system or enhanced treatment system as specified in SCCC 7.38.095 through 7.38.186.

7.38.090 Application and fees.

(A) An application for a permit to construct, reconstruct or make any repair (other than minor maintenance) to an OWTS shall be made to the Environmental Health Division on forms provided for that purpose, and each such application shall be accompanied by a filing fee set by resolution of the Board of Supervisors. No part of the fee shall be refundable, except as herein provided for an application for a new system.

(1) The Health Officer may authorize credit of not more than 80 percent of the filing fee paid toward reapplication for an application which has expired pursuant to SCCC 7.38.093(C), subject to the following conditions:

(a) The original applicant reapplies within 180 days of the date of expiration of the original application;

(b) No installation or construction of any portion of the OWTS has taken place and the technical design and site plan are unchanged from the original application. If changes in the original application are required pursuant to SCCC 7.38.091(C), or because of site conditions or redesign of the original proposal, full filing fees are required upon reapplication.

(B) Supporting documents as required by the Health Officer, including but not necessarily limited to plot plan(s) and floor plan(s), shall be submitted with the application for a permit. The requirements for such supporting documents shall be as established by policy of the Health Officer.

7.38.091 Procedure upon receipt of an application for a new system.

(A) In the event an application is submitted for an area of the County for which the Department has inadequate information about soil conditions, the property shall be inspected by the Health Officer.

(B) After an inspection of the property by the Health Officer, the Health Officer may require soil tests, or percolation tests, or both. Such tests shall be performed at the expense of the applicant, as specified in SCCC 7.38.120.

(C) If all the information required by the Health Officer is not submitted within 12 months of the date of application, including information relating to any required tests, the application shall be deemed null and void. An exception to this provision may be granted if the project is subject to an active discretionary permit review or the required information cannot be submitted because adequate rainfall as set forth in SCCC 7.38.120(B) does not occur during a rainy season. In this event, the Health Officer may grant the applicant an extension to allow submittal of the required information during the next rainy season which meets the requirements specified in SCCC 7.38.120(B).

7.38.092 Finding of compliance.

After determining that an application is complete, that all required information has been submitted, and that the proposed system complies with the requirements of this chapter, the Health Officer shall grant or conditionally grant a finding of compliance.

(A) Within 15 business days after receipt of all the required information the Health Officer shall grant, conditionally grant, or deny a finding of compliance.

(B) A finding of compliance shall not be granted unless the Health Officer determines that the proposed system meets all the requirements of this chapter, the proposed system will function in a satisfactory manner, and the applicant has demonstrated an approved water source.

(C) The finding of compliance shall remain in effect for a period of 24 months from the date the finding of compliance was granted and shall thereupon expire and become null and void, unless

an application for a building permit is accepted as complete and is under review by the Planning Department. In that case, the finding of compliance shall remain valid until the building permit is issued, or the application for the building permit becomes invalid. If the building permit application becomes invalid or void, the finding of compliance shall also become null and void.

(1) The Health Officer may authorize credit of not more than 80 percent of the application fee paid toward reapplication for a finding of compliance which has expired pursuant to this subsection (C) subject to the following conditions:

(a) The original applicant reapplies within 180 days of the date of expiration of the original finding of compliance;

(b) No installation or construction of any portion of the OWTS has taken place and the technical design and site plan are in compliance with all requirements of this chapter. If changes in the original application are required pursuant to SCCC 7.38.091(C), or because of site conditions or redesign of the original proposal, full filing fees are required upon reapplication;

(c) Findings of compliance reissued under this subsection shall remain valid for two additional years. This provision to renew a finding of compliance shall be available only once for each application for sewage disposal.

(D) Prior to the expiration of the period during which a finding of compliance is in effect, a permit may be issued on the basis of the finding of compliance. Sewage disposal permits required by this chapter may be issued only in conjunction with the issuance of a building permit for the structure which the OWTS is to serve. Any permit issued shall incorporate any and all conditions specified in the finding of compliance as conditions of the permit.

7.38.093 Expiration of permits.

(A) A sewage disposal permit once issued for a structure shall remain valid unless the building permit for the structure becomes invalid, in which case the sewage disposal permit shall also become null and void.

(B) In the event a sewage disposal permit expires, a new application shall be required in all cases prior to the issuance of a new permit.

(C) Upon the expiration of any permit issued pursuant to this chapter, the system may not be used, or any further work done in connection with the installation or operation of the sewage disposal system until a new permit for such purpose is secured. All work shall comply with regulations currently applicable to OWTS when the new permit is issued. However, where an OWTS was previously fully installed pursuant to a permit which has subsequently expired, the system may be used if the Health Officer finds that the system will function in a safe manner.

7.38.095 OWTS Replacement.

(A) Notwithstanding the provisions of SCCC 7.38.093(A), and the other provisions of this chapter, permits for the repair or upgrade of existing OWTS may be issued by the Health Officer upon proper application therefor; and, once issued, shall be valid and exercisable for a period of two years.

(B) Upgrade or repair of existing systems shall be made in conformance with the requirements specified in SCCC 7.38.042, 7.38.043, and 7.38.130 through 7.38.180 except that the following allowances may be permitted on parcels that were developed utilizing OWTS approved prior to September 16, 1983:

(1) The minimum separation between the bottom of any leaching dispersal system and seasonally high groundwater must meet separation distances as provided in SCCC 7.38.150(B)(9);

(2) Setback to a watercourse shall be over 100 feet if possible, but may be reduced as provided in SCCC 7.38.150(B)(9);

(3) Setback to a seasonal drainage way shall be at least 25 feet;

(4) If soils are at least seven feet deep and conditions are otherwise suitable to prevent lateral surfacing of effluent, installation on slopes steeper than 30 percent up to 50 percent may be allowed if:

(a) The distribution pipe is installed at least two feet below the surface (vertical depth); and

(b) A minimum separation of five feet is maintained between the leaching trench disposal system and bedrock or other impermeable layer; and

(c) A slope stability report is prepared by a California licensed civil or geotechnical engineer or professional geologist and approved by the Health Officer, which indicates that installation on the slope is acceptable.

(5) Other requirements specified in SCCC 7.38.130 through 7.38.180 shall be met to the greatest extent possible as necessary to protect public health and water quality and shall comply with standards for system repairs established by the Health Officer pursuant to subsection (E) of this section.

(C) For replacement of old or failing OWTS that cannot meet the standards in SCCC 7.38.130 through 7.38.180, the replacement OWTS shall meet the standards to the greatest extent practicable. In such cases, the replacement OWTS may utilize enhanced treatment and other mitigation measures, unless the designer presents information to the satisfaction of the Health Officer that there is no indication that the previous system is adversely affecting water quality, that the replacement system will be in greater compliance with standards, and that it will adequately protect water quality. A nonconforming interim sewage disposal system may be

approved on a case-by-case basis for repair of a failing system if a hardship prevents installation of enhanced treatment that would be needed to meet requirements, and if the system is in compliance with the prohibitions in SCCC 7.38.042. No building additions will be allowed and the system will need to be brought up to standards at the time of property transfer.

(D) When repairing, replacing or upgrading an existing OWTS, on an existing, developed parcel that is unable to accommodate a standard OWTS that meets the standards in SCCC 7.38.130 through 7.38.180 including allowances described in subsection (B) of this section, the system shall be deemed a nonstandard OWTS design which must meet the requirements of SCCC 7.38.182 through 7.38.186. The size of a building addition or change in use that will be allowed will depend on site specific soil conditions, setbacks to critical infrastructure (water supply wells, property lines, structures, slopes, etc.) and the type of OWTS used.

(1) No residential additions or changes in use which will result in an increase in wastewater discharge shall be approved for parcels utilizing a haulaway or nonconforming interim sewage disposal system.

(2) No residential additions beyond the 500 square feet described in SCCC 7.38.080(B)(1) or changes in use which will result in an increase in wastewater discharge shall be approved for parcels utilizing a low flow system.

(3) When an enhanced treatment system is used, the Health Officer may permit bedroom additions and additions beyond the 500 square feet described in SCCC 7.38.080(B)(1); provided, the design specifications for the enhanced technology reflect the soil characteristics of the property, the system can adequately dispose of the projected peak wastewater flows, and suitable future expansion area exists on the property to replace the enhanced treatment system.

(4) No building additions shall be approved which will encroach on the OWTS or any area of the property needed to install a replacement system which meets the requirements for a standard or enhanced treatment system to the greatest extent possible.

(E) Procedures and standards for the replacement of OWTS, including guidelines for the design and use of enhanced treatment systems, shall be established by policy of the Health Officer.

7.38.120 Soil percolation tests and other required information for OWTS design.

(A) Soil characterization shall be required prior to approval of any application for a new or replacement dispersal system. The requirements for percolation tests may be waived if a qualified professional can provide adequate information to document the soil texture, soil structure, and soil grade to establish a maximum soil application rate to the satisfaction of the Health Officer. Percolation tests and soil characterization for the design of the OWTS shall be performed by any of the following, who shall be licensed in California: a registered civil engineer; a registered environmental health specialist; or a professional geologist. Such tests may be witnessed by the Health Officer. The Health Officer shall approve the number, depth, and location of percolation test borings. Percolation test procedures shall be established by

policy of the Health Officer. For repair of OWTS, an assessment of soil texture may be used to determine soil suitability and sewage application rate.

(B) When required by the Health Officer (based on geomorphological and historical information), observation for seasonal high groundwater level or persistent soil saturation shall take place only during the rainy season and when both of the following occur: (1) the cumulative rainfall reaches 60% of the mean annual rainfall for the region of observation, and (2) six inches of rainfall has occurred within 30 days immediately preceding the date of observation. The Health Officer may require the construction of piezometers (shallow groundwater monitoring pipes) to enable the observation of depth to groundwater throughout the winter. Such piezometers shall be constructed in the vicinity of proposed dispersal systems to specifications established by the Health Officer. The qualified professional shall make observations on at least a weekly basis and shall include observations between 3 and 5 days after significant rainfall of one inch or more. The Health Officer may observe the seasonal high groundwater level anytime during the winter water table test period established by subsections (B)(1) and (B)(2) of this section. The determination, for design purposes, of seasonal groundwater elevation in the vicinity of the proposed leaching devices shall be the static piezometric water level observed that is not influenced by confined water in lower strata that are penetrated by the piezometer. Temporary and brief saturated conditions that occur up to three days after significant rain events shall not provide the sole basis for determination of the seasonal groundwater level for dispersal system design purposes. The requirements for observation of seasonal high groundwater level may be waived for OWTS repairs and if a winter does not have adequate rainfall to meet the requirements for wet weather testing if a qualified professional can provide adequate information to estimate the maximum seasonal high groundwater level to the satisfaction of the Health Officer. Estimates of maximum seasonal high groundwater level may be based on soil conditions, topography, mapped groundwater information, observations from nearby properties or other information.

(C) One or more soil excavations shall be performed for each OWTS to demonstrate the suitability of soil conditions to serve new development. Soil excavations for repair permits will be required when there are no prior soil assessments done at the parcel and soil characteristics are not known. The excavation shall be made by backhoe whenever possible and shall extend to at least the separation distances as provided in SCCC 7.38.150(B)(9) below the bottom of the proposed dispersal system to demonstrate the suitability of soil conditions. A borehole may be accepted on sites with limited access or where a backhoe excavation would damage the proposed dispersal area. For replacement systems with very limited suitable dispersal area, the designer may estimate soil conditions based on available information, with confirmation soil excavation to be done during system installation.

(D) The qualified professional performing the soil tests shall provide an evaluation of soil texture for each soil stratum encountered during the soil excavation. When laboratory analysis of soil texture is required by the Health Officer, the testing individual shall collect a sample or samples, as required by the Health Officer, and deliver the samples to an approved soil testing lab for analysis. The test results shall be forwarded to the Health Officer with identification of

the sampling location, depth and method. The soil textural classification system shall be the USDA method. Soils with greater than 40 percent clay content shall be unacceptable regardless of percolation rate.

(E) In areas mapped or suspected to be underlain by karst, the area within 200 feet of the proposed dispersal system and expansion area shall be evaluated by a professional geologist familiar with karst landscapes and the dispersal system shall be located at least 100 feet from any sinkhole or other karst feature that would rapidly transmit effluent. Soils or formations containing continuous channels, cracks or fractures are not acceptable for sewage dispersal unless there is a setback distance of at least 250 feet to any domestic water well, proposed domestic water well site, or surface water.

(F) The Health Officer may also require any other information necessary to evaluate the proposed system. If the proposed dispersal area has a slope over 30% or if, in the professional judgement of the Health Officer, the land proposed for onsite sewage disposal has severe soil limitations, or introduction of sewage effluent into the soil may create slope instability, submission of a technical report prepared at the applicant's expense by a California licensed professional geologist or California licensed civil or geotechnical engineer shall be required. The Health Officer may request that the report be reviewed by a qualified professional employed by the County. The applicant shall pay a fee for such review as established by the Board of Supervisors. No system component may be located within 100 feet of an unstable land mass or area subject to earth slides identified by a licensed professional civil or geotechnical engineer or licensed professional geologist, unless a closer setback is approved by a technical report prepared by a qualified professional.

(G) Any geologic or geotechnical report prepared as part of a building or development permit application and submitted to the County which includes a slope stability report for development where onsite wastewater disposal is proposed shall include review and comment by the preparer of the report regarding the specific OWTS proposal which has been submitted to the Environmental Health Division. This report shall evaluate the effect of the proposed system on the potential for slope instability and, if necessary designate other areas on the site where an OWTS that meets County standards will not adversely affect slope stability.

(H) Designs for an OWTS must be prepared by a qualified professional such as a California licensed civil engineer, a California registered environmental health specialist, a California licensed professional geologist, California certified engineering geologist, or other qualified professional approved by the Health Officer that has demonstrated experience in the design of OWTS. Designs for OWTS shall include such soil and other site technical data as necessary to demonstrate that the system will meet the requirements of this Chapter, will function as designed, and will not adversely affect surface or groundwater quality.

7.38.130 General installation requirements.

(A) OWTS shall be installed in accordance with the plans approved by the Health Officer except for minor deviations. Changes in the installation plan must be approved by the Health Officer prior to installation.

(B) All wastewater shall be discharged into one OWTS unless an alternate arrangement is necessary and has been approved by the Health Officer. For a new detached accessory dwelling unit, the second unit may have a separate OWTS provided that the OWTS for the main structure meets standards or may utilize a combined system, provided the dispersal area meets standards for the combined flows and each unit is served by its own septic tank. A combined tank may be allowed for enhanced treatment systems as a part of the treatment system if it meets the specifications for the design flow.

(C) An area equal to the amount of area necessary to install the dispersal system shall be kept available for future expansion and replacement of the dispersal system. No construction of buildings, sheds, permanent swimming pools, driveways, parking areas, or other permanent structures shall be permitted over the future dispersal expansion area. For new development on previously undeveloped parcels, with soils that percolate in the range of 31 to 60 minutes per inch, a dual conventional dispersal system or single dispersal system with enhanced treatment is required. If a conventional dispersal system is used, the expansion system shall be installed at the time that the primary system is installed. This second system shall be interconnected with the first by means of an approved flow diversion device.

(D) OWTS shall be located so as to be accessible for maintenance and repairs. Septic tanks shall be located so as to allow vacuum pumping.

(E) For soils where a leaching trench dispersal system is proposed, the slowest acceptable percolation rate is 60 minutes per inch (one inch per hour) and the fastest acceptable percolation rate is one minute per inch (60 inches per hour) measured between zero and three feet below the bottom of the leaching trench. For soils three feet to six feet beneath a leaching trench dispersal system, the slowest acceptable percolation rate is 60 minutes per inch. For soils six feet to 10 feet below a leaching trench dispersal system, the slowest acceptable percolation rate is 120 minutes per inch (one-half inch per hour). Acceptable soil permeability below the trench may be determined by observation of soil characteristics or percolation testing. With enhanced treatment and shallow drip dispersal, separation to soils that percolate slower than 120 minutes per inch can be reduced to not less than 3 feet. Soils that percolate faster than 1 minute per inch or between 60 and 120 minutes per inch may be utilized for dispersal with enhanced treatment.

(F) Dispersal systems shall not be installed in or on slopes greater than 30 percent for new development. Dispersal systems for a replacement system may be installed on slopes between 30 and 50 percent if a slope stability report is prepared and approved pursuant to SCCC 7.38.120(F). Slope restrictions apply only to the areas used for sewage leaching, including the area reserved for expansion of the dispersal system. Slopes less than 30 percent are not acceptable when they have been created by grading or other modification of slopes that were steeper than 30 percent.

(G) Installation shall not be permitted in areas subject to high groundwater or persistent soil saturation, whether seasonal or permanent. The bottoms of leaching areas shall be separated

from groundwater in accordance with the standards prescribed in this chapter for leaching trenches and seepage pits.

(H) Dispersal areas shall not be located in low lying areas receiving stormwater drainage, or within 100-year flood zones, except for the repair of an existing septic system, when no approved location exists outside the floodplain. If the septic system is located within the floodplain, no bedroom additions are allowed and only a one-time building addition less than 500 square feet is allowed.

(I) Each OWTS shall be separated from streams, creeks, wells, springs, and watercourses by a minimum horizontal distance specified in Sections 7.38.043, 7.38.140(I) and 7.38.150(B)(4). Stream separation may be reduced for replacement systems pursuant to Section 7.38.150(B)(9). Seepage pits must have enhanced treatment and shall be separated from non-public water wells by a minimum distance of 150 feet and from public water wells by a distance of at least 200 feet, as provided for in Section 7.38.043. The distance from streams, creeks, drainageways, ditches and swales shall be measured horizontally from the mean rainy season flowline. Dispersal areas shall be separated by a minimum of 25 feet from open unlined stormwater conveyances that flow no more than 12 hours after rainfall and by a minimum of 50 feet from drainageways which flow no more than one week after significant rainfall, except that separation may be reduced to no less than 25 feet if the drainageway is located upgradient from the dispersal system.

(J) Dispersal systems shall not be permitted in fill.

(K) The building sewer shall be of cast iron, A.B.S. Schedule 40 plastic, or other approved material. It shall have approved watertight fittings and be of at least the same diameter of the building drain. Ells and bends of 90 degrees shall be long turn. Cleanouts shall be provided in accordance with the Uniform Plumbing Code.

(L) Rock used in leaching trench dispersal systems shall be washed and reasonably free of fines, sand, very fine silt, and clay.

(M) Leaching trench dispersal systems shall have a slightly sloped finished grade to promote surface runoff. Soil should be mounded slightly over leachlines to prevent soil settlement after construction from creating depressions that pond runoff.

(N) Except in emergencies, dispersal system installation in clayey soils shall only be done when soil moisture content is low, to avoid smeared infiltrative surfaces.

(O) Leaching area sidewalls should be left with rough surfaces.

(P) Construction and paving over leaching trench dispersal systems and future expansion areas is prohibited. For replacement systems, a portion of a leaching trench dispersal system may be located under an all-weather surface or driveway providing that at least 50% of the final surface is permeable.

(Q) The use of a haulaway system is prohibited, except in the following circumstances:

(1) The repair of an existing failing system when no other alternative is available; or

(2) The use of vault toilets or semi-permanent Portable Toilets at a temporary use non-residential publicly-accessed site (e.g., beach, park, trailhead, campground) may be allowed by the Health Officer if installation of an OWTS is not feasible and a vault toilet or semi-permanent Portable Toilet is determined by the Health Officer to provide the safest and most acceptable method of sewage disposal. The vault toilet shall be maintained by a public entity or by the property owner, who shall be required to maintain a service contract with a licensed liquid waste hauler.

(R) Stormwater infiltration devices shall not be located where they may lead to saturation of soils in the wastewater dispersal area or where they may intercept effluent from the wastewater dispersal area. At a minimum, stormwater infiltration devices shall not be located closer than 25 feet from a wastewater dispersal area or expansion area unless the stormwater discharge point is located a minimum of 10 feet below the bottom of the wastewater dispersal device.

(S) Upon the completion of an OWTS installation repair or replacement, the site must be restored with proper and stable disposition of excavated material and measures taken to prevent any significant erosion of surfaces disturbed during installation of the system. Any bare soil or fill that results from the installation of a septic system shall be seeded and mulched or otherwise treated to prevent erosion between October 15 and April 15.

(T) Systems with pumps or other electrical components require an electrical permit prior to permit approval. An inspection and approval of the electrical work by the Building Official must be completed prior to final approval of the installation by the Health Officer.

7.38.140 Septic tank requirements.

(A) The minimum septic tank volumetric capacity serving residences with one to four bedrooms shall be 1,500 gallons. An additional 250 gallons of septic tank volumetric capacity shall be provided per bedroom for residences with more than four bedrooms. Septic tank capacity shall be not less than three times the daily flow.

(B) Septic tanks shall have at least two compartments separated by a baffle or equivalent arrangement. The inlet compartment shall have a capacity of not less than two-thirds the total volume. Access to each compartment shall be provided by a manhole 20 inches in minimum dimensions with a close-fitting manhole cover equipped with a durable handle to facilitate removal.

(C) Septic tanks shall be installed so that manhole covers are within 6 inches of the ground surface. If the top of a septic tank is deeper than 6 inches from the ground surface, the tank shall be modified with risers so as to extend the manhole and covers to within 6 inches of the surface. Material used to extend the manhole covers shall have a watertight connection to the tank. A cleanout to finished grade shall be provided between the house and the septic tank.

(D) Septic tanks shall be watertight and constructed of reinforced concrete or approved noncorrodible synthetic materials and certified by International Association of Plumbing and Mechanical Officials or stamped and certified by a California registered civil engineer as meeting the industry standards. Wood or metal septic tanks shall not be permitted. Interior surfaces of concrete tanks shall be coated with a bituminous or similar compound to minimize corrosion. Installation shall be according to the manufacturer's instructions. Watertightness may be required to be demonstrated at the time of installation. Tank installation shall be according to manufacturer's specifications for backfill material and means for securing tank in place when pumped and/or in high groundwater.

(E) New or replacement tanks shall be designed to prevent solids in excess of 3/16 of an inch in diameter from passing into the dispersal system. This requirement may be satisfied by installation of an approved effluent filter.

(F) Septic tanks, manhole risers and manhole covers must be traffic-rated if placed in any area subject to vehicle access.

(G) Septic tanks shall be placed in conformance with the following distance requirements:

From Septic Tank To:	Minimum Permitted Distance in Feet
Dispersal system	5
Property line	5
Foundation, structure, bearing weight building overhang, stormwater tight line	5
Private individual water line	10
Water Main	25
Stream, well, spring, watercourse, non-public water wells, monitoring wells[1]	100
Public water well, if dispersal 10 ft or less deep	150
Public water well, if dispersal is greater than 10 ft deep	200
Vernal pools, wetlands, lakes, ponds, ocean, or other surface water bodies	200
Seasonal Drainageway that carries water more than 12 hours after rainfall	50

[1] The edge of the watercourse is the natural or levied bank for creeks and rivers. The setback may be less where site conditions prevent migration of wastewater to the water body and/or the tank is demonstrated to be watertight.

From Septic Tank To:	Minimum Permitted Distance in Feet
Stormwater infiltration device, downgradient ditch	25
Ditch upgradient of tank	10
Driveway or pavement	5
Edge of road easement or right-of-way	5

7.38.150 Effluent dispersal system requirements.

(A) General.

(1) Septic tank effluent shall be leached into the ground by means of an effluent leaching dispersal system. The type of dispersal system used shall be approved by the Health Officer, based on review of the location and topography of the site, the soil permeability and groundwater level at the site, and all other relevant factors.

(2) A dispersal system shall be sized to accommodate the expected flow based on the number of bedrooms or rooms that could potentially be used as bedrooms, as determined by the Health Officer. An accessory dwelling unit shall be considered a separate unit for the purposes of calculating design flow. The minimum infiltrative area per dwelling unit shall be determined according to the following tables. Application rates from Table 3 and 4 of the State OWTS Policy may be utilized for conventional systems. Those application rates may be doubled with enhanced treatment that reduces Biological Oxygen Demand (BOD) and Total suspended solids (TSS) to less than 30mg/L.

Effluent Application Rate Based on Soil Percolation Rate in minutes per inch (MPI) (application rates may be interpolated if the percolation rate falls between the indicated values):

Percolation Rate MPI	Application gal/sf/day	
	BOD=150 mg/L Conventional	BOD<=30 mg/L ET/Dosed
<1	--	1.6
1	1.2	1.6
5	1.2	1.6
10	0.80	1.6
15	0.73	1.46
20	0.66	1.32
25	0.60	1.2
30	0.53	1.06
35	0.48	0.96
40	0.42	0.84

45	0.37	0.74
50	0.31	0.62
55	0.26	0.52
60	0.2	0.40
90	--	0.3
90-120	--	0.2

Design Flow per Bedroom (gallons per day):

Number of Bedrooms	1	2	3	4	5	6	Per Additional Bedroom
Standard Design Flow (gpd)	250	300	375	450	525	600	75
Low Flow System (gpd) Repair Only, with Limitations)*	150	200	250	300	350	400	50

*Low Flow Systems require water conservation devices, flow monitoring, deed recordation, annual fee, periodic inspection, and limits on remodels.

(3) Soil suitability for sewage dispersal shall be determined by a combination of percolation test results, exploratory excavation soil logs and soil structural and textural characteristics. Laboratory analyses of soil texture may be required by the Health Officer. Soil texture may determine soil suitability where percolation test results are unclear or nonrepresentative.

(4) Systems in sandy soils with fast percolation rates shall utilize enhanced treatment systems as specified in SCCC 7.38.183.

(5) Discharge from water softeners, drinking water filters, swimming pool filter backwash and other sources of non-domestic wastewater shall not be discharged to the septic system. Swimming pool backwash may be discharged to a separate leaching trench dispersal system properly sized to receive and infiltrate the flow or vegetated ground surface in a manner that does not cause erosion or cause runoff to leave the property.

(B) Leaching Trench Dispersal System.

(1) The Health Officer may approve the use of a trench as a leaching dispersal system. Any such trench shall be 18 inches to 36 inches in width, contain a perforated sewage conductor pipe, and shall be filled with rock. The trench depth required will be dependent on soil conditions, and the trench length required will be dependent on sewage loading. The infiltrative area of a new or upgraded conventional system shall not be more than 4 square feet of infiltrative area per linear foot of trench and with trench width no wider than three feet. The infiltrative area is calculated using the bottom area of the leaching trench and the sidewall area beneath the leaching pipe. For repairs only, if a qualified professional demonstrates that an existing lot of record is constrained by existing conditions, such as steep slopes or trees, the replacement dispersal system may utilize up to 10 square feet of

infiltrative area per linear foot of trench, with the bottom of the trench no deeper than 10 ft below the ground surface. Deeper trenches may be allowed for new development or upgrades if enhanced treatment is utilized.

(2) The use of chamber leachfields may be permitted by the Health Officer if they are certified by the International Association of Plumbing and Mechanical Officials. The Health Officer shall develop and promulgate regulations for their use. All sections of this chapter regarding the location and placement of leaching devices shall apply to the chamber method of effluent dispersal, except that the required dispersal area may be reduced to no less than 70% of the required dispersal area.

(3) Trenches shall be placed in an area where the soil has not been removed, altered or filled.

(4) Trenches shall be constructed in accordance with the following requirements:

From Leaching Trench and Expansion Area to:	**Minimum Permitted Distance in Feet**
Septic tank	5
Property line	5
Foundation, structure, bearing weight, building overhang, ground mount solar panels, utility trenches	5
Private individual water line, stormwater tightline	10
Water main	25
Stream, well, spring, watercourse[a], non-public water well, well site[b], sinkhole or other karst feature that may rapidly convey water	100
Public water well, if dispersal is 10 ft or less deep	150
Public water well, if dispersal is greater than 10 ft deep	200 (With Enhanced treatment and disinfection)
Vernal pools, wetlands, lakes, ponds, ocean, or other surface water bodies	200
Drainageway, stormwater infiltration device, or curtain drain	25 if OWTS dispersal is down-gradient or device only carries water up to 12 hours after significant rain 50 if OWTS dispersal is upgradient or conveyance/device carries stormwater more than 12 hours after significant rain

From Leaching Trench and Expansion Area to:	Minimum Permitted Distance in Feet
Ditch or swale upgradient of dispersal device	10
Steep slope[c]	25[d]
Embankment[d]	4 times height of bank to maximum of 25[d]
Pavement or driveway	5
Edge of road easement or right-of-way	5
Swimming pool	10

[a] The edge of the watercourse is the natural or levied bank for creeks and rivers.
[b] Well site would include any well lot or proposed well site.
[c] Steep slope is a slope of greater than one and one-half feet horizontal to one foot vertical (67%).
[d] Fifty feet if slope area is composed of fractured material or if slope area or embankment is intersected by impermeable strata or shallow groundwater.
[e] Supplemental treatment components designed to perform disinfection shall provide sufficient pretreatment of the wastewater so that effluent from the supplemental treatment components does not exceed a 30-day average TSS of 30 mg/L and shall further achieve an effluent fecal coliform bacteria concentration less than or equal to 200 Most Probable Number (MPN) per 100 milliliters.

(5) Notwithstanding the foregoing, variances to the setback from an unstable land mass or steep slope may be granted by the Health Officer on a case-by-case basis, where it can be demonstrated through a technical report prepared by a California licensed geotechnical engineer, soils engineer, civil engineer with soils and geological background, certified engineering geologist or professional geologist, that the placement of a leaching trench dispersal system closer to an unstable land mass or steep slope than would otherwise be permitted by these regulations would not result in any sewage effluent surfacing or jeopardize contiguous properties, or affect soil stability and earth slides. Any technical reports submitted to support a request for a variance to the setback requirement may be required to be reviewed by a California licensed geotechnical or civil engineer or professional geologist employed by the County, the costs of such review to be borne by the applicant.

(6) The following construction standards shall be used in connection with the construction of any leaching trench dispersal system:

Construction Detail	Required Standard
Width of leaching trench	18—36 inches maximum
Standard leaching trench depth	Maximum depth of 4 feet (4 square feet/linear foot infiltrative area)*
Maximum length of each leaching trench	100 feet; Pressured dosed dispersal systems may have longer trenches
Slope of leaching trench	Level, no more than 3 inches per 100 feet)

Construction Detail	Required Standard
Minimum depth of rock under leaching trench pipe (unless pressure distribution used)	12 inches
Rock over leaching trench pipe	2 inches
Size of rock or gravel	0.5 to 2.5 inches
Minimum Spacing of new and old trenches, edge to edge	3 ft minimum and twice the effective gravel depth up to 8 ft maximum
Minimum Soil Cover over leaching trench pipe	12 inches
Orientation of leaching trench	Long axes shall be aligned parallel to the ground surface contours and perpendicular to the groundwater gradient as close as possible
Inspection Risers	Installed vertically at each end of each trench, with perforated pipe from the bottom of the trench to the top of the dispersal pipe and solid pipe to the ground surface.

* Replacement systems for repairs on parcels with soils that percolate in the range of 6—60 minutes per inch may use a deeper trench not to exceed 10 feet, and an infiltrative area of up to 10 square feet per linear foot, if constraints on the parcel prevent the use of the standard trench depth. However, in all such instances, the trench shall be as shallow as possible using the maximum lineal feet that can fit on the parcel while still reserving the required expansion area. Enhanced treatment may be required per section 7.38.095(C).

(7) The pipe used for conventional gravity flow leaching trench dispersal shall be perforated, have a minimum three-inch diameter, and be of approved material.

(8) Rock or gravel in the trench shall be covered with untreated building paper or permeable geofabric prior to backfilling with earth. The trench bottom or sidewall shall not be lined.

(9) The vertical separation between trench bottom and groundwater and stream setback shall be based on system type, stream setback and percolation rate in minutes per inch (MPI):

Conventional Systems:			
Horizontal Setback to Stream	**25-50 Feet**	**50 - 100 Feet**	**> 100 Feet**
New System on undeveloped parcel	Not Permitted	Not Permitted	<1 MPI – Not Permitted 1-5 MPI Not permitted in nitrate concern area 1-5 MPI =20 feet outside nitrate concern area 5-29.9 MPI = 8 feet 30-60 MPI = 5 feet >60 MPI – Not Permitted
Upgraded System, increase in flow by Alternative Dwelling Unit, bedroom addition or major remodel	Not Permitted	Not Permitted	<1 MPI – Not Permitted 1-5 MPI Not permitted in nitrate concern area 1-5 MPI = 20 feet outside nitrate concern area 5-29.9 MPI = 8 feet 30-60 MPI = 5 feet >60 MPI – Not Permitted
Repaired System, no increase in flow	Not Permitted	<1 MPI – Not Permitted 1-5 MPI Not permitted in nitrate concern area 1-5 MPI – 20 feet outside nitrate concern area 5-29.9 MPI = 5 feet 30-60 MPI = 5 feet >60 MPI – Not Permitted	<1 MPI – Not Permitted 1-5 MPI Not permitted in nitrate concern area 1-5 MPI = 8 feet outside nitrate concern area 5-29.9 MPI = 5 feet 30-60 MPI = 5 feet >60 MPI – Not Permitted
Greywater Sump	5 feet	5 feet	3 feet

Enhanced Treatment System [a] (BOD, TSS, TN <30 mg/L;-Fecal coliform/E.coli Reduction to 200 MPN/100 ml)			
Horizontal Setback to Stream	**25-50 Feet**	**50 - 100 Feet**	**> 100 Feet**
New System on undeveloped parcel	Not Permitted	Not Permitted	2 feet
Upgraded System, increase in flow by Accessary Dwelling Unit, bedroom addition or major remodel	Not Permitted	2 feet	2 feet
Repaired System, no increase in flow	4 feet	2 feet	2 feet
Seepage Pit-Repair/Upgrade Only	Not Permitted	Not Permitted	10 feet

[a] Enhanced treatment with nitrogen reduction is required for all new, repaired, and replacement OWTS with soils that percolate faster than 5 minutes per inch in nitrate concern areas (see Sec.7.38.183)

[b] Groundwater separation less than 2 ft can only be approved by Regional Water Board

(10) The minimum separation shall be 10 feet from the bottom of the dispersal device to an impermeable layer that percolates 120 minutes per inch or slower. With enhanced treatment and shallow drip dispersal, that separation can be reduced to not less than 3 feet.

(11) Trenches under pavement shall be designed to withstand weight of vehicles and shall utilize enhanced treatment.

(C) Trenches in Sloping Ground.

(1) In locations where there is sloping ground, a system of several trenches may be required by the Health Officer.

(2) Trenches shall follow the surface contours to minimize variations in trench depth and shall only be installed perpendicular to the slope.

(3) If slope is greater than 20%, there shall be a minimum of 24 inches of earth over the rock fill.

(D) Distribution of Effluent to Multiple Trenches. Where multiple trenches are installed on sloping or level ground, effluent distribution shall be made through a distribution box or other approved device such that effluent is effectively delivered to each trench. The Health Officer shall promulgate guidelines for the approval and installation of distribution devices.

(E) Seepage Pit Leaching Disposal System.

(1) Seepage pits shall not be permitted for new systems serving new development. The Health Officer may approve the use of a seepage pit as a leaching dispersal system to:

(a) repair an existing OWTS, or

(b) to expand an existing system in conjunction with a building addition, alteration, expansion or reconstruction, if (i) the existing system utilized seepage pits; and (ii) leaching trenches or other dispersal system cannot be installed due to unsatisfactory soil conditions or lack of sufficient space.

(2) Enhanced treatment will be required for all seepage pits and minimum groundwater separation will be 10 feet, and non-public water well setback shall be 150 feet. Setback from a public water well shall be as specified in Section 7.38.043.

(3) Repair procedures for use of seepage pits shall be established by the Health Officer pursuant to SCCC 7.38.095(E).

(F) Sewage Pumping. Specific criteria will be developed by policy of the Health Officer. When pumping of sewage effluent is allowed by the Health Officer, all electrical work shall be performed under County permit. When effluent pumping is necessary to deliver the effluent to the leachfield, a 1000 gallon effluent pumping station tank shall be provided. The size of the pump chamber may be reduced to not less than the equivalent of the daily flow only if site conditions prevent the installation of a 1000 gallon chamber.

(G) Gravelless trenches or chamber leaching dispersal system may be used but must meet the specific equivalent area to a standard leaching trench dispersal system as set forth by the Health Officer. In the case of fast or medium percolation rates, up to a 30% size reduction may be allowed.

7.38.155 Curtain drains.

A permit shall be required for any curtain drain proposed for use within 100 feet of a leaching dispersal system. Curtain drains located down-gradient from a leachfield must be at least 50 feet from the leachfield. If an impermeable layer is present or soils percolate faster than one minute per inch, curtain drains must be located at least 100 feet away. Curtain drains located up-gradient of a leachfield must be installed with the bottom of the drain higher in elevation than the top of the leachfield or must be located at least 25 feet away. Curtain drains shall not be installed in locations which would preclude the use of an area necessary for installation of a replacement OWTS, which meets the standards of this code on the same parcel or any adjacent parcel.

Curtain drains shall not be permitted for the purposes of attempting to lower groundwater levels to meet the required setback to groundwater from leaching devices for new development or expansion of existing development.

7.38.160 Standards for domestic wastewater systems to serve commercial and industrial establishments, institutions and recreational areas.

Domestic wastewater may include wastewater from commercial buildings such as office buildings, retail stores, and some restaurants, or from industrial facilities where the domestic wastewater is segregated from the industrial wastewater. The following requirements shall supersede, where applicable, the requirements found elsewhere in this chapter, for all systems to serve commercial and industrial establishments, institutions, and recreational areas.

(A) For all such uses, sewage flows shall be based on the designer's estimate of daily peak flow, as supported by relevant evidence and approved by the Health Officer. For all such uses, the sewage application rate shall utilize the application rate based on percolation rate or soil characteristics, as specified in SCCC 7.38.150(A)(4).

(B) For all large systems serving more than five single residential units or having peak daily flows greater than 2,500 gallons per day and less than 10,000 gallons per day, enhanced treatment systems as specified in SCCC 7.38.183 will be required.

(C) The septic tank volume, independent of any other pretreatment device such as a grease trap, shall be three times the peak daily flow.

(D) Discharge from water softeners, swimming pool filter backwash and other sources of non-sewage water shall not be discharged to the septic system and shall be discharged to a separate holding tank to be hauled off-site to a municipal wastewater treatment facility. Swimming pool backwash may be discharged to a separate leaching trench dispersal system properly sized to receive and infiltrate the flow or vegetated ground surface in a manner that does not cause erosion or cause runoff to leave the property.

(E)Pretreatment may be required if the Health Officer determines that the wastewater from a facility is likely to be significantly different from the wastewater produced by domestic uses.

(F) Any food facility that generates grease-laden wastewater that is discharged into an onsite OWTS shall install an exterior grease interceptor. The Health Officer shall adopt specifications for the sizing and maintenance of grease interceptors. High-strength wastewater from commercial food service buildings with a biological oxygen demand higher than 900 milligrams per liter or that do not have a properly sized and functioning oil/grease interceptor is prohibited.

(G) For any food facility, failure to provide adequate sewage disposal or failure to provide proper maintenance of a grease interceptor shall be cause to revoke a food facility health permit.

7.38.180 Minor changes.

Environmental health specialists may allow certain minor changes, required by field conditions, when an inspection in the field makes clear that no individual or cumulative public health hazard will result and no groundwater and surface water beneficial uses will be impacted (as defined by the Basin Plan), and when only slight changes in approved plans are required.

Environmental health specialists shall record all such changes on the County's file plans, and may require the designer or installer to submit an as-built drawing.

7.38.182 Enhanced treatment systems.

(A) The Health Officer may accept sewage disposal permit applications utilizing enhanced treatment system designs, including for parcels with significant site constraints that cannot meet all the requirements for a standard system for the repair of existing systems, for upgrade of existing systems to allow building additions or remodels, and for the construction of new systems. Enhanced treatment system designs for new systems must be in conformance with SCCC 7.38.042, Prohibitions; SCCC 7.38.045, Lot size requirements for existing lots of record; and SCCC 7.38.130(F), (H) and (I), general installation requirements.

(B) Designs for an enhanced treatment system must be prepared by a qualified professional such as a California licensed civil engineer, a California registered environmental health specialist, or a California licensed professional geologist, experienced in the design of enhanced treatment systems. Designs for enhanced treatment systems shall include such technical data as necessary to support deviation from the sewage disposal regulations found in this chapter, and to demonstrate that the system will function as designed and will not adversely affect surface or groundwater quality. Designs proposed for any use must have demonstrated satisfactory performance in site conditions similar to those encountered in the proposed application.

(C) The Health Officer may limit the number of permits for enhanced treatment designs that have not been previously used in Santa Cruz County that are issued in any calendar year to not more than three of each design type. These limits will be removed when experience and water quality monitoring show that the systems of that design type dispose of sewage without adversely affecting surface or groundwater quality for a minimum period of two consecutive years, with at least one of those years having average or above average annual rainfall at the location of system installation. The Health Officer shall charge a fee as approved by the Board of Supervisors for the review, monitoring, and approval of enhanced treatment system designs. If a permit for use of an enhanced treatment system is not approved due to limits on the annual number of systems approved, the completed application will remain valid for up to two years, and permits will be issued in chronological order based on the date that the application was deemed complete. The Health Officer shall withhold approval of additional permits for a particular design type, if experience indicates that the design is not meeting the standards set forth in this section and/or if the systems are not being adequately maintained. In lieu of the above, the Health Officer may accept certification from another public agency or a certified testing laboratory that the proposed design works well in conditions similar to those found in Santa Cruz County.

(D) As a condition to the approval of an enhanced treatment system the property owner shall enter into an agreement with the County of Santa Cruz acknowledging and accepting the requirements for use of a nonstandard system as described in SCCC 7.38.184 through 7.38.186.

(E) The enhanced treatment system design must be inspected during installation by the design consultant for conformance to the design. A certification in writing that the system as installed conforms to the approved design must be submitted by the consultant to the Health Officer prior to final approval of the installation and occupancy of the structure.

(F) The Health Officer shall establish specifications for: submittal of applications for use of an enhanced treatment system; evaluation and approval of the design; installation of the system; and ongoing maintenance and monitoring of the system.

7.38.183 Nitrogen reduction.

(A) Systems in Sandy Soils with Fast Percolation Rates. Enhanced treatment devices providing for reduction of nitrogen in the effluent prior to discharge to the underlying soil will be required for any system which is located in sandy soils. Sandy soils are those soils which either: (1) can be classified as Zayante Series or Baywood Series, as described in the soil survey of Santa Cruz County (USDA, 1980); or (2) have a percolation rate faster than five minutes per inch. Based upon an evaluation of the effectiveness, the Health Officer shall determine the amount of nitrogen removal required, which will not be less than 50% reduction. Shallow pressure distribution or drip dispersal may also be required to provide for nitrogen reduction. Enhanced treatment systems shall be subject to the requirements of SCCC 7.38.182 through 7.38.186.

(B) Large Systems. Enhanced treatment devices approved by the Health Officer which provide a reduction in nitrogen, total suspended solids and biological oxygen demand in the sewage effluent prior to discharge to the underlying soil shall be required for all new systems and upgraded systems serving more than five residential units or serving uses which generate a peak daily discharge of more than 2,500 gallons per day but less than 10,000 gallons per day. Such systems shall be considered enhanced treatment systems, subject to the requirements of SCCC 7.38.182 through 7.38.186.

(C) Waiver of Requirement. The Health Officer may waive the requirement for nitrogen reduction for parcels that are greater than 10 acres or outside the nitrate concern areas of San Lorenzo Watershed, North Coast Water Supply Watersheds, Valencia Watershed and La Selva Beach area; and maintain a non-public water well setback of more than 150 feet.

7.38.184 Nonstandard systems.

(A) Repairs Utilizing Nonstandard Systems. The Health Officer may approve the use of nonstandard system designs which are not in conformance with the standard system requirements specified in this chapter for the repair of existing systems, provided measures are taken to ensure the proper function of such systems as specified in subsection (E) of this section. Nonstandard systems include enhanced treatment systems, nonconforming interim sewage disposal systems, low flow systems, limited expansion systems, and haulaway systems.

(B) Failing Systems. The Health Officer may allow the continued use of an existing system which has been discovered to fail, if, due to site constraints, that system cannot be upgraded to meet the standards specified in SCCC 7.38.095 through 7.38.182, and the owner/agent takes

measures which will ensure the proper function of such system as specified in subsection (E) of this section.

(C) Enhanced treatment Systems. All enhanced treatment systems as described in SCCC 7.38.182, including systems previously designated as alternative systems, shall be considered nonstandard systems and shall be required to meet the nonstandard system requirements specified in subsection (E) of this section.

(D) Systems Subject to Prior Operating Permits. All systems for which the Health Officer has previously notified the owner that an operating permit would be required, pursuant to the provisions of this chapter in effect prior to 1994, shall be considered nonstandard systems subject to the requirements of subsection (E) of this section.

(E) Requirements. Use of a nonstandard system shall be subject to the following requirements:

(1) The Health Officer shall record a notice of nonstandard system on the property deed as specified in SCCC 7.38.186.

(2) The property owner shall maintain the system, monitor system performance, utilize required water conservation measures, comply with any special requirements established as a condition for approval of that specific system and/or specified in the notice of nonstandard system, and if necessary, discontinue use of the dispersal system and have the tank(s) pumped to prevent surfacing of effluent and maintain required separation from groundwater.

(3) Nonstandard systems shall be subject to regular inspection by the Health Officer to ensure that the above conditions are satisfied.

(4) If the system is not functioning satisfactorily and/or is not in compliance with requirements specified in the notice of nonstandard system, the property owner may be subject to a violation reinspection fee pursuant to SCCC 7.38.290 and will be required to repair the system and/or modify operation as necessary to ensure proper operation.

(5) Properties served by nonstandard systems shall be subject to an annual service charge under County Service Area No. 12, which shall be established by resolution of the Board of Supervisors to pay the costs of routine system inspections and oversight. Service charges may be levied by another sanitation entity if the property is located outside of County Service Area No. 12. The Health Officer may waive an annual charge for systems which meet all standards except adequate expansion area and which continue to perform adequately.

(6) Owners of properties with enhanced treatment systems shall be required to maintain a service contract with an approved onsite system service provider to regularly inspect, monitor, and maintain the system and submit reports of system performance to the Health Officer on at least an annual basis, or more frequently if specified. Property owner shall

provide for and maintain a telemetry system to allow remote monitoring of the system, unless such requirement is waived by the Health Officer.

(7) The Health Officer shall establish policies and procedures for use of nonstandard systems.

(F) Owner Acceptance of Requirements. Before the Health Officer approves a permit for the use of a nonstandard system, the owner of the property or an agent duly authorized by the owner to act on the owner's behalf must enter into an agreement with the County of Santa Cruz acknowledging and accepting the requirements for use of a nonstandard system as described above.

(G) Ongoing Maintenance and Monitoring. The Health Officer shall establish specifications and requirements for the ongoing maintenance and monitoring to ensure proper functioning of nonstandard systems that have been installed pursuant to this section. These specifications and requirements may include but are not limited to requirements of regular monitoring, maintenance and service by an onsite system service provider approved by the Health Officer; site-specific monitoring and maintenance requirements; effluent testing; and new technology upgrade necessary to meet the requirements of SCCC 7.38.182, 7.38.183 and 7.38.184.

7.38.186 Notice of nonstandard system.

(A) Requirement. A notice of nonstandard system shall be recorded by the Health Officer with the County Recorder's office on the deed of any property served by an approved nonstandard system as described in SCCC 7.38.184. The notice of nonstandard system will include the following information:

(1) Description of the system characteristics and limitations which cause the system to be a nonstandard system, such as: inadequate dispersal area, inadequate separation to seasonal groundwater, lack of expansion area, use of an enhanced treatment technology, requirement of sewage haulaway, or other condition not in compliance with requirements for a standard system as specified in SCCC 7.38.095 through 7.38.180;

(2) Statement of the operating requirements to ensure proper performance of the nonstandard system, such as: use of water conservation measures, monitoring of effluent levels in leachfield risers, pumping of a grease trap, shutting off of the dispersal system when groundwater rises to a specified level, maintenance of a contract for tank pumping, etc.;

(3) Specification of any restriction on system use or property use, such as limitations on amount of wastewater generated, restrictions on building additions, etc.;

(4) Notification that County staff will conduct routine inspections of the system, as necessitated by the increased likelihood that a nonstandard system might fail;

(5) Notification that the property owner will be assessed an annual service charge on the property tax bill to cover the County costs of inspection and oversight; and

(6) A statement that the notice of nonstandard system may be modified or expunged if the system is upgraded.

(B) Expungement. If the system is eventually upgraded under approved permit to meet the requirements for a standard system, the Health Officer shall, upon payment by the property owner of fees for expungement, record a notice of expungement of nonstandard system with the County Recorder.

7.38.190 Licensing and certification requirements.

(A) Except as hereinafter provided, a Licensed General Engineering Contractor (Class A), General Building Contractor (Class B), Sanitation System Contractor (Specialty Class C-42), or Plumbing Contractor (Specialty Class C-36) shall install all new and replacement OWTS in accordance with California Business and Professions Code Sections 7056, 7057, and 7058 and Article 3, Division 8, Title 16 of the California Code of Regulations. A property owner may also install their own OWTS if the as-built diagram and the installation are inspected and approved by the Health Officer at a time when the OWTS is in an open condition (not covered by soil and exposed for inspection).

(B) Designers, installers and service providers (collectively referred to as providers) for OWTS and enhanced treatment systems shall have demonstrated experience and knowledge of the type of system that they are designing, installing or maintaining, according to criteria established by the Health Officer.

(1) Application for the Qualified Professional Registration to perform work in Santa Cruz County shall be made in writing and on a form prescribed by the Health Officer, signed by the holder of the professional license or certification, accompanied by a fee established by the Board of Supervisors, and shall include such information as the Health Officer may reasonably require to meet the purposes of this Chapter.

(2) If the Health Officer has determined that the applicant has a valid, unexpired professional license or certification, has paid the application fee, and has supplied all other required information, the Environmental Health Division shall issue the Qualified Professional Registration, provided, however, that the Division shall not issue a Qualified Professional Registration to any applicant whose Qualified Professional Registration is in a revoked or suspended status pursuant to this Chapter.

(3) The Registered Qualified Professional is responsible for knowing and complying with all requirements of this chapter and the Santa Cruz County LAMP. The Registered Qualified Professional is also responsible for making sure that all their employees also know and comply with all requirements of this chapter and the Santa Cruz County LAMP.

(4) A Registered Qualified Professional must give the Health Officer immediate written notice of any suspension or revocation of their professional license or certification. The Health Officer may suspend or revoke the Qualified Professional Registration at any

time if the Registered Qualified Professional ceases to have a valid professional license or certification, or if it has expired.

(5) The Environmental Health Division shall maintain a current list of names and business addresses of all Registered Qualified Professionals and of all Registered Qualified Professionals whose registration has been suspended or revoked.

(C) A designer, installer or service provider that repeatedly performs work in violation of this chapter shall have their registration with the county suspended, shall be removed from the list of approved providers, and no permits will be approved that utilize that provider. Prior to such suspension, the provider shall be notified in writing and given an opportunity to come into compliance with the requirements of this chapter. Following such suspension, the provider may request in writing reversal of the suspension by indicating how they will come into compliance and remain in compliance with the requirements of this chapter. A suspension may be appealed to the Environmental Health Appeals Commission pursuant to SCCC 7.38.210.

7.38.200 Construction Inspections.

A copy of the building plans having the approved OWTS design shall be kept available at the job site during system installation and until the system installation receives final approval by the Environmental Health Division. One or more inspections of each new installation shall be made by the Health Officer. All work authorized by the permit shall be inspected by the Health Officer to ensure compliance with all the requirements of this code. A request to the Environmental Health Division for inspection must be made during posted environmental health specialist office hours at least one business day in advance of the commencement of work. In the event the Health Officer determines there has been an improper installation, they may post a stop work order on the job site. Before any further work is done on the site, clearance from the Health Officer must be obtained.

7.38.205 Revocation or suspension of permit.

(A) A permit issued pursuant to this chapter may be revoked or suspended by the Health Officer if a violation of this chapter exists or if the permit was obtained by fraud or misrepresentation.

(B) The Health Officer may issue a stop work order pursuant to SCCC 7.38.217 pending resolution of any proceeding to suspend or revoke a permit.

(C) The Health Officer shall conduct a hearing upon five days' notice to the permittee of the purpose, time and place of the hearing. The hearing shall be informal and the permittee may present opposition to the proposed suspension or revocation.

(D) The Health Officer shall give notice in writing of the suspension or revocation of a permit.

7.38.210 Appeal from denial, revocation or suspension of permit.

(A) A person whose application for an onsite sewage disposal permit has been denied, or whose permit once issued has been revoked or suspended, may within 10 days following the date on which the action was taken, file an appeal in writing with the Environmental Health Appeals

Commission. Said appeal shall be accompanied by the filing fee established by resolution of the Board of Supervisors. Upon receiving an appeal, the Environmental Health Appeals Commission shall schedule the appeal for hearing at the earliest time possible thereafter that all members of the Commission can meet, and normally within 20 business days after the date that the appeal is filed.

(B) The appeal shall be made in writing and shall demonstrate that all of the following circumstances apply:

(1) The property clearly meets all standards of this chapter and the regulations adopted thereto;

(2) The use of an OWTS on the property is consistent with the intent of the General Plan, and with the Local Coastal Program Land Use Plan for parcels in the Coastal Zone, and with all applicable zoning provisions;

(3) The use of an OWTS on the property does not pose any danger to the public health and safety; and

(4) Approval of the appeal will not result in the granting of a special privilege.

(C) A designer, installer or service provider whose permission to provide service has been suspended pursuant to SCCC 7.38.190(C) may appeal such suspension to the Environmental Health Appeals Commission by submitting an appeal in writing that indicates the reasons that the suspension should be reversed.

(D) Upon receipt of the written appeal, the Health Officer shall cause a full report on the appeal to be made to the Environmental Health Appeals Commission. The report shall include all of the following:

(1) A statement of jurisdiction, showing that the appeal was timely and properly filed;

(2) A copy of all relevant materials in the file of the Environmental Health Division relating to the appeal, including a copy of the permit application, and of any permit issued, and of any orders issued by the Division;

(3) An analysis of the appeal by the Health Officer, providing the Health Officer's recommendation with respect to the appeal, and specifically providing an analysis of the factors listed in subsection (B) of this section; and

(4) A copy of all code provisions relevant to the appeal, including those code provisions relating to the authority and jurisdiction of the Environmental Health Appeals Commission.

(E) The report required by this section shall be presented to the members of the Environmental Health Appeals Commission as soon as possible after the appeal is filed, and no later than five days prior to the hearing date set, and a copy of the report shall be furnished to the appellant at the same time.

(F) After hearing the appeal, the Environmental Health Appeals Commission may either affirm, overrule, or modify the action of the Health Officer. The Commission shall not overrule or modify the action of the Health Officer unless it makes a finding, supported by substantial evidence, that the conditions specified in subsection (B) of this section have been met.

(G) The action of the Environmental Health Appeals Commission on any matter appealed to the Commission shall be final.

7.38.215 Requirement for System Maintenance, Operation and Performance.

(A) The property owner shall be responsible for ensuring proper operation of the OWTS, which includes taking the following measures:

1) Ensuring that use of the property and the amount of wastewater generated does not exceed the design flow of the system;

2) Preventing any disturbance of the system or the area of the system that would cause the system to malfunction or discharge inadequately treated effluent to the ground surface. There shall be no paving, construction, or other significant disturbance over the leaching dispersal system or the expansion area;

3) Ensuring that no stormwater enters the system or is discharged where it would infiltrate the dispersal area;

4) Ensuring that all system components are periodically inspected and maintained according to manufacturer's specifications and to ensure proper system conformance;

5) Ensuring that tank risers, distribution device risers, dispersal system inspection risers, and other system components are maintained and accessible;

6) Ensuring that the septic tank is inspected and pumped of solids as needed to prevent discharge of solids to the dispersal system, at least every seven years. The duration may be longer if inspection shows that more frequent pumping is not needed;

7) Conducting periodic inspections of the system components, dispersal system risers, and area in the vicinity of the dispersal area to ensure that the system is operating properly and is not discharging effluent on the ground surface;

8) Taking immediate steps to correct the situation if the system is not operating properly, including reducing water use, pumping the tank, contacting a service provider, or initiating the process to repair the system under permit; and

9) For those properties served by an enhanced treatment system, maintaining a service contract with an approved onsite system service provider to regularly inspect, monitor, and maintain the system and submit reports of system performance to the Health Officer on at least an annual basis, or more frequently if specified. Property owner shall

provide for and maintain a telemetry system to allow remote monitoring of the system by the service provider, unless such requirement is waived by the Health Officer.

(B) The Health Officer may conduct periodic evaluation of OWTS and review water quality information and pumping and maintenance records to ensure that the system is being operated and maintained according to the provisions above and is not failing. If such evaluation indicates that the system may be malfunctioning the Health Officer may conduct an inspection pursuant to subsection (C) below.

(C) The Health Officer may, upon reasonable cause to believe that a violation of any provision of this chapter or a threat to the public health may exist, investigate to determine whether such a violation or threat does in fact exist. Inspections shall be conducted at reasonable times and the inspector shall first make a reasonable effort to contact the owner or occupant of the premises. If the inspection requires the entry into a building or an area that is designed for privacy, then prior permission shall be obtained from the owner or occupant. If permission is denied, then an inspection warrant shall be obtained.

(D) Properties served by OWTS shall be subject to an annual service charge under County Service Area No. 12, which shall be established by resolution of the Board of Supervisors to pay the costs of County programs to ensure proper onsite system functioning, including receiving water testing, investigations, inspections, administration of septage disposal facilities, education, and other activities. Service charges may be levied by another sanitation entity if the property is served by an OWTS and is located outside of County Service Area No. 12.

7.38.216 System inspection upon transfer of property.

(A) Inspection Prior to Sale of Property. Prior to selling a property, a property owner shall cause the OWTS to be inspected for any defects. If the system is failing or there are structural defects, then repairs needed shall be completed prior to the sale of the property to meet the County's standards as specified by the OWTS property transfer inspection form, unless otherwise specified in this section or determined by the Health Officer to be exempt pursuant to the terms of this chapter.

(1) Inspection and Evaluation. Before sale of the property after July 1, 2023, the seller shall cause the system to be pumped and inspected by a qualified professional who shall complete a form established by the Health Officer describing the system characteristics, permits, service agreements, performance history, and an assessment of system and site conditions. The form shall be provided to prospective buyers and the Environmental Health Division and shall indicate whether the OWTS and its components were installed pursuant to an approved permit and whether the OWTS meets current standards, or whether it cannot be determined if the system meets current standards. Water quality testing of effluent quality, well water or adjacent surface water may be required as

needed to demonstrate satisfactory system performance if the system does not meet required setbacks from streams, wells, or groundwater.

(2) Enhanced Treatment Systems. If the property is served by an enhanced treatment system, sellers are required to disclose any active annual service agreements, contact information of the current OWTS service provider and the associated annual county and service provider fees. New owners are required to provide proof of service policy transfer or of a new service policy with an approved service provider upon transfer.

(3) Responsibilities of Seller. The seller, prior to the sale of property, shall be responsible for complying with the requirements of this chapter and for obtaining an OWTS property transfer inspection certificate for sale of property before the conclusion of the sale of property, unless otherwise specified in this section.

(4) Option to Transfer Seller's Responsibility to Buyer. Before the sale of property, the seller and buyer of any property may mutually agree to transfer responsibility for making any needed repairs to the property's OWTS in compliance with this chapter to the buyer. In the event the buyer agrees to assume responsibility for repairing the OWTS, the seller shall provide proof of inspection of the OWTS to the buyer, which indicates the repairs that will be needed to meet the requirements of this chapter. The buyer shall then complete the repairs to meet the requirements of this chapter no later than ninety (90) calendar days after the date of the sale. Before the time of sale, the seller and buyer shall complete the following procedures:

(a) Both the seller and buyer shall sign a transfer of responsibility to repair form certifying that the seller has completed an inspection and that the buyer has assumed responsibility for any repairs; and

(b) The signed transfer of responsibility to repair form must be submitted to the Environmental Health Division of the Health Services Agency before the sale of the property and included in the real estate transfer documentation.

(5) Verification of Compliance. The seller (or buyer only if based on a valid transfer of responsibility to repair form) shall verify compliance with this chapter by submitting a completed OWTS property transfer inspection form within the time limit specified above. Once compliance with the requirements of this chapter has been verified, an OWTS inspection certificate for sale of property will be issued within ten business days.

(B) Enforcement. Failure to comply with any of the provisions of this section will be considered a violation of this chapter and subject the violator to any and all enforcement remedies

provided under this Code. The Health Officer shall have the authority to waive, suspend, or otherwise reduce any civil administrative penalty imposed by this section upon a showing that the property owner is pursuing the repair with due diligence but that unavoidable circumstances will prevent the repair being accomplished within ninety (90) days.

7.38.217 Stop work orders.
Whenever any work is being done contrary to the provisions of this code, the Health Officer may order the work stopped by notice in writing served on any persons engaged in the doing or causing such work to be done or posted at the work site, and any such persons shall forthwith stop such work until authorized by the Health Officer to proceed with the work.

7.38.220 Abatement order.
In the event the Health Officer determines that a violation of the provisions of this chapter exists, the Health Officer may abate any sewage condition resulting therefrom as a nuisance, in accordance with the provisions of SCCC 1.14.

7.38.280 Conflicting provisions.
If any of the provisions of this chapter conflict with any of the provisions of the Uniform Plumbing Code adopted as SCCC 12.10.235, or any of the provisions of any other section of this code, heretofore or hereafter enacted, the provisions of this chapter shall control unless expressly stated to the contrary.

7.38.290 Violations.
(A) In the event of a violation of the provisions of this chapter other than those set forth in 7.38.216, the conditions of any permit issued under this chapter, or any requirements specified in a notice of nonstandard system, the property owner/permittee shall be given notice of such violation and a reasonable time to correct the violation.

(B) If the violation has not been corrected or if the violation or any action constitutes a threat to human life or safety or welfare, then the Health Officer shall notify the property owner/permittee to immediately suspend use of the OWTS, and those uses of the real property which are likely to result in the generation of sewage.

(C) Whenever the Health Officer visits a property to ensure compliance with a permit condition, a requirement in a notice of nonstandard system, or a notice to correct violation, and the condition or requirement is not satisfied or the violation has not been corrected, the property owner shall be subject to a violation reinspection fee, the amount to be established by resolution of the Board of Supervisors.

7.38.295 Recording notices of violations.
Whenever the Health Officer has knowledge of a violation of any of the provisions of this chapter, any condition of a permit issued under this chapter, or any term of an agreement executed under SCCC 7.38.186, the Health Officer may provide a notice of intent to record a notice of violation to the owner of the property on which the violation is located. Notice shall be provided by posting on the property and by mail at the address shown on the latest

assessment roll or at any other address of the owner known to the Health Officer. The notice shall state that within 20 days of the date of the notice, the owner may request a meeting with the Health Officer to present evidence that a violation does not exist. In the event that a meeting is not requested and the violation has not been corrected, or, in the event that after consideration of the evidence the Health Officer determines that a code violation in fact exists, the Health Officer may record a notice of code violation in the Office of the County Recorder. At the request of any affected property owner, the Health Officer shall issue a notice of expungement of code violation upon correction of any violation noticed hereunder. The notice of expungement may be recorded by the affected property owner at their expense. The decision of the Health Officer shall be final.

7.38.300 Promulgation of policies.

Any policy, specification or procedure which the Health Officer is authorized by this chapter to adopt shall be in writing with copies made available to the public. Such policies, specifications or procedures shall be made available to the public 30 days before their implementation by the Health Officer.

Chapter 7.42
SEPTIC TANK PUMPING AND LIQUID WASTE TRANSPORT

Sections:

Article I. Pumping and Transport

Article II. Discharge of Deleterious Materials to Septic Tanks

Article III. Suspension, Revocation, Appeals

Article I. Pumping and Transport

7.42.001 Findings and purpose.

The Board of Supervisors finds that proper removal and transport of septic tank sludge is essential for septic system maintenance and protection of public health. It is the intent of this article to provide for the proper removal and transport of sludge and other liquid waste by setting forth performance criteria and permit requirements for persons to clean septic tanks and transport sludge. [Ord. 3818 § 2, 1987].

7.42.010 Permit—Required.

It is unlawful for any person, firm or corporation to engage in the business of cleaning, evacuating or removing sludge or sewage from septic tanks, cesspools, pit privies, holding tank haul-away systems, grease traps, chemical toilets or other privately owned sewage disposal receptacles, all called "sewage receptacles" in this chapter, in the unincorporated area of the County without first obtaining a permit as provided in this chapter. [Ord. 3818 § 2, 1987].

7.42.020 Permit—Application, fees, expiration and delinquency penalty.

(A) Application. Application for a permit and for renewal thereof shall be filed with the Health Officer upon such forms as the Health Officer may prescribe.

(B) Fees. The permit fee for the calendar year or any part thereof during which the permitted activity is carried on and for renewal thereof shall be that established by resolution of the Board of Supervisors.

(C) Expiration. Each permit shall expire on December 31st of the current year; provided, that such permit may be renewed without penalty on or before February 15th next following the expiration date.

(D) Delinquent Permits. Permittees who do not renew the permit on or before February 15th shall pay the extra amount established by resolution of the Board. [Ord. 3818 § 2, 1987].

7.42.030 Permit—Issuance conditions.

The Health Officer shall issue a permit to such applicant after inspecting the tank, compartment or other container to be used by the applicant in their business and determining that:

(A) The pumping equipment is in good and proper working order and adequate, and the proposed dumping site is acceptable and has been approved;

(B) A valid certificate as to the capacity of the tank has been secured from the County Sealer of Weights and Measures;

(C) The name and address or phone number of the owner appear on each side of the truck in letters at least four inches high. All lettering shall be permanent;

(D) The capacity of the tank in gallons appears on each side of the tank in letters at least four inches high. Tanks must be watertight and have tight manholes. Discharge valves shall shut

tight. All valves shall be operated from the valve itself and not at the driver's seat or by remote control;

(E) The pump is leakproof and spillproof;

(F) A special hose for cleaning purposes is carried. All hose and pipe used in cleaning shall be flushed back into the tank being cleaned and not on the ground or premises. The hose shall be equipped with a backflow prevention device to prevent backflow of contaminated water into the customer's water system. A customer's hose shall not be used;

(G) The vehicle and equipment shall be maintained in a clean condition, and in good repair;

(H) The applicant is knowledgeable of the operation of the equipment and of the proper procedures for cleaning and inspecting a septic tank, as set forth by the Health Officer. [Ord. 3818 § 2, 1987].

7.42.040 Permit—Not transferable.

No permit issued under this chapter shall be assignable or transferable, nor shall it authorize any person, firm or corporation other than the one named in the permit to engage in the business mentioned therein. [Ord. 3818 § 2, 1987].

7.42.042 Performance under permit.

(A) Procedures for cleaning and inspecting a septic tank system shall be established by policy of the Health Officer.

(B) The permittee must comply with the requirements of this chapter and with the procedures set forth by the Health Officer for cleaning and inspecting a septic tank system. Each permittee shall be responsible for ensuring that the permittee's employees comply with the requirements of this chapter and with the procedures set forth by the Health Officer for cleaning and inspecting a septic tank system. [Ord. 3818 § 2, 1987].

7.42.050 Disposal of sludge.

(A) Septic tank cleanings and other liquid waste shall only be disposed

into a public septage-receiving facility if a permit is first secured from the officials in charge of the facility. Grease or toher liquid waste may be disposed of at another type of facility with approval of the Health Officer.

(B) If a significant spill of septic tank sludge or other liquid waste occurs, or if sludge is discharged to an unapproved site, the operator shall immediately notify the Health Officer and shall take steps to clean up the spill, disinfect the area, and prevent any discharge to a waterway. A "significant spill" is any spill that occurs in a public right-of-way, that enters a waterway, that leaves the property where the spill occurs, or that exceeds 15 gallons in volume. [Ord. 3818 § 2, 1987].

7.42.060 Pumping reports and changes of address.

(A) A monthly report shall be made to the Health Officer on forms provided by the Health Officer (individual sheets for each property) giving the following information on every septic tank or sump which has been pumped:

(1) Date of pumping;

(2) Name, address, and Assessor's Parcel Number;

(3) Gallons pumped;

(4) Disposal location;

(5) Septic tank or sump size (in gallons, or inside dimensions below inlet pipe);

(6) Septic tank condition (broken baffles, rotten sides or top, leaks, etc.);

(7) Indications of septic system failure (high liquid level, backflow, surfacing sewage on site, etc.);

(8) Property use, if other than residential; and

(10) Drawing showing the location of the septic tank or sump.

(11) Latitude and Longitude of the outlet of the septic tank.

(B) Permit holders shall provide the Health Officer with a monthly report, on forms provided by the Health Officer, providing information for items (A)(1) through (A)(4) of this section for holding tanks, grease traps, sumps, or other liquid waste receptacles that have been pumped, other than chemical toilets.

(C) Reports of pumpings from chemical toilets shall indicate total volumes pumped during the month and the location of disposal.

(D) All septic tank cleaners must give receipts bearing the name and address of the owner of the septic tank pumped and the address of the tank pumped to the person who contracts to have the septic tank cleaned.

(E) A change of address of the septic tank pumper must be reported within 10 days by certified mail to the Health Officer. [Ord. 3818 § 2, 1987].

(F) The monthly reports specified in this section shall be submitted to the Health Officer by the fifteenth day of the month immediately following the month that is being reported.

Article II. Discharge of Deleterious Materials to Septic Tanks

7.42.100 Findings and purpose.

The Board of Supervisors finds that discharge of certain materials to individual wastewater disposal systems may result in pollution of groundwater, disruption of proper system functioning, disruption of treatment plant functioning, or creation of a hazard where septic tank sludge is discharged. It is the intent of this article to prevent these adverse impacts by prohibiting the discharge of deleterious materials to individual sewage disposal systems, and to prohibit the improper disposal of contaminated septic tank sludge. [Ord. 3818 § 2, 1987].

7.42.110 Definitions.

(A) "Deleterious material" means the following substances or combination of substances:

(1) "Hazardous materials" or "hazardous substances," as defined in SCCC 7.100.040; or

(2) Substance or combination of substances which inhibit the normal biological or physical treatment processes in the septic tank or other parts of the wastewater disposal system; or

(3) Substance or combination of substances which interfere with the process or efficiency of any wastewater treatment plant where the septic tank sludge is discharged.

(B) Deleterious materials include but are not limited to: pesticides, organic solvents, gasoline, paints, caustic chemicals, motor oil, degreasers, paint thinner, wood preservatives, paint strippers, septic tank cleaners containing organic solvents, unmixed photographic chemicals, and fiberglass resins. [Ord. 3818 § 2, 1987].

7.42.120 Prohibition of discharge.

It is unlawful for any person to discharge to an individual sewage disposal system any deleterious material unless prior authorization to do so has been granted by the Health Officer. Authorization may only be granted where such discharges would not cause adverse impacts, as defined in SCCC 7.42.100. [Ord. 3818 § 2, 1987].

7.42.130 Disposal of contaminated sludge.

Discharge of septic tank sludge containing deleterious material(s) shall only be to a site or facility specifically approved by the Health Officer for disposal of such contaminated sludge. [Ord. 3818 § 2, 1987].

Article III. Suspension, Revocation, Appeals

7.42.300 Suspension and revocation of permits.

Any permit issued pursuant to this chapter may be temporarily suspended by the Health Officer upon violation of any of the provisions of this chapter, or of other applicable laws, and in the event of serious or repeated violations, such a permit may be revoked by the Health Officer. The Health Officer shall give written notice by registered mail to the permittee stating the nature of the violation and the action taken on the permit. Suspension or revocation shall not be effective until written notice is given. [Ord. 3818 § 2, 1987].

7.42.310 Appeals.

(A) A person whose application for permit under the provisions of this chapter has been denied or whose permit, once issued, has been suspended or revoked, may, within 10 days following the date on which the action was taken, file an appeal in writing with the Environmental Health Appeals Commission. The appeal shall be accompanied by the filing fee established by resolution of the Board of Supervisors. The Environmental Health Appeals

Commission shall then proceed to set the matter for hearing not later than 20 business days thereafter. The permittee shall be given 10 days' written notice of hearing.

(B) The appeal shall be made in writing and shall state the grounds for appeal.

(C) After hearing the appeal, the Environmental Health Appeals Commission may either affirm, overrule, or modify the action of the Health Officer.

(D) The action of the Environmental Health Appeals Commission on any matter appealed to the Commission shall be final. [Ord. 3818 § 2, 1987].

APPENDIX C. SUMMARY OF ONSITE WASTEWATER TREATMENT SYSTEM (OWTS) REQUIREMENTS

This document presents a summary of Key OWTS design parameters from the Local Agency Management Program (LAMP) and the County Code Chapter 7.38. It also includes some additional guidance for application of those requirements. Wherever there may be a conflict or lack of clarity, the provisions of Chapter 7.38 and the LAMP shall prevail.

This document includes information on:

- System Types and Allowable Uses
- Dispersal Area Application Rates, Design Flow and Dispersal Area Required
- Groundwater Separation
- Types of Enhanced Treatment Systems
- Design Flow for Non-Residential Uses

Table 3-1: Types of Systems, Requirements, and Building Allowances (See notes on next page):

System Type	Conditions [a]	Requirements	Building Allowed
New	Conventional: meets standards	Minimum Parcel size (7.38.045)	New residence; Possible ADU
	Enhanced Treatment for: reduced groundwater separation, fast or slow soil percolation	• Minimum Parcel size • Maintenance Contract • Deed recordation, Periodic Inspection, annual fee	
Upgrade	Conventional, meets standards		ADU; Bedroom Addition; and/or >500 sf addition
	Enhanced Treatment for: • reduced groundwater or surface water separation, • fast or slow soil percolation • under pavement • reduced dispersal area • existing seepage pits	• Maintenance Contract • Deed recordation, Periodic Inspection, annual fee	
Repair: Replaces old or failing system	Conventional, meets standards as much as possible, improvement over old system and old system not causing impairment ;	• Meets conventional standards as much as possible • Must comply with Prohibitions (7.38.042)	One-time addition less than 500 sf, if standards not fully met;
	Enhanced Treatment for: • reduced groundwater or surface water separation, • fast or slow soil percolation • under pavement • reduced dispersal area up to 50% • existing seepage pits	• Maintenance Contract • Deed recordation, Periodic Inspection, annual fee	Bedroom Addition; and/or >500 sf addition allowed if standards fully met
	Limited Expansion System	• Water efficiency • Deed Recordation	Addition <500 sf
	Low-Flow System	• Water efficiency • Deed recordation, Periodic Inspection, annual fee	Addition <500 sf
	Nonconforming Interim (deferred enhanced treatment) Haulaway System	• Water efficiency measures installed • Must comply with Prohibitions (7.38.042) • Must install enhanced treatment at time of property transfer • Deed recordation, Periodic Inspection, annual fee	No Addition
Existing System	• Meets standards for water separation • Not failing, good pumper report • Not seepage pit	• Ongoing maintenance	If dispersal size adequate [b]: • Bedroom Addition, ADU • >500 sf addition
	• Does not fully meet standards • Not failing, good pumper report	• Ongoing maintenance	One-time addition less than 500 sf
	Failing: surfacing effluent	Repair required	Depends on Repair

[a] Standards for conventional systems are specified in County Code Section 7.38.095-180; Additional requirements for enhanced treatment systems and conventional non-standard systems are specified in Sections 7.38.182-186. Only properties developed prior to September 16, 1983 are eligible to use the allowances specified in 7.38.095(B)

[b] A qualified professional must demonstrate to the satisfaction of the Health Officer that the system can accommodate the increased flow for the addition without adversely impacting water quality based on an evaluation of the existing leachfield trenches, soil characteristics and percolation rates. County staff will also consider other risk factors including but not limited to OWTS density, depth to groundwater and proximity to drinking water wells.

Table 3-2: Dispersal System Application Rates

From State OWTS Policy Table 3. Some application rates may be doubled for enhanced treatment with effluent less than 30 mg/L BOD as noted in the following table. Application rates may be interpolated if the percolation rate falls between the indicated values. Application rates from Table 3 and 4 of the State OWTS Policy may be utilized for conventional systems. Those application rates may be doubled with enhanced treatment that reduces Biological Oxygen Demand (BOD) and Total suspended solids (TSS) to less than 30mg/L.

Percolation Rate MPI (Minutes per Inch)	Application gal/sf/day	
	BOD=150 mg/L	BOD<=30 mg/L ET/Dosed
<1	--	1.60
1	1.20	1.60
5	1.20	1.60
10	0.80	1.60
15	0.73	1.46
20	0.66	1.32
25	0.59	1.18
30	0.53	1.06
35	0.48	0.96
40	0.42	0.84
45	0.37	0.74
50	0.31	0.62
55	0.26	0.52
60	0.20	0.40
90-120	--	0.20

Table 3-3: Design Flow per Bedroom

Number of Bedrooms	1	2	3	4	5	6	Per Additional Bedroom
Standard Design Flow (gpd)	250	300	375	450	525	600	75
Low Flow System (gpd) Repair Only, with Limitations*	150	200	250	300	350	400	50

*Low Flow Systems require water conservation devices, flow monitoring, deed recordation, annual fee, periodic inspection, and limits on remodels.

Tables 3-3a, 3-3b, 3-3c: Dispersal Area size calculations based on percolation rate, flow, and treatment:

Required Conventional Infiltration Area (Square feet)

Bedrooms:		1	2	3	4	5	Additional
	Flow gpd:	250	300	375	450	525	75
Perc MPI	App Rate						
<1	--	--	--	--	--	--	--
1	1.2	208	250	313	375	438	63
5	1.2	208	250	313	375	438	63
10	0.8	313	375	469	563	656	94
15	0.73	342	411	514	616	719	103
20	0.66	379	455	568	682	795	114
25	0.59	424	508	636	763	890	127
30	0.53	472	566	708	849	991	142
35	0.48	521	625	781	938	1094	156
40	0.42	595	714	893	1071	1250	179
45	0.37	676	811	1014	1216	1419	203
50	0.31	806	968	1210	1452	1694	242
55	0.26	962	1154	1442	1731	2019	288
60	0.2	1250	1500	1875	2250	2625	375
60-120	--	--	--	--	--	--	--

Enhanced Treatment (BOD <30 mg/L) Infiltration Area (Square Feet)

Bedrooms:		1	2	3	4	5	Additional
	Flow gpd:	250	300	375	450	525	75
Perc MPI	App Rate						
<1	1.6	156	188	234	281	328	47
1	1.6	156	188	234	281	328	47
5	1.6	156	188	234	281	328	47
10	1.6	156	188	234	281	328	47
15	1.46	171	205	257	308	360	51
20	1.32	189	227	284	341	398	57
25	1.18	212	254	318	381	445	64
30	1.06	236	283	354	425	495	71
35	0.96	260	313	391	469	547	78
40	0.84	298	357	446	536	625	89
45	0.74	338	405	507	608	709	101
50	0.62	403	484	605	726	847	121
55	0.52	481	577	721	865	1010	144
60	0.4	625	750	938	1125	1313	188
90-120	0.2	1250	1500	1875	2250	2625	375

Linear feet of Standard Trench by Number of Bedrooms
(4 square feet of infiltration surface per linear foot)

	Bedrooms	1	2	3	4	5	Additional
	Flow g/d	250	300	375	450	525	75
Perc	App Rate						
<1	--	--	--	--	--	--	--
1	1.2	52	63	78	94	109	16
5	1.2	52	63	78	94	109	16
10	0.8	78	94	117	141	164	23
15	0.73	86	103	128	154	180	26
20	0.66	95	114	142	170	199	28
25	0.59	106	127	159	191	222	32
30	0.53	118	142	177	212	248	35
35	0.48	130	156	195	234	273	39
40	0.42	149	179	223	268	313	45
45	0.37	169	203	253	304	355	51
50	0.31	202	242	302	363	423	60
55	0.26	240	288	361	433	505	72
60	0.2	313	375	469	563	656	94
90-120	--	--	--	--	--	--	--

Linear Feet of Standard Trench with Enhanced Treatment (<30mg/L)
(4 square feet of infiltration surface per linear foot)

	Bedrooms	1	2	3	4	5	Additional
	Flow g/d	250	300	375	450	525	75
Perc	App Rate						
<1	1.6	39	47	59	70	82	12
1	1.6	39	47	59	70	82	12
5	1.6	39	47	59	70	82	12
10	1.6	39	47	59	70	82	12
15	1.46	43	51	64	77	90	13
20	1.32	47	57	71	85	99	14
25	1.18	53	64	79	95	111	16
30	1.06	59	71	88	106	124	18
35	0.96	65	78	98	117	137	20
40	0.84	74	89	112	134	156	22
45	0.74	84	101	127	152	177	25
50	0.62	101	121	151	181	212	30
55	0.52	120	144	180	216	252	36
60	0.4	156	188	234	281	328	47
90-120	0.2	313	375	469	563	656	94

Low Flow System Infiltration Area (Square feet)
Only for Repairs with water conservation and other limitations

Bedrooms:		1	2	3	4	5	Additional
	Flow gpd:	150	200	250	300	350	50
Perc MPI	App Rate						
<1	--	--	--	--	--	--	--
1	1.2	125	167	208	250	292	42
5	1.2	125	167	208	250	292	42
10	0.8	188	250	313	375	438	63
15	0.73	205	274	342	411	479	68
20	0.66	227	303	379	455	530	76
25	0.59	254	339	424	508	593	85
30	0.53	283	377	472	566	660	94
35	0.48	313	417	521	625	729	104
40	0.42	357	476	595	714	833	119
45	0.37	405	541	676	811	946	135
50	0.31	484	645	806	968	1129	161
55	0.26	577	769	962	1154	1346	192
60	0.2	750	1000	1250	1500	1750	250
60-120	--	--	--	--	--	--	--

Legacy (2017) System Infiltration Area (Square Feet)

Bedrooms:		1	2	3	4	5	Additional
	Flow gpd:	215	270	325	375	430	55
Perc MPI	App Rate						
<1	0.43	500	625	750	875	1000	125
1	0.43	500	625	750	875	1000	125
5	0.43	500	625	750	875	1000	125
10	0.36	600	750	900	1050	1200	150
15	0.36	600	750	900	1050	1200	150
20	0.36	600	750	900	1050	1200	150
25	0.36	600	750	900	1050	1200	150
30	0.36	600	750	900	1050	1200	150
35	0.24	900	1125	1350	1575	1800	225
40	0.24	900	1125	1350	1575	1800	225
45	0.24	900	1125	1350	1575	1800	225
50	0.24	900	1125	1350	1575	1800	225
55	0.24	900	1125	1350	1575	1800	225
60	0.24	900	1125	1350	1575	1800	225
60-120	0.1	2150	2700	3250	3750	4300	550

Table 3-4: Groundwater Separation Based on Stream Setback, Treatment, and Soil Percolation (Minutes per Inch (MPI))

Horizontal Setback to Stream	25-50 Feet	50 - 100 Feet	> 100 Feet
Conventional Systems:			
New System on undeveloped parcel	Not Permitted	Not Permitted	<1 MPI – Not Permitted 1-5 MPI Not permitted in nitrate concern area 1-5 MPI =20 feet outside nitrate concern area 5-29.9 MPI = 8 feet 30-60 MPI = 5 feet >60 MPI – Not Permitted
Upgrade System, increase in flow by ADU, bedroom addition or major remodel	Not Permitted	Not Permitted	<1 MPI – Not Permitted 1-5 MPI Not permitted in nitrate concern area 1-5 MPI = 20 feet outside nitrate concern area 5-29.9 MPI = 8 feet 30-60 MPI = 5 feet >60 MPI – Not Permitted
Repaired System, no increase in flow	Not Permitted	<1 MPI – Not Permitted 1-5 MPI Not permitted in nitrate concern area 1-5 MPI – 20 feet outside nitrate concern area 5-29.9 MPI = 5 feet 30-60 MPI = 5 feet >60 MPI – Not Permitted	<1 MPI – Not Permitted 1-5 MPI Not permitted in nitrate concern area 1-5 MPI = 8 feet outside nitrate concern area 5-29.9 MPI = 5 feet 30-60 MPI = 5 feet >60 MPI – Not Permitted
Greywater Sump	5 feet	5 feet	3 feet

Enhanced Treatment System [a,b] (BOD, TSS, TN <30 mg/L;-Fecal coliform/E.coli Reduction to 200 MPN/100 ml)			
New System on undeveloped parcel	Not Permitted	Not Permitted	2 feet
Upgrade System, increase in flow by ADU, bedroom addition or major remodel	Not Permitted	2 feet	2 feet
Repaired System, no increase in flow	4 feet	2 feet	2 feet
Seepage Pit-Repair/Upgrade Only	Not Permitted	Not Permitted	10 feet

[a] Enhanced treatment with nitrogen reduction is required for all new, repaired, and replacement OWTS with soils that percolate faster than 5 MPI in nitrate concern areas (see Figure 3-1, Sec.3.2.6)

[b] Groundwater separation less than 2 ft can only be approved by Regional Water Board

Table 3-5: Types of Enhanced Treatment Systems and Approved Applications

Level of Treatment and Treatment Technology[a]	Reduced Dispersal Application Area	Minimum Groundwater Separation (ft)	Minimum Waterbody setback (ft)	Fast Perc <5 MPI[b]	Slow Perc >60 MPI	Seepage Pits
BOD and TSS Reduction Reduce BOD and TSS to <30 mg/L Intermittent Sand Filter Currently approved proprietary systems that Meet NSF/ANSI 40[c] Certification include: OSI Advantex Biomicrobics FAST AquaKlear Bord Na Mona Multi-Flo Aerobic Trmt MicroSepTec HOOT Acqualogic	Yes, per Table 7.38.150. B.3	See Table 3-4 Groundwater Separation based on Soil Percolation and Water Feature Setback	See Table 3-4 Groundwater Separation based on Soil Percolation and Water Feature Setback OR >50 -feet for Repairs and Upgrades only	Not Permitted See next row for BOD and TSS Reduction with Nitrogen Reduction	Repairs and Upgrades Only	Not Permitted See next row for BOD and TSS Reduction with Nitrogen Reduction
BOD and TSS Reduction with Nitrogen Reduction Reduce Total Nitrogen by 50% Recirculating Sand Filter Trickling Filter Currently approved proprietary systems That Meet NSF/ANSI 245a Certification, include: OSI Advantex Multi-Flo Aerobic Trmt MicroSepTec	Yes, per Table 7.38.150. B.3	See Table 3-4 Groundwater Separation based on Soil Percolation and Water Feature Setback	See Table 3-4 Groundwater Separation based on Soil Percolation and Water Feature Setback	Required[b]	NA	Required with min. 10-ft Separation to Groundwater
Pathogen Reduction Reduce Pathogens by 99%: Recirculating Sand filter Ultraviolet Light Chlorine disinfection	NA	Required with groundwater separation of 2-5 feet. See Table 3-4 of the Santa Cruz LAMP	25-50 feet for Repairs Only 50-100 ft for upgrades	Depends on stream, GW separation See Table 3-4	NA	Required with minimum Separation to Groundwater of 10 ft.

[a] Specific types of systems that are currently approved for use in Santa Cruz County are listed. Additional systems that meet the requirements may be added in the future.

[b] Nitrogen reduction may be waived outside of nitrogen concern areas.

[c] NSF/ANSI 40 is a standard for residential wastewater treatment systems with rated capacities between 400 and 1,500 gallons (1,514 and 5,678 liters) per day. Class I systems must achieve a 30-day average effluent quality of 25 mg/L CBOD5 and 30 mg/L TSS or less, and pH 6.0-9.0 spanning six months of testing.

Table 3-6: Design Flows for Non-Residential Uses

OWTS serving non-residential uses are subject to the same design and installation requirements as residential OWTS. Design flows should be proposed by the designer based on historic or proposed water usage. The following table may be used to estimate projected flows. [U.S. Environmental Protection Agency. *Onsite Wastewater Treatment Systems Manual Revised 2002, Chapter 3: Establishing Treatment System Performance Requirements]*

Type of Business or Facility	Design Flow (gallons per day)
Assisted Living/Residential Care Home	
- Per resident bed space, ambulatory residents	100
- Per resident bed space, non-ambulatory residents	125
- Live-in caregiver	75
- Per employee (day use)	15
Camps (per person)	
- Day use	10
- Overnight use, with flush toilets, no showers	25
- Overnight use, with flush toilets and showers	35
Churches and assembly halls (per seat)	
- Without kitchen	5
- With kitchen	15
Country clubs	
- Per resident member or caretaker	75
- Per guest	25
- Per employee	15
Day care (per patron, employee)	15
Detention center	
- Per resident bed space	100
- Per employee	15
Factories and industrial buildings (toilet waste only)	
- Without showers (per employee)	15
- With showers (per employee)	35
Hotels or motels	
- Per guest	50
- Per employee	15
- Additional for restaurant, spa or other facilities	Case-by-case
Laundromat, with self-service washing machines	
- Per machine, or	500
- Per customer	50
Mobile home parks (per space)	250
Multiunit residential housing	
- Apartments, per bedroom	150
- Boarding house and farm labor housing, per bed	50
Office and stores (per employee)	15
Parks with picnic areas (per person)	
- With flush toilets	5
- With flush toilets and showers	10
Recreational vehicle parks	
- Without individual sewer hook-ups (per space)	50
- With individual sewer hook ups (per space	100
Restaurants and Food Service	
- Toilet and kitchen wastes (per patron)	10
- Kitchen wastes only (per meal served)	5
- Addition for bars (per patron)	2

- Per employee	15
Type of Business or Facility	**Design Flow (gallons per day)**
Service Station	
- per vehicle served	10
- per employee	15
Schools, boarding	
- student and live-in staff (per person)	75
- daily staff (per person)	15
Schools, day	
- without cafeteria or showers (per student)	15
- with cafeteria (per student)	20
- with cafeteria and showers (per student)	25
- staff (per person)	15
Swimming pools	
- per patron	10
- per employee	15
Theaters	
- per seat	5
- per employee	15
Wineries (sanitary waste only)	
- tasting room, per visitor	2.5
- per employee	15
- special events	Case-by-case

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APPENDIX D. ENHANCED TREATMENT SYSTEM REGULATIONS

I. INTRODUCTION

Many sites in Santa Cruz County cannot meet the criteria for the installation of a conventional Onsite Wastewater Treatment System (OWTS). These sites may have limitations such as reduced setback from a stream, shallow depth to groundwater, soil permeability rates that are too rapid to provide adequate treatment or too slow to provide adequate absorption or have limited space and the OWTS would be undersized. Santa Cruz County code prohibits the installation of conventional OWTS where such conditions occur, due to potential for water quality impacts or drainfield failure. Sections 7.38.182 through 186 of the County Code allow for the use of alternative technology and/or enhanced treatment (ET) systems to overcome such site constraints. In addition, section 7.38.183, requires the use of enhanced treatment systems to reduce the discharge of nitrogen from large onsite disposal systems and OWTS located in fast percolating soils or where there is concern for nitrate impacts on groundwater or surface water. The State OWTS policy and the County's Local Agency Management Program (LAMP) also provide for use of enhanced treatment where onsite sewage disposal may impact impaired surface water bodies, or groundwater quality.

The objective of the regulations outlined in this document is to permit the use of approved technologies that will treat sewage to a level sufficient to prevent surface and groundwater contamination and reduce biomat buildup that causes drainfield failure. The ultimate goal would be to treat sewage in a manner that reliably reduces the Biological Oxygen Demand (BOD) and Total Suspended Solids (TSS) to less than 10 mg/L and remove at least 75% of the total Nitrogen (N) to less than 10 mg-N/L. The minimum requirement is to reduce total nitrogen by 50% or less than or equal to 30 mg-N/L (whichever is less) and BOD and TSS to less than 30 mg-/L. These regulations also provide for the use of alternative dispersal methods such as mounded beds, at-grade systems, or drip dispersal systems that allow dispersal at very shallow depths to provide needed groundwater separation.

The following categories of enhanced treatment may be utilized:

- Secondary Treatment provides for the reduction of BOD and TSS to be less than or equal to 30 mg/L prior to effluent disposal. This allows for an increased dispersal application rate therefore allowing a reduced dispersal surface area. BOD and TSS reduction is also required for the use of drip dispersal systems and disinfection. Secondary treatment typically provides 95% pathogen reduction (1-2 log) (EPA, 2002)
- Nitrogen Reduction requires total nitrogen concentration reduction by at least 50%. This is required in addition to BOD and TSS reduction in sandy soils when percolation rates are faster than 5 MPI or when minimum vertical separation to groundwater cannot be obtained.
- Disinfection provides additional pathogen reduction and requires 99% reduction of E. coli indicator bacteria and associated virus and other pathogens. This is required where groundwater separation is less than 5 feet or when stream separation is less than 100 feet. E. coli levels should be less than 200 MPN/100 ml.

Types of Enhanced Treatment Systems and Approved Applications

Level of Treatment and Treatment Technology[a]	Reduced Dispersal Application Area	Minimum Ground-water Separation (ft)	Minimum Waterbody setback (ft)	Fast Perc <5 MPI[b]	Slow Perc >60 MPI	Seepage Pits
BOD and TSS Reduction Reduce BOD and TSS to <30 mg/L Intermittent Sand Filter Currently approved proprietary systems that Meet NSF/ANSI 40[c] Certification include: OSI Advantex Biomicrobics FAST AquaKlear Bord Na Mona Multi-Flo Aerobic Trmt MicroSepTec HOOT Acqualogic	Yes, per Table 7.38.150.B.3	See Table 3-4 Groundwater Separation based on Soil Percolation and Water Feature Setback	See Table 3-4 Groundwater Separation based on Soil Percolation and Water Feature Setback OR >50 -feet for Repairs and Upgrades only	Not Permitted See next row for BOD and TSS Reduction with Nitrogen Reduction	Repairs and Upgrades Only	Not Permitted See next row for BOD and TSS Reduction with Nitrogen Reduction
BOD and TSS Reduction with Nitrogen Reduction Reduce Total Nitrogen by 50% Recirculating Sand Filter Trickling Filter	Yes, per Table 7.38.150.B.3	See Table 3-4 Groundwater Separation based on Soil Percolation and	See Table 3-4 Groundwater Separation based on Soil Percolation and Water	Required[b]	NA	Required with min. 10-ft Separation to Groundwater

Currently approved proprietary systems That Meet NSF/ANSI 245a Certification, include: OSI Advantex Multi-Flo Aerobic Trmt MicroSepTec		Water Feature Setback	Feature Setback			
Pathogen Reduction Reduce Pathogens by 99%: Recirculating Sand filter Ultraviolet Light Chlorine disinfection	NA	Required with groundwater separation of 2-5 feet. See Table 3-4 of the Santa Cruz LAMP	25-50 feet for Repairs Only 50-100 ft for upgrades	Depends on stream, GW separation See Table 3-4	NA	Required with minimum Separation to Groundwater of 10 ft.

[a] Specific types of systems that are currently approved for use in Santa Cruz County are listed. Additional systems that meet the requirements may be added in the future.

[b] Nitrogen reduction may be waived outside of nitrogen concern areas.

[c] NSF/ANSI 40 is a standard for residential wastewater treatment systems with rated capacities between 400 and 1,500 gallons (1,514 and 5,678 liters) per day. Class I systems must achieve a 30-day average effluent quality of 25 mg/L CBOD5 and 30 mg/L TSS or less, and pH 6.0-9.0 spanning six months of testing.

II. REQUIREMENTS FOR ENHANCED TREATMENT OR ALTERNATIVE TECHNOLGY

The following are conditions where enhanced treatment systems are required.

A. Limited Site Conditions

For parcels where site conditions do not meet standards for conventional septic systems due to an inability to meet the required vertical setback to groundwater or impermeable layer, slow percolation soils, or inadequate disposal area, the Health Officer may accept sewage disposal permit applications utilizing ET system designs for the upgrade of existing systems to allow building additions or remodels, and for the construction of new systems. Homeowners with single family dwellings on small lots may want to install ET systems in order allow deeper dispersal trenches and to reduce leachfield area requirements and allow future additions to their homes.

1. Insufficient Leaching Area - Whenever a parcel cannot accommodate the size of leachfield required by the soils found on the parcel, ET may be used to reduce the BOD and total nitrogen in order to allow an increase in soil application rates for wastewater loading, pursuant to Section 7.38.150.A.3.
2. Soil Percolation Rates Slower than 60 MPI - For soils percolating 60-120 MPI, the use of ET is required.
3. Setback to Groundwater Unsuitable for Leachfields - Use of enhanced treatment may also allow building additions with reduced groundwater separation. For repairs and upgrades using enhanced treatment, the groundwater separation and distance to surface water bodies may be reduced (Section 7.38.150.B.9). Parcels that have gentle slopes and high groundwater problems that prevent the use of conventional leachfields may be suitable for mound or at-grade systems described below. A proposal for a mound system that meets requirements for the design loading rate may enable bedroom and other building additions provided that an area is available for replacement of the mound.
4. Sandy Soils with Rapid Percolation - Enhanced treatment with nitrogen reduction will be required for all new OWTS and replacement OWTS in sandy soils with percolation rates faster than 5 MPI, except as described below. For fast percolating sandy soils in areas where nitrogen reduction is required, the County Health Officer maintains a list of approved treatment units that can be used to reduce total nitrogen levels in effluent by 50-75% (30 mg-N/L, but with an ultimate target is 10 mg-N/L). For the purposes of this document, "sandy soils" are coarse-grained sands that have demonstrated average percolation rates faster than five minutes per inch. This requirement can be waived for parcels that are greater than 10 acres or outside the nitrate concern areas of San Lorenzo Watershed, North Coast Water Supply Watersheds, Valencia Watershed and La Selva Beach area; and maintain a private well setback of more than 150 ft.

B. LARGE SYSTEMS

For large or commercial onsite sewage disposal systems in all areas of Santa Cruz County, enhanced treatment systems are required at the time of new system installation, upgrades or repairs. Large systems are those onsite disposal systems which serve more than five (5) dwelling units or serve other uses that generate 2,500 gallons or more per day of sewage effluent (typically commercial or institutional development). The County of Santa Cruz Environmental Health Division (EH) will generally assume full jurisdiction over all onsite wastewater discharges between 2,500 and 10,000 gpd (gallons per day) of flow. Where County authority and requirements may not be adequate to prevent significant degradation of water quality, or where total sewage flow exceeds 10,000 gpd, the discharge shall be referred to the Regional Water Quality Control Board staff for review and appropriate action.

III. TYPES OF ALTERNATIVE AND ENHANCED TREATMENT AND DISPERSAL SYSTEMS PERMITTED

The following types of systems may be approved where requirements can be satisfied:

A. Intermittent and Recirculating Sand Filters - Although sand filters may not fully meet the objective for nitrogen removal, they are a proven technology that provides substantial

nitrogen reduction and meets the objectives for BOD reduction. A sand filter treatment system consists of a septic tank, dosing tank and pump, a sand filter bed, and a drainfield. The septic tank allows for anaerobic biological treatment of effluent. Following the septic tank, the filter bed of engineered medium-grained sand physically filters and promotes biological treatment of effluent prior to disposal in the drainfield. The filtering and biological effect of the sand bed results in the discharge of substantially higher quality effluent than effluent discharged directly from a septic tank to a drainfield. Recirculating sand filters reintroduce the aerated nitrified effluent to the anaerobic septic system and provide significant nitrogen removal over Intermittent sand filters. Recirculating sand filters also provide additional pathogen removal.

B. Mounded Bed –The Wisconsin mound wastewater treatment system was developed in the 1970s to overcome site limitations such as high groundwater. The mounded bed system discharges effluent to a sand bed in a constructed elevated mound (typically 3 feet above ground), that provides the vertical distance not provided at the site for minimum treatment prior to effluent reaching underlying groundwater. Mound systems for repairs and upgrades shall be designed to the greatest extent possible according to all provisions of the ”Wisconsin Mound Soil Absorption System: Siting, Design and Construction Manual.” Converse, J.C., and E.J. Tyler, 2000. Pursuant to those guidelines, mounds for repairs or upgrades may be approved on sites with: groundwater at least 1 foot below the native ground surface, on soils with low permeability, over fill with adequate permeability, on slopes up to 21%, and over existing leachfields. The total groundwater separation requirements for use of mound systems system shall be the values for standard leaching devices as described in Section 7.38.150(B)(9) of the Santa Cruz County Code, as measured from the bottom of the dispersal piping. Enhanced treatment and disinfection is required for mound systems with two feet of separation to groundwater, pursuant to Table 3-4.

C. At-Grade Systems - At-Grade systems shall be designed according to the provisions of the 1990 “Wisconsin At-Grade Soil Absorption System - Siting, Design, and Construction Manual" and 1999 “At-Grade Systems for On-Site Wastewater Treatment and Dispersal, by James Converse.” The groundwater setback requirements for use of the At-Grade system shall be the values for standard conventional leaching devices as described in Section 7.38.150(B)(9) of the Santa Cruz County Code, unless supplemental treatment is also provided.

D. Proprietary Technologies - Proprietary packaged treatment systems are devices held under patent, trademark, or copyright. Before the Health Officer issues a permit for a proprietary product, the manufacturer or representative must demonstrate and certify to EH that the device, product, or method meets the requirements of the specific EH criteria, and is an appropriate application of the technology, per the section below on emerging enhanced treatment systems. The proprietary system must be reviewed by EH Staff. All proprietary systems must be installed by a licensed contractor certified by the product dealer. Most proprietary systems can include a disinfection component that treats exposes the treated effluent to ultra-violet light prior to discharge. The following types of proprietary systems have been approved for use in Santa Cruz County:

- OSI Advantex system for enhanced treatment with nitrogen reduction.

- Multiflo Aerobic Treatment Unit (ATU) for enhanced treatment with nitrogen reduction.
- Advantex for enhanced treatment with nitrogen reduction
- Aquaklear for enhanced treatment without nitrogen reduction
- MicroSepTec for enhanced treatment with nitrogen reduction
- Hoot Aerobic for enhanced treatment without nitrogen reduction
- Multi-flo enhanced treatment with nitrogen reduction
- OSI half round pressure distribution for very shallow dispersal of treated effluent.
- GeoFlow drip system for very shallow dispersal of treated effluent**.**

E. Pressure Distribution – Although not a treatment technology, pressurized distribution (generally using a 1" to 2" diameter pressure lateral pipe with 1/8" orifices) is an efficient method of providing uniform and dosed distribution of effluent in a drainfield, with alternating saturated and unsaturated aerobic conditions. This technology provides superior conditions for the soil to treat the effluent, especially when used in shallow trenches in conjunction with timed dosing. When used in conjunction with ET, pressurized Shallow Gravelless Drainfields installed in the upper 12" of the soil column have proven to be an extremely effective means of dispersal and can extend the minimum length of a leaching trench above the 100-foot maximum when site limitations do not allow for a conventional drainfield design.

F. Subsurface Drip Tubing – Drip emitter tubing uses small diameter, flexible, low-pressure piping which should only be used for dispersal of treated effluent from an ET system. Subsurface drip systems allow for a uniform dispersal of effluent into the upper 6" – 10" of the soil profile where improved treatment and evaporation and transpiration through plant roots can also occur. Discharge of wastewater to such shallow soils has the significant benefit of additional treatment that occurs with the microbial populations that exist in the upper 18 inches of the soil column. As with shallow pressurized gravelless drainfield systems (SPDS), subsurface drip systems can help mitigate high groundwater, shallow depths to impermeable soil and limitations in area available for conventional drainfield trenches. Emitter lines are typically spaced two (2) feet apart on center in sandy and loamy soils and may be spaced twelve (12) inches apart in soils with a higher clay content where greater dispersal area is required. A "cover crop" (preferably grass) must be planted over the lines to stabilize the soil and maximize the evapotranspiration potential. Drip systems must be installed per the manufacturer specifications by qualified installers.

G. Emerging Enhanced Treatment Technologies - ET technologies that meet or surpass treatment effectiveness of approved technologies may be approved in Santa Cruz County provided that the following criteria are met:

1. Emerging technologies will only be allowed for the upgrade or repair of an existing onsite sewage disposal system until satisfactory performance of the technology is demonstrated.
2. The manufacturer must apply to the County for approval of an experimental ET system. It is

expected that the manufacturer 1) provide the manufacturer's NSF approval information, the owner's manual, the installer's manual and supporting documents for EH review, 2) conduct a presentation to EH and stakeholders, 3) apply for the experimental review and submit fee.

3. No more than three units from one manufacturer may be installed County-wide during an initial two year evaluation period (or a period determined by Health Officer). The designer is responsible for taking samples quarterly and submitting the lab results to EH. Once satisfactory quarterly monitoring, sampling and maintenance results have been established by EH, the experimental system may obtain approved status and additional systems can be installed for new development.
4. Prior to approval of an individual permit, the consultant proposing a system shall provide satisfactory evidence to Santa Cruz County EH that the new proposed system is NSF approved and will reliably and consistently meet overall ET objectives for BOD and nitrogen removal. The manufacturer will submit review fees, The designer shall the pay the required fee to cover the costs of review and provide adequate documentation to show that the proposal will meet Santa Cruz County EH requirements including the following:
    - Detailed design specifications and calculations.
    - Monitoring results from cited references.
    - Costs of installation, operation, and maintenance, including electricity costs.
    - Information on parts availability
    - Availability of a qualified local service provider
    - Certified installer(s) (contractors) available
    - Jurisdictions where the proposed ET system has been installed including types of uses served, dates in operation, and the names and phone numbers of officials approving and overseeing such systems.

IV. PROCEDURES FOR PERMIT APPLICATION AND APPROVAL

Procedures for obtaining an approved permit for an alternative technology or ET system are subject to the requirements specified in County Code Sections 7.38.182 through 186. The owner or owner's agent will submit an application and fees for a sewage disposal permit specifying the type of ET system. The design must be prepared by a Qualified Professional (QP) such as a California Registered Environmental Health Specialist (R.E.H.S), Professional or Civil Engineer (P.E. or C.E.), or Professional Geologist (P.G.). The QP must demonstrate experience and be certified by EH. The design submission must include supporting documentation such as percolation rates, trenching indicating depth to groundwater, setbacks, pump selection calculations/curves, friction/head loss calculations, design basis flow analysis and waste strength analysis.

Prior to approval of the permit, a signed contract between a qualified service provider and the property owner must be submitted. The owner or installer must submit a separate electrical permit from the Planning Department which is required for systems with electrical components prior to approval/permitting of an alternative or ET system for septic system repair or building

upgrades. The system must have an operating telemetry system installed that the service provider can access and a contract with the provider for ongoing maintenance. In addition, the owner is required to sign an Acknowledgment of Requirements for Use of An Onsite Sewage Disposal Nonstandard System with Special Operating Characteristics which includes the following information: description of system characteristics and limitations; operating, monitoring and maintenance requirements to ensure proper performance; restrictions on system use and property use; and notification that the property owner will be assessed a fee on the annual property tax bill to cover County costs of system oversight.

The following construction inspections are required: 1) Preconstruction meeting with designer, provider, manufacturer, contractor and EH present, 2) Water Tight Test of Tank (1st measurement and 2nd measurement, 3) Leachfield installation, 4) Control panel, pressure test, alarm system, telemetry confirmation and erosion control are generally the final inspection. Ongoing construction inspections are required to be performed by the County and the design consultant. Upon completion, the provider is required to submit an OSSP start up report and the design consultant is required to submit a final "letter of completion" stating that the system was installed according to the design specifications and an As-Built plan if required. Once the system is completed and the electrical permit is signed off by the Building Official, and the Consultant's final letter has been submitted, then, the permit will be finalled (signed-off) and a Notice of Onsite Sewage Disposal System with Enhanced Treatment Technology and Special Operating Conditions, which reiterates the above information, will be recorded on the deed by EH.

V. SYSTEM OPERATION, MAINTENANCE AND MONITORING REQUIREMENTS

Due to their more technical nature, alternative and ET systems generally require more intensive monitoring and maintenance to ensure that they function properly. In addition, particularly with experimental systems, monitoring is needed to ensure that the ET system is working properly and is not contaminating surface or ground water. Monitoring information is required for the overall ET system program to evaluate the effectiveness of various designs and allow broader approval of satisfactory systems.

The recorded Notice of Onsite Sewage Disposal System with Enhanced Treatment Technology and Special Operating Conditions will set forth the specific requirements for operation, maintenance and monitoring. An annual fee will be charged on the tax bill which reimburses the County costs of administering the monitoring and maintenance program. Property owners not complying with the requirements of submitting to EH both annual operation/maintenance service provider reports and annual septic system sample results of treated effluent will receive notice to correct. If non-compliance continues, a "Notice of Violation" will be recorded at the Office of the Santa Cruz County Recorder. Owners of proprietary systems are required to maintain a maintenance/service agreement with a qualified service provider. The following elements for maintenance and monitoring must be included in the system design, installation and ongoing maintenance program:

1. An Operations and Maintenance Manual must be provided to the owner, operator, and EH, specifying inspection and maintenance requirements for all system components essential for operating and trouble-shooting the alternative/ET system. The owner must comply with the provisions in the Manual.

2. Proprietary systems shall upon purchase include a two-year initial service policy with four site visits (every 6 months) for inspection, maintenance, and reporting. A signed contract between a qualified service provider and the property owner must be in effect prior to start-up and maintained through the initial service policy that includes sampling and disposal system maintenance. After the two-year period, the property owner is responsible to maintain a service policy with an approved service provider that covers the system operational requirements and associated fees. A maintenance agreement must be maintained for the life of the treatment unit.
3. Samples of treated effluent from ET systems are to be collected by the Service Provider quarterly in the first year of operation and then annually, with results submitted to EH along with the service report. The design and installation of the system shall include provisions for collecting samples of effluent. Acceptable sampling locations include a sampling port, the pump chamber and the return line. Analysis of effluent samples shall be performed by a certified laboratory and shall include: 5-day biological oxygen demand (CBOD5), Total Suspended Solids (TSS); nitrate as N, ammonia as N and total nitrogen for systems that require nitrogen reduction; and, E. Coli for systems that require pathogen reduction. If sample results do not meet requirements, the homeowner will engage the service provider and any necessary qualified professional (s) as needed to determine the cause, make necessary repairs or adjustments and submit a passing resample within 90 days.
4. Sampling shall be taken 3 months after installation by the provider and submitted to EH.
5. If the testing is not satisfactory, monthly testing will be required every year until a passing report is provided to EH.
6. If the residential or commercial property changes use or ownership, the provider will sample the effluent after 6 months of occupancy of the new owner or change of use and submit the report to EH.
7. Pressure distribution laterals and drip emitter tubing in pressurized drainfields, if any, shall be checked for clogging of orifices and be flushed annually. Filters for subsurface drip systems may need to be cleaned every six months. As part of the annual servicing, the area of the disposal field must be visually inspected for signs of surface failure.
8. Operational telemetry is required and shall be able to diagnose and alert the following: high and low liquid levels, excessive pump cycles/run times and other parameters specified by the manufacturer. This requires either a telephone land line, WIFI to internet router, wireless cellular data connection, direct connected ethernet to internet router, or 5G connection to be installed and maintained by the property owner with ongoing direct connection and monitoring by the service provider.
9. EH may require additional monitoring and maintenance requirements as a condition of initial permit approval, or as part of the Notice of Nonstandard System.
10. Monitoring will be carried out under the terms of the Notice of Nonstandard System, which is recorded on the deed.
11.)As specified in Chapter 7.38.184 (E) (4) and 7.38.295 of the Santa Cruz County Code, the property owner may be subject to a violation reinspection fee and/or a recordation of a Notice of Violation

for deficiencies which include: failure to do annual servicing, failure to sample, sample results do not meet standards, failure to operate system properly. Environmental Health will serve adequate notice and allow a reasonable amount of time for the property owner to rectify system deficiencies.

VI. SERVICE PROVIDER REQUIREMENTS

EH maintains a list of approved qualified service providers. For proprietary systems, the service provider must be certified by the product dealer. Service providers must demonstrate specific proficiency in servicing and operating enhanced treatment units through the completion of an onsite wastewater certification training course by a third party entity, such as the California Onsite Wastewater Association (COWA), National Association of Waste Transporters (NAWT), National Sanitation Foundation (NSF), or other acceptable training program as determined by EHD. Approved service providers will maintain and provide proof of general liability insurance. The service provider submits service reports on an annual basis for residential system or quarterly for large systems. If a service provider fails to maintain acceptable servicing proficiency or does not provide samples and/or service reports within 30 days of the service, the service provider shall be removed from the

approved Onsite Septic Service Provider (OSSP) list and program. The service provider may be subject to an annual fee charged by EH (and may be reduced for a service provider who service only one system, i.e.: a qualified individual and certified homeowner). The homeowner or qualified individual must be approved by EH. The individual conducting the field inspection work shall be qualified in the operation and maintenance of OWTS and trained specifically in the testing and inspection procedures outlined in this document.

Appendix E. Septic Tanks, Distribution Boxes, and Chamber Leaching Systems Approved for Use in Santa Cruz County

Distribution Boxes: Installation Procedures and Approved Models

A distribution box is used to divide the effluent flow from a septic tank into two or more leach trenches for soil absorption. Equal distribution is very important in order to take advantage of all of the available leaching area. Spreading the effluent dose over all parts of the system maintains a relatively low soil loading rate and provides better effluent treatment. Distribution boxes also provide a readily accessible means of locating the leaching device, making flow adjustments as needed, monitoring the disposal system, and making additions to the system.

Distribution boxes are typically made of polyethylene or reinforced concrete with plumbing "knock outs" into the box. The inlet must be higher than the outlets, with all outlets at the same level. The box must be large enough to accommodate the pipes and fittings used and still allow for flow adjustment. A sturdy gas-tight lid (and risers **as** needed) shall be provided to allow access from the surface. A list of approved manufacturers and distribution box model numbers is presented below.

The correct installation of distribution boxes requires proper planning and careful construction techniques. The location of the box(es) and associated plumbing, as well as the required elevations, must be worked out in advance. Grading of all portions of the system must be done with care such that the leach trench maximum allowable depth may be maintained. The distribution box(es) must be "wet set" on a pad of cement or grout on level undisturbed or mechanically compacted soil. All the outlet plumbing must be set into the box as level as possible with final flow adjustments made prior to final backfill. All piping must be resealed with grout or caulking compound. Environmental Health staff must perform an inspection that demonstrates that the flow out of the box has been properly adjusted as part of construction inspection for final system approval. Adequate water must be available at the site for the flow test.

Fine adjustments of flows to each leachfield shall be made as necessary to maintain the proper function of the distribution box. If any leachfield fails, a valve must be installed on the pipe from the distribution box to the leachfield and closed to stop the failure.

Approved Effluent Distribution Devices

M. C. Nottingham	Models:	D-48 (5 exit ports)
		D-49 (3 exit ports)
Tom's Septic Tanks	Septic tank with built-in AD@ box	
	All separate AD@ boxes	
O.S.I.	Hydrosplitter	
Zabel	Flow-divider	

(Other IAPMO or NSF approved devices may be approved for use in Santa Cruz County by the Health Officer upon submittal of satisfactory supporting documentation)

Approved Septic Tanks

(Approved as of 6/7/2021. Additional tanks may be added as approved by the Health Officer.)

Material	Brand	Sizes (Gallons)	IAPMO Certified	NSF Certified
Fiberglass	Loomis	750/1000/ 1250/1500	Yes	No
	Fiber Enterprises	750/1000/1250/1500/ 2000/3000/3500/4000/ 4500/5000/6000/7000/ 8000/9000/10000/11000/ 12000	Yes	No
	Orenco	500/1000/1500/2000	Yes	Yes, NSF 40
	Xerxes	1000/1500	Yes	No
Polyethylene	Norwesco	500/1000/1250/1500	Yes	No
	Roth Multitank	300/500/750/900/1000/ 1060/1250/1500	Yes	Yes, NSF 61
	Snyder	750/900/1050/1250/1500/	Yes	No
	Infiltrator	540/1060/1530	Yes	No
Concrete	Jensen Precast	750/1000/1200/1500/ 2000/25000	Yes	No
	Don Chapin Pinnacle	750/1000/1250/1500/ 2000/2500/ 3000	Yes	No
	Selvage	810/1200/1500/2000	Yes	No
	P & L Concrete	500/750/1000/1200/1500/ 1900/2000	Yes	No

Chamber Leaching Systems

These regulations have been developed and promulgated pursuant to Section 7.38.150(B)(2) of the County Code. This section of the County Code directs the Health Officer to develop regulations and standards for the use of chamber leaching systems. The following regulations shall be used for the sizing, installation and inspection of chamber leaching systems, only. All other aspects of onsite wastewater treatment and disposal shall be regulated as provided by Chapter 7.38 of the County Code and the Santa Cruz Local Agency Management Program.

Review of Proprietary Leaching Chambers and Approval for Use

Chamber leaching devices are proprietary products that are engineered to provide for the disposal of septic tank effluent. Since each product may have different design aspects that may affect the infiltration of effluent into the ground, the manufacturers of each product must provide a product package for the review of the Health Officer that supports the use of their product. The package must contain the following documentation:

1) Studies conducted by agencies not associated with the manufacturer regarding the use of the product as a leaching device.
2) Acceptance or approval letters by other regulatory agencies.
3) Review or approval documents from recognized standards and testing organizations, such as International Association of Plumbing and Mechanical Officials (IAPMO), Underwriters Laboratories, Uniform Plumbing Code, ANSI, NSF, etc.
4) Recommended sizing and installation standards.

The Health Officer shall evaluate the package regarding the quality of the studies conducted, the quality and quantity of the agencies and organizations that permit and/or endorse the product and shall evaluate the manufacturer's recommended sizing and installation standards for appropriateness in Santa Cruz County. The Health Officer shall specify sizing requirements based on soil characteristics, manufacturer's recommendations and percolation rates, and shall specify installation requirements and construction inspection points. Chamber leaching systems must be sized to provide at least 70% of the infiltration area of a standard rock-filled trench. Similarly, to rock filled trenches, commercial systems will be designed based on the peak daily flow.

County Code permits a reduction of leaching requirements where there is an approved pretreatment device such as a sand filter or approved proprietary treatment unit prior to the leaching device. The greater of the two, either the 30% reduction or the pretreatment device reduction, shall apply.

Infiltrator Systems, Inc. Chambers

A product package has been prepared and submitted by Infiltrator System. The package contains studies conducted by researchers at the University of Wisconsin, the Water Authority of Western Australia, the City of Amarillo, and numerous other independent research reports that support the use of Infiltrator products. The Uniform Plumbing Code recognizes the use of plastic chamber leaching devices. Infiltrator products are approved in 15 states and 24 counties in California.

After evaluating the package prepared by Infiltrator Systems, Inc., leaching chambers models: Quick4 High Capacity, Quick4 Standard, Quick4 Equalizer 36 and Quick4 Equalizer 24 are approved for use in Santa Cruz County. For commercial installation, only the Infiltrator Quick4 High Capacity model will be permitted. Model H-20 Infiltrator products were approved in May 1999, for use in driveways and parking lots. Installation of dispersal systems under pavement requires traffic rated design, and at least 50% of the final cover over the dispersal area must be permeable, unless enhanced treatment is provided.

Sizing

Infiltrator devices must provide at least 70% of the square footage of infiltration surface as a conventional rock-filled trench, based on projected flow and soil characteristics:

Required Conventional Infiltration Area (Square feet)

Bedrooms:		1	2	3	4	5	Additional
	Flow gpd:	250	300	375	450	525	75
Perc MPI	App Rate						
<1	--	--	--	--	--	--	--
1	1.2	208	250	313	375	438	63
5	1.2	208	250	313	375	438	63
10	0.8	313	375	469	563	656	94
15	0.73	342	411	514	616	719	103
20	0.66	379	455	568	682	795	114
25	0.59	424	508	636	763	890	127
30	0.53	472	566	708	849	991	142
35	0.48	521	625	781	938	1094	156
40	0.42	595	714	893	1071	1250	179
45	0.37	676	811	1014	1216	1419	203
50	0.31	806	968	1210	1452	1694	242
55	0.26	962	1154	1442	1731	2019	288
60	0.2	1250	1500	1875	2250	2625	375
60-120	--	--	--	--	--	--	--

Enhanced Treatment (BOD <30 mg/L) Infiltration Area (Square Feet)

Bedrooms:		1	2	3	4	5	Additional
	Flow gpd:	250	300	375	450	525	75
Perc MPI	App Rate						
<1	1.6	156	188	234	281	328	47
1	1.6	156	188	234	281	328	47
5	1.6	156	188	234	281	328	47
10	1.6	156	188	234	281	328	47
15	1.46	171	205	257	308	360	51
20	1.32	189	227	284	341	398	57
25	1.18	212	254	318	381	445	64
30	1.06	236	283	354	425	495	71
35	0.96	260	313	391	469	547	78
40	0.84	298	357	446	536	625	89
45	0.74	338	405	507	608	709	101
50	0.62	403	484	605	726	847	121
55	0.52	481	577	721	865	1010	144
60	0.4	625	750	938	1125	1313	188
90-120	0.2	1250	1500	1875	2250	2625	375

Installation

All setbacks and maximum trench depth requirements specified in Chapter 7.38 shall apply to the installation and siting of all chamber leaching devices. Trenches for the Quick4 High Capacity and Quick4 Standard Models shall be placed at least 3 feet edge to edge and the Quick4 Equalizer 36 and Quick4 Equalizer 24 shall be at least 2 feet edge to edge. The installer shall read and follow the manufacturer's installation instructions, including installation procedures for the H-20 rated models in driveways and parking lots. Inspection risers shall be provided at the end of each trench. Traffic rated riser boxes with cast iron grade rings and lids are required for inspection risers in driveways or parking lots.

Installation Procedures

1. The installer shall demonstrate to the EH inspector that trenches are level and prepared (scarified) according to the manufacturer's instructions. Representative sections of each trench shall be left open until inspected.
2. The trench may not be deeper than 4'.
3. If the soils are fine sands, the sides of the chambers shall have pea gravel placed around the infiltrator slots to prevent sealing of the slots.
4. For all soils the trench shall be scarified, and the installer will place pea gravel or ¾ inch washed crushed rock around the infiltrator slots to prevent the slots from being sealed.
5. Filter fabric or leach field paper shall be placed over the pea gravel but cannot be used as a replacement for pea gravel.
6. A perforated pipe will be installed all the way through the infiltrator chambers and secured in place.
7. Risers shall be installed to run at both ends of the chamber trench at the full depth of the trench and must be secured to the infiltrators.
8. Risers are to be used as an inspection port and must be easily accessible with Christie boxes or cut a minimum of 16 inches above grade.
9. Prior to filling the trench, place construction paper the length of the trench.
10. Gopher barrier is required at the bottom of the trench unless waived in by EH.
11. Erosion control is required during the periods of October 15 through April 15.

APPENDIX F. SITE EVALUATION AND TESTING PROCEDURES

General

1. Percolation, groundwater and soils profile tests must be performed by those who are licensed within California as a registered civil engineer; a registered Environmental Health Specialist; a soils scientist; an Engineering Geologist; or other Qualified Professional approved by the Health Officer.
2. Results of all testing is to be submitted to Environmental Health (County EH) on the forms provided by the County or on an equivalent form.
3. A scaled site plan showing location of tests (appropriately numbered or designated to correspond to the test data) is to accompany the data.

Soil Profile Evaluation

1. Sites proposed for installation of new Onsite Wastewater Treatment Systems (OWTS) must be evaluated for soil conditions by excavating one or more soil profile test-pits with a backhoe or excavator. Soil profile evaluations are required in addition to soil percolation testing to determine the presence of restrictive layers or evidence of seasonal high groundwater conditions at and below the depth of the percolation test holes. The Health Officer may waive the requirement for backhoe test-pits and/or percolation testing for drainfield repairs, upgrades, or replacements where adequate soil information is available.
2. Soil profile excavations must extend at least 10 feet below the bottom of a proposed conventional leaching trench. Shallower excavations may be approved on a case-by-case basis or when an Enhanced Treatment (ET) systems is proposed.
3. Excavations must be made by backhoe or excavator capable of digging to a depth of 14 feet whenever possible. Auger or GeoProbe direct push is allowed only upon a case-by-case determination:
    a) when a site is inaccessible by backhoe,
    b) when necessary only to verify conditions expected on the basis of prior soils investigations,
    c) when done in connection with geologic investigations, or
    d) for septic repairs or upgrades when an ET system is proposed and it is not required that the soil or groundwater conditions 10’ below the depth of dispersal be evaluated.
4. Observations in the excavation are to be made for soil structure, the potential presence of seasonal groundwater, and the presence of restrictive, low permeability layers. Soils or formations containing continuous channels, cracks, or fractures are to be noted. Gleying, soil mottling, and soil moisture are also to be noted.

PERCOLATION TEST PROCEDURE

General Requirements

1. The minimum number of percolation test holes shall be 6 per site. Percolation test holes shall be distributed to provide a reasonable representation of conditions throughout the area proposed for the dispersal system. County EH may elect to witness the installation of the percolation holes, verify presoaking, and/or be present during all or part of the testing. The percolation testing shall be conducted in areas that meet all requirements for a dispersal system (i.e., slope gradients, setbacks, etc.).
2. Two (2) of the six (6) percolation test holes required shall be installed (developed) to depths of at approximately 3 feet (approximately means plus/minus 6 inches) below the proposed dispersal system depth. The remaining four (4) percolation test holes required shall be installed at the proposed depth of dispersal or within the range of the effective soil absorption sidewall (infiltration zone) depths. The resulting percolation rates from the two deeper test holes will be used to demonstrate that the deeper soils are sufficiently permeable (are faster than 120 Minutes Per Inch (MPI)) and whether the underlying soils have rapid perc rates (faster than 1-5 MPI) which may require an ET system. The results from these two test holes (min.) will not be included in the calculation of the overall percolation rate used to determine the required soil application rate for sizing of the proposed dispersal system.
3. All of the percolation test holes should be spaced 10 feet to 50 feet from each other and, no portion of the dispersal system should be proposed greater than 50 feet from the nearest percolation test hole.
4. When required by EH, soils expected to have a percolation rate slower than 60 MPI or having a high shrink-swell potential due to clay content (expansive soils) must be tested during the time period for winter water table observation.

Preparation of Percolation Test Holes

1. Percolation holes shall be prepared by hand auger whenever possible. A power auger may be acceptable on sites if approved in advance by Environmental Health.
2. Test holes are to be 4 to 6 inches in diameter and minimum 12 inches deep.
3. Remove any smeared soil surfaces from the sides of the hole by scraping with a sharp instrument.
4. Remove loose soils from the bottom of the hole and add 2 inches of clean pea gravel.
5. Insert a perforated or slotted 3-4” diameter pipe in the bore hole and carefully pack clean pea gravel in the annular space around the outside of the pipe.
6. Holes must be thoroughly presoaked prior to testing to compensate for any possible soil swelling. Completely refill each test hole with clear water 4 times or provide continuous soaking of the hole with clear water for 4 hours on the day prior or day of the testing.

7. Use only clear water and gently pour into the hole to prevent scouring of the sides and bottom.

Performing the Percolation Test

1. Adjust the water depth so that it is 6 inches over the gravel in the bottom of the hole.
2. From a fixed reference point (top of riser pipe), measure the height of the water surface every 30 minutes for a period of at least two (2) hours and until the rate of water level drop stabilizes and three (3) consecutive water level drop measurements are within 10% or 1/8 inch of each other. Refill the test hole to 6 inches over the gravel after every 30-minute reading until a "stabilized" rate has been achieved or a total of 8 readings have been obtained.
3. If, during the course of the testing, the water drains so rapidly that 30-minute readings are not feasible, switch to 10-minute readings. Refill the test hole to 6 inches above the gravel bottom and repeat the water level drop measurement procedures using a 10-minute interval instead of 30 minutes. Continue taking 10-minute readings for at least one hour and until the rate of water level drop stabilizes and three (3) consecutive measurements are within 10% or 1/8-inch of each other or a total of 8 readings are obtained.
4. If, during the course of the testing, the water drains so rapidly that 10-minute readings are not feasible, either: (a) reduce the interval further to 5 minutes or (b) measure the time it takes for the 6" water column to completely drain/percolate into the soil, and report that time as the resultant rate. Continue taking 5-minute readings for at least 30 minutes and until the rate of water level drop stabilizes over three consecutive readings or until a total of 8 readings are obtained.
5. All readings shall be reported in Minutes Per Inch (MPI). The final three readings shall be used to calculate the average "stabilized" rate <u>for each individual percolation test hole</u>. **Note:** When there is a pattern of significant variability in percolation rate at the end of the testing period, then additional testing may be required (e.g., extended testing, soil texture analyses, etc.).

Calculation and Interpretation of Percolation Test Results (Not for Seepage Pits)

1. The overall percolation rate to be used as a design basis for determining the sizing requirements of a proposed dispersal system is calculated by taking the sum of the individual stabilized results obtained <u>only</u> from the individual percolation test holes completed within the proposed effective infiltration zone and dividing this sum by the total number of perc test results from holes in this zone (minimum of 3 required). As noted in the previous section, the final three readings shall be averaged to determine the final stabilized rate for each individual test hole. The collection of these final (averaged) rates are then averaged together to calculate the <u>overall rate</u> to be used to size the proposed dispersal system and to determine the applicable groundwater separation requirements for the entire dispersal area tested. The resulting rates from

the deeper percolation test holes (approximately 3' below the proposed dispersal depth) shall not be included in this calculation. The deeper test holes will be used to 1) determine if the deeper soils are sufficiently permeable (are faster than 120 MPI) and 2) determine what type of OWTS will be required.

2. If the overall average percolation rate for the infiltrative zone is slower than 60 MPI, faster than 5 MPI in a nitrate concern area, or faster than 1 MPI outside a nitrate concern area, then the soil may not be suitable for a conventional OWTS. Additional testing in an alternate location or at different dispersal depths (infiltrative zone) may be conducted. Otherwise, an ET system needs to be explored.

3. The requirement for ET due to fast perking soils is a function of the perc rate in both the dispersal area and the underlying material. The definition of fast perking soil is faster than 5 MPI in a nitrate concern area and faster than 1 MPI outside a nitrate concern area.

   a. If the overall average percolation rate for the infiltrative zone is fast, the percolation rate of the soils tested at approximately 3' below the proposed dispersal depth will determine what type of system is required.
      i. If none of the individual stabilized percolation rates from the deeper test holes are fast, then ET will not be required due to percolation rates.
      ii. If any of the individual stabilized percolation rates from the deeper test holes are fast, then ET will be required due to percolation rates.
   b. If the percolation rates in soils tested at approximately 3' below the proposed dispersal depth are fast, but the overall average percolation rate obtained from test holes within the depths of the proposed infiltration zone is slower (and faster than 60 MPI), then the requirement for ET will depend on the soil profile/percolation rates between the two depths.

      Note: there are factors other than soil percolation rates (such as depth to groundwater or proximity to a stream or water body) that may dictate that an ET system is required regardless of soil percolation rates.

4. Percolation test holes developed in the proposed infiltration zone that result in "failing" rates that are excessively fast or slow (greater than 60 MPI), may be addressed by:

   a) Including the failing results(s) in the calculated overall average used to determine the dispersal system soil application rate and thus system sizing (this option is not available for a soil percolation test hole with <1 MPI), or

   b) Exclude the area represented by the failing test hole(s), and design and locate the dispersal area according to the resulting average of the other remaining test holes. To determine the area to exclude, split the difference between the failing test hole and nearest passing test hole to determine the radius of the area to be excluded around the failing test hole.

Additional percolation testing can be conducted to attempt to reduce the resulting average or to refine the exclusion area represented by the failed test result(s).

5. To complete a site evaluation which includes percolation tests, a report shall be submitted to County EH within one year of the date of the application. The field data for all percolation holes must be submitted. The report shall also include a copy of a scaled site map showing the location of the numbered percolation test holes relative to pertinent site features.

PERCOLATION TESTING FOR SEEPAGE PITS

Construction and Pre-Soak

1. Tests shall be in the primary and expansion area at the lowest elevation, or center if site is flat. If the pit field exceeds 50 feet across, there will be another pit percolation test for each area that is over 50 feet from the primary test area. The health officer shall approve the location and number of the tests.
2. Deep borings by a qualified professional may be used to determine the groundwater potential and soils structural and textural properties if located within 50 feet of the test pit area. The depth of the surface clay cap, common to areas using seepage pits, shall be identified.
3. Depth of the proposed seepage pit shall be determined to provide at least 10 feet of separation to the seasonal high groundwater elevations or impermeable layers. The health officer shall establish this level based upon relevant data provided from other studies, when recorded by a licensed geologist or geotechnical engineer. If the percolation test boring is used to establish groundwater, then the bottom 10 feet above the water must be backfilled and sealed with a bentonite mix.
4. Drilled borings must be a minimum of 4” and shall be constructed to the depth of the proposed pits.
5. After placing 4” of pea gravel in the bottom, insert a saw cut perforated pipe throughout the entire test boring to extend 6” above grade. If the pipe is almost as large as the boring, no gravel is required with enough perforations to allow water contact with all sides. If void space occurs in the annular space, fill with clean flowing coarse sand or pea gravel to prevent collapsing the bore hole.
6. Fill the test pipe with water enough to cover the entire effective flow area on the day prior to the percolation test. Record the depth to water and time of the initial filling. If during the pre-soak, the water level percolates down to half the wetted depth, within a 30-minute period on 2 consecutive attempts, then only a 2-hour pre-soak is required.
7. Recording methods for depths to water may include visual tape methods, float sticks with tape measures, “plunker-tape” soundings, or calibrated electronic devices. Recording methods must be accurate to within 1/8”

Method for Measuring Pit Percolation Rates

1. On the day of the test, measure the starting water depth and time prior to filling, resulting in a rate for the beginning and end of the pre-soak. Next, fill the test pipe with water to the proposed water inlet depth.
2. Record the falling head rate of fall at 30-minute intervals for 8 readings (4 hours). If rapid rates are occurring at 10-minute intervals or timed rate per inch intervals may be used for calculating percolation rates. Continue to monitor the rate of fall until a consistent rate is established.

Optional Method for Pits

1. If direct absorption rates are being calculated, refilling methods shall be used to maintain the consistent pressure head of a full pit. Soil Absorption methods will need to gauge total amounts of water added per boring surface area wetted, to establish gallons per square foot. Either method is effective and acceptable.
2. The application rates for the sidewall of the seepage pit shall be based on the Tier 1 Table (State Waterboard OWTS Policy) that provides application rate based upon percolation rates. If direct absorption is calculated by the engineer, then the results may be used to calculate the number and sizing of the pits. The rates of multiple test sites covering the pit field may be averaged in inches per hour, before conversion to an overall MPI.
3. Percolation reports shall be provided to the health officer on forms provided or acceptable for recording the field readings. Test locations and legends shall be indicated on the design plans.
4. Minor deviations can occur with percolation test. Depending on the circumstances, these may be considered by the Health Officer for approval.

GROUNDWATER AND SEASONAL WATER TABLE DETERMINATIONS

Background

The EH Land Use Program implements Santa Cruz County Code (SCCC) Sections 7.38.120.B and 7.38.150.B.9 when making determinations of compliance with regard to groundwater separation requirements for proposed onsite sewage disposal systems, including the use of ET systems with reduced groundwater separation. When required by the Health Officer, observation for seasonal high water table in the area of the proposed sewage disposal system must be made during the period of observation approved by the Health Officer.

Observation periods commence when cumulative rainfall during the rainy season reaches 60% of the seasonal average and is maintained as long as 6" of rainfall has occurred within the prior 30-day period. See the procedures for winter water table testing for more information.

Where is WWT Required?

For parcels lacking adequate data and/or when County EH doesn't have adequate knowledge or information about the area or when maps, files, or other sources indicate potential

seasonal high groundwater and/or prolonged near surface soil saturation, Winter Water Testing (WWT) will be required before County EH may proceed with permit application design review. Applicants or their representative are notified of the WWT requirement and are notified in writing when the WWT test period opens. Applicants may request WWT services as a separate Site Evaluation consultation where no sewage disposal permit application has been submitted. Alternatively, the applicant with a "full Site Evaluation" that may include the WWT services if the hours of service have not been exhausted. For all parcels requiring WWT, applicants must submit the completed Site Evaluation forms and fees according to the requirements outlined below.

Procedures

1. Sewage Disposal Proposals Requiring Winter Water Testing

   Sewage disposal proposals must include information on verifiable site soil conditions, duration of saturation of near surface soils (upper 4 feet) and groundwater information adequate to confirm that water table separation requirements are satisfied, and specific dispersal system will function properly. Site testing for groundwater will be required unless the system designer demonstrates to the satisfaction of Environmental Health staff that there is already adequate information regarding the location to determine that groundwater separation requirements can be met. The soil saturation depths must be approved by the County EH prior to installation.

2. Site Evaluation with WWT Service Request

   a. Early application, planning, site work, and preparation are strongly encouraged. All required site work, soils excavations, soils morphology determinations, groundwater piezometer installations and surface saturation port installations should be completed prior to the official WWT start date unless otherwise approved by EH. Locations for testing shall be identified and approved by County EH staff.

   b. Install the piezometers and near surface soil saturation ports before preparing and submitting the WWT Monitoring Plan.

   c. Submit "Site Evaluation" forms, site plans, WWT Monitoring Plans and fees by Jan 1, as set forth in SCCC Section 7.38.120.B unless otherwise approved by EH.

   d. WWT evaluations not submitted on time will cause the septic system application approval to be postponed until the subsequent winter testing periods.

   e. Submit a site plan after WWT testing is completed that clearly indicates the actual location of each piezometer, near surface soil saturation port, and all test-pit excavations.

3. WWT Monitoring Plan

   The WWT Monitoring Plan must minimally include the following elements:

   a. Detailed site plans with piezometer and near surface soil saturation test port locations and development logs (i.e. diameter or hole and pipe intervals/depths of sand, gravel,

bentonite, slotted pipe, etc.)

b. Proposed frequency and duration of monitoring

c. Description of observed test-hole soils profile characteristics:

Note: Soils morphology determinations must be performed by a Qualified Professional formally trained in soils science.

d. Description of near surface soil saturation duration testing methodologies

4. Piezometer Design

a. Piezometers must be installed and constructed in accordance with the above work plan; also see Figure 1 (attached sheet).

b. Piezometers must be constructed with 2” minimum to 4” maximum Schedule 40 PVC, ABS or NDS leach pipe (non-perforated) piping and shall be equipped with threaded end-caps or snugly fitted end-plugs that can be removed by hand.

c. Each piezometer shall be equipped with a minimum functional 1” wide x 12” deep (minimum) annular seal composed of bentonite, concrete or cement grout to prevent infiltration of surface and near surface water from channeling down the annular space of the borehole. Deeper annular seals may be necessary for accurate groundwater level measurements, based on soil conditions.

d. Piezometer casings must extend at least 6 inches above grade and must be slotted at the desired depth below the 12” minimum surface seal depth.

e. Clean gravel or approved sand must be placed to fill the annular space below the seal or as designed in County EH approved WWT Monitoring Plan.

f. Piezometers shall be labeled with permanent ink for identification purposes. A permanent reference mark, from which all water table measures are to be taken, must also be provided along the top edge of each piezometer riser.

g. At the end of the official WWT monitoring period each piezometer will be deconstructed and the remaining bore holes backfilled with clean native material.

5. Piezometer Siting & Installation

a. A minimum of 3 piezometers shall be installed across the area proposed for wastewater dispersal (this means a total of 3 piezometers needed for both the primary and expansion dispersal areas if located in close proximity). The siting must be approved by County EH prior to installation.

b. Additional piezometers may be required by County EH to obtain more accurate or comprehensive groundwater data.

c. An additional array of 3 WWT piezometers may be required if 100% leach field expansion area is not in close proximity.

d. One piezometer will be installed near each end of the proposed dispersal area (including top and bottom portions of sloped dispersal areas); a third piezometer shall be installed centrally within the designated dispersal area. The depth of the piezometer screen or slots shall be greater than: {proposed total trench depth} +2 feet + {groundwater separation requirement set forth in SCCC 7.38.150.B.9: 5' or 8', depending on perc rate and distance to a water body} or {proposed total trench depth} + 2', 3', or 5' if ET is specified. Ex. 2.5' proposed flow w/ 1.5' cover soil, therefore a 4' total trench depth +8' (if well is +250' feet away from septic system and soil is medium perc, 6-30 MPI) = 14 feet piezometer depth.

e. Additional piezometers will be required for depths above each restricting layer, if any are identified, as determined by soils morphology and County EH site observations.

f. WWT for ET and mound systems, where the standard separations are not possible, and groundwater is high must be discussed with County EH staff prior to finalizing of the WWT Monitoring Plan.

6. Near Surface Soil Saturation Testing.

a. In addition to testing for water table depth, additional data shall be obtained to verify that near surface soil saturation will not adversely affect function of the proposed dispersal system. Existing percolation test ports or new test ports can be used for near surface soil saturation duration determination. Existing perc test data and/or new test data may be used for near surface soil saturation testing as long as testing is extended over a time frame that verifies that water either moves through upper soils relatively rapidly (i.e. percolates faster than 30 minutes per inch) and/or does not remain perched over tight soils, in critical dispersal zones, for an extended period of time. Unless County EH determines that adequate information exists, the following testing for saturation will be required. A minimum of 3 near surface soil saturation ports shall be installed across the area proposed for wastewater dispersal (this means a total of 3 ports needed for both the primary and expansion dispersal areas if located in close proximity). Additional ports may be required by County EH to obtain more accurate or comprehensive surface saturation data.

b. An additional 3 WWT near surface soil saturation ports may be required if 100% leach field expansion area is not in close proximity. One near surface soil saturation port will be installed near each end of the proposed dispersal area (including top and bottom portions of sloped dispersal areas) a third port shall be installed centrally within the designated dispersal area. The depth of the ports shall be equal to the proposed total trench depth. Additional ports may be required, as determined by soils morphology and County EH site observations

7. Qualified Professionals Requirement for WWT

WWT data collection, analysis of results, and final reporting must be performed by an independent and currently licensed Qualified Professional (QP); including Registered

Environmental Health Specialists, Soil Scientists, Geotechnical Engineers, Registered Professional Geologists, Soils Engineers ("Soil Engineer" means a state of California Registered Civil Engineer whose field of expertise is soil mechanics), and Registered Civil Engineers. All the above Qualified Professionals must have specialized training/education in present day descriptions and interpretations of soils morphology.

8. Data Analysis & Interpretation

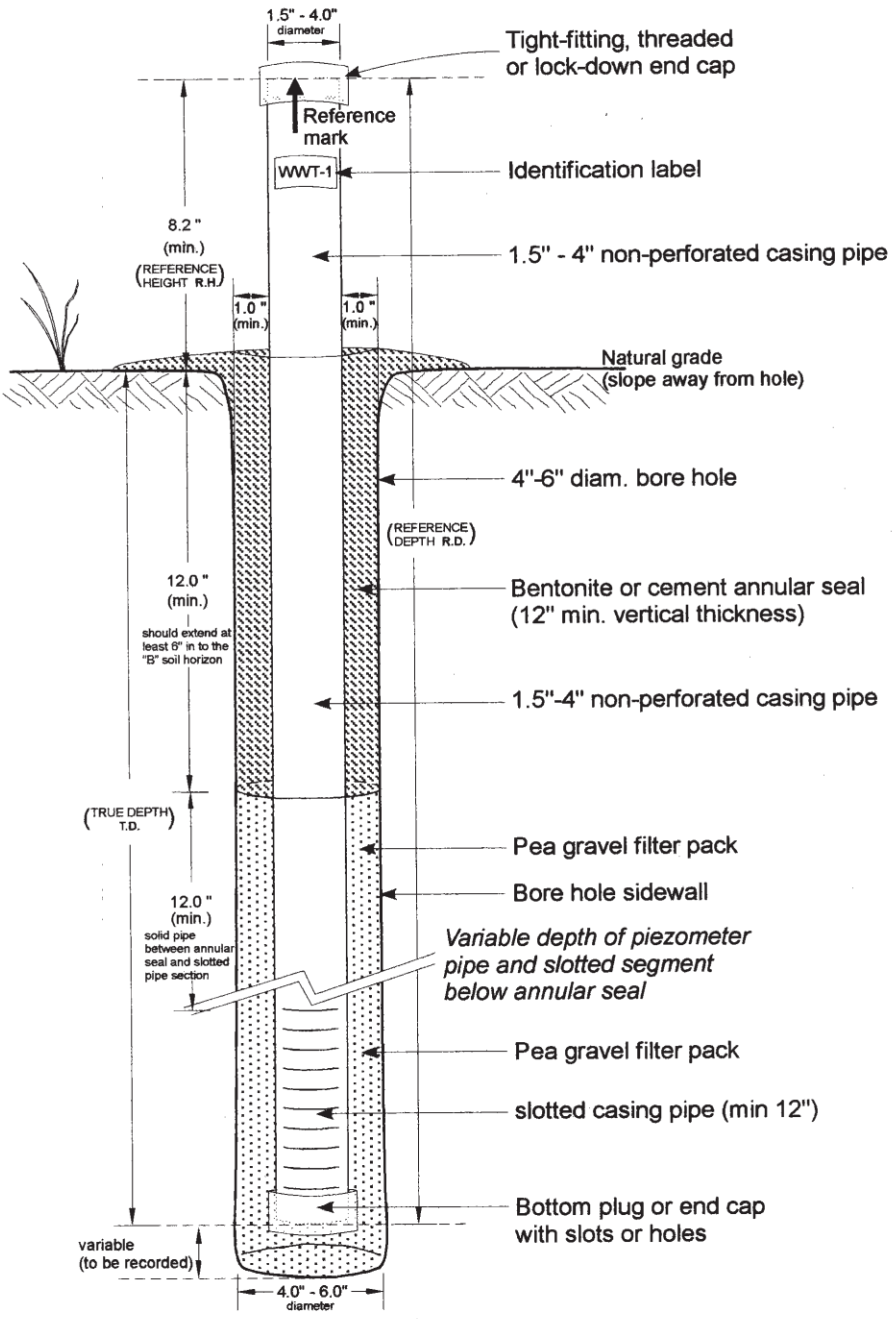
   a. The Qualified Professional shall present a WWT Final Report to County EH on behalf of the applicant wherein all required WWT information outlined above is compiled and results interpreted. The QP shall submit a professional opinion regarding the subject parcel's suitability for sewage disposal and present system design criteria based on site evaluation and WWT findings.

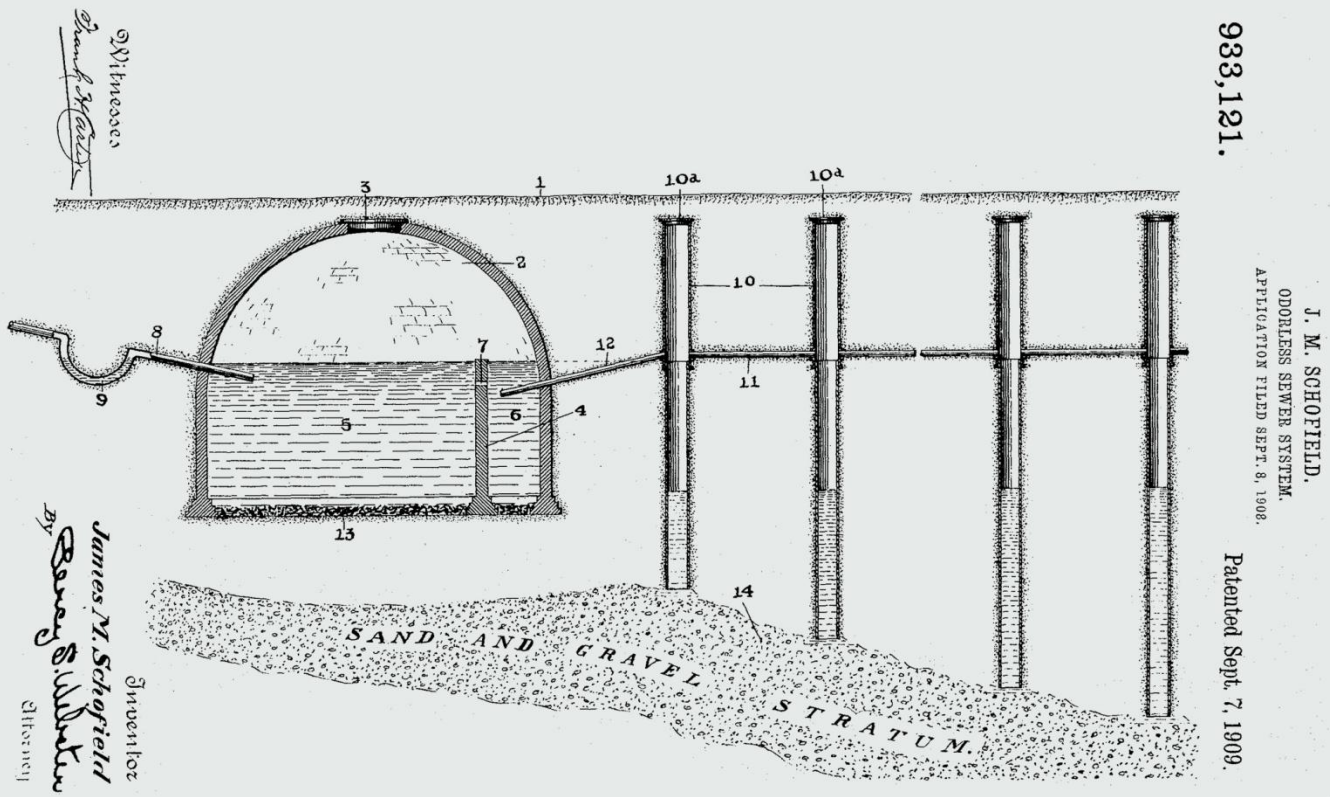
   b. The qualified Professional must report WWT findings to County EH within 90 days after the WWT period terminates, regardless of the final outcome of the study.

   c. Extremely heavy rainfall with high GW readings and near surface soil saturation which appear to be short- lived or brief inundation events should be recorded and reassessed 1-3 days after heavy rains, as set forth in SCCC Section 7.38.120.B. The highest persistent readings will be used as the acknowledged measured depth to seasonal high groundwater and/or near surface soil saturation for disposal system design and permitting purposes.

   d. County EH staff must be scheduled to observe at least one set of piezometer readings and two sets of near surface soil saturation readings (initial reading taken shortly after significant rain and the other showing the time length of near surface soil saturation duration) with the QP present during the WWT testing period.

Figure 1. CROSS SECTION OF TYPICAL GROUNDWATER PIEZOMETER





OWTS POLICY

Water Quality Control Policy for Siting, Design, Operation, and Maintenance of Onsite Wastewater Treatment Systems

June 19, 2012

CALIFORNIA Water Boards

STATE WATER RESOURCES CONTROL BOARD

REGIONAL WATER QUALITY CONTROL BOARDS

State of California
Edmund G. Brown Jr., Governor

California Environmental Protection Agency
Matthew Rodriquez, Secretary

State Water Resources Control Board
http://www.waterboards.ca.gov

Charles R. Hoppin, Chair
Frances Spivy-Weber, Vice Chair
Tam M. Doduc, Member
Steven Moore, Member

Thomas Howard, Executive Director
Jonathan Bishop, Chief Deputy Director
Caren Trgovcich, Chief Deputy Director

Adopted by the State Water Resources Control Board on June 19, 2012
Approved by the Office of Administrative Law on November 13, 2012
Effective Date of the Policy: May 13, 2013

Preamble – Purpose and Scope – Structure of the Policy

Preamble

Onsite wastewater treatment systems (OWTS) are useful and necessary structures that allow habitation at locations that are removed from centralized wastewater treatment systems. When properly sited, designed, operated, and maintained, OWTS treat domestic wastewater to reduce its polluting impact on the environment and most importantly protect public health. Estimates for the number of installations of OWTS in California at the time of this Policy are that more than 1.2 million systems are installed and operating. The vast majority of these are functioning in a satisfactory manner and meeting their intended purpose.

However there have been occasions in California where OWTS for a varied list of reasons have not satisfactorily protected either water quality or public health. Some instances of these failures are related to the OWTS not being able to adequately treat and dispose of waste as a result of poor design or improper site conditions. Others have occurred where the systems are operating as designed but their densities are such that the combined effluent resulting from multiple systems is more than can be assimilated into the environment. From these failures we must learn how to improve our usage of OWTS and prevent such failures from happening again.

As California's population continues to grow, and we see both increased rural housing densities and the building of residences and other structures in more varied terrain than we ever have before, we increase the risks of causing environmental damage and creating public health risks from the use of OWTS. What may have been effective in the past may not continue to be as conditions and circumstances surrounding particular locations change. So necessarily more scrutiny of our installation of OWTS is demanded of all those involved, while maintaining an appropriate balance of only the necessary requirements so that the use of OWTS remains viable.

Purpose and Scope of the Policy

The purpose of this Policy is to allow the continued use of OWTS, while protecting water quality and public health. This Policy recognizes that responsible local agencies can provide the most effective means to manage OWTS on a routine basis. Therefore as an important element, it is the intent of this policy to efficiently utilize and improve upon where necessary existing local programs through coordination between the State and local agencies. To accomplish this purpose, this Policy establishes a statewide, risk-based, tiered approach for the regulation and management of OWTS installations and replacements and sets the level of performance and protection expected from OWTS. In particular, the Policy requires actions for water bodies specifically identified as part this Policy where OWTS contribute to water quality degradation that adversely affect beneficial uses.

This Policy only authorizes subsurface disposal of domestic strength, and in limited instances high strength, wastewater and establishes minimum requirements for the permitting, monitoring, and operation of OWTS for protecting beneficial uses of waters

of the State and preventing or correcting conditions of pollution and nuisance. And finally, this Policy also conditionally waives the requirement for owners of OWTS to apply for and receive Waste Discharge Requirements in order to operate their systems when they meet the conditions set forth in the Policy. Nothing in this Policy supersedes or requires modification of Total Maximum Daily Loads or Basin Plan prohibitions of discharges from OWTS.

This Policy also applies to OWTS on federal, state, and Tribal lands to the extent authorized by law or agreement.

Structure of the Policy

This Policy is structured into ten major parts:

Definitions
Definitions for all the major terms used in this Policy are provided within this part and wherever used in the Policy the definition given here overrides any other possible definition.
[Section 1]

Responsibilities and Duties
Implementation of this Policy involves individual OWTS owners; local agencies, be they counties, cities, or any other subdivision of state government with permitting powers over OWTS; Regional Water Quality Control Boards; and the State Water Resources Control Board.
[Sections 2, 3, 4, and 5]

Tier 0 – Existing OWTS
Existing OWTS that are properly functioning, and do not meet the conditions of failing systems or otherwise require corrective action (for example, to prevent groundwater impairment) as specifically described in Tier 4, and are not determined to be contributing to an impairment of surface water as specifically described in Tier 3, are automatically included in Tier 0.
[Section 6]

Tier 1 – Low-Risk New or Replacement OWTS
New or replacement OWTS that meet low risk siting and design requirements as specified in Tier 1, where there is not an approved Local Agency Management Program per Tier 2.
[Sections 7 and 8]

Tier 2 – Local Agency Management Program for New or Replacement OWTS
California is well known for its extreme range of geological and climatic conditions. As such, the establishment of a single set of criteria for OWTS would either be too restrictive so as to protect for the most sensitive case, or would have broad allowances that would not be protective enough under some circumstances. To accommodate this

Preamble – Purpose and Scope – Structure of the Policy

extreme variance, local agencies may submit management programs ("Local Agency Management Programs") for approval, and upon approval then manage the installation of new and replacement OWTS under that program.

Local Agency Management Programs approved under Tier 2 provide an alternate method from Tier 1 programs to achieve the same policy purpose, which is to protect water quality and public health. In order to address local conditions, Local Agency Management Programs may include standards that differ from the Tier 1 requirements for new and replacement OWTS contained in Sections 7 and 8. As examples, a Local Agency Management Program may authorize different soil characteristics, usage of seepage pits, and different densities for new developments. Once the Local Agency Management Program is approved, new and replacement OWTS that are included within the Local Agency Management Program may be approved by the Local Agency. A Local Agency, at its discretion, may include Tier 1 standards within its Tier 2 Local Agency Management Program for some or all of its jurisdiction. However, once a Local Agency Management Program is approved, it shall supersede Tier 1 and all future OWTS decisions will be governed by the Tier 2 Local Agency Management Program until it is modified, withdrawn, or revoked.
[Section 9]

Tier 3 – Impaired Areas
Existing, new, and replacement OWTS that are near impaired water bodies may be addressed by a TMDL and its implementation program, or special provisions contained in a Local Agency Management Program. If there is no TMDL or special provisions, new or replacement OWTS within 600 feet of impaired water bodies listed in Attachment 2 must meet the specific requirements of Tier 3.
[Section 10]

Tier 4 – OWTS Requiring Corrective Action
OWTS that require corrective action or are either presently failing or fail at any time while this Policy is in effect are automatically included in Tier 4 and must follow the requirements as specified.
[Section 11]

Conditional Waiver of Waste Discharge Requirements
The requirement to submit a report of waste discharge for discharges from OWTS that are in conformance with this policy is waived.
[Section 12]

Effective Date
When this Policy becomes effective.
[Section 13]

Financial Assistance
Procedures for local agencies to apply for funds to establish low interest loan programs for the assistance of OWTS owners in meeting the requirements of this Policy.
[Section 14]

Preamble – Purpose and Scope – Structure of the Policy

Attachment 1
AB 885 Regulatory Program Timelines.

Attachment 2

Tables 4 and 5 specifically identify those impaired water bodies that have Tier 3 requirements and must have a completed TMDL by the date specified.

Attachment 3

Table 6 shows where one Regional Water Board has been designated to review and, if appropriate, approve new Local Agency Management Plans for a local agency that is within multiple Regional Water Boards' jurisdiction.

What Tier Applies to my OWTS?

Existing OWTS that conform to the requirements for Tier 0 will remain in Tier 0 as long as they continue to meet those requirements. An existing OWTS will temporarily move from Tier 0 to Tier 4 if it is determined that corrective action is needed. The existing OWTS will return to Tier 0 once the corrective action is completed if the repair does not qualify as major repair under Tier 4. Any major repairs conducted as corrective action must comply with Tier 1 requirements or Tier 2 requirements, whichever are in effect for that local area. An existing OWTS will move from Tier 0 to Tier 3 if it is adjacent to an impaired water body listed on Attachment 2, or is covered by a TMDL implementation plan.

In areas with no approved Local Agency Management Plan, new and replacement OWTS that conform to the requirements of Tier 1 will remain in Tier 1 as long as they continue to meet those requirements. A new or replacement OWTS will temporarily move from Tier 1 to Tier 4 if it is determined that corrective action is needed. The new or replacement OWTS will return to Tier 1 once the corrective action is completed. A new or replacement OWTS will move from Tier 1 to Tier 3 if it is adjacent to an impaired water body, or is covered by a TMDL implementation plan.

In areas with an approved Local Agency Management Plan, new and replacement OWTS that conform to the requirements of the Tier 2 Local Agency Management Plan will remain in Tier 2 as long as they continue to meet those requirements. A new or replacement OWTS will temporarily move from Tier 2 to Tier 4 if it is determined that corrective action is needed. The new or replacement OWTS will return to Tier 2 once the corrective action is completed. A new or replacement OWTS will move from Tier 2 to Tier 3 if it is adjacent to an impaired water body, or is covered by a TMDL implementation plan, or is covered by special provisions for impaired water bodies contained in a Local Agency Management Program.

Preamble – Purpose and Scope – Structure of the Policy

Existing, new, and replacement OWTS in specified areas adjacent to water bodies that are identified by the State Water Board as impaired for pathogens or nitrogen and listed in Attachment 2 are in Tier 3. Existing, new, and replacement OWTS covered by a TMDL implementation plan, or covered by special provisions for impaired water bodies contained in a Local Agency Management Program are also in Tier 3. These OWTS will temporarily move from Tier 3 to Tier 4 if it is determined that corrective action is needed. The new or replacement OWTS will return to Tier 3 once the corrective action is completed.

Existing, new, and replacement OWTS that do not conform with the requirements to receive coverage under any of the Tiers (e.g., existing OWTS with a projected flow of more than 10,000 gpd) do not qualify for this Policy's conditional waiver of waste discharge requirements, and will be regulated separately by the applicable Regional Water Board.

Definitions

1.0 Definitions. The following definitions apply to this Policy:

"303 (d) list" means the same as "**Impaired Water Bodies.**"

"At-grade system" means an OWTS dispersal system with a discharge point located at the preconstruction grade (ground surface elevation). The discharge from an at-grade system is always subsurface.

"Average annual rainfall" means the average of the annual amount of precipitation for a location over a year as measured by the nearest National Weather Service station for the preceding three decades. For example the data set used to make a determination in 2012 would be the data from 1981 to 2010.

"Basin Plan" means the same as "water quality control plan" as defined in Division 7 (commencing with Section 13000) of the Water Code. Basin Plans are adopted by each Regional Water Board, approved by the State Water Board and the Office of Administrative Law, and identify surface water and groundwater bodies within each Region's boundaries and establish, for each, its respective beneficial uses and water quality objectives. Copies are available from the Regional Water Boards, electronically at each Regional Water Boards website, or at the State Water Board's *Plans and Policies* web page (http://www.waterboards.ca.gov/plans_policies/).

"Bedrock" means the rock, usually solid, that underlies soil or other unconsolidated, surficial material.

"CEDEN" means California Environmental Data Exchange Network and information about it is available at the State Water Boards website or http://www.ceden.org/index.shtml.

"Cesspool" means an excavation in the ground receiving domestic wastewater, designed to retain the organic matter and solids, while allowing the liquids to seep into the soil. Cesspools differ from seepage pits because cesspool systems do not have septic tanks and are not authorized under this Policy. The term cesspool does not include pit-privies and out-houses which are not regulated under this Policy.

"Clay" means a soil particle; the term also refers to a type of soil texture. As a soil particle, clay consists of individual rock or mineral particles in soils having diameters <0.002 mm. As a soil texture, clay is the soil material that is comprised of 40 percent or more clay particles, not more than 45 percent sand and not more than 40 percent silt particles using the USDA soil classification system.

"Cobbles" means rock fragments 76 mm or larger using the USDA soil classification systems.

"Dispersal system" means a leachfield, seepage pit, mound, at-grade, subsurface drip field, evapotranspiration and infiltration bed, or other type of system for final wastewater treatment and subsurface discharge.

Definitions

"Domestic wastewater" means wastewater with a measured strength less then high-strength wastewater and is the type of wastewater normally discharged from, or similar to, that discharged from plumbing fixtures, appliances and other household devices including, but not limited to toilets, bathtubs, showers, laundry facilities, dishwashing facilities, and garbage disposals. Domestic wastewater may include wastewater from commercial buildings such as office buildings, retail stores, and some restaurants, or from industrial facilities where the domestic wastewater is segregated from the industrial wastewater. Domestic wastewater may include incidental RV holding tank dumping but does not include wastewater consisting of a significant portion of RV holding tank wastewater such as at RV dump stations. Domestic wastewater does not include wastewater from industrial processes.

"Dump Station" means a facility intended to receive the discharge of wastewater from a holding tank installed on a recreational vehicle. A dump station does not include a full hook-up sewer connection similar to those used at a recreational vehicle park.

"Domestic well" means a groundwater well that provides water for human consumption and is not regulated by the California Department of Public Health.

"Earthen material" means a substance composed of the earth's crust (i.e. soil and rock).

"EDF" see "electronic deliverable format."

"Effluent" means sewage, water, or other liquid, partially or completely treated or in its natural state, flowing out of a septic tank, aerobic treatment unit, dispersal system, or other OWTS component.

"Electronic deliverable format" or **"EDF"** means the data standard adopted by the State Water Board for submittal of groundwater quality monitoring data to the State Water Board's internet-accessible database system Geotracker (http://geotracker.waterboards.ca.gov/).

"Escherichia coli" means a group of bacteria predominantly inhabiting the intestines of humans or other warm-blooded animals, but also occasionally found elsewhere. Used as an indicator of human fecal contamination.

"Existing OWTS" means an OWTS that was constructed and operating prior to the effective date of this Policy, and OWTS for which a construction permit has been issued prior to the effective date of the Policy.

"Flowing water body" means a body of running water flowing over the earth in a natural water course, where the movement of the water is readily discernible or if water is not present it is apparent from review of the geology that when present it does flow, such as in an ephemeral drainage, creek, stream, or river.

"Groundwater" means water below the land surface that is at or above atmospheric pressure.

Definitions

"High-strength wastewater" means wastewater having a 30-day average concentration of biochemical oxygen demand (BOD) greater than 300 milligrams-per-liter (mg/L) or of total suspended solids (TSS) greater than 330 mg/L or a fats, oil, and grease (FOG) concentration greater than 100 mg/L prior to the septic tank or other OWTS treatment component.

"IAPMO" means the International Association of Plumbing and Mechanical Officials.

"Impaired Water Bodies" means those surface water bodies or segments thereof that are identified on a list approved first by the State Water Board and then approved by US EPA pursuant to Section 303(d) of the federal Clean Water Act.

"Local agency" means any subdivision of state government that has responsibility for permitting the installation of and regulating OWTS within its jurisdictional boundaries; typically a county, city, or special district.

"Major repair" means either: (1) for a dispersal system, repairs required for an OWTS dispersal system due to surfacing wastewater effluent from the dispersal field and/or wastewater backed up into plumbing fixtures because the dispersal system is not able to percolate the design flow of wastewater associated with the structure served, or (2) for a septic tank, repairs required to the tank for a compartment baffle failure or tank structural integrity failure such that either wastewater is exfiltrating or groundwater is infiltrating.

"Mottling" means a soil condition that results from oxidizing or reducing minerals due to soil moisture changes from saturated to unsaturated over time. Mottling is characterized by spots or blotches of different colors or shades of color (grays and reds) interspersed within the dominant color as described by the USDA soil classification system. This soil condition can be indicative of historic seasonal high groundwater level, but the lack of this condition may not demonstrate the absence of groundwater.

"Mound system" means an aboveground dispersal system (covered sand bed with effluent leachfield elevated above original ground surface inside) used to enhance soil treatment, dispersal, and absorption of effluent discharged from an OWTS treatment unit such as a septic tank. Mound systems have a subsurface discharge.

"New OWTS" means an OWTS permitted after the effective date of this Policy.

"NSF" means NSF International (a.k.a. National Sanitation Foundation), a not for profit, non-governmental organization that develops health and safety standards and performs product certification.

"Oil/grease interceptor" means a passive interceptor that has a rate of flow exceeding 50 gallons-per-minute and that is located outside a building. Oil/grease interceptors are used for separating and collecting oil and grease from wastewater.

Definitions

"Onsite wastewater treatment system(s)" (**OWTS**) means individual disposal systems, community collection and disposal systems, and alternative collection and disposal systems that use subsurface disposal. The short form of the term may be singular or plural. OWTS do not include "graywater" systems pursuant to Health and Safety Code Section 17922.12.

"Percolation test" means a method of testing water absorption of the soil. The test is conducted with clean water and test results can be used to establish the dispersal system design.

"Permit" means a document issued by a local agency that allows the installation and use of an OWTS, or waste discharge requirements or a waiver of waste discharge requirements that authorizes discharges from an OWTS.

"Person" means any individual, firm, association, organization, partnership, business trust, corporation, company, State agency or department, or unit of local government who is, or that is, subject to this Policy.

"Pit-privy" (a.k.a. outhouse, pit-toilet) means self-contained waterless toilet used for disposal of non-water carried human waste; consists of a shelter built above a pit in the ground into which human waste falls.

"Policy" means this Policy for Siting, Design, Operation and Management of OWTS.

"Pollutant" means any substance that alters water quality of the waters of the State to a degree that it may potentially affect the beneficial uses of water, as listed in a Basin Plan.

"Projected flows" means wastewater flows into the OWTS determined in accordance with any of the applicable methods for determining average daily flow in the *USEPA Onsite Wastewater Treatment System Manual, 2002,* or for Tier 2 in accordance with an approved Local Agency Management Program.

"Public Water System" is a water system regulated by the California Department of Public Health or a Local Primacy Agency pursuant to Chapter 12, Part 4, California Safe Drinking Water Act, Section 116275 (h) of the California Health and Safety Code.

"Public Water Well" is a ground water well serving a public water system. A spring which is not subject to the California Surface Water Treatment Rule (SWTR), CCR, Title 22, sections 64650 through 64666 is a public well.

"Qualified professional" means an individual licensed or certified by a State of California agency to design OWTS and practice as professionals for other associated reports, as allowed under their license or registration. Depending on the work to be performed and various licensing and registration requirements, this may include an individual who possesses a registered environmental health specialist certificate or is currently licensed as a professional engineer or professional geologist. For the purposes of performing site evaluations, Soil Scientists certified by the Soil Science Society of America are considered qualified professionals. A local agency may modify this definition as part of its Local Agency Management Program.

Definitions

"Regional Water Board" is any of the Regional Water Quality Control Boards designated by Water Code Section 13200. Any reference to an action of the Regional Water Board in this Policy also refers to an action of its Executive Officer, including the conducting of public hearings, pursuant to any general or specific delegation under Water Code Section 13223.

"Replacement OWTS" means an OWTS that has its treatment capacity expanded, or its dispersal system replaced or added onto, after the effective date of this Policy.

"Sand" means a soil particle; this term also refers to a type of soil texture. As a soil particle, sand consists of individual rock or mineral particles in soils having diameters ranging from 0.05 to 2.0 millimeters. As a soil texture, sand is soil that is comprised of 85 percent or more sand particles, with the percentage of silt plus 1.5 times the percentage of clay particles comprising less than 15 percent.

"Seepage pit" means a drilled or dug excavation, three to six feet in diameter, either lined or gravel filled, that receives the effluent discharge from a septic tank or other OWTS treatment unit for dispersal.

"Septic tank" means a watertight, covered receptacle designed for primary treatment of wastewater and constructed to:

1. Receive wastewater discharged from a building;
2. Separate settleable and floating solids from the liquid;
3. Digest organic matter by anaerobic bacterial action;
4. Store digested solids; and
5. Clarify wastewater for further treatment with final subsurface discharge.

"Service provider" means a person capable of operating, monitoring, and maintaining an OWTS in accordance to this Policy.

"Silt" means a soil particle; this term also refers to a type of soil texture. As a soil particle, silt consists of individual rock or mineral particles in soils having diameters ranging from between 0.05 and 0.002 mm. As a soil texture, silt is soil that is comprised as approximately 80 percent or more silt particles and not more than 12 percent clay particles using the USDA soil classification system.

"Single-family dwelling unit" means a structure that is usually occupied by just one household or family and for the purposes of this Policy is expected to generate an average of 250 gallons per day of wastewater.

"Site" means the location of the OWTS and, where applicable, a reserve dispersal area capable of disposing 100 percent of the design flow from all sources the OWTS is intended to serve.

"Site Evaluation" means an assessment of the characteristics of the site sufficient to determine its suitability for an OWTS to meet the requirements of this Policy.

Definitions

"Soil" means the naturally occurring body of porous mineral and organic materials on the land surface, which is composed of unconsolidated materials, including sand-sized, silt-sized, and clay-sized particles mixed with varying amounts of larger fragments and organic material. The various combinations of particles differentiate specific soil textures identified in the soil textural triangle developed by the United States Department of Agriculture (USDA) as found in Soil Survey Staff, USDA; *Soil Survey Manual, Handbook 18,* U.S. Government Printing Office, Washington, DC, 1993, p. 138. For the purposes of this Policy, soil shall contain earthen material of particles smaller than 0.08 inches (2 mm) in size.

"Soil Structure" means the arrangement of primary soil particles into compound particles, peds, or clusters that are separated by natural planes of weakness from adjoining aggregates.

"Soil texture" means the soil class that describes the relative amount of sand, clay, silt and combinations thereof as defined by the classes of the soil textural triangle developed by the USDA (referenced above).

"State Water Board" is the State Water Resources Control Board

"Supplemental treatment" means any OWTS or component of an OWTS, except a septic tank or dosing tank, that performs additional wastewater treatment so that the effluent meets a predetermined performance requirement prior to discharge of effluent into the dispersal field.

"SWAMP" means Surface Water Ambient Monitoring Program and more information is available at: http://www.waterboards.ca.gov/water_issues/programs/swamp/

"Telemetric" means the ability to automatically measure and transmit OWTS data by wire, radio, or other means.

"TMDL" is the acronym for "total maximum daily load." Section 303(d)(1) of the Clean Water Act requires each State to establish a TMDL for each impaired water body to address the pollutant(s) causing the impairment. In California, TMDLs are usually adopted as Basin Plan amendments and contain implementation plans detailing how water quality standards will be attained.

"Total coliform" means a group of bacteria consisting of several *genera* belonging to the family *Enterobacteriaceae*, which includes Escherichia coli bacteria.

"USDA" means the U.S. Department of Agriculture.

"Waste discharge requirement" or **"WDR"** means an operation and discharge permit issued for the discharge of waste pursuant to Section 13260 of the California Water Code.

Responsibilities and Duties

Responsibilities and Duties

2.0 OWTS Owners Responsibilities and Duties

2.1 All new, replacement, or existing OWTS within an area that is subject to a Basin Plan prohibition of discharges from OWTS, must comply with the prohibition. If the prohibition authorizes discharges under specified conditions, the discharge must comply with those conditions and the applicable provisions of this Policy.

2.2 Owners of OWTS shall adhere to the requirements prescribed in local codes and ordinances. Owners of new and replacement OWTS covered by this Policy shall also meet the minimum standards contained in Tier 1, or an alternate standard provided by a Local Agency Management Program per Tier 2, or shall comply with the requirements of Tier 3 if near an impaired water body and subject to Tier 3, or shall provide corrective action for their OWTS if their system meets conditions that place it in Tier 4.

2.3 Owners of OWTS shall comply with any and all permitting conditions imposed by a local agency that do not directly conflict with this Policy, including any conditions that are more stringent than required by this Policy.

2.4 To receive coverage under this Policy and the included waiver of waste discharges, OWTS shall only accept and treat flows of domestic wastewater. In addition, OWTS that accept high-strength wastewater from commercial food service buildings are covered under this Policy and the waiver of waste discharge requirements if the wastewater does not exceed 900 mg/L BOD and there is a properly sized and functioning oil/grease interceptor (a.k.a grease trap).

2.5 Owners of OWTS shall maintain their OWTS in good working condition including inspections and pumping of solids as necessary, or as required by local ordinances, to maintain proper function and assure adequate treatment.

2.6 The following owners of OWTS shall notify the Regional Water Board by submitting a Report of Waste Discharge for the following:

2.6.1 a new or replacement OWTS that does not meet the conditions and requirements set forth in either a Local Agency Management Program if one is approved, an existing local program if it is less than 60 months from the effective date of the Policy and a Local Agency Management Program is not yet approved, or Tier 1 if no Local Agency Management Program has been approved and it is more than 60 months after the effective date of this Policy;

2.6.2 any OWTS, not under individual waste discharge requirements or a waiver of individual waste discharge requirements issued by a Regional Water Board, with the projected flow of over 10,000 gallons-per-day;

2.6.3 any OWTS that receives high-strength wastewater, unless the waste stream is from a commercial food service building;

2.6.4 any OWTS that receives high-strength wastewater from a commercial food service building: (1) with a BOD higher than 900 mg/L, or (2) that does not have a properly sized and functioning oil/grease interceptor.

2.7 All Reports of Waste Discharge shall be accompanied by the required application fee pursuant to California Code of Regulations, title 23, section 2200.

3.0 Local Agency Requirements and Responsibilities

3.1 Local agencies, in addition to implementing their own local codes and ordinances, shall determine whether the requirements within their local jurisdiction will be limited to the water quality protection afforded by the statewide minimum standards in Tier 0, Tier 1, Tier 3, and Tier 4, or whether the local agency will implement a Local Agency Management Program in accordance with Tier 2. Except for Tier 3, local agencies may continue to implement their existing OWTS permitting programs in compliance with the Basin Plan in place at the effective date of the Policy until 60 months after the effective date of this Policy, or approval of a Local Agency Management Program, whichever comes first, and may make minor adjustments as necessary that are in compliance with the applicable Basin Plan and this Policy. Tier 3 requirements take effect on the effective date of this Policy. In the absence of a Tier 2 Local Agency Management Program, to the extent that there is a direct conflict between the applicable minimum standards and the local codes or ordinances (such that it is impossible to comply with both the applicable minimum standards and the local ordinances or codes), the more restrictive standards shall govern.

3.2 If preferred, the local agency may at any time provide the State Water Board and all affected Regional Water Board(s) written notice of its intent to regulate OWTS using a Local Agency Management Program with alternative standards as authorized in Tier 2 of this Policy. A proposed Local Agency Management Program that conforms to the requirements of that Section shall be included with the notice. A local agency shall not implement a program different than the minimum standards contained in Tier 1 and 3 of this Policy after 60 months from the effective date of this Policy until approval of the proposed Local Agency Management Program is granted by either the Regional Water Board or State Water Board. All initial program submittals desiring approval prior to the 60 month limit shall be received no later than 36 months from the effective date of this Policy. Once approved, the local agency shall adhere to the Local Agency Management Program, including all requirements, monitoring, and reporting. If at any time a local agency wishes to modify its Local Agency Management Program, it shall provide the State Water Board and all affected Regional Water Board(s) written notice of its intended modifications and will continue to implement its existing Local Agency Management Program until the modifications are approved.

Responsibilities and Duties

3.3 All local agencies permitting OWTS shall report annually to the Regional Water Board(s). If a local agency's jurisdictional area is within the boundary of multiple Regional Water Boards, the local agency shall send a copy of the annual report to each Regional Water Board. The annual report shall include the following information (organized in a tabular spreadsheet format) and summarize whether any further actions are warranted to protect water quality or public health:

3.3.1 number and location of complaints pertaining to OWTS operation and maintenance, and identification of those which were investigated and how they were resolved;

3.3.2 shall provide the applications and registrations issued as part of the local septic tank cleaning registration program pursuant to Section 117400 et seq. of the California Health and Safety Code;

3.3.3 number, location, and description of permits issued for new and replacement OWTS and which Tier the permit is issued.

3.4 All local agencies permitting OWTS shall retain permanent records of their permitting actions and will make those records available within 10 working days upon written request for review by a Regional Water Board. The records for each permit shall reference the Tier under which the permit was issued.

3.5 A local agency shall notify the owner of a public well or water intake and the California Department of Public Health as soon as practicable, but not later than 72 hours, upon its discovery of a failing OWTS as described in sections 11.1 and 11.2 within the setbacks described in sections 7.5.6 through 7.5.10.

3.6 A local agency may implement this Policy, or a portion thereof, using its local authority to enforce the policy, as authorized by an approval from the State Water Board or by the appropriate Regional Water Board.

3.7 Nothing in the Policy shall preclude a local agency from adopting or retaining standards for OWTS in an approved Local Agency Management Program that are more protective of the public health or the environment than are contained in this Policy.

3.8 If at any time a local agency wishes to withdraw its previously submitted and approved Tier 2 Local Agency Management Program, it may do so upon 60 days written notice. The notice of withdrawal shall specify the reason for withdrawing its Tier 2 program, the effective date for cessation of the program and resumption of permitting of OWTS only under Tiers 1, 3, and 4.

4.0 Regional Water Board Functions and Duties

4.1 The Regional Water Boards have the principal responsibility for overseeing the implementation of this Policy.

4.2 Regional Water Boards shall incorporate the requirements established in this Policy by amending their Basin Plans within 12 months of the effective date of this Policy, pursuant to Water Code Section 13291(e). The Regional Water

Responsibilities and Duties

Boards may also consider whether it is necessary and appropriate to retain or adopt any more protective standards. To the extent that a Regional Water Board determines that it is necessary and appropriate to retain or adopt any more protective standards, it shall reconcile those region-specific standards with this Policy to the extent feasible, and shall provide a detailed basis for its determination that each of the more protective standards is necessary and appropriate.

4.2.1 Notwithstanding 4.2 above, the North Coast Regional Water Board will continue to implement its existing Basin Plan requirements pertaining to OWTS within the Russian River watershed until it adopts the Russian River TMDL, at which time it will comply with section 4.2 for the Russian River watershed.

4.3 The Regional Water Board designated in Attachment 3 shall review, and if appropriate, approve a Local Agency Management Program submitted by the local agency pursuant to Tier 2 in this Policy. Upon receipt of a proposed Local Agency Management Program, the Regional Water Board designated in Attachment 3 shall have 90 days to notify the local agency whether the submittal contains all the elements of a Tier 2 program, but may request additional information based on review of the proposed program. Approval must follow a noticed hearing with opportunity for public comment. If a Local Agency Management Program is disapproved, the Regional Water Board designated in Attachment 3 shall provide a written explanation of the reasons for the disapproval. A Regional Water Board may approve a Local Agency Management Program while disapproving any proposed special provisions for impaired water bodies contained in the Local Agency Management Program. If no action is taken by the respective Regional Water Board within 12 months of the submission date of a complete Local Agency Management Program, the program shall be forwarded to the State Water Board for review and approval pursuant to Section 5 of this Policy.

4.3.1 Where the local agency's jurisdiction lies within more than one Regional Water Board, staff from the affected Regional Water Boards shall work cooperatively to assure that water quality protection in each region is adequately protected. If the Regional Water Board designated in Attachment 3 approves the Local Agency Management Program over the written objection of an affected Regional Water Board, that Regional Water Board may submit the dispute to the State Water Board under Section 5.3.

4.3.2 Within 30 days of receipt of a proposed Local Agency Management Program, a Regional Water Board will forward a copy to and solicit comments from the California Department of Public Health regarding a Local Agency Management Program's proposed policies and procedures, including notification to local water purveyors prior to OWTS permitting.

4.4 Once a Local Agency Management Program has been approved, any affected Regional Water Board may require modifications or revoke authorization of a local agency to implement a Tier 2 program, in accordance with the following:

Responsibilities and Duties

4.4.1 The Regional Water Board shall consult with any other Regional Water Board(s) having jurisdiction over the local agency before providing the notice described in section 4.4.2.

4.4.2 Written notice shall be provided to the local agency detailing the Regional Water Board's action, the cause for such action, remedies to prevent the action from continuing to completion, and appeal process and rights. The local agency shall have 90 days from the date of the written notice to respond with a corrective action plan to address the areas of non-compliance, or to request the Regional Water Board to reconsider its findings.

4.4.3 The Regional Water Board shall approve, approve conditionally, or deny a corrective action plan within 90 days of receipt. The local agency will have 90 days to begin implementation of a corrective action plan from the date of approval or 60 days to request reconsideration from the date of denial. If the local agency fails to submit an acceptable corrective action plan, fails to implement an approved corrective action plan, or request reconsideration, the Regional Water Board may require modifications to the Local Agency Management Program, or may revoke the local agency's authorization to implement a Tier 2 program.

4.4.4 Requests for reconsideration by the local agency shall be decided by the Regional Water Board within 90 days and the previously approved Local Agency Management Program shall remain in effect while the reconsideration is pending.

4.4.5 If the request for reconsideration is denied, the local agency may appeal to the State Water Board and the previously approved Local Agency Management Program shall remain in effect while the appeal is under consideration. The State Water Board shall decide the appeal within 90 days. All decisions of the State Water Board are final.

4.5 The appropriate Regional Water Board shall accept and consider any requests for modification or revocation of a Local Agency Management Program submitted by any person. The Regional Water Board will notify the person making the request and the local agency implementing the Local Agency Management Program at issue by letter within 90 days whether it intends to proceed with the modification or revocation process per Section 4.4 above, or is dismissing the request. The Regional Water Board will post the request and its response letter on its website.

4.6 A Regional Water Board may issue or deny waste discharge requirements or waivers of waste discharge requirements for any new or replacement OWTS within a jurisdiction of a local agency without an approved Local Agency Management Program if that OWTS does not meet the minimum standards contained in Tier 1.

4.7 The Regional Water Boards will implement any notifications and enforcement requirements for OWTS determined to be in Tier 3 of this Policy.

Responsibilities and Duties

4.8 Regional Water Boards may adopt waste discharge requirements, or conditional waivers of waste discharge requirements, that exempt individual OWTS from requirements contained in this Policy.

5.0 State Water Board Functions and Duties

5.1 As the state agency charged with the development and adoption of this Policy, the State Water Board shall periodically review, amend and/or update this Policy as required.

5.2 The State Water Board may take any action assigned to the Regional Water Boards in this Policy.

5.3 The State Water Board shall resolve disputes between Regional Water Boards and local agencies as needed within 12 months of receiving such a request by a Regional Water Board or local agency, and may take action on its own motion in furtherance of this Policy. As part of this function, the State Water Board shall review and, if appropriate, approve Local Agency Management Programs in cases where the respective Regional Water Board has failed to consider for approval a Local Agency Management Program. The State Water Board shall approve Local Agency Management Programs at a regularly noticed board hearing and shall provide for public participation, including notice and opportunity for public comment. Once taken up by the State Water Board, Local Agency Management Programs shall be approved or denied within 180 days.

5.4 A member of the public may request the State Water Board to resolve any dispute regarding the Regional Water Board's approval of a Local Agency Management Program if the member of the public timely raised the disputed issue before the Regional Water Board. Such requests shall be submitted within 30 days after the Regional Water Board's approval of the Local Agency Management Program. The State Water Board shall notify the member of the public, the local agency, and the Regional Water Board within 90 days whether it intends to proceed with dispute resolution.

5.5 The State Water Board shall accept and consider any requests for modification or revocation of a Local Agency Management Program submitted by any person, where that person has previously submitted said request to the Regional Water Board and has received notice from the Regional Water Board of its dismissal of the request. The State Water Board will notify the person making the request and the local agency implementing the Local Agency Management Program at issue by letter within 90 days whether it intends to proceed with the modification or revocation process per Section 4.4 above, or is dismissing the request. The State Water Board will post the request and its response letter on its website.

5.6 The State Water Board or its Executive Director, after approving any Impaired Water Bodies [303 (d)] List, and for the purpose of implementing Tier 3 of this Policy, shall update Attachment 2 to identify those water bodies where: (1) it is likely that operating OWTS will subsequently be determined to be a contributing

source of pathogens or nitrogen and therefore it is anticipated that OWTS would receive a loading reduction, and (2) it is likely that new OWTS installations discharging within 600 feet of the water body would contribute to the impairment. This identification shall be based on information available at the time of 303 (d) listing and may be further updated based on new information. Updates to Attachment 2 will be processed as amendments to this Policy.

5.7 The State Water Board will make available to local agencies funds from its Clean Water State Revolving Fund loan program for mini-loan programs to be operated by the local agencies for the making of low interest loans to assist private property owners with complying with this Policy.

Tier 0 – Existing OWTS

Existing OWTS that are properly functioning and do not meet the conditions of failing systems or otherwise require corrective action (for example, to prevent groundwater impairment) as specifically described in Tier 4, and are not determined to be contributing to an impairment of surface water as specifically described in Tier 3, are automatically included in Tier 0.

6.0 Coverage for Properly Operating Existing OWTS

6.1 Existing OWTS are automatically covered by Tier 0 and the herein included waiver of waste discharge requirements if they meet the following requirements:

6.1.1 have a projected flow of 10,000 gallons-per-day or less;

6.1.2 receive only domestic wastewater from residential or commercial buildings, or high-strength wastewater from commercial food service buildings that does not exceed 900 mg/L BOD and has a properly sized and functioning oil/grease interceptor (a.k.a. grease trap);

6.1.3 continue to comply with any previously imposed permitting conditions;

6.1.4 do not require supplemental treatment under Tier 3;

6.1.5 do not require corrective action under Tier 4; and

6.1.6 do not consist of a cesspool as a means of wastewater disposal.

6.2 A Regional Water Board or local agency may deny coverage under this Policy to any OWTS that is:

6.2.1 Not in compliance with Section 6.1;

6.2.2 Not able to adequately protect the water quality of the waters of the State, as determined by the Regional Water Board after considering any input from the local agency. A Regional Water Board may require the submission of a report of waste discharge to receive Region specific waste discharge requirements or waiver of waste discharge requirements so as to be protective.

6.3 Existing OWTS currently under waste discharge requirements or individual waiver of waste discharge requirements will remain under those orders until notified in writing by the appropriate Regional Water Board that they are covered under this Policy.

Tier 1 – Low Risk New or Replacement OWTS

Tier 1 – Low Risk New or Replacement OWTS

New or replacement OWTS meet low risk siting and design requirements as specified in Tier 1, where there is not an approved Local Agency Management Program per Tier 2.

7.0 Minimum Site Evaluation and Siting Standards

7.1 A qualified professional shall perform all necessary soil and site evaluations for all new OWTS and for existing OWTS where the treatment or dispersal system will be replaced or expanded.

7.2 A site evaluation shall determine that adequate soil depth is present in the dispersal area. Soil depth is measured vertically to the point where bedrock, hardpan, impermeable soils, or saturated soils are encountered or an adequate depth has been determined. Soil depth shall be determined through the use of soil profile(s) in the dispersal area and the designated dispersal system replacement area, as viewed in excavations exposing the soil profiles in representative areas, unless the local agency has determined through historical or regional information that a specific site soil profile evaluation is unwarranted.

7.3 A site evaluation shall determine whether the anticipated highest level of groundwater within the dispersal field and its required minimum dispersal zone is not less than prescribed in Table 2 by estimation using one or a combination of the following methods:

7.3.1 Direct observation of the highest extent of soil mottling observed in the examination of soil profiles, recognizing that soil mottling is not always an indicator of the uppermost extent of high groundwater; or

7.3.2 Direct observation of groundwater levels during the anticipated period of high groundwater. Methods for groundwater monitoring and determinations shall be decided by the local agency; or

7.3.3 Other methods, such as historical records, acceptable to the local agency.

7.3.4 Where a conflict in the above methods of examination exists, the direct observation method indicating the highest level shall govern.

7.4 Percolation test results in the effluent disposal area shall not be faster than one minute per inch (1 MPI) or slower than one hundred twenty minutes per inch (120 MPI). All percolation test rates shall be performed by presoaking of percolation test holes and continuing the test until a stabilized rate is achieved.

7.5 Minimum horizontal setbacks from any OWTS treatment component and dispersal systems shall be as follows:

7.5.1 5 feet from parcel property lines and structures;

7.5.2 100 feet from water wells and monitoring wells, unless regulatory or legitimate data requirements necessitate that monitoring wells be located closer;

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7.5.3 100 feet from any unstable land mass or any areas subject to earth slides identified by a registered engineer or registered geologist; other setback distance are allowed, if recommended by a geotechnical report prepared by a qualified professional.

7.5.4 100 feet from springs and flowing surface water bodies where the edge of that water body is the natural or levied bank for creeks and rivers, or may be less where site conditions prevent migration of wastewater to the water body;

7.5.5 200 feet from vernal pools, wetlands, lakes, ponds, or other surface water bodies where the edge of that water body is the high water mark for lakes and reservoirs, and the mean high tide line for tidally influenced water bodies;

7.5.6 150 feet from a public water well where the depth of the effluent dispersal system does not exceed 10 feet;

7.5.7 Where the effluent dispersal system is within 1,200 feet from a public water systems' surface water intake point, within the catchment of the drainage, and located such that it may impact water quality at the intake point such as upstream of the intake point for flowing water bodies, the dispersal system shall be no less than 400 feet from the high water mark of the reservoir, lake or flowing water body.

7.5.8 Where the effluent dispersal system is located more than 1,200 feet but less than 2,500 feet from a public water systems' surface water intake point, within the catchment of the drainage, and located such that it may impact water quality at the intake point such as upstream of the intake point for flowing water bodies, the dispersal system shall be no less than 200 feet from the high water mark of the reservoir, lake or flowing water body.

7.6 Prior to issuing a permit to install an OWTS the permitting agency shall determine if the OWTS is within 1,200 feet of an intake point for a surface water treatment plant for drinking water, is in the drainage catchment in which the intake point is located, and located such that it may impact water quality at the intake point such as being upstream of the intake point for a flowing water body. If the OWTS is within 1,200 feet of an intake point for a surface water treatment plant for drinking water, is in the drainage catchment in which the intake point is located, and is located such that it may impact water quality at the intake point:

7.6.1 The permitting agency shall provide a copy of the permit application to the owner of the water system of their proposal to install an OWTS within 1,200 feet of an intake point for a surface water treatment. If the owner of the water system cannot be identified, then the permitting agency will notify California Department of Public Health Drinking Water Program.

7.6.2 The permit application shall include a topographical plot plan for the parcel showing the OWTS components, the property boundaries, proposed structures, physical address, and name of property owner.

7.6.3 The permit application shall provide the estimated wastewater flows, intended use of proposed structure generating the wastewater, soil data, and estimated depth to seasonally saturated soils.

7.6.4 The public water system owner shall have 15 days from receipt of the permit application to provide recommendations and comments to the permitting agency.

7.7 Natural ground slope in all areas used for effluent disposal shall not be greater than 25 percent.

7.8 The average density for any subdivision of property made by Tentative Approval pursuant to the Subdivision Map Act occurring after the effective date of this Policy and implemented under Tier 1 shall not exceed the allowable density values in Table 1 for a single-family dwelling unit, or its equivalent, for those units that rely on OWTS.

Table 1: Allowable Average Densities per Subdivision under Tier 1.

Average Annual Rainfall (in/yr)	Allowable Density (acres/single family dwelling unit)
0 - 15	2.5
>15 - 20	2
>20 - 25	1.5
>25 - 35	1
>35 - 40	0.75
>40	0.5

8.0 Minimum OWTS Design and Construction Standards

8.1 OWTS Design Requirements

8.1.1 A qualified professional shall design all new OWTS and modifications to existing OWTS where the treatment or dispersal system will be replaced or expanded. A qualified professional employed by a local agency, while acting in that capacity, may design, review, and approve a design for a proposed OWTS, if authorized by the local agency.

8.1.2 OWTS shall be located, designed, and constructed in a manner to ensure that effluent does not surface at any time, and that percolation of effluent will not adversely affect beneficial uses of waters of the State.

8.1.3 The design of new and replacement OWTS shall be based on the expected influent wastewater quality with a projected flow not to exceed 3,500 gallons per day, the peak wastewater flow rates for purposes of sizing hydraulic components, the projected average daily flow for purposes of sizing the dispersal system, the characteristics of the site, and the required level of treatment for protection of water quality and public health.

Tier 1 – Low Risk New or Replacement OWTS

8.1.4 All dispersal systems shall have at least twelve (12) inches of soil cover, except for pressure distribution systems, which must have at least six (6) inches of soil cover.

8.1.5 The minimum depth to the anticipated highest level of groundwater below the bottom of the leaching trench, and the native soil depth immediately below the leaching trench, shall not be less than prescribed in Table 2.

Table 2: Tier 1 Minimum Depths to Groundwater and Minimum Soil Depth from the Bottom of the Dispersal System

Percolation Rate	Minimum Depth
Percolation Rate ≤1 MPI	Only as authorized in a Tier 2 Local Agency Management Program
1 MPI< Percolation Rate ≤ 5 MPI	Twenty (20) feet
5 MPI< Percolation Rate ≤ 30 MPI	Eight (8) feet
30 MPI< Percolation Rate ≤ 120 MPI	Five (5) feet
Percolation Rate > 120 MPI	Only as authorized in a Tier 2 Local Agency Management Program
MPI = minutes per inch	

8.1.6 Dispersal systems shall be a leachfield, designed using not more than 4 square-feet of infiltrative area per linear foot of trench as the infiltrative surface, and with trench width no wider than 3 feet. Seepage pits and other dispersal systems may only be authorized for repairs where siting limitations require a variance. Maximum application rates shall be determined from stabilized percolation rate as provided in Table 3, or from soil texture and structure determination as provided in Table 4.

8.1.7 Dispersal systems shall not exceed a maximum depth of 10 feet as measured from the ground surface to the bottom of the trench.

Tier 1 – Low Risk New or Replacement OWTS

Table 3: Application Rates as Determined from Stabilized Percolation Rate

Percolation Rate (minutes per Inch)	Application Rate (gallons per day per square foot)		Percolation Rate (minutes per Inch)	Application Rate (gallons per day per square foot)		Percolation Rate (minutes per Inch)	Application Rate (gallons per day per square foot)
<1	Requires Local Manage-ment Program		31	0.522		61	0.197
1	1.2		32	0.511		62	0.194
2	1.2		33	0.5		63	0.19
3	1.2		34	0.489		64	0.187
4	1.2		35	0.478		65	0.184
5	1.2		36	0.467		66	0.18
6	0.8		37	0.456		67	0.177
7	0.8		38	0.445		68	0.174
8	0.8		39	0.434		69	0.17
9	0.8		40	0.422		70	0.167
10	0.8		41	0.411		71	0.164
11	0.786		42	0.4		72	0.16
12	0.771		43	0.389		73	0.157
13	0.757		44	0.378		74	0.154
14	0.743		45	0.367		75	0.15
15	0.729		46	0.356		76	0.147
16	0.714		47	0.345		77	0.144
17	0.7		48	0.334		78	0.14
18	0.686		49	0.323		79	0.137
19	0.671		50	0.311		80	0.133
20	0.657		51	0.3		81	0.13
21	0.643		52	0.289		82	0.127
22	0.629		53	0.278		83	0.123
23	0.614		54	0.267		84	0.12
24	0.6		55	0.256		85	0.117
25	0.589		56	0.245		86	0.113
26	0.578		57	0.234		87	0.11
27	0.567		58	0.223		88	0.107
28	0.556		59	0.212		89	0.103
29	0.545		60	0.2		90	0.1
30	0.533					>90 - 120	0.1

Tier 1 – Low Risk New or Replacement OWTS

Table 4: Design Soil Application Rates

(Source: USEPA Onsite Wastewater Treatment Systems Manual, February 2002)

Soil Texture (per the USDA soil classification system)	Soil Structure Shape	Grade	Maximum Soil Application Rate(gallons per day per square foot) [1]
Coarse Sand, Sand, Loamy Coarse Sand, Loamy Sand	Single grain	Structureless	0.8
Fine Sand, Very Fine Sand, Loamy Fine Sand, Loamy Very Fine Sand	Single grain	Structureless	0.4
Coarse Sandy Loam, Sandy Loam	Massive	Structureless	0.2
	Platy	Weak	0.2
		Moderate, Strong	Prohibited
	Prismatic, Blocky, Granular	Weak	0.4
		Moderate, Strong	0.6
Fine Sandy Loam, very fine Sandy Loam	Massive	Structureless	0.2
	Platy	Weak, Moderate, Strong	Prohibited
	Prismatic, Blocky, Granular	Weak	0.2
		Moderate, Strong	0.4
Loam	Massive	Structureless	0.2
	Platy	Weak, Moderate, Strong	Prohibited
	Prismatic, Blocky, Granular	Weak	0.4
		Moderate, Strong	0.6
Silt Loam	Massive	Structureless	Prohibited
	Platy	Weak, Moderate, Strong	Prohibited
	Prismatic, Blocky, Granular	Weak	0.4
		Moderate, Strong	0.6
Sandy Clay Loam, Clay Loam, Silty Clay Loam	Massive	Structureless	Prohibited
	Platy	Weak, Moderate, Strong	Prohibited
	Prismatic, Blocky, Granular	Weak	0.2
		Moderate, Strong	0.4
Sandy Clay, Clay, or Silty Clay	Massive	Structureless	Prohibited
	Platy	Weak, Moderate, Strong	Prohibited
	Prismatic, Blocky, Granular	Weak	Prohibited
		Moderate, Strong	0.2

[1] Soils listed as prohibited may be allowed under the authority of the Regional Water Board, or as allowed under an approved Local Agency Management Program per Tier 2.

Tier 1 – Low Risk New or Replacement OWTS

8.1.8 All new dispersal systems shall have 100 percent replacement area that is equivalent and separate, and available for future use.

8.1.9 No dispersal systems or replacement areas shall be covered by an impermeable surface, such as paving, building foundation slabs, plastic sheeting, or any other material that prevents oxygen transfer to the soil.

8.1.10 Rock fragment content of native soil surrounding the dispersal system shall not exceed 50 percent by volume for rock fragments sized as cobbles or larger and shall be estimated using either the point-count or line-intercept methods.

8.1.11 Increased allowance for IAPMO certified dispersal systems is not allowed under Tier 1.

8.2 OWTS Construction and Installation

8.2.1 All new or replacement septic tanks and new or replacement oil/grease interceptor tanks shall comply with the standards contained in Sections K5(b), K5(c), K5(d), K5(e), K5(k), K5(m)(1), and K5(m)(3)(ii) of Appendix K, of Part 5, Title 24 of the 2007 California Code of Regulations.

8.2.2 All new septic tanks shall comply with the following requirements:

8.2.2.1 Access openings shall have watertight risers, the tops of which shall be set at most 6 inches below finished grade; and

8.2.2.2 Access openings at grade or above shall be locked or secured to prevent unauthorized access.

8.2.3 New and replacement OWTS septic tanks shall be limited to those approved by the International Association of Plumbing and Mechanical Officials (IAPMO) or stamped and certified by a California registered civil engineer as meeting the industry standards, and their installation shall be according to the manufacturer’s instructions.

8.2.4 New and replacement OWTS septic tanks shall be designed to prevent solids in excess of three-sixteenths (3/16) of an inch in diameter from passing to the dispersal system. Septic tanks that use a National Sanitation Foundation/American National Standard Institute (NSF/ANSI) Standard 46 certified septic tank filter at the final point of effluent discharge from the OWTS and prior to the dispersal system shall be deemed in compliance with this requirement.

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8.2.5 A Licensed General Engineering Contractor (Class A), General Building Contractor (Class B), Sanitation System Contractor (Specialty Class C-42), or Plumbing Contractor (Specialty Class C-36) shall install all new OWTS and replacement OWTS in accordance with California Business and Professions Code Sections 7056, 7057, and 7058 and Article 3, Division 8, Title 16 of the California Code of Regulations. A property owner may also install his/her own OWTS if the as-built diagram and the installation are inspected and approved by the Regional Water Board or local agency at a time when the OWTS is in an open condition (not covered by soil and exposed for inspection).

Tier 2 – Local Agency OWTS Management Program

Tier 2 – Local Agency OWTS Management Program

Local agencies may submit management programs for approval, and upon approval then manage the installation of new and replacement OWTS under that program. Local Agency Management Programs approved under Tier 2 provide an alternate method from Tier 1 programs to achieve the same policy purpose, which is to protect water quality and public health. In order to address local conditions, Local Agency Management Programs may include standards that differ from the Tier 1 requirements for new and replacement OWTS contained in Sections 7 and 8. As examples, a Local Agency Management Program may authorize different soil characteristics, usage of seepage pits, and different densities for new developments. Once the Local Agency Management Program is approved, new and replacement OWTS that are included within the Local Agency Management Program may be approved by the Local Agency. A Local Agency, at its discretion, may include Tier 1 standards within its Tier 2 Local Agency Management Program for some or all of its jurisdiction. However, once a Local Agency Management Program is approved, it shall supersede Tier 1 and all future OWTS decisions will be governed by the Tier 2 Local Agency Management Program until it is modified, withdrawn, or revoked.

9.0 Local Agency Management Program for Minimum OWTS Standards

The Local Agency Management Program for minimum OWTS Standards is a management program where local agencies can establish minimum standards that are differing requirements from those specified in Tier 1 (Section 7 and Section 8), including the areas that do not meet those minimum standards and still achieve this Policy's purpose. Local Agency Management Programs may include any one or combination of the following to achieve this purpose:

- Differing system design requirements;
- Differing siting controls such as system density and setback requirements;
- Requirements for owners to enter monitoring and maintenance agreements; and/or
- Creation of an onsite management district or zone.

9.1 Where different and/or additional requirements are needed to protect water quality the local agency shall consider the following, as well as any other conditions deemed appropriate, when developing Local Agency Management Program requirements:

9.1.1 Degree of vulnerability to pollution from OWTS due to hydrogeological conditions.

9.1.2 High Quality waters or other environmental conditions requiring enhanced protection from the effects of OWTS.

9.1.3 Shallow soils requiring a dispersal system installation that is closer to ground surface than is standard.

9.1.4 OWTS is located in area with high domestic well usage.

Tier 2 – Local Agency OWTS Management Program

9.1.5 Dispersal system is located in an area with fractured bedrock.

9.1.6 Dispersal system is located in an area with poorly drained soils.

9.1.7 Surface water is vulnerable to pollution from OWTS.

9.1.8 Surface water within the watershed is listed as impaired for nitrogen or pathogens.

9.1.9 OWTS is located within an area of high OWTS density.

9.1.10 A parcel's size and its susceptibility to hydraulic mounding, organic or nitrogen loading, and whether there is sufficient area for OWTS expansion in case of failure.

9.1.11 Geographic areas that are known to have multiple, existing OWTS predating any adopted standards of design and construction including cesspools.

9.1.12 Geographic areas that are known to have multiple, existing OWTS located within either the pertinent setbacks listed in Section 7.5 of this Policy, or a setback that the local agencies finds is appropriate for that area.

9.2 The Local Agency Management Program shall detail the scope of its coverage, such as the maximum authorized projected flows for OWTS, as well as a clear delineation of those types of OWTS included within and to be permitted by the program, and provide the local site evaluation, siting, design, and construction requirements, and in addition each of the following:

9.2.1 Any local agency requirements for onsite wastewater system inspection, monitoring, maintenance, and repairs, including procedures to ensure that replacements or repairs to failing systems are done under permit from the local governing jurisdiction.

9.2.2 Any special provisions applicable to OWTS within specified geographic areas near specific impaired water bodies listed for pathogens or nitrogen. The special provisions may be substantive and/or procedural, and may include, as examples: consultation with the Regional Water Board prior to issuing permits, supplemental treatment, development of a management district or zone, special siting requirements, additional inspection and monitoring.

9.2.3 Local Agency Management Program variances, for new installations and repairs in substantial conformance, to the greatest extent practicable. Variances are not allowed for the requirements stated in sections 9.4.1 through 9.4.9.

9.2.4 Any educational, training, certification, and/or licensing requirements that will be required of OWTS service providers, site evaluators, designers, installers, pumpers, maintenance contractors, and any other person relating to OWTS activities.

9.2.5 Education and/or outreach program including informational materials to inform OWTS owners about how to locate, operate, and maintain their

OWTS as well as any Water Board order (e.g., Basin Plan prohibitions) regarding OWTS restrictions within its jurisdiction. The education and/or outreach program shall also include procedures to ensure that alternative onsite system owners are provided an informational maintenance or replacement document by the system designer or installer. This document shall cite homeowner procedures to ensure maintenance, repair, or replacement of critical items within 48 hours following failure. If volunteer well monitoring programs are available within the local agency's jurisdiction, the outreach program shall include information on how well owners may participate.

9.2.6 An assessment of existing and proposed disposal locations for septage, the volume of septage anticipated, and whether adequate capacity is available.

9.2.7 Any consideration given to onsite maintenance districts or zones.

9.2.8 Any consideration given to the development and implementation of, or coordination with, Regional Salt and Nutrient Management Plans.

9.2.9 Any consideration given to coordination with watershed management groups.

9.2.10 Procedures for evaluating the proximity of sewer systems to new or replacement OWTS installations.

9.2.11 Procedures for notifying the owner of a public water system prior to issuing an installation or repair permit for an OWTS, if the OWTS is within 1,200 feet of an intake point for a surface water treatment plant for drinking water, is in the drainage area catchment in which the intake point is located, and is located such that it may impact water quality at the intake point such as upstream of the intake point for a flowing water body, or if the OWTS is within a horizontal sanitary setback from a public well.

9.2.12 Policies and procedures that will be followed when a proposed OWTS dispersal area is within the horizontal sanitary setback of a public well or a surface water intake point. These policies and procedures shall either indicate that supplemental treatment as specified in 10.9 and 10.10 of this policy are required for OWTS that are within a horizontal sanitary setback of a public well or surface water intake point, or will establish alternate siting and operational criteria for the proposed OWTS that would similarly mitigate the potential adverse impact to the public water source.

9.2.13 Any plans for the phase-out or discontinuance of cesspool usage.

9.3 The minimum responsibilities of the local agency for management of the Local Agency Management Program include:

9.3.1 Maintain records of the number, location, and description of permits issued for OWTS where a variance is granted.

Tier 2 – Local Agency OWTS Management Program

9.3.2 Maintain a water quality assessment program to determine the general operation status of OWTS and to evaluate the impact of OWTS discharges, and assess the extent to which groundwater and local surface water quality may be adversely impacted. The focus of the assessment should be areas with characteristics listed under section 9.1. The assessment program will include monitoring and analysis of water quality data, review of complaints, variances, failures, and any information resulting from inspections. The assessment may use existing water quality data from other monitoring programs and/or establish the terms, conditions, and timing for monitoring done by the local agency. At a minimum this assessment will include monitoring data for nitrates and pathogens, and may include data for other constituents which are needed to adequately characterize the impacts of OWTS on water quality. Other monitoring programs for which data may be used include but are not limited to any of the following:

9.3.2.1. Random well samples from a domestic well sampling program.

9.3.2.2. Routine real estate transfer samples if those are performed and reported.

9.3.2.3. Review of public system sampling reports done by the local agency or another municipality responsible for the public system.

9.3.2.4. Water quality testing reports done at the time of new well development if those are reported.

9.3.2.5. Beach water quality testing data performed as part of Health and Safety Code Section 115885.

9.3.2.6. Receiving water sampling performed as a part of a NPDES permit.

9.3.2.7. Data contained in the California Water Quality Assessment Database.

9.3.2.8. Groundwater sampling performed as part of Waste Discharge Requirements.

9.3.2.9. Groundwater data collected as part of the Groundwater Ambient Monitoring and Assessment Program and available in the Geotracker Database.

9.3.3 Submit an annual report by February 1 to the applicable Regional Water Board summarizing the status of items 9.3.1 through 9.3.2 above. Every fifth year, submit an evaluation of the monitoring program and an assessment of whether water quality is being impacted by OWTS, identifying any changes in the Local Agency Management Program that will be undertaken to address impacts from OWTS. The first report will commence one year after approval of the local agency's Local Agency Management Program. In addition to summarizing monitoring data collected per 9.3.2 above, all groundwater monitoring data generated by the local agency shall be submitted in EDF format for inclusion into

Tier 2 – Local Agency OWTS Management Program

Geotracker, and surface water monitoring shall be submitted to CEDEN in a SWAMP comparable format.

9.4 The following are not allowed to be authorized in a Local Agency Management Program:

9.4.1 Cesspools of any kind or size.

9.4.2 OWTS receiving a projected flow over 10,000 gallons per day.

9.4.3 OWTS that utilize any form of effluent disposal that discharges on or above the post installation ground surface such as sprinklers, exposed drip lines, free-surface wetlands, or a pond.

9.4.4 Slopes greater than 30 percent without a slope stability report approved by a registered professional.

9.4.5 Decreased leaching area for IAPMO certified dispersal systems using a multiplier less than 0.70.

9.4.6 OWTS utilizing supplemental treatment without requirements for periodic monitoring or inspections.

9.4.7 OWTS dedicated to receiving significant amounts of wastes dumped from RV holding tanks.

9.4.8 Separation of the bottom of dispersal system to groundwater less than two (2) feet, except for seepage pits, which shall not be less than 10 feet.

9.4.9 Installation of new or replacement OWTS where public sewer is available. The public sewer may be considered as not available when such public sewer or any building or exterior drainage facility connected thereto is located more than 200 feet from any proposed building or exterior drainage facility on any lot or premises that abuts and is served by such public sewer. This provision does not apply to replacement OWTS where the connection fees and construction cost are greater than twice the total cost of the replacement OWTS and the local agency determines that the discharge from the OWTS will not affect groundwater or surface water to a degree that makes it unfit for drinking or other uses.

9.4.10 Except as provided for in sections 9.4.11 and 9.4.12, new or replacement OWTS with minimum horizontal setbacks less than any of the following:

9.4.10.1 150 feet from a public water well where the depth of the effluent dispersal system does not exceed 10 feet in depth.

9.4.10.2 200 feet from a public water well where the depth of the effluent dispersal system exceeds 10 feet in depth.

9.4.10.3 Where the effluent dispersal system is within 600 feet of a public water well and exceeds 20 feet in depth the horizontal setback required to achieve a two-year travel time for microbiological contaminants shall be evaluated. A qualified professional shall conduct this evaluation. However in no case shall the setback be less than 200 feet.

Tier 2 – Local Agency OWTS Management Program

9.4.10.4 Where the effluent dispersal system is within 1,200 feet from a public water systems' surface water intake point, within the catchment of the drainage, and located such that it may impact water quality at the intake point such as upstream of the intake point for flowing water bodies, the dispersal system shall be no less than 400 feet from the high water mark of the reservoir, lake or flowing water body.

9.4.10.5 Where the effluent dispersal system is located more than 1,200 feet but less than 2,500 feet from a public water systems' surface water intake point, within the catchment area of the drainage, and located such that it may impact water quality at the intake point such as upstream of the intake point for flowing water bodies, the dispersal system shall be no less than 200 feet from the high water mark of the reservoir, lake or flowing water body.

9.4.11 For replacement OWTS that do not meet the above horizontal separation requirements, the replacement OWTS shall meet the horizontal separation to the greatest extent practicable. In such case, the replacement OWTS shall utilize supplemental treatment and other mitigation measures, unless the permitting authority finds that there is no indication that the previous system is adversely affecting the public water source, and there is limited potential that the replacement system could impact the water source based on topography, soil depth, soil texture, and groundwater separation.

9.4.12 For new OWTS, installed on parcels of record existing at the time of the effective date of this Policy, that cannot meet the above horizontal separation requirements, the OWTS shall meet the horizontal separation to the greatest extent practicable and shall utilize supplemental treatment for pathogens as specified in section 10.8 and any other mitigation measures prescribed by the permitting authority.

9.5 A Local Agency Management Program for OWTS must include adequate detail, including technical information to support how all the criteria in their program work together to protect water quality and public health.

9.6 A Regional Water Board reviewing a Local Agency Management Program shall consider, among other things, the past performance of the local program to adequately protect water quality, and where this has been achieved with criteria differing from Tier 1, shall not unnecessarily require modifications to the program for purposes of uniformity, as long as the Local Agency Management Program meets the requirements of Tier 2.

Tier 3 – Impaired Areas

Tier 3 – Advanced Protection Management Programs for Impaired Areas

Existing, new, and replacement OWTS that are near impaired water bodies may be addressed by a TMDL and its implementation program, or special provisions contained in a Local Agency Management Program. If there is no TMDL or special provisions, new or replacement OWTS within 600 feet of impaired water bodies listed in Attachment 2 must meet the applicable specific requirements of Tier 3.

10.0 Advanced Protection Management Program

An Advanced Protection Management Program is the minimum required management program for all OWTS located near a water body that has been listed as impaired due to nitrogen or pathogen indicators pursuant to Section 303(d) of the Clean Water Act. Local agencies are authorized to implement Advanced Protection Management Programs in conjunction with an approved Local Agency Management Program or, if there is no approved Local Agency Management Program, Tier 1. Local agencies are encouraged to collaborate with the Regional Water Boards by sharing any information pertaining to the impairment, provide advice on potential remedies, and regulate OWTS to the extent that their authority allows for the improvement of the impairment.

10.1 The geographic area for each water body's Advanced Protection Management Program is defined by the applicable TMDL, if one has been approved. If there is not an approved TMDL, it is defined by an approved Local Agency Management Program, if it contains special provisions for that water body. If it is not defined in an approved TMDL or Local Agency Management Program, it shall be 600 linear feet [in the horizontal (map) direction] of a water body listed in Attachment 2 where the edge of that water body is the natural or levied bank for creeks and rivers, the high water mark for lakes and reservoirs, and the mean high tide line for tidally influenced water bodies, as appropriate. OWTS near impaired water bodies that are not listed on Attachment 2, and do not have a TMDL and are not covered by a Local Agency Management Program with special provisions, are not addressed by Tier 3.

10.2 The requirements of an Advanced Protection Management Program will be in accordance with a TMDL implementation plan, if one has been adopted to address the impairment. An adopted TMDL implementation plan supersedes all other requirements in Tier 3. All TMDL implementation plans adopted after the effective date of this Policy that contain load allocations for OWTS shall include a schedule that requires compliance with the load allocations as soon as practicable, given the watershed-specific circumstances. The schedule shall require that OWTS implementation actions for OWTS installed prior to the TMDL implementation plan's effective date shall commence within 3 years after the TMDL implementation plan's effective date, and that OWTS implementation actions for OWTS installed after the TMDL implementation plan's effective date shall commence immediately. The TMDL implementation plan may use some or all of the Tier 3 requirements and shall establish the applicable area of

Tier 3 – Impaired Areas

implementation for OWTS requirements within the watershed. For those impaired water bodies that do have an adopted TMDL addressing the impairment, but the TMDL does not assign a load allocation to OWTS, no further action is required unless the TMDL is modified at some point in the future to include actions for OWTS. Existing, new, and replacement OWTS that are near impaired water bodies and are covered by a Basin Plan prohibition must also comply with the terms of the prohibition, as provided in Section 2.1.

10.3 In the absence of an adopted TMDL implementation plan, the requirements of an Advanced Protection Management Program will consist of any special provisions for the water body if any such provisions have been approved as part of a Local Agency Management Program.

10.4 The Regional Water Boards shall adopt TMDLs for impaired water bodies identified in Attachment 2, in accordance with the specified dates.

10.4.1 If a Regional Water Board does not complete a TMDL within two years of the time period specified in Attachment 2, coverage under this Policy's waiver of waste discharge requirements shall expire for any OWTS that has any part of its dispersal system discharging within the geographic area of an Advanced Protection Management Program. The Regional Water Board shall issue waste discharge requirements, general waste discharge requirements, waivers of waste discharge requirements, or require corrective action for such OWTS. The Regional Water Board will consider the following when establishing the waste discharge requirements, general waste discharge requirements, waivers of waste discharge requirements, or requirement for corrective action:

10.4.1.1 Whether supplemental treatment should be required.

10.4.1.2 Whether routine inspection of the OWTS should be required.

10.4.1.3 Whether monitoring of surface and groundwater should be performed.

10.4.1.4 The collection of a fee for those OWTS covered by the order.

10.4.1.5 Whether owners of previously-constructed OWTS should file a report by a qualified professional in accordance with section 10.5.

10.4.1.6 Whether owners of new or replacement OWTS should file a report of waste discharge with additional supporting technical information as required by the Regional Water Board.

10.5 If the Regional Water Board requires owners of OWTS to submit a qualified professional's report pursuant to Section 10.4.1.5, the report shall include a determination of whether the OWTS is functioning properly and as designed or requires corrective actions per Tier 4, and regardless of its state of function, whether it is contributing to impairment of the water body.

10.5.1 The qualified professional's report may also include, but is not limited to:

Tier 3 – Impaired Areas

10.5.1.1 A general description of system components, their physical layout, and horizontal setback distances from property lines, buildings, wells, and surface waters.

10.5.1.2 A description of the type of wastewater discharged to the OWTS such as domestic, commercial, or industrial and classification of it as domestic wastewater or high-strength waste.

10.5.1.3 A determination of the systems design flow and the volume of wastewater discharged daily derived from water use, either estimated or actual if metered.

10.5.1.4 A description of the septic tank, including age, size, material of construction, internal and external condition, water level, scum layer thickness, depth of solids, and the results of a one-hour hydrostatic test.

10.5.1.5 A description of the distribution box, dosing siphon, or distribution pump, and if flow is being equally distributed throughout the dispersal system, as well as any evidence of solids carryover, clear water infiltration, or evidence of system backup.

10.5.1.6 A description of the dispersal system including signs of hydraulic failure, condition of surface vegetation over the dispersal system, level of ponding above the infiltrative surface within the dispersal system, other possible sources of hydraulic loading to the dispersal area, and depth of the seasonally high groundwater level.

10.5.1.7 A determination of whether the OWTS is discharging to the ground's surface.

10.5.1.8 For a water body listed as an impaired water body for pathogens, a determination of the OWTS dispersal system's separation from its deepest most infiltrative surface to the highest seasonal groundwater level or fractured bedrock.

10.5.1.9 For a water body listed as an impaired water body for nitrogen, a determination of whether the groundwater under the dispersal field is reaching the water body, and a description of the method used to make the determination.

10.6 For new, replacement, and existing OWTS in an Advanced Protection Management Program, the following are not covered by this Policy's waiver but may be authorized by a separate Regional Water Board order:

10.6.1 Cesspools of any kind or size.

10.6.2 OWTS receiving a projected flow over 10,000 gallons per day.

10.6.3 OWTS that utilize any form of effluent disposal on or above the ground surface.

10.6.4 Slopes greater than 30 percent without a slope stability report approved by a registered professional.

Tier 3 – Impaired Areas

10.6.5 Decreased leaching area for IAPMO certified dispersal systems using a multiplier less than 0.70.

10.6.6 OWTS utilizing supplemental treatment without requirements for periodic monitoring or inspections.

10.6.7 OWTS dedicated to receiving significant amounts of wastes dumped from RV holding tanks.

10.6.8 Separation of the bottom of dispersal system to groundwater less than two (2) feet, except for seepage pits, which shall not be less than 10 feet.

10.6.9 Minimum horizontal setbacks less than any of the following:

10.6.9.1 150 feet from a public water well where the depth of the effluent dispersal system does not exceed 10 feet in depth;

10.6.9.2 200 feet from a public water well where the depth of the effluent dispersal system exceeds 10 feet in depth:

10.6.9.3 Where the effluent dispersal system is within 600 feet of a public water well and exceeds 20 feet in depth the horizontal setback required to achieve a two-year travel time for microbiological contaminants shall be evaluated. A qualified professional shall conduct this evaluation. However in no case shall the setback be less than 200 feet.

10.6.9.4 Where the effluent dispersal system is within 1,200 feet from a public water systems' surface water intake point, within the catchment of the drainage, and located such that it may impact water quality at the intake point such as upstream of the intake point for flowing water bodies, the dispersal system shall be no less than 400 feet from the high water mark of the reservoir, lake or flowing water body.

10.6.9.5 Where the effluent dispersal system is located more than 1,200 feet but less than 2,500 feet from a public water systems' surface water intake point, within the catchment of the drainage, and located such that it may impact water quality at the intake point such as upstream of the intake point for flowing water bodies, the dispersal system shall be no less than 200 feet from the high water mark of the reservoir, lake or flowing water body.

10.6.9.6 For replacement OWTS that do not meet the above horizontal separation requirements, the replacement OWTS shall meet the horizontal separation to the greatest extent practicable. In such case, the replacement OWTS shall utilize supplemental treatment and other mitigation measures.

10.6.9.7 For new OWTS, installed on parcels of record existing at the time of the effective date of this Policy, that cannot meet the above horizontal separation requirements, the OWTS shall meet the horizontal separation to the greatest extent practicable and shall

Tier 3 – Impaired Areas

utilize supplemental treatment for pathogens as specified in section 10.10 and any other mitigation measures as prescribed by the permitting authority.

10.7 The requirements contained in Section 10 shall not apply to owners of OWTS that are constructed and operating, or permitted, on or prior to the date that the nearby water body is added to Attachment 2 who commit by way of a legally binding document to connect to a centralized wastewater collection and treatment system regulated through WDRs as specified within the following timeframes:

10.7.1 The owner must sign the document within forty-eight months of the date that the nearby water body is initially listed on Attachment 2.

10.7.2 The specified date for the connection to the centralized community wastewater collection and treatment system shall not extend beyond nine years following the date that the nearby water body is added to Attachment 2.

10.8 In the absence of an adopted TMDL implementation plan or Local Agency Management Program containing special provisions for the water body, all new or replacement OWTS permitted after the date that the water body is initially listed in Attachment 2 that have any discharge within the geographic area of an Advanced Protection Management Program shall meet the following requirements:

10.8.1 Utilize supplemental treatment and meet performance requirements in 10.9 if impaired for nitrogen and 10.10 if impaired for pathogens,

10.8.2 Comply with the setback requirements of Section 7.5.1 to 7.5.5, and

10.8.3 Comply with any applicable Local Agency Management Program requirements.

10.9 Supplemental treatment requirements for nitrogen

10.9.1 Effluent from the supplemental treatment components designed to reduce nitrogen shall be certified by NSF, or other approved third party tester, to meet a 50 percent reduction in total nitrogen when comparing the 30-day average influent to the 30-day average effluent.

10.9.2 Where a drip-line dispersal system is used to enhance vegetative nitrogen uptake, the dispersal system shall have at least six (6) inches of soil cover.

Tier 3 – Impaired Areas

10.10 Supplemental treatment requirements for pathogens

10.10.1 Supplemental treatment components designed to perform disinfection shall provide sufficient pretreatment of the wastewater so that effluent from the supplemental treatment components does not exceed a 30-day average TSS of 30 mg/L and shall further achieve an effluent fecal coliform bacteria concentration less than or equal to 200 Most Probable Number (MPN) per 100 milliliters.

10.10.2 The minimum soil depth and the minimum depth to the anticipated highest level of groundwater below the bottom of the dispersal system shall not be less than three (3) feet. All dispersal systems shall have at least twelve (12) inches of soil cover.

10.11 OWTS in an Advanced Protection Management Program with supplemental treatment shall be designed to meet the applicable performance requirements above and shall be stamped or approved by a Qualified Professional.

10.12 Prior to the installation of any proprietary treatment OWTS in an Advanced Protection Management Program, all such treatment components shall be tested by an independent third party testing laboratory.

10.13 The ongoing monitoring of OWTS in an Advanced Protection Management Program with supplemental treatment components designed to meet the performance requirements in Sections 10.9 and 10.10 shall be monitored in accordance with the operation and maintenance manual for the OWTS or more frequently as required by the local agency or Regional Water Board.

10.14 OWTS in an Advanced Protection Management Program with supplemental treatment components shall be equipped with a visual or audible alarm as well as a telemetric alarm that alerts the owner and service provider in the event of system malfunction. Where telemetry is not possible, the owner or owner's agent shall inspect the system at least monthly while the system is in use as directed and instructed by a service provider and notify the service provider not less than quarterly of the observed operating parameters of the OWTS.

10.15 OWTS in an Advanced Protection Management Program designed to meet the disinfection requirements in Section 10.10 shall be inspected for proper operation quarterly while the system is in use by a service provider unless a telemetric monitoring system is capable of continuously assessing the operation of the disinfection system. Testing of the wastewater flowing from supplemental treatment components that perform disinfection shall be sampled at a point in the system after the treatment components and prior to the dispersal system and shall be conducted quarterly based on analysis of total coliform with a minimum detection limit of 2.2 MPN. All effluent samples must include the geographic coordinates of the sample's location. Effluent samples shall be taken by a service provider and analyzed by a California Department of Public Health certified laboratory.

Tier 3 – Impaired Areas

10.16 The minimum responsibilities of a local agency administering an Advanced Protection Management Program include those prescribed for the Local Agency Management Programs in Section 9.3 of this policy, as well as monitoring owner compliance with Sections 10.13, 10.14,and 10.15.

Tier 4 – OWTS Requiring Corrective Action

Tier 4 – OWTS Requiring Corrective Action

OWTS that require corrective action or are either presently failing or fail at any time while this Policy is in effect are automatically included in Tier 4 and must follow the requirements as specified. OWTS included in Tier 4 must continue to meet applicable requirements of Tier 0, 1, 2 or 3 pending completion of corrective action.

11.0 Corrective Action for OWTS

11.1 Any OWTS that has pooling effluent, discharges wastewater to the surface, or has wastewater backed up into plumbing fixtures, because its dispersal system is no longer adequately percolating the wastewater is deemed to be failing, no longer meeting its primary purpose to protect public health, and requires major repair, and as such the dispersal system must be replaced, repaired, or modified so as to return to proper function and comply with Tier 1, 2, or 3 as appropriate.

11.2 Any OWTS septic tank failure, such as a baffle failure or tank structural integrity failure such that either wastewater is exfiltrating or groundwater is infiltrating is deemed to be failing, no longer meeting its primary purpose to protect public health, and requires major repair, and as such shall require the septic tank to be brought into compliance with the requirements of Section 8 in Tier 1 or a Local Agency Management Program per Tier 2.

11.3 Any OWTS that has a failure of one of its components other than those covered by 11.1 and 11.2 above, such as a distribution box or broken piping connection, shall have that component repaired so as to return the OWTS to a proper functioning condition and return to Tier 0, 1, 2, or 3.

11.4 Any OWTS that has affected, or will affect, groundwater or surface water to a degree that makes it unfit for drinking or other uses, or is causing a human health or other public nuisance condition shall be modified or upgraded so as to abate its impact.

11.5 If the owner of the OWTS is not able to comply with corrective action requirements of this section, the Regional Water Board may authorize repairs that are in substantial conformance, to the greatest extent practicable, with Tiers 1 or 3, or may require the owner of the OWTS to submit a report of waste discharge for evaluation on a case-by-case basis. Regional Water Board response to such reports of waste discharge may include, but is not limited to, enrollment in general waste discharge requirements, issuance of individual waste discharge requirements, or issuance of waiver of waste discharge requirements. A local agency may authorize repairs that are in substantial conformance, to the greatest extent practicable, with Tier 2 in accordance with section 9.2.3 if there is an approved Local Agency Management Program, or with an existing program if a Local Agency Management Program has not been approved and it is less than 5 years from the effective date of the Policy.

Tier 4 – OWTS Requiring Corrective Action

11.6 Owners of OWTS will address any corrective action requirement of Tier 4 as soon as is reasonably possible, and must comply with the time schedule of any corrective action notice received from a local agency or Regional Water Board, to retain coverage under this Policy.

11.7 Failure to meet the requirements of Tier 4 constitute a failure to meet the conditions of the waiver of waste discharge requirements contained in this Policy, and is subject to further enforcement action.

Waiver – Effective Date – Financial Assistance

Conditional Waiver of Waste Discharge Requirements

12.0 In accordance with Water Code section 13269, the State Water Board hereby waives the requirements to submit a report of waste discharge, obtain waste discharge requirements, and pay fees for discharges from OWTS covered by this Policy. Owners of OWTS covered by this Policy shall comply with the following conditions:

12.0.1 The OWTS shall function as designed with no surfacing effluent.

12.0.2 The OWTS shall not utilize a dispersal system that is in soil saturated with groundwater.

12.0.3 The OWTS shall not be operated while inundated by a storm or flood event.

12.0.4 The OWTS shall not cause or contribute to a condition of nuisance or pollution.

12.0.5 The OWTS shall comply with all applicable local agency codes, ordinances, and requirements.

12.0.6 The OWTS shall comply with and meet any applicable TMDL implementation requirements, special provisions for impaired water bodies, or supplemental treatment requirements imposed by Tier 3.

12.0.7 The OWTS shall comply with any corrective action requirements of Tier 4.

12.1 This waiver may be revoked by the State Water Board or the applicable Regional Water Board for any discharge from an OWTS, or from a category of OWTS.

Effective Date

13.0 This Policy becomes effective six months after its approval by the Office of Administrative Law, and all deadlines and compliance dates stated herein start at such time.

Waiver – Effective Date – Financial Assistance

Financial Assistance

14.0 Local Agencies may apply to the State Water Board for funds from the Clean Water State Revolving Fund for use in mini-loan programs that provide low interest loan assistance to private property owners with costs associated with complying with this Policy.

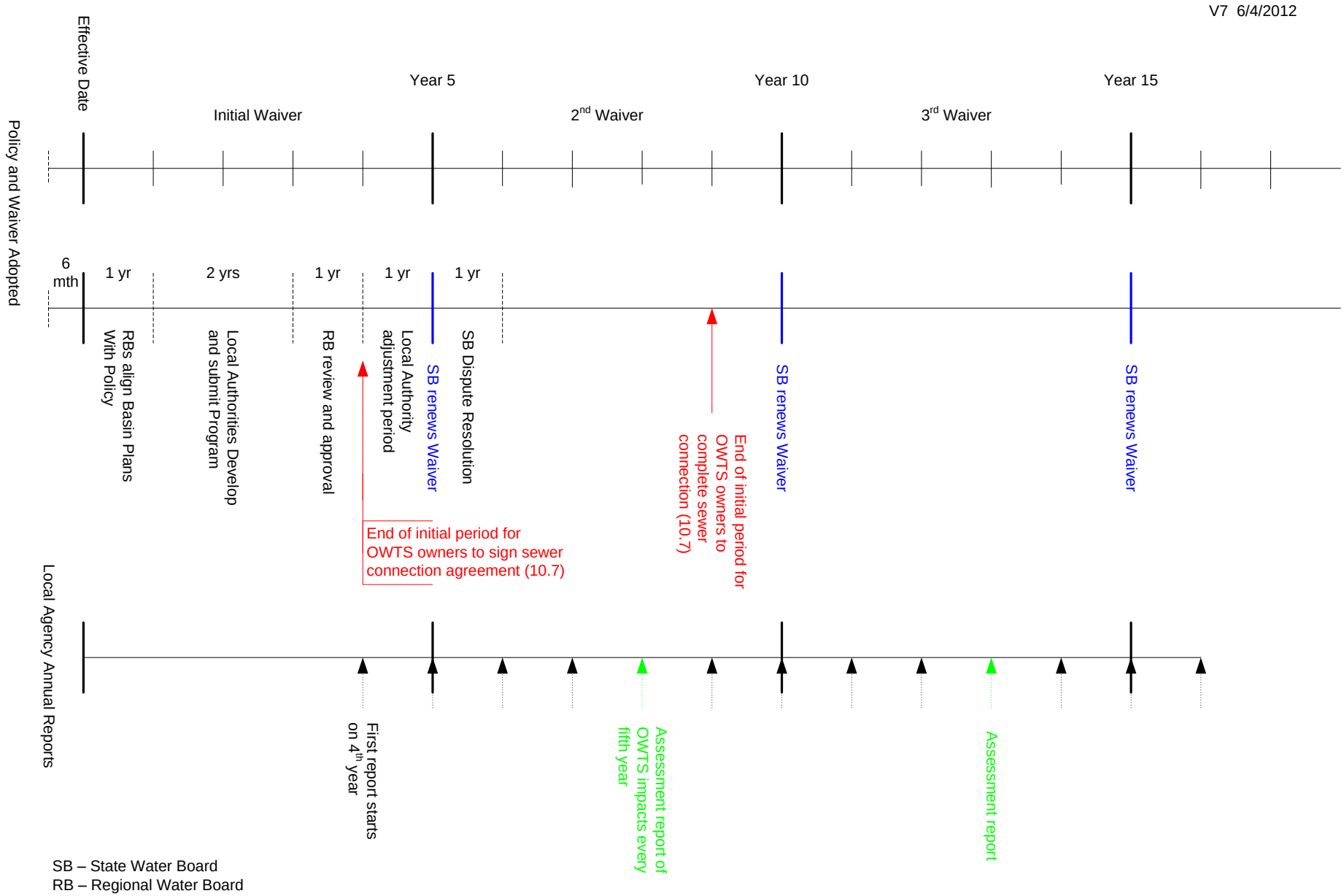
14.1 Loan interest rates for loans to local agencies will be set by the State Water Board using its policies, procedures, and strategies for implementing the Clean Water State Revolving Fund program, but will typically be one-half of the States most recent General Obligation bond sale. Historically interest rates have ranged between 2.0 and 3.0 percent.

14.2 Local agencies may add additional interest points to their loans made to private entities to cover their costs of administering the mini-loan program.

14.3 Local agencies may submit their suggested loan eligibility criteria for the min-loan program they wish to establish to the State Water Board for approval, but should consider the legislative intent stated in Water Code Section 13291.5 is that assistance is encouraged for private property owners whose cost of complying with the requirements of this policy exceeds one-half of one percent of the current assessed value of the property on which the OWTS is located.

Attachment 1

OWTS Policy Time Lines



SB – State Water Board
RB – Regional Water Board

Attachment 2

The tables below specifically identify those impaired water bodies where: (1) it is likely that operating OWTS will subsequently be determined to be a contributing source of pathogens or nitrogen and therefore it is anticipated that OWTS would receive a loading reduction, and (2) it is likely that new OWTS installations discharging within 600 feet of the water body would contribute to the impairment. Per this Policy (Tier 3, Section 10) the Regional Water Boards must adopt a TMDL by the date specified in the table. The State Water Board, at the time of approving future 303 (d) Lists, will specifically identify those impaired water bodies that are to be added or removed from the tables below.

Table 5. Water Bodies impaired for pathogens that are subject to Tier 3 as of 2012.

REGION NO.	REGION NAME	WATERBODY NAME	COUNTIES	TMDL Completion Date
1	North Coast	Clam Beach	Humboldt	2020
1	North Coast	Luffenholtz Beach	Humboldt	2020
1	North Coast	Moonstone County Park	Humboldt	2020
1	North Coast	Russian River HU, Lower Russian River HA, Guerneville HSA, mainstem Russian River from Fife Creek to Dutch Bill Creek	Sonoma	2016
1	North Coast	Russian River HU, Lower Russian River HA, Guerneville HSA, Green Valley Creek watershed	Sonoma	2016
1	North Coast	Russian River HU, Middle Russian River HA, Geyserville HSA, mainstem Russian River at Healdsburg Memorial Beach and unnamed tributary at Fitch Mountain	Sonoma	2016
1	North Coast	Russian River HU, Middle Russian River HA, mainstem Laguna de Santa Rosa	Sonoma	2016
1	North Coast	Russian River HU, Middle Russian River HA, mainstem Santa Rosa Creek	Sonoma	2016
1	North Coast	Trinidad State Beach	Humboldt	2020
2	San Francisco Bay	China Camp Beach	Marin	2014
2	San Francisco Bay	Lawsons Landing	Marin	2015
2	San Francisco Bay	Pacific Ocean at Bolinas Beach	Marin	2014

Attachment 2

REGION NO.	REGION NAME	WATERBODY NAME	COUNTIES	TMDL Completion Date
2	San Francisco Bay	Pacific Ocean at Fitzgerald Marine Reserve	San Mateo	2016
2	San Francisco Bay	Pacific Ocean at Muir Beach	Marin	2015
2	San Francisco Bay	Pacific Ocean at Pillar Point Beach	San Mateo	2016
2	San Francisco Bay	Petaluma River	Marin, Sonoma	2017
2	San Francisco Bay	Petaluma River (tidal portion)	Marin, Sonoma	2017
2	San Francisco Bay	San Gregorio Creek	San Mateo	2019
3	Central Coast	Pacific Ocean at Point Rincon (mouth of Rincon Cr, Santa Barbara County)	Santa Barbara	2015
3	Central Coast	Rincon Creek	Santa Barbara, Ventura	2015
4	Los Angeles	Canada Larga (Ventura River Watershed)	Ventura	2017
4	Los Angeles	Coyote Creek	Los Angeles, Orange	2015
4	Los Angeles	Rincon Beach	Ventura	2017
4	Los Angeles	San Antonio Creek (Tributary to Ventura River Reach 4)	Ventura	2017
4	Los Angeles	San Gabriel River Reach 1 (Estuary to Firestone)	Los Angeles	2015
4	Los Angeles	San Gabriel River Reach 2 (Firestone to Whittier Narrows Dam	Los Angeles	2015
4	Los Angeles	San Gabriel River Reach 3 (Whittier Narrows to Ramona)	Los Angeles	2015
4	Los Angeles	San Jose Creek Reach 1 (SG Confluence to Temple St.)	Los Angeles	2015
4	Los Angeles	San Jose Creek Reach 2 (Temple to I-10 at White Ave.)	Los Angeles	2015
4	Los Angeles	Sawpit Creek	Los Angeles	2015
4	Los Angeles	Ventura River Reach 3 (Weldon Canyon to Confl. w/ Coyote Cr)	Ventura	2017
4	Los Angeles	Walnut Creek Wash (Drains from Puddingstone Res)	Los Angeles	2015
5	Central Valley	Wolf Creek (Nevada County)	Nevada, Placer	2020
5	Central Valley	Woods Creek (Tuolumne County)	Tuolumne	2020
7	Colorado River	Alamo River	Imperial	2017

Attachment 2

REGION NO.	REGION NAME	WATERBODY NAME	COUNTIES	TMDL Completion Date
7	Colorado River	Palo Verde Outfall Drain and Lagoon	Imperial, Riverside	2017
8	Santa Ana	Canyon Lake (Railroad Canyon Reservoir)	Riverside	2019
8	Santa Ana	Fulmor, Lake	Riverside	2019
8	Santa Ana	Goldenstar Creek	Riverside	2019
8	Santa Ana	Los Trancos Creek (Crystal Cove Creek)	Orange	2017
8	Santa Ana	Lytle Creek	San Bernardino	2019
8	Santa Ana	Mill Creek Reach 1	San Bernardino	2015
8	Santa Ana	Mill Creek Reach 2	San Bernardino	2015
8	Santa Ana	Morning Canyon Creek	Orange	2017
8	Santa Ana	Mountain Home Creek	San Bernardino	2019
8	Santa Ana	Mountain Home Creek, East Fork	San Bernardino	2019
8	Santa Ana	Silverado Creek	Orange	2017
8	Santa Ana	Peters Canyon Channel	Orange	2017
8	Santa Ana	Santa Ana River, Reach 2	Orange, Riverside	2019
8	Santa Ana	Temescal Creek, Reach 6 (Elsinore Groundwater sub basin boundary to Lake Elsinore Outlet)	Riverside	2019
8	Santa Ana	Seal Beach	Orange	2017
8	Santa Ana	Serrano Creek	Orange	2017
8	Santa Ana	Huntington Harbour	Orange	2017

Attachment 2

Table 6. Water Bodies impaired for nitrogen that are subject to Tier 3.

REGION NO.	REGION NAME	WATERBODY NAME	COUNTIES	TMDL Completion Date
1	North Coast	Russian River HU, Middle Russian River HA, mainstem Laguna de Santa Rosa	Sonoma	2015
2	San Francisco Bay	Lagunitas Creek	Marin	2016
2	San Francisco Bay	Napa River	Napa, Solano	2014
2	San Francisco Bay	Petaluma River	Marin, Sonoma	2017
2	San Francisco Bay	Petaluma River (tidal portion)	Marin, Sonoma	2017
2	San Francisco Bay	Sonoma Creek	Sonoma	2014
2	San Francisco Bay	Tomales Bay	Marin	2019
2	San Francisco Bay	Walker Creek	Marin	2016
4	Los Angeles	Malibu Creek	Los Angeles	2016
4	Los Angeles	San Antonio Creek (Tributary to Ventura River Reach 4)	Ventura	2013
8	Santa Ana	East Garden Grove Wintersburg Channel	Orange	2017
8	Santa Ana	Grout Creek	San Bernardino	2015
8	Santa Ana	Rathbone (Rathbun) Creek	San Bernardino	2015
8	Santa Ana	Summit Creek	San Bernardino	2015
8	Santa Ana	Serrano Creek	Orange	2017

Attachment 3

Regional Water Boards, upon mutual agreement, may designate one Regional Water Board to regulate a person or entity that is under the jurisdiction of both (Water Code Section 13228). The following table identifies the designated Regional Water Board for all counties within the State for purposes of reviewing and, if appropriate, approving new Local Agency Management Plans.

Table 7. Regional Water Board designations by County.

County	Regions with Jurisdiction	Designated Region
Alameda	2,5	2
Alpine	5,6	6
Amador	5	5
Butte	5	5
Calaveras	5	5
Colusa	5	5
Contra Costa	2,5	2
Del Norte	1	1
El Dorado	5,6	5
Fresno	5	5
Glenn	5,1	5
Humboldt	1	1
Imperial	7	7
Inyo	6	6
Kern	3,4,5,6	5
Kings	5	5
Lake	5,1	5
Lassen	5,6	6
Los Angeles	4,6	4
Madera	5	5
Marin	2,1	2
Mariposa	5	5
Mendocino	1	1
Merced	5	5
Modoc	1,5,6	5
Mono	6	6
Monterey	3	3
Napa	2,5	2
Nevada	5,6	5
Orange	8,9	8

County	Regions with Jurisdiction	Designated Region
Placer	5,6	5
Plumas	5	5
Riverside	7,8,9	7
Sacramento	5	5
San Benito	3,5	3
San Bernardino	6,7,8	6
San Diego	9,7	9
San Francisco	2	2
San Joaquin	5	5
San Luis Obispo	3,5	3
San Mateo	2,3	2
Santa Barbara	3	3
Santa Clara	2,3	2
Santa Cruz	3	3
Shasta	5	5
Sierra	5,6	5
Siskiyou	1,5	1
Solano	2,5	5
Sonoma	1,2	1
Stanislaus	5	5
Sutter	5	5
Tehama	5	5
Trinity	1	1
Tulare	5	5
Tuolumne	5	5
Ventura	4,3	4
Yolo	5	5
Yuba	5	5

Appendix H. Santa Cruz County Local Agency Mangement Program				
LAMP Completeness Checklist				
State OWTS Policy Sections		**OWTS Policy Section Summary**	**LAMP Section**	**Legal Authority - County Code Section**
3.3		**Annual Reporting**	6.2, p. 101	
	3.3.1	Complaints	6.2, p. 101	7.38.035, 7.38.215 (C)
	3.3.2	OWTS Cleaning	6.2, p. 101	7.42, 7.38.215 (A)(6)
	3.3.3	Permits for New and Replacement OWTS	6.2, p. 101	7.38.040
3.4		**Permanent Records**	6.1, p. 99	
3.5		**Notifications to Municipal Water Suppliers**	2.1.2, p 19 2.3.1, p 39	7.38.043
9.0		**Minimum OWTS Standards**	Chapter 3	
9.1		**Considerations for LAMPs**		7.38.020
	9.1.1	Degree of vulnerability due to local hydrogeology	2.1, 2.2, 2.3 pp. 15-58	7.38.045,120,130
	9.1.2	High quality waters and other environmental conditions requiring enhanced protection	2.1.1-2.1.6, 2.3	7.38.045, 183
	9.1.3	Shallow soils requiring non- standard dispersal systems	2.2.1, p. 32	7.38.120,130, 150, 182
	9.1.4	High domestic well usage areas	2.1.2, p. 18	7.38.130, 150
	9.1.5	Fractured bedrock	2.1.6, p. 27	7.38.120 (E)
	9.1.6	Poorly drained soils	2.2.2, pp 32-26	7.38.120(A-E), 130(H), 150(B)(9)
	9.1.7	Vulnerable surface water	2.3.2, p. 39-44	7.38.030 (FF,HH), 045(D)4.b
	9.1.8	Impaired water bodies	2.3.2, pp 39-44	7.38.045 (D) 4.b
	9.1.9	High OWTS density areas	2.3.4, 2.4, 2.6 pp. 45-58	7.38.045 (D)
	9.1.10	Limits to parcel size	2.5, p.56; 3.2.7, p.69	7.38.045
	9.1.11	Areas with OWTS that predate adopted standards	2.3.4, 2.4, 2.6 pp. 45-58	7.38.095
	9.1.12	Areas with OWTS either within prescriptive setbacks	2.3.4, 2.4, 2.6 pp. 45-58	7.38.095
9.2		**Scope of Coverage:**	Chapter 3	7.38.010,020
	9.2.1	Installation and Inspection Permits	3.1, p. 59; 3,3, p.74; 4.2, p.80	7.38.040; 7.38.200; 7.38.215
	9.2.2	Special Provision Areas and Requirements near Impaired Water Bodies	2.3.2, 2.3.4; pp39-46	7.38.045 (D)
	9.2.3	LAMP Variance Procedures	3.2.8, p.70	7.38.095, 150,180,182,184
	9.2.4	Qualifications for Persons who Work on OWTS	3.4, p. 75	7.38.030(X), 095(B4c),120, 130,182(B),190
	9.2.5	Education and Outreach for OWTS Owners	4.1.1, p. 76	7.38.215
	9.2.6	Septage Disposal	4.1.2, p. 78	7.42.050
	9.2.7	Maintenance Districts and Zones	6.3, p. 102	7.38.215 (E)
	9.2.8	Regional Salt and Nutrient Management Plans	2.1.4, pp. 20-21	NA
	9.2.9	Watershed Management Groups	2.3.3, p. 44-45	NA
	9.2.10	Proximity of Collection Systems to New or Replacement OWTS	3.2.10, p. 73	7.38.042 (A)
	9.2.11	Public Water System Notification prior to permitting OWTS Installation or Repairs	2.1.2, p 19 2.3.1, p 39	NA
	9.2.12	Policies for Dispersal Areas within Setbacks of Public Wells and Surface Water Intakes	2.1.2, p 19 2.3.1, p 39	7.38.043
	9.2.13	Cesspool Discontinuance and Phase-Out	2.4, p. 55; 3.2.9, p. 71	7.38.042 (D)
9.3		**Minimum Local Agency Management Responsibilities:**		
	9.3.1	Permits Records, OWTS with Variances	6.1, 6.2, pp 99-101	7.38.040, 150
	9.3.2	Water Quality Assessment Program:	Chapter 5, pp 89-98	NA
	9.3.2.1	Domestic Well Sampling	5.2, p. 94	7.70.110 (B)
	9.3.2.2	Domestic Well Sampling, Routine Real Estate Transfer Related	Not done	7.38.215(D)

Appendix H. Santa Cruz County Local Agency Mangement Program				
LAMP Completeness Checklist				
State OWTS Policy Sections		**OWTS Policy Section Summary**	**LAMP Section**	**Legal Authority - County Code Section**
	9.3.2.3	Water Quality of Public Water Systems	5.1, p. 93; 5.2, p. 95-96	NA
	9.3.2.4	Domestic Well Sampling, New Well Development	5.2, p. 94	7.70.110(B)
	9.3.2.5	Beach Water Quality Sampling, CA Health & Safety Code §115885	5.1, p. 89-92	NA
	9.3.2.6	Receiving Water Sampling Related to NPDES Permits	5.3, p. 98	NA
	9.3.2.7	Data contained in California Water Quality Assessment Database	5.3, p. 98	NA
	9.3.2.8	Groundwater Sampling Related to Waste Discharge Requirements	5.3, p. 98	NA
	9.3.2.9	Groundwater Sampling Related to GAMA Program	5.2, p. 94; 5.3, p. 98	NA
	9.3.3	Annual Status Reports Covering 9.3.1 - 9.3.2	6.2, p. 101	NA
9.4		**Not Allowed or Authorized in LAMP:**		
	9.4.1	Cesspools	3.2.1, p. 71	7.38.042 (D)
	9.4.2	Projected Flow > 10,000 gpd	3.2.1, p. 71	7.38.042 (G.1)
	9.4.3	Effluent Discharger Above Post-Installation Ground Surface	3.2.1, p. 71	7.38.042 (G.2)
	9.4.4	Installation on Slopes > 30% without Registered Professional's Report	3.2.5, p. 68	7.38.130 (F); 7.38.095 (B.4)
	9.4.5	Decreased Leaching Area for IAPMO-Certified Dispersal System with Multiplier < 0.70	3.2.2, p. 65, Appendix E	7.38.150 (B)(2)
	9.4.6	Supplemental Treatments without Monitoring and Inspection	3.2.6, p. 69, Appendix D	7.38.184 (E.3), (G)
	9.4.7	Significant Wastes from RV Holding Tanks	3.2.1, p. 71	7.38.042 (H.3)
	9.4.8	Encroachment Above Groundwater	3.2.4, pp 66-67	7.38.150 (B)(9)
	9.4.9	Installations Near Existing Sewers	3.2.10, p. 73	7.38.042 (A)
	9.4.10	Minimum Setbacks From Public Water Systems:	2.1.2, 2.3.1, 3.2.1	7.38.043
	9.4.10.1	From Public Supply Wells, dispersal less than 10 feet	2.1.2, p 19, 3,2,1, p. 72	7.38.043(A.1)
	9.4.10.2	From Public Supply Wells, dispersal greater than 10 feet	2.1.2, p 19, 3,2,1, p. 72	7.38.043(A.2)
	9.4.10.3	From Public Supply Wells, Regarding Pathogens	2.1.2, p 19, 3,2,1, p. 72	7.38.043 (A.3)
	9.4.10.4	From Public Surface Water Supplies	2.3.1, p 39; 3.2.1, p.72	7.38.043 (A.4)
	9.4.10.5	From Public Surface Water Supplies	2.3.1, p 39; 3.2.1, p.72	7.38.043 (A.5)
	9.4.11	Supplemental Treatments, OWTS That Do Not Meet Minimum Setback Requirements - **Replacement** OWTS	2.3.1, p 39; 3.2.1, p.72	7.38.043 (B)
	9.4.12	Supplemental Treatments, OWTS That Do Not Meet Minimum Setback Requirements - **New** OWTS	2.3.1, p 39; 3.2.1, p.72	7.38.043(C)
9.5		**Technical Support of LAMP**	Chapter 2, 3, pp 15-75	7.38; and 7.42
9.6		**RWQCB Consideration of LAMP**		
		Additional Region 3 Elements (3/1/16)		
		LAMP Checklist		
		OWTS in Degraded Basins		
		Groundwater Basins	2.1.1, p. 17	
		Advanced Protection Management Plan	2.1.3, p 20	
		Groundwater Monitoriing	5.2, pp 94-98	
		Areas Not Covered by LAMP	1.0, p. 6	
		Revison of Local Ordinance	1.1, p. 8	7.38

Attachment 1

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL COAST REGION

895 Aerovista Place, Suite 101
San Luis Obispo, CA 93401-7906

RESOLUTION NO. R3-2021-0087
APPROVING THE LOCAL AGENCY MANAGEMENT PROGRAM FOR SANTA CRUZ COUNTY HEALTH SERVICES AGENCY ENVIRONMENTAL HEALTH DIVISION

CALIFORNIA
Water Boards
STATE WATER RESOURCES CONTROL BOARD
REGIONAL WATER QUALITY CONTROL BOARDS

The California Regional Water Quality Control Board, Central Coast Region (Central Coast Water Board) finds:

1. On June 19, 2012, the State Water Resources Control Board (State Water Board) adopted Resolution No. 2012-0032, which, in part, adopts the *Water Quality Control Policy for Siting, Design, Operation, and Maintenance of Onsite Wastewater Treatment Systems* (OWTS Policy). The OWTS Policy was approved by the Office of Administrative Law on November 13, 2012; and became effective on May 13, 2013.

2. The OWTS Policy allows a local agency to propose a Local Agency Management Program (LAMP) to the Central Coast Water Board for approval.

3. The first draft of the Santa Cruz County LAMP was submitted to the Central Coast Water Board on May 11, 2016.

4. Santa Cruz County Health Services Agency Environmental Health Division provided multiple opportunities for the public to learn about the proposed LAMP and to provide input on LAMP development. This included Technical Advisory Committee (private professionals) meetings, Water Advisory Commission (public agencies) meetings, County Board of Supervisors meetings, meetings with realtors, issuance of a public notice in the local newspaper, and a public webinar.

5. Santa Cruz County Health Services Agency Environmental Health Division and Central Coast Water Board staff worked collaboratively in the development of the LAMP, and Central Coast Water Board staff have determined that the LAMP addresses the required elements of the OWTS Policy.

6. The LAMP requires Santa Cruz County Health Services Agency Environmental Health Division to develop Advanced Protection Management Plans for waterbodies degraded by onsite wastewater treatment systems (OWTS).

7. On November 13, 2020, the Central Coast Water Board and Santa Cruz County Health Services Agency Environmental Health Division notified interested persons of the availability of the draft LAMP, the Central Coast Water Board's intent to approve the LAMP, and provided interested persons with a 30-day opportunity to submit comments and recommendations. Central Coast Water Board and Santa Cruz County Health Services Agency Environmental Health Division staff revised the draft LAMP based on public comments.

8. On June 7, 2021, the Central Coast Water Board and Santa Cruz County Health Services Agency Environmental Health Division notified interested persons of

the availability of the revised draft LAMP, the Central Coast Water Board's intent to approve the LAMP, and provided interested persons with a 30-day opportunity to submit comments and recommendations.

9. On August 24, 2021, the Santa Cruz County Board of Supervisors authorized the submittal of the LAMP to the Central Coast Water Board for approval.

10. On October 14, 2021, the Central Coast Water Board, in a noticed public meeting, heard and considered all comments pertaining to this action.

THEREFORE, be it resolved:

1. The Central Coast Water Board hereby approves the Santa Cruz County LAMP dated August 2, 2021;

2. The Central Coast Water Board directs that the Santa Cruz County Health Services Agency Environmental Health Division may implement its onsite wastewater treatment system program pursuant to its LAMP within its local jurisdiction; and

3. The Central Coast Water Board further directs its Executive Officer to act on its behalf to review, comment, and provide approval of future modifications to the LAMP submitted by Santa Cruz County Health Services Agency Environmental Health Division.

I, Matthew T. Keeling, Executive Officer, do hereby certify the foregoing is a full, true, and correct copy of a resolution adopted by the California Regional Water Quality Control Board, Central Coast Region on October 14, 2021.

Matthew T. Keeling Digitally signed by Matthew T. Keeling
Date: 2021.10.21 09:02:42 -07'00'

Matthew T. Keeling
Executive Officer

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ECM: Santa Cruz County LAMP Approval Resolution
File: Santa Cruz County LAMP
ECM: CW-822536