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Subject: San Bernardino County LAMP

Good afternoon Jay,

Please find the amended draft LAMP. Included are resource material (Appendices document) you may find useful in review of the LAMP. I look forward to meeting with you and discussing the LAMP. Please let me know dates and times that are convenient and I will have a room reserved in our San Bernardino office. Until then please contact me should you have any questions.

Thank you and have a safe and happy holiday,

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Department of Public Health
Division of Environmental Health Services
Land Use Protection/Mosquito and Vector Control
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Attachments

San Bernardino County LAMP Revised 12.20.16.pdf
Appendices San Bernardino County LAMP 12.20.16.pdf



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Local Agency Management Program

For Onsite Wastewater
Treatment Systems

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Definitions

Above Ground Dispersal System

A covered sand bed elevated above original ground surface with an effluent leach field located in the sand bed.

Alternative Treatment System or Alternative OWTS or ATU

Any Onsite Wastewater Treatment System (OWTS) that does not meet the criteria of a conventional OWTS, but is allowed under conditions specified by DEHS.

Basin Plan (or Water Quality Control Plan)

A plan which identifies surface and ground water bodies within each region's boundaries, and establishes for each, its respective beneficial uses, and water quality objectives. Basin plans are adopted by the Regional Water Quality Control Board (RWB) and State Water Resources Control Board (SWRCB), and are approved by the Office of Administrative Law.

Bedrock

The rock, usually solid, which underlies soil or other unconsolidated, surficial material.

California Environmental Data Exchange Network (CEDEN)

A central location to find and share information about California's water bodies, including streams, lakes, rivers, and coastal oceans.

Cesspool

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 cesspools do not have a septic tank to pretreat the sewage prior to discharge into the soil.

Clay

Term used to describe a soil particle, or type of soil texture. As a soil:

- Particle – clay consists of individual rock or mineral particles having diameters of <0.002 millimeters (mm).
- Texture – clay is a soil material that is comprised of 40%, or more, clay particles, not more than 45% sand, and not more than 40% silt particles using the United States Department of Agriculture (USDA) soil classification system.

Cobbles

Rock fragments measuring 76 mm or larger, using the USDA soil classification systems.

Dispersal System

A type of system for final wastewater treatment and subsurface discharge, which may include a leach field, seepage pit, mound, subsurface drip field, or evapotranspiration and infiltration bed.

Domestic Wastewater

Wastewater with a measured strength less than high strength wastewater, which is discharged from plumbing fixtures, appliances and other household devices.

Domestic Well

A groundwater well that provides water for human consumption, and is not regulated by the SWRCB Division of Drinking Water (DDW).

Effluent

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 (EDF)

The data standard adopted by the SWRCB for submittal of groundwater quality monitoring data to the State Water Board's internet-accessible database system, [Geotracker](#).

Existing OWTS

An OWTS that, was constructed, operating, and issued a permit prior to the effective date of the LAMP.

Grease Interceptor

A passive interceptor with a rate of flow exceeding 50 gallons-per-minute located outside a building, and used for separating and collecting grease from wastewater.

Groundwater

Water below the land surface that is at, or above, atmospheric pressure.

High Strength Wastewater

Wastewater, prior to septic tank or other form of OWTS treatment component, having:

- A 30-day average concentration of Biochemical Oxygen Demand (BOD) greater than 300 milligrams per liter (mg/L),
- Total Suspended Solids (TSS) greater than 330 mg/L, or
- A Fats, Oil, and Grease (FOG) concentration greater than 100mg/L.

Impaired Water Bodies/303(d) List

Surface water bodies, or segments thereof, identified on the Section 303(d) list pursuant to the Federal Clean Water Act, approved by the SWRCB, and United States Environmental Protection Agency (EPA).

International Association of Plumbing and Mechanical Officials (IAPMO)

An association that assists individual jurisdictions, both in the United States and abroad, to meet their specific needs by coordinating the development and adaptation of plumbing, mechanical, swimming pools, and solar energy codes.

Local Agency

Any subdivision of state government responsible for permitting, installation, and regulation of OWTS within its jurisdictional boundaries; typically a county, city, or special district.

Local Agency Management Program (LAMP)

A program for the siting, design, operation and maintenance of OWTS, developed by a local agency, and approved by the RWB as an alternate method to achieve the same policy purpose as that of OWTS policy. Herein referred to as the Program.

Major Repair

A repair 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 for a septic tank as a result of compartment baffle failure, or tank structural integrity; failure such that either wastewater is exfiltrating, or groundwater is infiltrating.

Mottling

A soil condition that:

- Results from oxidizing or reducing minerals due to soil moisture changes from saturated to unsaturated over time,
- 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, and
- May indicate historic seasonal high ground water levels.

Mound System

An above ground dispersal system, having subsurface discharge, used to enhance soil treatment, dispersal, and absorption of effluent discharged from an OWTS treatment unit (e.g., septic tank).

National Sanitation Foundation (NSF) International

A not for profit, non-governmental organization which develops health and safety standards, and performs product certification.

New Development

A proposed tract, parcel, industrial, or commercial development which has not been granted one or more of the following, on or prior to approval of the LAMP:

- Approval, or conditional approval, of a tentative parcel or tract map by a local agency (i.e., County/City Planning Commission, City Council, Board of Supervisors),
- A conditional use permit, and/or
- Approval, or conditional approval, from the Division of Environmental Health Services (DEHS), and/or Building and Safety Division.

New OWTS

An OWTS permitted after the effective date of this LAMP.

Notice of Condition

A “Notice of Condition” is a site specific document that is provided to the customer by DEHS. It is the owner’s responsibility to ensure the document is recorded with the County Recorder’s office and a copy provided to DEHS before use of the alternative OWTS is permitted.

OWTS

Wastewater treatment systems that use subsurface disposal, including: individual; community collection and disposal; and alternative collection and disposal systems.

Note: OWTS do not include “graywater” systems pursuant to Chapter 16 of the California Plumbing Code.

Percolation Test

A method of testing water absorption of the soil by using clean water to determine the dispersal system design.

Permit

A document issued by a local agency that allows the installation, use, and/or monitoring of an OWTS.

Projected Flows

Wastewater flows into the OWTS determined in accordance with any of the applicable methods for determining average daily flow in the [California Plumbing Code](#).

Public Water System

A system for the provision of water for human consumption, through pipes or other constructed conveyances, that has 15 or more service connections (or regularly serves at least 25 individuals daily), at least 60 days out of the year. Per [California Health and Safety Code Section 116275\(h\)](#), a public water system includes any:

- Collection, treatment storage, and distribution facilities under control of the operator of the system that are used primarily in connection with the system.
- Collection or pretreatment storage facilities not under the control of the operator that are used primarily in connection with the system.
- Water system that treats water on behalf of one or more public water systems for the purpose of rendering it safe for human consumption.

Public Water Well

A ground water well serving a public water system.

Qualified Professional

An individual licensed, or certified by a State of California agency, to design OWTS and practice as a professional for other associated reports, as allowed under their license or registration. Qualified Professionals include the following:

- Registered Civil Engineers
- Certified Engineering Geologists
- Registered Environmental Health Specialists (REHSs)
- Registered Geologists
- Geotechnical Engineers.

Replacement OWTS

An OWTS that, after the effective date of this LAMP, has its treatment capacity expanded or its dispersal system replaced or added onto.

Regional Water Quality Control Board (RWB)

Regional Water Board is any of the Regional Water Quality Control Boards designated by California 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. Depending on the site specific location of the onsite wastewater treatment system, Regional Water Board reference in this document may refer to the Colorado River Basin Water Board, the Lahontan Water Board, or the Santa Ana Water Board.

Sand

A soil particle or type of soil texture. As a:

- Soil particle – Sand consists of individual rock, or mineral particles, having diameters ranging from 0.05 to 2.0 mm.
- Soil texture – Sand is soil that is comprised of 85% or more sand particles, with the percentage of silt plus 1.5 times the percentage of clay particles comprising less than 15%.

Seepage Pit

A drilled or dug excavation three to six feet in diameter. It is also gravel filled but has a hollow core with a minimum depth below the inlet of 10 feet and receives effluent discharge for dispersal from a septic tank or other OWTS treatment unit.

Septic Tank

A watertight, covered, receptacle designed for primary treatment of wastewater and constructed to:

- Receive wastewater discharged from a building,
- Separate settleable and floating solids from liquid,
- Digest organic matter using anaerobic bacterial action,
- Store digested solids, and
- Clarify wastewater for further treatment with final subsurface discharge.

Service Provider

A person who is state licensed with knowledge and competency in OWTS design, construction operation, monitoring and maintaining an OWTS in accordance with this LAMP. For ATUs, the individual must also be certified and/or trained extensively by the manufacturer of an OWTS with supplemental treatment to install, maintain, service, monitor and repair the specific model/type of OWTS.

Silt

A soil particle or type of soil texture. As a:

- Soil particle – Silt consists of individual rock, or mineral particles, having diameters ranging from 0.05 to 0.002mm.
- Soil texture – Silt is soil that is comprised of approximately 80% or more silt particles, and not more than 12% clay particles using the USDA soil classification system.

Site

The location of the OWTS and/or a reserve dispersal area, capable of disposing 100% of the design flow from all the sources the OWTS is intended to serve.

Site Evaluation

An assessment of the characteristics of the site, sufficient to determine its suitability for an OWTS that meets the requirements of this LAMP.

Soil

The naturally occurring body of porous mineral and organic materials on the land surface, which is composed of:

- Unconsolidated materials, including sand, silt, and clay sized particles.
- Varying amounts of larger fragments, and organic matter.
- Earthen material with particles smaller than 0.08 inches (2mm) in size.

Soil Texture

The soil class that describes the relative amount of sand, clay, silt, and combinations thereof.

State Water Resources Control Board (SWRCB)

A five member State Water Board, which develops statewide water protection plans, and establishes water quality standards.

Supplemental Treatment

Any OWTS, or component thereof, which performs additional wastewater treatment, so the effluent meets a predetermined performance requirement, according to the RWB, prior to the discharge of effluent into the dispersal field. This excludes septic and/or dosing tanks.

Surface Water Ambient Monitoring Program (SWAMP)

A unifying program created to fulfill the Legislature's mandate for the coordination of all water quality monitoring conducted by the State and RWBs. It is managed by a roundtable of monitoring coordinators from the SWRCB and nine RWBs.

Telemetric

The ability to automatically measure and transmit OWTS data by wire, radio, or other means.

Total Coliform

A group of bacteria consisting of several genera belonging to the family *Enterobacteriaceae*, which includes *Escherichia coli* (*E. coli*) bacteria.

USDA

The federal department which provides leadership regarding food, agriculture, natural resources, and related issues.

Waste Discharge Requirement

A permit issued for operation and discharge of waste pursuant to [California Water Code Section 13260](#).

Water Quality Control Plan

Refer to the Basin Plan definition.

Program Overview

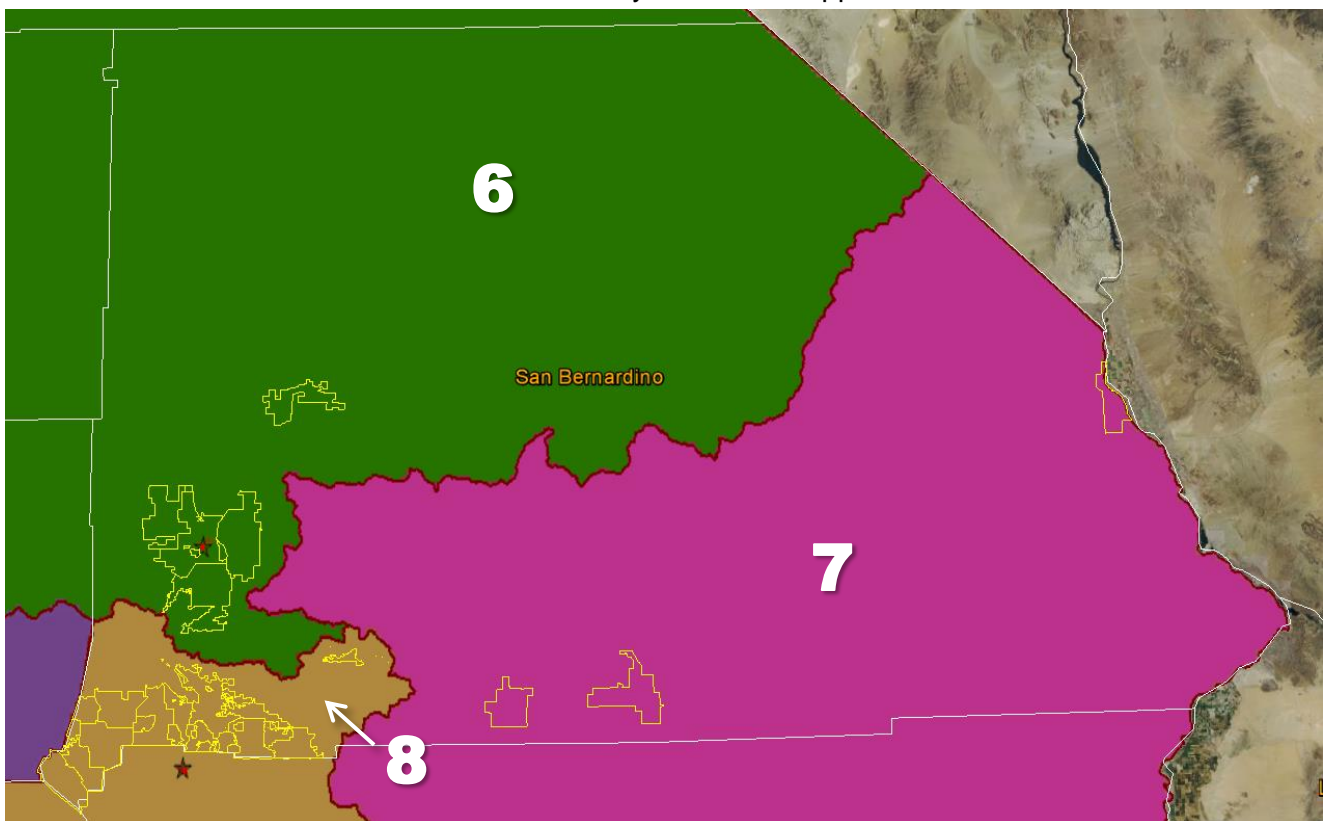
This section provides information regarding the different regions, OWTS Policy, Program needs, requirements, and exceptions, as well as the RWBs contact information.

Regional Water Quality Control Boards (RWB)s in San Bernardino County

OWTS located within San Bernardino County are governed by the following RWBs:

- Region 6 – Lahontan
- Region 7 – Colorado River
- Region 8 – Santa Ana

Each region has environmental differences that create unique construction design concerns. To address these concerns the three regional boards have developed individualized basin plans. These basin plans provide criteria for the installation of OWTS, affected waterways and prohibition areas within their region. This criterion is used to determine which sites may need RWB approval.



OWTS Policy

The OWTS Policy was created to meet the requirements of Assembly Bill (AB) 885 to promulgate consistent, statewide, standards for the regulation of OWTS. The policy was adopted by the State Water Board in June 2012, and became effective May 13, 2013. The policy categorized OWTS into the following tiers:

Tier	Description
0	Applies to all existing systems which function properly, do not meet the conditions of a failing system, and are not contributing to pollution of any waterways.
1	Applies to all new and/or replacement OWTS which meet low risk siting and design requirements in areas which do not have an approved LAMP as specified in Tier 2.
2	Applies to any new and/or replacement OWTS which do not fall into the Tier 3 <u>adjacent</u> to impaired waterways, or in prohibition areas category. This tier is referred to as the LAMP and allows the County to apply standards that differ from the State.
3	Describes all systems currently located <u>within</u> areas denoted as impaired waterways. These systems have been identified as potential sources of pollution, and need to abide by the Advanced Protection Management Program prescribed in Tier 3 of the <u>OWTS Policy</u> .
4	A temporary classification for all systems that have been found to be failing, and/or needing repair. Once the system has been repaired, it will be placed in either Tier 0, Tier 2, or Tier 3.

Program Need

With development in rural areas of San Bernardino County continuing to grow, and with nearly 25% of housing units using OWTS, the requirements defined by Tier 1 of the OWTS Policy do not meet the future development needs of San Bernardino County. The limitations on dispersal depth, the 2 1/2 acre minimum parcel size for new lots on which OWTS can be installed, and the prohibition of the use of seepage pits is too restrictive. The Program specifically addresses waste water issues, County requirements, and scope of coverage for OWTS installation and maintenance. It also allows for the continued use and installation of OWTS. The requirements in the Program are derived from the California Plumbing Code requirements for private sewage disposal systems and local ordinances. See appendices. This section describes the various needs due to diversity and construction.

Diversity

Requirements for OWTS necessitate flexibility due to the diversity of soil conditions, depth to ground water, climates, and population.

Construction

The Program was created to accommodate the various construction needs throughout the unincorporated areas of the County of San Bernardino. The Program includes general technical information regarding construction needs within the County, as well as provides an effective means to manage OWTS on a routine basis. The Program is adaptive and can be modified every 5 years during the required review by the Regional Water Quality Control Board.

Program Standards, Applicability, Requirements and Exceptions

The Program provides minimum standards and requirements for the treatment and disposal of sewage through the use of OWTS, when no connection to a sewer is available, to protect water quality, public health and safety. This section describes the minimum standards, and requirements for OWTS under the Program, as well as detailing the OWTS that are exceptions, and therefore not covered under the Program.

Support of Onsite Wastewater Disposal

When a community sewer is not available, and a property improvement will generate wastewater, the property owner must demonstrate the following to DEHS to verify the lot will support onsite wastewater disposal:

- Soils are conducive to onsite wastewater disposal.
- Sewer is not available within 200 feet (plus 100 feet per dwelling unit thereafter).
- Enough area is available to install a septic system that meets proper setbacks (for new construction, 100% expansion area must be available).
- OWTS will not impact ground or surface water.
- OWTS is sized appropriately to serve the intended land use.

Applicability of Program Standards

Program standards apply to all OWTS which:

- Are newly constructed, replaced, subject to a major repair, and discharge liquid waste below ground.
- Have affected, or have the potential to affect, ground water or other water quality or health hazards.

Requirements

The Program addresses the minimum requirements for monitoring, and/or conditional waiver of waste discharge for OWTS located within the unincorporated areas of the County of San Bernardino. The Program may include one, or more, of the following to achieve this purpose:

- Differing system requirements
- Differing siting controls (i.e., system density and setback requirements)
- Requirements for owners to enter agreements regarding monitoring and maintenance.
- Creation of an onsite management district (also known as a designated maintenance area)

In addition to all standards and requirements, all proposed, and/or currently installed OWTS must be in compliance with Section 33.0890.33-33.08131 of [San Bernardino County Code](#). The Perc Standards need revision to correspond to design criteria included in this document, including the design rate mpi's, soils texture, gravel correction factor update, and slope analysis and any Basin Plan changes adopted by the WB's since 1992.

Exceptions

There are specific OWTS which are not included in the Program. These exceptions require individual discharge requirements, or a waiver of individual waste discharge requirements issued by the RWB. Exceptions include:

- OWTS having a projected wastewater flow of over 10,000 gallons per day (GPD).
- OWTS receiving high strength wastewater, unless the waste stream:
 - Is from a commercial food service facility with BOD less than 900 mg/L, and
 - Has a properly functioning oil/grease interceptor.

- Wastewater treatment plants which do not meet RWB prescribed performance requirement or are not NSF/ANSI certified or listed.

Contact Information

This section provides contact information for the three (3) RWBs which can provide additional guidance regarding OWTS in San Bernardino County.

Lahontan Region (6)

15095 Amarosa Road, Bldg 2, Suite 210
Victorville, CA 92394
(760) 241- 6583
www.waterboards.ca.gov/lahontan

Colorado River Basin Region (7)

73-720 Fred Waring Dr. Suite 100
Palm Desert, CA 92260
(760) 346-7491
www.waterboards.ca.gov/coloradoriver

Santa Ana River Region (8)

3737 Main Street, Suite 500
Riverside, CA 92501-3339
(951) 782-4130
www.waterboards.ca.gov/santaana

Involved Agencies

Oversight of OWTS installation and maintenance is a multiple agency effort. This section provides an overview of the primary agencies involved in San Bernardino County.

Building and Safety Division - Land Use Services Department

The Building and Safety Division is responsible for:

- Issuing permits for new construction, replacement and repair of OWTS.
- Reviewing plot plans for new and replacement OWTS.
- Retaining permit information regarding new construction, replacement systems, repairs, and plot plans.
- Complying with Program reporting requirements regarding issued permits for new and replacement OWTS.

The following information must be provided by the Building and Safety Division to the Division of Environmental Health (DEHS) annually for new, replacement and/or repaired OWTS, along with information provided by other divisions:

- Number of permits issued
- Location
- Description of permits (i.e., new, replacement, an/or repair)
- Tier the permit was issued under

The Building and Safety Division requires DEHS approval on all OWTS proposals when the OWTS is located within a prohibition area, or within the Advanced Protection Management Program (APMP) area (refer to [Chapter 6](#) for more information regarding the APMP).

Obtaining an OWTS permit, and obtaining local land use approval, are two separate processes. Local Land Use approval (i.e., obtaining a Land Use permit) is not a substitute for an OWTS permit issued by the Division of Building and Safety, nor does it guarantee issuance of an OWTS permit.

Code Enforcement - Land Use Services Department

This division is responsible for:

- Investigating complaints for overflowing/failed septic tanks for single family residences, and two-unit dwellings, which includes:
 - Requiring property owners to obtain applicable permits from the Building and Safety Division for repairs, or replacement of failing systems.
 - Retaining information regarding complaints and investigations for overflowing or failed septic systems, and subsequent actions taken.
- Complying with the Program reporting requirements for complaint investigations, which includes:
 - Providing information to the DEHS annually pertaining to OWTS operation and maintenance, including number, and location of the complaints.
 - Identifying investigated complaints.
 - Documenting how the complaints were resolved.

Division of Environmental Health Services (DEHS) - Department of Public Health

This division is responsible for:

- Issuing permits for alternative treatment systems.
- Reviewing:
 - Percolation reports, and
 - Alternative treatment proposals for new and replacement septic systems in:
 - ✓ High risk residential areas, and
 - ✓ Commercial projects.
- Investigating and storing records of complaints for OWTS in multi-family dwellings (3 or more units).
- Complying with Program reporting requirements, which includes:
 - Providing information to the RWB annually regarding:
 - ✓ Complaints pertaining to OWTS operation and maintenance for multi-family dwellings, including number and location of complaints.
 - ✓ Applications and registrations issued as part of the liquid waste hauler program.
 - Identifying investigated complaints for multi-family dwellings, and
 - Determining how complaints were resolved.
 - Compiling data transferred from BNS and Code Enforcement into one county document.

See page 61 for the County Organization Chart.

CHAPTER 2: MINIMUM SITE EVALUATION STANDARDS

This chapter provides information, to determine when a percolation test is required, the minimum site evaluation standards for parcels where an Onsite Wastewater Treatment System (OWTS) is proposed, and minimum qualifications for OWTS practitioners when a sewer connection is not available.

Percolation Testing

The Division of Environmental Health Services (DEHS) requires percolation testing for all new septic systems for residential and non-residential development where a percolation report has not already previously been completed. This section provides information regarding the percolation testing, including the site evaluation, percolation testing notification, and information regarding when seepage pits are allowed.

Site Evaluation

Prior to reviewing a percolation test, and approving the use of an OWTS, DEHS may require a site evaluation during percolation testing to:

- Ensure proper system design, and
- Evaluate site location to ensure the system will be in compliance.

Percolation Testing Notification

A Qualified Professional (as defined in the Definitions section of this document) must first submit a [Notification of Percolation Test](#), to DEHS, at least two business days prior to performing any percolation test in the unincorporated areas of San Bernardino County. When a percolation test notification is submitted for a lot which requires a site evaluation (or a percolation *report* is submitted for a lot which requires a site evaluation and no inspection was conducted), then DEHS will conduct an inspection of the lot to evaluate:

- Lot size,
- Slope,
- Streams,
- Rock outcroppings, and
- Any other criteria which may affect installations of a standard septic system.

Prior to the site evaluation, DEHS personnel will contact the applicant to inform him/her of the site evaluation date and [fee requirement](#).

Percolation Testing

DEHS requires percolation testing, and accompanying reports, to be prepared by a Qualified Professional. For soil to be considered uniform, test results must fall within 25% of the mean percolation rate. If not uniform, use the most conservative test result. Determining the number of percolation tests required will be based on soil conditions and project type. Percolation testing:

- Is used to ensure the dispersal site is located in an area where no conditions exist, which could:
 - Adversely affect the performance of the system, or
 - Result in groundwater contamination.
- Is used to determine the necessary area needed to treat, and maintain underground sewage properly.
- Must be in the general area of the disposal system, both primary and expansion, if the proposed area is known.

Seepage Pits

The use of seepage pits, as a dispersal field, will only be allowed in instances where leach lines are not feasible, and minimum separation requirements to groundwater are met. DEHS requires there be a 10-foot minimum separation from the bottom of the seepage pit to groundwater. When the pit minutes per inch (MPI) is less than 10, the following must occur:

- The separation to groundwater must be at least 40 feet from the bottom of the seepage pit, or
- A sieve analysis of the soil, for a thickness of 10 feet below the bottom of the seepage pit, must contain at least 15% fines passing the #200 United States standard sieve.

Section 33.0895 of the [San Bernardino County Code](#) prohibits the use of seepage pits in the mountain areas.

Evaluation Methods

Site evaluations contain site specific information, which includes a review of the physical features of the site. Exploratory borings or trenches are the main evaluation methods to determine if there is adequate separation from the bottom of the dispersal system to the groundwater. To determine the highest level of groundwater with the dispersal, data from permitted wells, local water purveyors, and the United States Geological Survey (USGS) are used in addition to exploratory borings or trenches. This section details the evaluation methods, as well as the information that will be reported.

Parcel Features

The following parcel features will be evaluated within the percolation report:

- Location of the parcel(s) where the OWTS is being proposed.
- Description of the site and surroundings, including:
 - Water courses,
 - Vegetation type,
 - Existing structures
 - Location of any rock outcroppings, and
 - Historic groundwater.
- Any other feature that may affect sewage disposal.

Soil Profile

Soil characteristics determine the minimum number of exploratory borings (or trenches), as well as the number of percolation tests required for the parcel(s). A soil profile must be created to:

- Determine the suitability of the soils for absorption of wastewater, and
- Verify adequate vertical separation between the bottom of the dispersal field, and historic groundwater levels.

More extensive testing is required, as determined by a Qualified Professional, for moderate and severe soil conditions.

Exploratory Borings

The table below shows the minimum number of exploratory borings needed per development.

Gross Lot size		Soil Conditions	
		Favorable to moderate	Severe
Subdivisions and individual lot sales	<1 acre	3 borings first 10 lots 1 boring every 10 thereafter	8 borings first 10 lots 5 borings every 10 thereafter
	1-5 acres	5 borings first 10 lots 3 borings every 10 lots thereafter	2 borings per lot*
	>5 acres	1 boring per lot*	
Residential lot	Any size	1 boring*	
Commercial lot, or confluent system under one ownership	Any size	1 boring per 4,000 gallons septic tank capacity*	1 boring per 2,000 gallons septic tank capacity*
Parcel Map	5 acres or less	1 boring in the center of the undivided parcel	2 borings evenly spaced in the undivided parcel

* This indicates borings in the area of the disposal system.

Boring and Trenching Results

When reporting the results for boring and trenching, each hole or excavation must be numbered, and graphically describe the soil strata at each excavation. In areas where there is a discrepancy between soil profile indicators (mottling) and direct observations, the direct observation method indicating the highest ground water level will govern. To ensure the reporting results provide all the required information, the following table will be used as a guide:

Observation	Information Described
Soil Profile	<ul style="list-style-type: none"> • Color • Field texture analyses • Soil Mottles • Bedrock • Structure • Roots • Pores
Soil Lithology	Direct visual observation when the soil lithology is stratified and contains low-permeability layers; which may affect the onsite disposal system performance (i.e., sandy silts and clay caliche).
Textures	Approximate percentage of cobbles, gravel, sand, silt, and clay.
Colors	Background soil color using the Munsell Soil Color Chart.
Roots	Presence and extent of small and/or large roots.
Excavating/Drilling	Ease of excavating or drilling based on: <ul style="list-style-type: none"> • Depth to bedrock, and • Rock competency (i.e., soft, firm, hard, refusal).
Moisture at or near the point of saturation after 24 hours	<ul style="list-style-type: none"> • Presence of free water. • Observed groundwater, at the: <ul style="list-style-type: none"> – Level the groundwater reaches in the excavation, or – Highest level of sidewall seepage into the excavation.
Structural Characteristics	Structural characteristics, stratigraphy and geologic origin when it is determined necessary and/or for severe sites.

Minimum Qualifications and Certification for OWTS Practitioners

The following table outlines the minimum qualifications for OWTS practitioners. Any licenses or certifications possessed by these practitioners must have been issued from the State of California.

OWTS Service	Minimum Qualifications
Alternative Treatment System Inspection and Monitoring	Manufacturer Certified Wastewater Maintenance Provider
OWTS Design	<ul style="list-style-type: none"> • Qualified Professional, or • Licensed Contractor (Class A, C-36, or C-42)
OWTS Certification	
Percolation Test	Qualified Professional
Septic Tank Pumping & Reporting	DEHS permitted Liquid Waste Hauler
System Installation (new and replacement)	Licensed Contractor (Class A, C-36, or C-42)

Exception: Per the California Health and Safety Code Section [19825](#), homeowners may build within their property as an Owner-Builder without the need of a professional.

Plot and Grading Requirements

This section provides the requirements needed by the Building and Safety Division and/or DEHS when preparing plot plans and grading plans.

Plot Plans

A plot plan is a plan that is required to be submitted with the percolation report to show where the system will be sited. The plot plan must:

- Include the tested property, drawn to the following scale:
 - Single Family Home, Small Commercial Minimum 1" = 30'
 - Parcel Map, Subdivision, Large Commercial Minimum 1" = 40'
- Show the proposed system, and 100% expansion area, including existing and potential structures, wells, streams, contours, significant vegetation (including trees), rock outcroppings, the location of all borings/tests, and the proposed house pad.
- Include a hypothetical system using the following table:

If lot sales are zoned for...	Then provide a hypothetical system...
Single family homes (lot sale subdivisions),	For a five (5) bedroom home on each lot.
Multi-unit development,	Sufficient for the effluent discharged by an average of three bedrooms per unit.

The proposed dwelling/development must be located so the initial subsurface sewage disposal system (and the required 100% expansion area) functions by gravity flow, unless otherwise approved. When leach lines or pits serve a common system for two or more units, add 30% more square footage to the total absorption area.

Grading Plans

Depending on the degree of grading for a project, San Bernardino County Land Use Department may require a grading plan. If a grading plan is required it should be included with the percolation report submittal. A grading plan helps DEHS ensure testing was done at the correct depths. Where grading is expected, include the original and finished elevations in the grading plan. For details on how to complete a grading plan contact [San Bernardino County Land Development](#).

If...	Then ...
The grading plan was prepared by others,	Comment in regards to the recommendations set forth in the report.
It is unknown if a grading plan is needed,	<ul style="list-style-type: none"> • Include qualifying statements in the area(s) for the primary and expansion systems, or • Title the report "Preliminary" (preliminary reports are adequate for purposes of recordation, with recommendations to be followed for building permit purposes).

CHAPTER 3: SITING STANDARDS

To ensure that Onsite Wastewater Treatment Systems (OWTS) do not adversely affect water quality, the government agencies tasked with protecting the public’s health, ground water and safety have developed siting standards for OWTS. This chapter provides information regarding siting standards such as, minimum lot size, setback requirements (including increased setback and notification requirements for OWTS located near public water systems), natural ground slope and density.

Setback Requirements

The minimum separations listed herein are largely derived from the [California Plumbing Code](#), Appendix H and are measured in feet. In some cases, additions or changes have been made in order to adequately protect public health. Where differences exist, the greater separation prevails, unless waived for cause by the County [as described in [Chapter 7](#) of the Local Agency Management Program (LAMP)]. The following table provides the minimum requirements for installation of OWTS for either new or existing structures.

Table 3.1

Minimum Setback Required From	Septic Tank	Disposal Field	Seepage Pit
Non-Public Water Supply Well ^{1,8}	100	100 ²	150 ²
Public Water Supply Well ¹	100	150 ²	200
Buildings or Structures ³	5	8	8
Property line adjoining private property	5	5	8
Streams and other flowing bodies of water ^{9,11}	100	100	150
Drainage Course	50	50	50
Lakes, ponds, and other surface water bodies ^{10,11}	200	200	200
Colorado River/ Mojave River	50	200	200
Large Trees ⁴	10	-	10
Seepage pits	5	5	12
Disposal field	5	4 ⁶	5
Private domestic water lines (building service line)	5	5	5
Public Domestic Water Lines	10	10	10
Distribution Box	n/a	5	5
Ground surface on sloping ground	n/a	15	15
Groundwater ⁵	5	5 ⁷	10

¹ Drainage piping will clear domestic water supply wells by not less than 50 feet. This distance will be permitted to be reduced to not less than 25 feet where the drainage piping is constructed of materials approved for use within a building.

² For any system discharging 5,000 gallons per day (GPD), or more, the required setback will be increased to 200 feet.

³ Includes porches and steps whether covered or uncovered, breezeways, roofed porte cocheres, roofed patios, carports, covered walls, covered driveway, and similar structures or appurtenances.

⁴ Any tree with a trunk diameter of one foot or more within 5 feet of the system that will not be removed during construction.

⁵ The highest known level to which groundwater is known to have occurred rather than the level at the time when testing occurred.

⁶ Plus 2 feet for each additional foot or depth in excess of 1 foot below the bottom of the drain line.

⁷ For any system utilizing advanced treatment, this minimum separation may be reduced to 2 feet with approval under the Advanced Protection Management Program (APMP) (refer to Chapter 6 for more information regarding the APMP) and the Regional Water Quality Control Board (RWB).

⁸ Unless regulatory or legitimate data requirements necessitate that monitoring wells be located closer.

⁹ Where the edge of the water body is the natural or levied bank for creeks and rivers, or may be less where site conditions prevent mitigation of wastewater to the water body.

¹⁰ Where the edge of the water body is the high water mark for lakes and reservoirs and the mean high tide line for tidally influenced water bodies.

¹¹ 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 will be no less than 400 feet from the high water mark of the reservoir, lake or flowing water body. 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, the dispersal system will be no less than 200 feet from the high water mark of the reservoir, lake or flowing water body.

Minimum Set Back Requirements

When reviewing setback requirements, the minimum:

- Depth of earth cover required over the dispersal field is twelve inches. When the dispersal field cannot be installed twelve inches below the ground surface, and meet the above separation requirements, then a supplemental treatment system will be required.
- Criteria specified in [Table 3.1](#) must be met within the area of the proposed system and within the 100% expansion area for the proposed system.

OWTS Located Near Public Water Systems

Existing or proposed OWTS in close proximity to public water wells and surface water treatment plant intakes, have the potential to adversely impact source water quality. Due to this possibility:

- Increased setback requirements (i.e., OWTS location within 1200 feet of a surface water intake) are necessary.
- The Division of Environmental Health Services (DEHS) and the Building and Safety Division will follow the table below to provide adequate notification (regarding OWTS installations, replacements or repairs to existing OWTS near groundwater or surface water intake) to:
 - Owner(s) of public water systems, and
 - State Water Resources Control Board (SWRCB), Division of Drinking Water (DDW), if the water system is regulated by the DDW.

Step	Action						
1	Determine which division is responsible for the OWTS review. <table border="1" style="margin-left: 20px; width: 80%;"> <thead> <tr> <th style="text-align: center;">If the OWTS review is done for a...</th> <th style="text-align: center;">Then the review will be completed by...</th> </tr> </thead> <tbody> <tr> <td>Percolation report,</td> <td>DEHS.</td> </tr> <tr> <td>Plot plan,</td> <td>Building and Safety Division.</td> </tr> </tbody> </table>	If the OWTS review is done for a...	Then the review will be completed by...	Percolation report,	DEHS.	Plot plan,	Building and Safety Division.
If the OWTS review is done for a...	Then the review will be completed by...						
Percolation report,	DEHS.						
Plot plan,	Building and Safety Division.						
2	Review the location of the proposed new/replacement OWTS (at the time of permit application) in relation to: <ul style="list-style-type: none"> • Impaired water bodies within the County of San Bernardino, and • Public water system service area boundary maps (boundary maps and boundaries are updated annually and/or as needed). 						

Table continued from previous page.

Step	Action								
3	<p>Determine if a proposed or existing OWTS location is within the required setbacks:</p> <table border="1" data-bbox="329 344 1453 1312"> <thead> <tr> <th data-bbox="329 344 784 417">If the proposed OWTS location...</th> <th data-bbox="784 344 1453 417">Then...</th> </tr> </thead> <tbody> <tr> <td data-bbox="329 417 784 968"> <p>Cannot be relocated and is within:</p> <ul style="list-style-type: none"> The required horizontal setback of a public well, or 1,200 feet of an intake point, </td> <td data-bbox="784 417 1453 968"> <ul style="list-style-type: none"> Building and Safety will refer the customer to DEHS. DEHS will: <ul style="list-style-type: none"> Notify the water system owner(s)/DDW of the following: <ul style="list-style-type: none"> The required setbacks have not been met. They have five (5) business days from the receipt of the application to provide recommendations and comments to DEHS. Refer to the section Notifying Water System Owners and the Division of Drinking Water (DDW) for notification requirements. Proceed to step 5. </td> </tr> <tr> <td data-bbox="329 968 784 1115"> <p>Is not within:</p> <ul style="list-style-type: none"> The required horizontal setbacks of a public well, or 1,200 feet of an intake point, </td> <td data-bbox="784 968 1453 1115"> <p>The OWTS will continue to be reviewed based on the requirements in the LAMP, and will not need to meet the additional setbacks.</p> </td> </tr> <tr> <td data-bbox="329 1115 784 1312"> <p>Is suspected to be within the required setbacks, and the location of the public water source cannot be verified,</p> </td> <td data-bbox="784 1115 1453 1312"> <p>The agency completing the review will require the customer to:</p> <ul style="list-style-type: none"> Contact the water purveyor, and Obtain a letter verifying the proposed OWTS is not within the setback requirements. </td> </tr> </tbody> </table>	If the proposed OWTS location...	Then...	<p>Cannot be relocated and is within:</p> <ul style="list-style-type: none"> The required horizontal setback of a public well, or 1,200 feet of an intake point, 	<ul style="list-style-type: none"> Building and Safety will refer the customer to DEHS. DEHS will: <ul style="list-style-type: none"> Notify the water system owner(s)/DDW of the following: <ul style="list-style-type: none"> The required setbacks have not been met. They have five (5) business days from the receipt of the application to provide recommendations and comments to DEHS. Refer to the section Notifying Water System Owners and the Division of Drinking Water (DDW) for notification requirements. Proceed to step 5. 	<p>Is not within:</p> <ul style="list-style-type: none"> The required horizontal setbacks of a public well, or 1,200 feet of an intake point, 	<p>The OWTS will continue to be reviewed based on the requirements in the LAMP, and will not need to meet the additional setbacks.</p>	<p>Is suspected to be within the required setbacks, and the location of the public water source cannot be verified,</p>	<p>The agency completing the review will require the customer to:</p> <ul style="list-style-type: none"> Contact the water purveyor, and Obtain a letter verifying the proposed OWTS is not within the setback requirements.
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<p>Is suspected to be within the required setbacks, and the location of the public water source cannot be verified,</p>	<p>The agency completing the review will require the customer to:</p> <ul style="list-style-type: none"> Contact the water purveyor, and Obtain a letter verifying the proposed OWTS is not within the setback requirements. 								
4	<p>Review any comments/recommendations submitted by the affected water system owner(s) and the DDW prior to issuing an OWTS installation or repair permit for any system.</p>								
5	<p>Notify the affected water system owner(s) and the DDW regarding the action taken upon issuance and/or denial of an OWTS installation or repair permit. Approval/denial will be determined based on the risk of the OWTS to water quality.</p>								
6	<p>Determine if the proposed OWTS location is approved:</p> <table border="1" data-bbox="329 1583 1382 1837"> <thead> <tr> <th data-bbox="329 1583 643 1619">If the location is...</th> <th data-bbox="643 1583 1382 1619">Then DEHS will...</th> </tr> </thead> <tbody> <tr> <td data-bbox="329 1619 643 1724">Approved,</td> <td data-bbox="643 1619 1382 1724"> <ul style="list-style-type: none"> Refer the customer to Building and Safety Division to complete the plot plan review, or Complete the percolation report review. </td> </tr> <tr> <td data-bbox="329 1724 643 1837">Not Approved,</td> <td data-bbox="643 1724 1382 1837"> <p>Inform the customer he/she will need to install an alternative treatment system (refer to Chapter 5 for information regarding alternative treatment systems).</p> </td> </tr> </tbody> </table>	If the location is...	Then DEHS will...	Approved,	<ul style="list-style-type: none"> Refer the customer to Building and Safety Division to complete the plot plan review, or Complete the percolation report review. 	Not Approved,	<p>Inform the customer he/she will need to install an alternative treatment system (refer to Chapter 5 for information regarding alternative treatment systems).</p>		
If the location is...	Then DEHS will...								
Approved,	<ul style="list-style-type: none"> Refer the customer to Building and Safety Division to complete the plot plan review, or Complete the percolation report review. 								
Not Approved,	<p>Inform the customer he/she will need to install an alternative treatment system (refer to Chapter 5 for information regarding alternative treatment systems).</p>								

Horizontal Sanitary Setbacks for Public Wells

The table below provides information to determine the horizontal sanitary setbacks for public wells.

If the dispersal system...	Then the horizontal sanitary setback will be...
Does not exceed 10 feet in depth,	150 feet.
Exceeds 10 feet in depth,	200 feet.
Exceeds 20 feet in depth,	600 feet.

Dispersal systems which exceed 20 feet in depth, and are located within 600 feet of a public well, will be required to have a Qualified Professional evaluate the two-year time travel for microbial contaminants to determine the required setback. In no case will the minimum setback be less than 200 feet.

Notifying Water System Owners and the Division of Drinking Water (DDW)

Based on who is responsible for the water system, DEHS must send notification to the water system owner(s) and/or the DDW regarding any proposed OWTS. The notification will be done either electronically or in writing, and must contain a copy of the permit application, which includes:

- Estimated wastewater flows,
- Intended use of the proposed structure generating the wastewater,
- Soil data,
- Estimated depth to seasonally saturated soils, and
- A topographical plot plan for the parcel showing the OWTS, including:
 - Layout of the system,
 - Property boundaries,
 - Proposed structures,
 - Physical address, and
 - Name of the property owner.

The DDW will only be contacted for systems which are under their purview; this includes any system with more than 200 connections. Systems with fewer than 200 connections will be under the jurisdiction of the local agencies.

Density/Minimum Lot Size Requirements

The County of San Bernardino has minimum lot size requirements for subdivisions of property, which rely on OWTS. In the unincorporated areas, a minimum lot size of one half acre (average gross) per dwelling unit is required for all new developments. This section provides definitions for a new development, as well as an explanation of the requirements for various development types located within the unincorporated areas of the County.

New Developments

When additional structures are added to existing developments, and these additions will result in increased wastewater flows to the existing septic system, these developments will be considered new developments. This applies to single family residential, commercial, and/or industrial developments. No exemptions will be granted for new developments on tracts/parcels which are 200 feet or less from a sewer, which could serve that tract/parcel, barring legal impediments to such use. Based on this information, each additional development (i.e., any development which is more than a single family dwelling) will require this distance to be increased by 100 feet per dwelling unit. As an example, a 10-lot

subdivision will be required to connect to a sewer if the sewer is within 1,100 feet [200 + (9 x 100 feet)] = 1,100 feet) of the proposed development.

Commercial/Industrial Development Requirements

For new commercial/industrial developments which will be utilizing a septic tank/subsurface disposal system, the wastewater flow for each one-half acre of land may not exceed that from a single dwelling unit. When determining compliance with this criterion, the following will be considered equivalent to a single family dwelling unit:

- A flow rate of 300 gallons per day (this flow rate will be prorated for commercial/industrial developments with lots smaller than one half acre), or
- The equivalent of 20 fixture units.
- In the Lahontan Region, a flow rate of 250 gallons per day is required for design purposes in reviewing commercial/industrial developments.

County Discretion

The minimum lot size requirement of one-half acre does not preclude the prescription of more stringent lot size requirements in specific areas, if it is determined necessary to protect water quality. When there is a potential for water quality impacts, the County, at its discretion, may defer consideration of projects to the RWB when the criterion below has not been met. The minimum criteria specified must be met within the area of the proposed OWTS, and within the 100% expansion area of the proposed system.

Minimum Lot Size Exemptions

The minimum lot size requirements do not apply to existing developments with OWTS which were installed prior to the effective date of the Program. Nor does it affect the lot size criterion for continuing exemptions in prohibition areas where a 1 acre minimum lot size is required. This section details when exemptions apply to the minimum lot size requirement for new and/or existing developments.

Single Family Residential Developments

For single family residential developments, when the existing septic system will accommodate additional wastewater flows, additional installations (i.e., rooms, bathrooms) will be exempt from the minimum lot size requirements. A septic certification may be required to verify the septic tank's capacity to accept additional wastewater flows.

Replacements

There will be times when the replacement of a septic tank/subsurface disposal system will be required for systems in existing residential, commercial, and industrial developments to bring the system up to code, based on requirements by Building and Safety Division, and/or DEHS.

For single family residential developments only, replacement of the existing septic tank/ subsurface disposal system may be allowed when the system is proposed to allow additional flows, which result from additions to the existing dwelling unit. This does not include any free standing additional structures, which would be considered new developments (refer to the [New Developments](#) section for more information).

Tracts, Parcels, and Commercial/Industrial Developments

Tracts, parcels, and/or commercial/industrial developments which received land use approval from the local agencies prior to the effective date of the Program, are exempt from the minimum lot size

requirements for the use of septic tank/subsurface disposal systems. The local agencies which grant approval include the County of San Bernardino Planning Division, and/or Board of Supervisors.

Combined Lots Smaller than One Half Acre

New lots, which are smaller than one-half acre, may be formed by combining two or more existing lots which have received land use approval prior to the effective date of the Program. Individually, these lots would be eligible for an exemption from the minimum lot size requirement. Developments on combined lots may also qualify for an exemption:

- Provided the total number of units proposed for the new parcel is equal to, or less than the total number of units proposed for the existing parcel, and/or
- When an alternative treatment system is utilized.

When requesting to use an alternative treatment system, each system will be reviewed on a case-by-case basis, and will require the approval of DEHS, and may require RWB approval.

CHAPTER 4: OWTS DESIGN AND CONSTRUCTION

In an effort to control contamination, pollution and nuisance resulting from the discharge of domestic wastes, the County of San Bernardino has developed minimum criteria to ensure geological factors are identified, and the potential for contamination is minimized during a basic site evaluation. This chapter provides an overview of the minimum requirements for Onsite Wastewater Treatment Systems (OWTS) design and construction.

Minimum Requirements for Natural Ground Slope and Percolation Rates

This section details the minimum criteria for natural ground slopes, as well as percolation rates for OWTS located within the County.

Natural Ground Slope

DEHS requires geological factors be identified by a Qualified Professional during a percolation test, or by DEHS during a basic site evaluation for all systems. For systems located on slopes over 30% or greater, or on unstable landmasses, the Qualified Professional is required to submit a slope study for review and approval to all applicable regulatory agencies. The maximum undisturbed slope for a leachline dispersal system is 45%. Any portion of the disposal field located to the top of a cut or on sloping ground shall maintain a 15 foot horizontal distance from daylight to any portion of the leachline or leach bed. The following table gives the minimum cover required versus the percent of slope in the area of the disposal field to meet the 15 foot requirement. A factor "f" is included by which to increase the length of the trench due to the assumed loss in evapotranspiration caused by the added cover.

Slope of the Ground in the Area of the Disposal System	Minimum Cover Over the Drain Lines in feet	f
5%	1.00	1.0
10%	1.50	1.0
15%	2.25	1.0
20%	3.00	1.0
25%	3.75	1.1
30%	4.50	1.2
35%	5.25	1.3
40%	6.00	1.4
45%	7.00	1.5

SPECIAL CONSIDERATIONS FOR ABSORPTION FIELD PLACEMENT ON SLOPING GROUND

1. If ground slope is >30%, any portion of an absorption field (except solid pipe) shall be a minimum of 10 feet (horizontally) from the downslope property line (s). It is the report preparer's responsibility to certify that this minimum is applied or expanded if the slope is less than or equal to 30%, but the soil conditions are such that a basement or curtain drain already built 5 feet downslope from the lower property line (s) may be affected by sewage effluent. Building and Safety shall check for the setback on the plot submitted for permit.
2. The minimum horizontal distance between any portion of an absorption field (except solid pipe) and an exposed downward sloping impermeable stratum or bedrock in "cut" slope shall be 50 feet. It is the report preparer's responsibility to make recommendations so that systems do not daylight. It is the

owner/contractor (s) responsibility to install systems per the recommendations. The consultant may wish to inspect installations to be assured that recommendations are followed. If so desired by the consultant, make it a requirement of approval. Upon presentation of pertinent engineering data, the County Specialist may stipulate this requirement.

Disposal Area Percolation Rates

Due to varying soil conditions, the following table will be used as a guide to determine if effluent is being processed effectively.

If the discharge is to a...	Then the percolation rate in the disposal area must not be...
Leach field,	Greater than 120 minutes per inch (MPI).
Seepage pit,	Less than 1.1 gallons of effluent per square foot, per day.

Groundwater Protection

The minimum required soil thickness/separation below the bottom of the disposal field to groundwater is determined by the minimum setback requirements in [Chapter 3](#); however, there is an increased separation requirement for faster percolation rates. The following table will be used to determine the required separation.

If the percolation rate is...	Then...
Faster than 5 MPI,	The five feet of soil between the bottom of the leachline and the groundwater must contain: <ul style="list-style-type: none"> • At least 15% of material passing the #200 United States standard sieve, (basis 100% 3/8") and • Less than one-fourth of the representative soil occupied by stones larger than 6 inches.
<ul style="list-style-type: none"> • Faster than 5 MPI, and • The above requirements cannot be met, 	A 40 foot separation (based on recorded data and/or observed mottling) must be maintained between the: <ul style="list-style-type: none"> • Bottom of the leachline, and highest historic groundwater level.

Requirement Exception

The County of San Bernardino prohibits discharge from any OWTS which do not conform to the above stated criteria. An exception occurs when the developer demonstrates, by substantial evidence (or as determined by the County), that pollution, nuisance, and/or contamination will not occur as a result of the discharge of domestic waste.

OWTS Design

The County of San Bernardino has minimum and maximum criteria for design of OWTS located within its borders. This section details these criteria, and explains when OWTS no longer fall within the scope of County oversight, and therefore will be referred to the RWB.

Maximum Allowable Flow

Each one-half acre development must have a flow rate of no more than 300 gallons per day (GPD) (or 20 fixture units); which is considered the equivalent flow for a single family dwelling unit. Lahontan's limit is 250 gallons per day. For industrial/commercial developments with lots smaller than one-half acre, this

flow rate requirement may be prorated. The following table will be used when determining if OWTS no longer fall under the scope of DEHS oversight based on daily flow.

If the projected flow rate is...	Then the OWTS...
More than 10,000 GPD,	<ul style="list-style-type: none"> • Will be reviewed by DEHS and comment on design rate. • Will be referred to the RWB for review and permit issuance.
Less than 10,000 GPD,	<ul style="list-style-type: none"> • Will be reviewed by County agencies, and • May be referred to the RWB on a case-by-case basis, based on individual circumstances.

Soil Depth

The depth of soil between the bottom of the dispersal field and the anticipated level of groundwater (or impermeable material such as clay or bedrock) in the disposal area must not be less than:

- 5 feet for leach lines, and/or
- 10 feet for seepage pits.

On a case by case basis, the required separation may be reduced to 2 feet for leach lines where supplemental treatment is provided in accordance with the Advanced Protection Management Program (APMP) (refer to [Chapter 6](#) for more information regarding the APMP). Approval from the Division of Environmental Health Services (DEHS) is required for all supplemental treatment systems.

Leachline Percolation Rates

Leachline percolation rates are measured in MPI and will be determined by a percolation test. Once determined, the MPI will be converted to ft²/gal/day using the table derived from the OWTS Policy dated June 2012.

The following table will be used when determining percolation rates based on the uniformity of the soil.

If the perc rates are...	Then use...
Uniform,	A percolation rate between the mean and most conservative MPI.
Not uniform,	The most conservative percolation rate.

Seepage Pit Rates

Seepage pit percolation rates are measured in gallons/square feet/day (referred to as the design Q), and will be determined by a percolation test. The design Q for seepage pits must be between 1.1 and 4 gal/ft²/day. Q's greater than 4 gal/ft²/day will not be credited. Caving seepage pit test holes in coarse textured soils with rates greater than 3 gal/ft²/day will not be credited. If gravel correction factor is used, incorporate it into the formula as another multiplier.

Minimum Allowable Replacement Area

The minimum allowable replacement area is an area which will remain undeveloped and available to be used once the primary dispersal area is replaced. This area must be 100% of the original OWTS proposal. The 100% replacement area must meet all minimum criteria outlined within the Program, and be gravity fed. All dispersal systems requiring replacement shall have installed a diversion valve so that the primary system has a chance to drain and recover functionality. If development of the lot prevents future access for heavy equipment to install the replacement dispersal system, then the 100% replacement shall be installed. A credit of 10% in sizing criteria is allowed.

Pump Systems

A pump system will be considered as a hardship and may only be used under the following conditions:

- To salvage an existing structure when an adequate disposal area cannot be reached by gravity flow, and/or
- To allow new house construction on an existing lot when there is no other alternative to pumping. This hardship consideration will be based on reasonable site development.

All construction details for designed systems utilizing a pump system are subject to review and approval by the Building and Safety Division. Minimum conventional construction details can be found in the currently adopted [California Plumbing Code](#).

Leach Line Dispersal Systems

According to the [California Plumbing Code](#) and the [OWTS Policy](#), when computing the absorption area of the leach line dispersal system, the maximum allowable infiltrative area (as an infiltrative surface) per square foot of trench is 7 square feet. The maximum allowable trench width is 3 feet. Where leaching chambers are used, the maximum allowable decreased leaching area per International Association of Plumbing and Mechanical Officials (IAPMO) certified dispersal systems will be computed by using a multiplier of .70.

Oxygen Transfer in Dispersal Systems and/or Replacement Areas

To ensure proper oxygen transfer to the soil, dispersal systems or replacement areas (with the exception of seepage pits) must not be covered by any impermeable material (i.e., paving, building foundation slabs, and/or plastic sheeting).

Figure 4.1: Application Rates as Determined from Stabilized Percolation Rate

Percolation Rate (minutes per inch)	Application Rate (gallons per day per square foot)	ft ² /g/d	Percolation Rate (minutes per inch)	Application Rate (gallons per day per square foot)	ft ² /g/d	Percolation Rate (minutes per inch)	Application Rate (gallons per day per square foot)	ft ² /g/d
<1	Requires Local Management Program	.83	31	0.522	1.92	61	0.197	5.08
1	1.2	.83	32	0.511	1.96	62	0.194	5.15
2	1.2	.83	33	0.5	2.0	63	0.19	5.26
3	1.2	.83	34	0.489	2.04	64	0.187	5.35
4	1.2	.83	35	0.478	2.09	65	0.184	5.43
5	1.2	.83	36	0.467	2.14	66	0.18	5.56
6	0.8	1.25	37	0.456	2.19	67	0.177	5.65
7	0.8	1.25	38	0.445	2.25	68	0.174	5.75
8	0.8	1.25	39	0.434	2.3	69	0.17	5.88
9	0.8	1.25	40	0.422	2.37	70	0.167	5.99
10	0.8	1.25	41	0.411	2.43	71	0.164	6.10
11	0.786	1.27	42	0.4	2.5	72	0.16	6.25
12	0.771	1.3	43	0.389	2.57	73	0.157	6.40
13	0.757	1.32	44	0.378	2.65	74	0.154	6.49
14	0.743	1.35	45	0.367	2.72	75	0.15	6.67
15	0.729	1.37	46	0.356	2.80	76	0.147	6.80
16	0.714	1.4	47	0.345	2.90	77	0.144	6.94
17	0.7	1.43	48	0.334	2.99	78	0.14	7.14
18	0.686	1.46	49	0.323	3.10	79	0.137	7.30
19	0.671	1.49	50	0.311	3.22	80	0.133	7.52
20	0.657	1.52	51	0.3	3.33	81	0.13	7.69
21	0.643	1.56	52	0.289	3.46	82	0.127	7.87
22	0.629	1.59	53	0.278	3.60	83	0.123	8.13
23	0.614	1.63	54	0.267	3.75	84	0.12	8.33
24	0.6	1.67	55	0.256	3.91	85	0.117	8.55
25	0.589	1.7	56	0.245	4.08	86	0.113	8.85
26	0.578	1.73	57	0.234	4.27	87	0.11	9.09
27	0.567	1.76	58	0.223	4.48	88	0.107	9.35
28	0.556	1.8	59	0.212	4.72	89	0.103	9.71
29	0.545	1.83	60	0.2	5.0	90	0.1	10
30	0.533	1.88				>90-120	0.1	10

Table 4.1: 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
		Moderate, Strong	0.4
Loam	Massive	Structureless	0.2
	Platy	Weak, Moderate, Strong	Prohibited
		Prismatic, Blocky, Granular	Weak
		Moderate, Strong	0.6
Silt Loam	Massive	Structureless	Prohibited
	Platy	Weak, Moderate, Strong	Prohibited
		Prismatic, Blocky, Granular	Weak
		Moderate, Strong	0.6
Sandy Clay Loam, Clay Loam, Silty Clay Loam	Massive	Structureless	Prohibited
	Platy	Weak, Moderate, Strong	Prohibited
		Prismatic, Blocky, Granular	Weak
		Moderate, Strong	0.4
Sandy Clay, Clay, or Silty Clay	Massive	Structureless	Prohibited
	Platy	Weak, Moderate, Strong	Prohibited
		Prismatic, Blocky, Granular	Weak
		Moderate, Strong	0.2

Septic Tank Requirements

Construction and installation requirements for septic tanks are reviewed and approved by the Building and Safety Division. Once construction and installation plans are approved, the Building and Safety Division will issue construction permits. This section provides septic tank capacities and requirements for various development types.

Septic Tank Capacity – Single Family Residences

The septic tank capacity for a single family residence is based on the number of bedrooms contained in the unit. The table below provides a summary of the septic tank capacity requirements for a single family residence.

Number of Bedrooms	Gallons of Effluent Per Day	Gallons of Septic Tank Capacity
1-2	500	750
3	670	1,000
4	800	1,200
5-6	1,000	1,500

The design flows used for a primary and secondary dwelling unit must be determined independently, regardless of whether the flows are treated separately or combined in a single OWTS.

Septic Tank Capacity – Multi-Unit Residences and Non-Residential Facilities

The septic tank capacity for multi-unit residences and non-residential facilities is based on the estimated daily flow, or the number of fixture units as determined by the [California Plumbing Code](#), whichever is greater. When creating design proposals for OWTS, developers must:

- Give full consideration to the estimated flows for all projected activities, and
- Include sufficient technical information to support the proposed design flow estimates.
- Distribution/Diversion boxes shall not be installed on the building side of the septic tank (s).
- The following table provides information regarding septic tank requirements:

Component	Requirement
Capacity	Minimum of 750 gallons.
Two Compartments	The first compartment must be equal to two-thirds the total tank volume.
Materials	Must be: <ul style="list-style-type: none"> • Water-tight, • Properly vented, and • Made out of durable and non-corrosive material.
Construction	All tanks must be listed and approved by: <ul style="list-style-type: none"> • IAPMO, or • An American National Standards Institute (ANSI) accredited testing organization.
Access Opening	Access to each tank compartment must have a manhole at least 20 inches in diameter.
Access Risers	A riser must: <ul style="list-style-type: none"> • Extend from each manhole opening to, or above, the surface of the ground, and • Be a size larger than the manhole opening.
Effluent Filter	The outlet of the tank must be fitted with an effluent filter capable of:

	<ul style="list-style-type: none"> Screening solids with a diameter in excess of three-sixteenths of an inch, and conform to National Sanitation Foundation (NSF)/ANSI standard 46.
Tank Connections	Tank connections must comply with standards required by the Building and Safety Division.

Prohibitions and Exemptions

Due to the geology and hydrology of certain areas within the County, prohibitions have been set to protect water quality, public health and safety. This section provides information regarding the areas within the County which have prohibitions, as well as information regarding when an exemption may be granted within these prohibition areas.

OWTS Prohibitions

There are areas within the County of San Bernardino in which the discharge of waste from OWTS is prohibited. These areas include:

- Grand Terrace (County Service Area (CSA) 70, Improvement Zone H)
- Yucaipa – Calimesa (Yucaipa Valley Water District)
- Lytle Creek (above 2,600 feet in elevation)
- Mill Creek (above 2,600 feet in elevation)
- Bear Valley (including Baldwin Lake drainage area)
- Town of Yucca Valley-Contact the Colorado River Basin Water Board for proper protocol.
- The prohibitions In the County areas of the Lahontan region are presented in the Water Quality Control Plan for the Lahontan Region (Basin Plan), Page 4.1-21. The Mojave Hydrologic Unit Prohibition No. 3, states the following:"The discharge of waste from new leaching or percolation systems is prohibited in the following areas (Figure 4.1-17):
 - (a) The Silverwood Lake watershed.
 - (b) Deep Creek and Grass Valley Creek watersheds above elevation 3,200 feet. For this prohibition, "new" systems are any installed after May 15, 1975. An exemption to this prohibition may be granted whenever the Water Board's Executive Officer finds that the operation of septic tanks, cesspools, or other means of waste disposal in a particular area will not, individually or collectively, directly or indirectly, adversely affect water quality or beneficial uses, and that the sewerage of such area would have a damaging effect upon the environment."
- "Mojave Hydrologic Unit Prohibition Area 3." Under Lahontan Water Board Order No. 6-81-3 for Crestline and Lahontan Water Board Order No. 6-84-93 for Lake Arrowhead, the County is authorized to issue OWTS building permits in these exemption areas, usually without Lahontan Water Board's approval.
- Exemptions to prohibitions may be granted by the RWB when it determines that an OWTS (on a particular parcel) will not individually or collectively, directly or indirectly, affect water quality from continued system operation, and/or maintenance. A Qualified Professional must present geological and hydrologic evidence that the OWTS will not result in a pollution, contamination, or nuisance.

Requesting Exemptions in Prohibition Areas

All persons requesting an exemption to the prohibition must complete the process for submitting a percolation report to DEHS. The following table describes the exemption process:

Stage	Description
1	The customer will request an exemption by: <ul style="list-style-type: none">• Completing a percolation test, and• Submitting a percolation report to DEHS.
2	DEHS will: <ul style="list-style-type: none">• Review the percolation report,• Approve/deny the request, and• Return the percolation report to the customer, and• Instruct the customer to obtain RWB approval prior to submitting the plot plan to the Building and Safety Division.
3	The customer will: <ul style="list-style-type: none">• Contact his/her RWB to submit the following for approval:<ul style="list-style-type: none">– Percolation report– Proposed plot plan• Submit the following to the Building and Safety Division for review:<ul style="list-style-type: none">– Proposed plot plan– Percolation report– Verification of RWB approval
4	The Building and Safety Division will: <ul style="list-style-type: none">• Review,• Approve, and• Issue Permit.

Preliminary exemption approval from the RWB may be requested by DEHS. Other necessary information may also be requested by DEHS or the RWB for review of the exemption request.

Special Considerations

The majority of the County of San Bernardino is rural desert area, where geologic conditions have a less significant impact on OWTS. The mountain areas throughout the County, however, have significantly more geological factors which must be addressed prior to installing an OWTS. This section discusses the various geological factors within the County which will be given special consideration when reviewing requests for OWTS installation.

Geological Factors

The performance of OWTS is affected greatly by the geology of the land in which it is located. Geological factors which must be accounted for prior to installing an OWTS include:

- Soil characteristics,
- Slope stability,
- Topography,
- Landforms, and
- Presence and movement of subsurface water.

Groundwater Conditions

The County relies on local aquifers for both public and private water supplies. Site evaluation includes identifying and documenting any signs of groundwater. The documentation and soil permeability identified by a percolation test provides the basis for selecting OWTS design and separation distance of the dispersal system. This documentation is obtained to minimize contamination of the groundwater in the local aquifers.

Designated Maintenance Areas (DMAs) are Tier 3 areas of special concern

There are areas within the County which have a high density of OWTS. Due to the unique topographical and hydrogeological conditions in these areas, additional monitoring and maintenance is required. To respond to the needs in these areas, DMAs have been created to establish criteria and minimum requirements for the discharge of sewage effluent from OWTS, without endangering water quality, public health and safety.

DEHS has approximately 1,200 OWTS permitted in the DMAs. All systems located in these areas are required to maintain an operating permit with DEHS and are inspected biennially. The following are all the DMAs located within the United States Forest Service, as defined by the maps filed with the Clerk of the Board:

- Polique Canyon Tract
- Lakeview Tract
- Pine Knot Tract
- Metcalf Creek Tract
- Big Bear Tract
- Willow Glen Tract

These three communities have their own DMA ordinance:

- Mountain Home Village
- Forest Falls
- Angelus Oaks

Salt and Nutrient Management Plan (SNMP)

A SNMP is required as a part of the RWB [Recycled Water Policy](#). The plan was developed to:

- Ensure the region's long term water quality objectives are understood,
- Streamline the permitting process for various water quality related projects, and
- Ensure compliance with water quality objectives.

DEHS will work with the RWBs, Mojave Water Agency (MWA), Chino Basin Watermaster, San Bernardino Valley Municipal Water District, and San Bernardino County Flood Control to provide requested information regarding OWTS usage within the unincorporated areas of the County. This information may be used by the RWB and/or any area watermaster when developing the SNMP. DEHS will utilize the SNMPS from these agencies as a tool to:

- Assess whether OWTS within the unincorporated areas are contributing to nitrate loading, and
- Address any necessary changes during the Program evaluation, which is every five years.

Domestic Well Usage

The majority of domestic wells in San Bernardino County are located throughout the desert and rural unincorporated areas. In these areas domestic wells are often used in conjunction with OWTS. In an effort to ensure the protection of new and existing wells from the effects of OWTS, the following requirements exist:

- Minimum horizontal setback distances between OWTS and any well.
- Well water testing for all newly constructed wells.
- Allowing supplemental treatment as an option for OWTS in areas where there are potential impacts to groundwater due to:
 - High domestic well usage, and/or
 - Existence of other limiting factors (i.e., shallow groundwater or fast percolation rates).

Prohibited Discharge Conditions for Septic Tank Systems

In an effort to ensure the proper functioning of septic tank systems, as well as prevent adverse effects to the environment, the following discharges are prohibited for septic tank systems:

- Surface water, rain, and/or other clear water.
- Toxic or hazardous chemicals to a domestic system.
- Water softener and iron filter discharge to a sewage disposal system or on the ground surface, unless specifically approved by RWB. Water softener and iron filter discharge must be disposed of at an approved disposal site.

Note: Commercial developments will have individual monitoring ports for each unit connected to a confluent sewage disposal system if there is a single owner of the development. Multi-owner units (condo type) will have a separate system for each unit.

Surface Water Quality Protection

Setback requirements are the primary source of protection for surface water. These setbacks act as a buffer zone between the potential contaminants of the OWTS and the water body. The requirements listed in the Program are consistent with the basin plans for all three RWBs located in San Bernardino County, as well as meeting or exceeding requirements outlined in the [California Plumbing Code](#). This section describes the requirements for surface water quality protection.

WaterSheds

Watersheds are reservoirs which serve as a local source of drinking water supply, and therefore require special protections. These areas are outlined in the basin plans for the three local RWBs. Increased setback standards are required for any OWTS proposal within 2,500 feet of surface water intake for public water supplies (refer to the [Local Watershed Management](#) section for more information regarding the watersheds located within San Bernardino County).

Impaired Water Bodies

There are several water bodies located within the County which are listed as impaired, pursuant to the [Clean Water Act, Section 303\(d\)](#). All of these water bodies are located under the purview of the Santa Ana RWB. Any OWTS installed within 600 feet of the impaired water bodies contained in the 303(d) list are subject to the APMP (Advanced Protection Management Program, refer to [Chapter 6](#) for more information regarding impaired water bodies and the APMP).

Special Circumstances

In the mountains and rural areas in the deserts, there are multiple known OWTS located in areas which require setbacks. When these systems are replaced, they will be required to meet the current standards. The following factors will also be given special consideration and will be reviewed on a case-by-case basis:

- Density
- Parcel size
- Potential cumulative OWTS impact issues

Note: To provide greater flexibility to County residents, alternative systems may be approved on a case-by-case basis with revised standards for setback requirements.

Wrightwood

Wrightwood is located at the east end of the San Gabriel Mountains in the Angeles National Forest. This community is located at an elevation of approximately 6,000 feet above sea level and has no municipal sewer services. As a result, all development in this area requires OWTS. This section details information regarding OWTS requirements that are unique to this area due to its geology and hydrogeology.

Hydrogeology

There are numerous creeks and drainage courses that traverse the Wrightwood community. These include, but are not limited to:

- Heath Canyon Creek,
- Sheep Creek, and
- Swarthout Creek.

Blue Zone

Due to the hydrogeology of this area, there is a designated “Blue Zone” where historically the groundwater has been at or near ground level. As a result of these historic ground water levels, DEHS requires percolation tests be completed for all new and replacement systems for any parcel in this area. The percolation report must show that Program requirements can be met with the historic ground water levels indicated in [Table 4.2](#) (refer to [Figure 4.2](#) for a map of the Blue Zone). When the Program requirements cannot be met, an alternative treatment system will be required.

Blue Zone Groundwater Levels

The following table provides information regarding the lots located within the Blue Zone and includes the depth to groundwater in each lot.

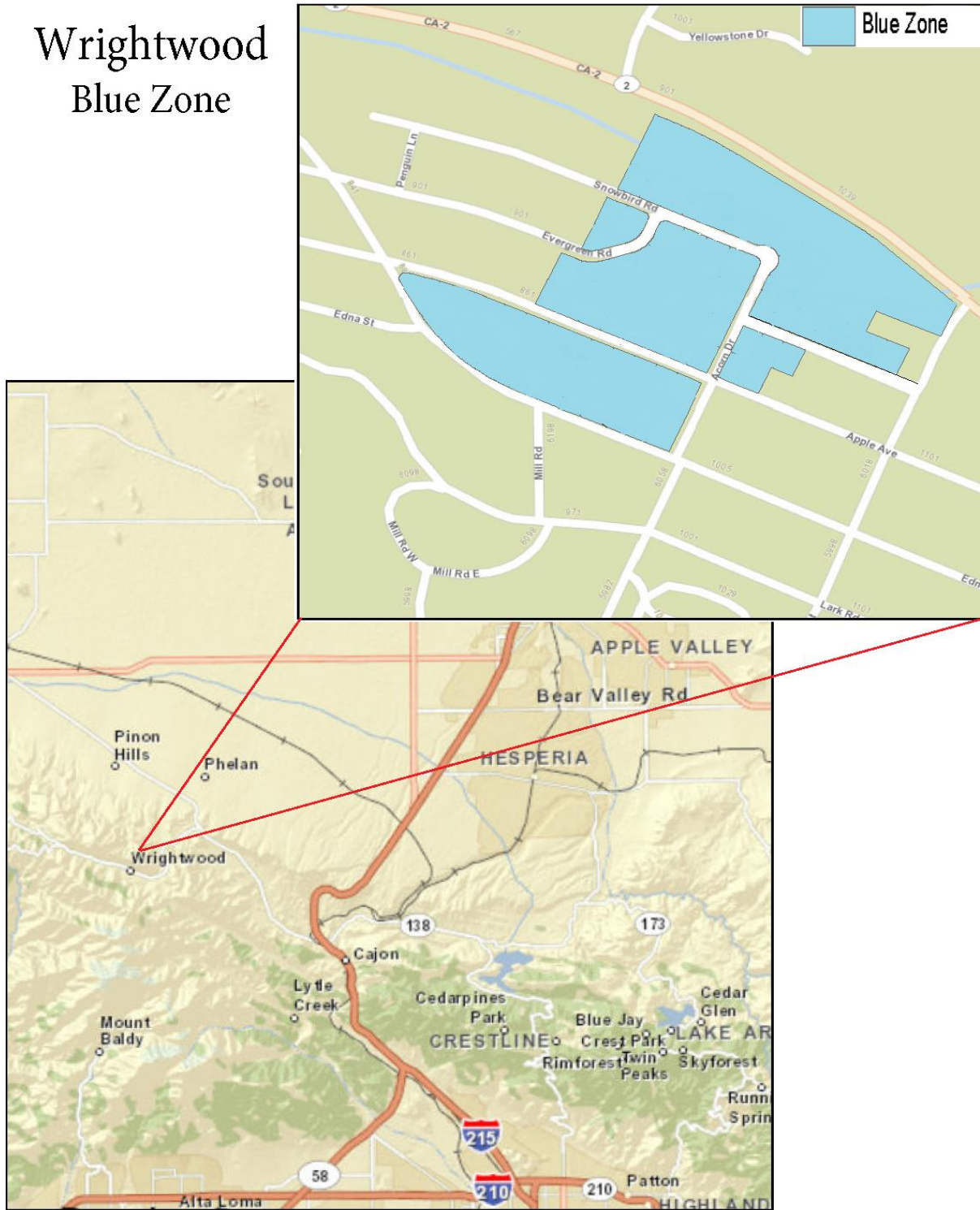
Table 4.2

Tract/Tentative Parcel Map (TPM) Number	Lot Number	Depth to Groundwater (ft.)
TPM 4044	1 and 2	3
Tract 2999	141 through 147	3
	148	0
	149	1
	150	2
	151	3
	152	4
	153	5
	154	6
	161 through 165	3
	180 through 187	3
	188 through 203	5
Tract 6039	17 through 18	3
	33 through 34	3
Tract 6217	1 through 4	3
	5	5
	6 through 11	0
	12 through 19	3

All areas within Wrightwood will require a percolation report for all new construction. DEHS may also, on a case-by-case basis, request an exploratory boring or trench for OWTS replacement proposals to confirm the OWTS can be installed according to the required setbacks.

Figure 4.2

Wrightwood Blue Zone



Sources: Esri, DeLorme, HERE, USGS, Intermap, increment P Corp., NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), TomTom

Lake Williams

Lake Williams is a community located in the San Bernardino Mountains approximately 3.5 miles southeast of the Baldwin Lake. There is no public sewer system service available to this community and all homes utilize OWTS, with many homeowners utilizing private wells. The City of Big Bear Lake Department of Water and Power (BBLDWP) provides water to residents from two municipal supply wells located in the Lake Williams area. BBLDWP noted an increase in nitrate levels in one of the municipal supply wells beginning in 1990. This section provides information regarding how these levels are being mitigated and/or managed.

Contaminant Study

After noting the increased nitrate levels in the municipal well water, BBLDWP funded a study in 2006 which was conducted by Geoscience Support Services, Inc. This study was done in an effort to mitigate and/or manage the nitrate levels before they exceeded the 10 milligrams per liter (mg/L) maximum contaminant level (MCL) for Nitrate as Nitrogen. The study determined there had been a steady increase in nitrate levels which was attributed to OWTS.

Note: A copy of the contaminant study may be obtained by contacting the RWB.

Requirements

Based on the study, the wells which show an increase in nitrate levels were found down gradient of the Lake Williams community. In an effort to protect water quality, public health and safety and mitigate an increase in nitrate concentrations, the following requirements have been established:

- Alternative treatment systems will be required for all new developments in the Lake Williams area.
- Replacement OWTS will be reviewed on a case-by-case basis to determine whether a conventional or alternative OWTS will be required, taking into account:
 - Groundwater nitrate levels,
 - Septic system density, and
 - Type of failure.

Tier 4 Classified OWTS

As noted in the [OWTS Policy](#) section, Tier 4 is a temporary classification for all systems that have been found to be failing, and/or in need of repair. OWTS which are included in Tier 4 must continue to meet applicable requirements of the Program, pending completion of corrective action. This section provides detailed information regarding OWTS, which are classified as requiring corrective action.

OWTS Requiring Corrective Action

OWTS have the primary purpose of protecting public health. When systems are no longer meeting this purpose, they are deemed to be failing and require corrective action. When this occurs, systems must be replaced, repaired, or modified so as to return to proper functioning and comply with Tier 2 or 3 classifications as appropriate. Failing OWTS include any OWTS which has:

- A Dispersal system failure which is no longer percolating wastewater adequately, causing:
 - Pooling effluent,
 - Wastewater discharge to the surface, and/or
 - Backed up wastewater into plumbing fixtures.
- A Septic tank failure (i.e., baffle failure, tank structural integrity failure), causing:
 - Wastewater to exfiltrate, or
 - Groundwater to infiltrate the system.
- A Component failure (i.e., broken piping connection, distribution box).
- Affected, or has the potential to affect groundwater, or surface water to a degree which:
 - Makes it unsafe for drinking or other uses, or
 - Is causing a condition, which affects human health, or is a public nuisance.

Addressing Corrective Action Requirements

In order to retain coverage under the Program, owners of OWTS must:

- Address any corrective action requirement of Tier 4 as soon as reasonably possible (as determined by DEHS), and
- Comply with the time schedule of any corrective action notice received from the County, or the RWB.

When the owner of an OWTS is not able to comply with corrective action requirements, the County may approve repairs which are in substantial conformance with the Program to the greatest extent practicable given the limitations of the project site. However, the repair may still have a reasonable potential to cause a violation of water quality objectives.

Failure to Address Corrective Action Requirements

OWTS which fail to meet the corrective action requirements of Tier 4 constitute a failure to meet the conditions of the waiver of waste water discharge requirements contained in the Program. These are subject to further enforcement actions, which includes, but is not limited to:

- Citations and/or fines from Code Enforcement
- Legal action against the property

CHAPTER 5: ALTERNATIVE TREATMENT SYSTEMS AND SEWAGE HOLDING TANKS

This chapter provides information which will be used to determine when an Alternative Treatment System, or other wastewater disposal methods (i.e., a sewage holding tank), is needed.

Alternative Onsite Treatment Systems

Alternative treatment systems are required:

- If it is determined that:
 - A conventional septic system is not feasible for new construction,
 - The repair or upgrade of any existing Onsite Wastewater Treatment System (OWTS) cannot meet the requirements of the Program
- To maintain an annual operating permit with DEHS.
- To meet Advanced Protection Management Program (APMP) requirements when installed near impaired bodies of water on the 303(d) list (refer to [Chapter 6](#) for more information regarding impaired water bodies and the APMP).

Types of Alternative Treatment Systems

The types of alternative treatment systems include, but are not limited to:

- Supplemental treatment to a predetermined performance requirement according to the RWB
- Mound systems
- Evapotranspiration systems
- Pressure distribution
- Subsurface drip dispersal
- Sand filtration systems
- Other non-conventional OWTS approved by DEHS and the appropriate Regional Water Board (RWB)

Wastewater Sample Requirements for Supplemental Treatment Systems

All supplemental treatment systems are required to have quarterly wastewater samples taken the first year. Important information regarding these samples include:

- The wastewater samples must include the geographic coordinates (latitude and longitude) of the sample's location.
- Effluent samples will be taken by a service provider and analyzed by a California Department of Public Health (CDPH) certified laboratory. A copy of a service provider contract must be submitted to DEHS by January 30th of each calendar year.
- The sample frequency may be reduced to annual water samples, if all four quarterly wastewater samples show the system is meeting the supplemental treatment requirements and with approval from DEHS (refer to the [Additional Requirements for Supplemental Treatment Systems](#) section for more information).
- For effluent, nitrate (as nitrogen) and total (Kjeldahl) nitrogen testing is required.

Alternative Treatment System Requirements

Alternative treatment systems must meet the following requirements for review and approval by DEHS:

- Be certified by National Sanitation Foundation (NSF), or another approved third party tester.
- Be designed by a Qualified Professional.

- Contain a description, in the percolation report and/or the plot plan, of the type of wastewater which will be discharged to the OWTS (i.e., domestic, commercial or industrial), and classification of it as domestic wastewater or high-strength waste.
- Contain a schedule of all materials and products that will be used to construct the system. This includes:
 - All technical details and informational maintenance or replacement documentation on the alternative treatment system that will be provided to the homeowner.
 - Procedures to ensure maintenance, repair, or replacement of critical items within 48 hours following failure.
- Ensure all of the following individuals are present onsite during the installation:
 - Qualified Professional,
 - Representative from the alternative treatment system manufacturer,
 - Licensed contractor, and
 - Individuals from any required regulatory agencies.

Supplemental Treatment System Proposals

Property owners proposing an Alternative Treatment System must submit the following to DEHS:

- [Application for Percolation Review](#),
- Preliminary approval from the respective RWB for the alternative treatment system (if applicable),
- Supplemental Treatment System supporting literature (if applicable).
- Plot Plan,
- Percolation Report (if not previously submitted and approved), and
- The Percolation Report and Alternative Treatment system review fees.

Plot Plan Requirements

Plot plan requirements are the same for alternative system as for conventional systems; however, the plot plan must also be signed and stamped by a Qualified Professional. Final approval for plot plans is a Building and Safety function, not DEHS.

When an Alternative Treatment System is Installed

Once property owners install an alternative treatment system:

- A “Notice of Condition” must be recorded. Proof of the filing must be provided to DEHS within 30 days of installation and final inspection has been made by B&S.
- Parcels must connect to a sewer as soon as it becomes available, and the alternative treatment system must:
 - Cease to be used, and
 - Be properly abandoned. The owner must obtain a permit from the Building and Safety Division for the abandonment of the system.

Owner Resources

Owners of Alternative OWTS may obtain information regarding maintenance, repair, and/or replacements from the system designer/installer or manufacturer.

Additional Requirements for Supplemental Treatment Systems

Supplemental treatment systems must also:

- Install a visible or audible alarm, as well as a telemetric alarm that alerts the owner or owner’s agent when there is a system failure or malfunction.

- Provide DEHS literature from the manufacturer showing the:
 - Total nitrogen in the effluent from the alternative treatment system meets a minimum 50 percent reduction in total nitrogen when comparing the 30-day average influent to the 30-day average effluent,
 - Effluent from the alternative treatment system does not exceed a 30-day average Total Suspended Solids (TSS) of 30 milligrams per liter (mg/L), and
 - Effluent has a fecal coliform bacteria concentration less than or equal to 200 Most Probable Number (MPN) per 100 milliliters (for systems near a body of water impaired for pathogens or where required by DEHS or the RWB).
- Define which treatment mode will be used, if the system has multiple treatment modes.
- Define the effluent water sample frequency, as determined by DEHS.
- Provide the name and contact information for the approved service provider that will maintain the system.
- Provide the name of the CDPH certified laboratory where the effluent water samples will be analyzed.
- Use the OWTS Certification form when serviced by a service provider.

Supplemental Treatment System Submittal

Supplemental treatment systems are required when it is necessary to reduce the biological or nitrogen load of the wastewater effluent. This includes when the OWTS is located:

- Near an impaired water body, or
- Where minimum lot size requirements cannot be met.

When reviewing a supplemental treatment system proposal for an existing septic system, it must be determined what alterations or additions will be made.

If a supplemental treatment system is proposed for an existing septic system and...	Then a ...
No alterations or additions to the septic system will be completed,	Septic certification will be required, in addition to the Alternative Treatment System Requirements .
Alterations or additions to the septic system will be made,	Percolation report and/or septic certification may be required, in addition to the Alternative Treatment System Requirements .

Sewage Holding Tanks

Under normal circumstances, no person or entity will install, utilize, or control the use of any sewage holding tank within the unincorporated area of the County for the confinement of sewage discharged from a dwelling, business establishment, or other facility. However, this section describes exceptions when a sewage holding tank is allowed.

When to Allow for Sewage Holding Tanks

DEHS may allow sewage holding tanks when the property for which the permit is requested is:

- Within the boundaries (or sphere of influence) of a district or sewerage entity, and
- Unsuitable for a conventional or alternative treatment system. Documentation must be provided to DEHS to show that a conventional or alternative wastewater treatment system is not feasible (i.e. percolation report, plot plan, or other documentation as requested by DEHS).

When an existing dwelling, business establishment or other facility is not within the boundaries (or sphere of influence) of a sewerage entity, an exemption from the requirement may be granted by DEHS. This is to eliminate a public health hazard or code violation where no other acceptable means of sewage disposal is feasible.

Sewage Holding Tank Requirements

DEHS must approve all plans for the design, location and installation of sewage holding tanks. The following must be provided for review and approval:

- A completed [Sewage Holding Tank Application](#), including documentation that all required DEHS conditions stipulated in the application have been completed.
- A copy of the current maintenance contract with a septic tank pumper. The contract will be placed on file with DEHS and must include the following terms:
 - A minimum of one inspection of the sewage holding tank per month, with servicing (pumping) as necessary.
 - The pumper will provide all emergency servicing required.
 - In the event the contract is cancelled or property ownership changes, the septic tank pumper will immediately notify DEHS of the cancellation or change in ownership.
- A “Notice of Condition” must be recorded on the property once the sewage holding tank has been installed. Proof of the filing must be provided within 30 days of the installation and final inspection and permit finalized by B&S.
- A written agreement with DEHS (refer to the [Sewage Holding Tank Agreements](#) section for information).

Requirements When Properties With Sewage Holding Tanks Are Sold

When a property containing a sewage holding tank is sold:

- The present property owner will notify the new property owner of the DEHS requirement to obtain a new permit.
- DEHS will give the new property owner written notice of the permit conditions to be completed prior to occupancy of the property.

Note: Properties served by a sewage holding tank will be subject to an annual operating permit fee, as set forth in the [County Fee Schedule](#), to pay the cost of routine inspections and program administration.

Sewage Holding Tank Agreements

When submitting sewage holding tank agreements, the document must be:

- Satisfactorily completed,
- Signed by all property owners who will be using the proposed sewage holding tank, and
- Filed with DEHS prior to the issuance of any DEHS permit.

When sewage collection lines become available within 200 feet for service to properties using a sewage holding tank, the property owner will connect to the sewage collection line and properly abandon the sewage holding tank (within 90 days).

Recreational Residences (Forest Service Cabins)

San Bernardino County currently has over 700 Recreational Residences (more commonly referred to as Forest Service Cabins) in the San Bernardino National Forest. Facts regarding Recreational Residences include:

- The majority of these were constructed in the early 1900s with the intent of being summer homes that are occupied at least 15 days annually, but are not to be used as a permanent residence.
- They are privately owned, but the land they are built on is owned by the Forest Service.
- Owners are issued a “Recreational Residence Special Use Permit” by the local district ranger for up to twenty years’ time, with the option to renew at the end of that period.

Due to topographical and hydrogeological conditions, and lot size of most of the Recreational Residences, septic system minimum requirements are not always met; therefore:

- Sewage holding tanks may be permitted upon approval.
- For DEHS to approve a septic system, or sewage holding tank, all the requirements outlined in the Program must be met.
- Written approval from the Forest Service must be provided prior to DEHS approval.

CHAPTER 6: TIER 3 – ADVANCED PROTECTION MANAGEMENT PROGRAM FOR IMPAIRED AREAS

An Advanced Protection Management Program (APMP) is the minimum required management program for all Onsite Wastewater Treatment Systems (OWTS) located near a water body that has been listed as impaired due to nitrogen or pathogen indicators, pursuant to the [Clean Water Act, Section 303\(d\)](#). Local agencies are authorized to implement APMPs in conjunction with an approved Program or when there is no approved Program, Tier 1. Per the State Water Resources Control Board's (SWRCB's) [OWTS Policy](#), OWTS which are located near impaired water bodies may be addressed by a Total Maximum Daily Load (TMDL) and its implementation program, or special provisions contained in a Program. The County of San Bernardino has chosen to develop an APMP closely derived from Tier 3 requirements provided in the OWTS Policy. This chapter provides information regarding the County's APMP.

Basin Plans

The Regional Water Quality Control Boards (RWBs) have developed basin plans to dictate the water quality protection regulations which govern wastewater discharges. This section provides information regarding basin plans for impaired water bodies located within San Bernardino County.

Issues Addressed in Basin Plans

When developing basin plans the RWBs address information which includes, but is not limited to:

- Excessive nitrate levels from agricultural practices,
- Perchlorate clean up from industrial activities, and/or
- Bacterial contamination of surface water.

Impaired Water Bodies

Within San Bernardino County, the State Water Resources Control Board has identified various surface waterways as impaired, per Attachment 2 of the [OWTS Policy](#). The water bodies listed have been specifically identified per the [303\(d\) list](#), where it is likely:

- OWTS will subsequently be determined to be a contribution source of pathogens or nitrogen, and therefore anticipated that OWTS would receive a loading reduction, and
- New OWTS installations discharging within 600 feet of the water body would contribute to the impairment.

The following table is an excerpt from Attachment 2 of the OWTS Policy indicating the areas within San Bernardino County which are subject to the APMP; the RWBs must adopt a TMDL by the date specified.

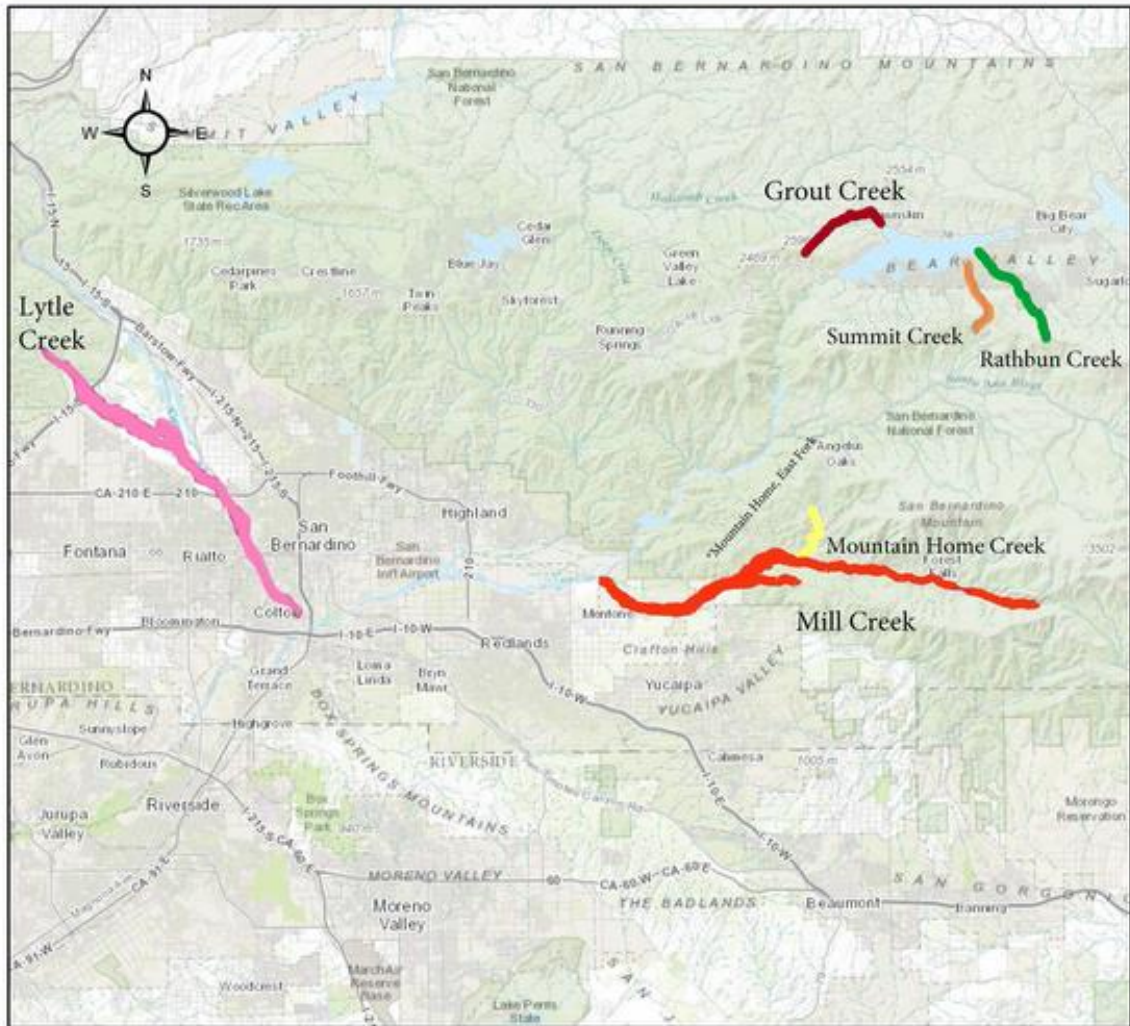
Table 6. 1

Name	Region	Impairment	TMDL Completion Date
Lytle Creek	Santa Ana	Pathogens	2019
Mill Creek Reach 1	Santa Ana	Pathogens	2015
Mill Creek Reach 2	Santa Ana	Pathogens	2015
Mountain Home Creek	Santa Ana	Pathogens	2019
Mountain Home Creek, East Fork	Santa Ana	Pathogens	2019
Grout Creek	Santa Ana	Nitrogen	2015
Rathbone (Rathbun) Creek	Santa Ana	Nitrogen	2015
Summit Creek	Santa Ana	Nitrogen	2015

The following map illustrates the impaired water bodies located within San Bernardino County.

Figure 6.1

Impaired Water Bodies in San Bernardino County



Impaired Water Body

- Mill Creek
- Lytle Creek
- Rathbun Creek
- Mountain Home
- Grout Creek
- Mountain Home, East Fork *
- Summit Creek

*Mountain Home, East Fork is approximately 0.5 miles and not visible on this map

0 3.25 6.5 13 Miles

Service Layer Credits: Sources: Esri, HERE, DeLorme, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

Total Maximum Daily Load

[Section 303\(d\)](#) 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 generally adopted as Basin Plan amendments and contain implementation plans detailing how water quality standards will be attained. This section provides information regarding the TMDL requirements for impaired water bodies located within the County of San Bernardino.

TMDL Calculation

According to the United States [Environmental Protection Agency \(EPA\)](#) website, a TMDL calculates the maximum amount of a pollutant allowed to enter a water body so the water body will meet, and continue to meet, water quality standards for that particular pollutant. The TMDL calculation includes both anthropogenic and natural background sources of pollutants, which includes allocations to:

- Point sources [Wasteload Allocation (WA)], and
- Nonpoint sources [Load Allocation (LA)].

TMDLs must also include a margin of safety (MOS) to account for the uncertainty in predicting how well pollutant reduction will result in meeting water quality standards, and account for seasonal variations. The TMDL calculation is:

$$\text{TMDL} = \text{Sum of WA (point sources)} + \text{Sum of LA (nonpoint sources and background)} + \text{MOS}$$

Geographic Area for APMPs

Where there is an approved TMDL, the geographic area for each water body's APMP is defined by the applicable TMDL. When there is not an approved TMDL which defines the geographic area, it will be 600 linear feet (in the horizontal map direction) of a water body listed on the [303\(d\) list](#), where the edge of the water body is the:

- Natural or levied bank for creeks and rivers.
- High water mark for lakes and reservoirs.
- High tide line for tidally influenced water bodies, as appropriate.

There may be OWTS located near impaired water bodies which would not be included in the APMP; however, they must meet all the requirements of the Program:

- Not listed in Attachment 2 of the [OWTS Policy](#),
- Without an approved TMDL, and
- Not covered in this Program with special provisions.

TMDLs for Impaired Waterbodies

Currently, there are no TMDLs for the impaired water bodies on the 303(d) list. Once a TMDL is adopted, the TMDL implementation plan will supersede the APMP. Unless a TMDL is modified to include actions for OWTS, the OWTS located near an impaired water body is not required to take any further actions when there is an approved TMDL, which:

- Addresses the impairment, and
- Does not assign a load allocation to the OWTS.

Note: Existing, new and replacement OWTS located near impaired water bodies are covered by a Basin Plan prohibition and must comply with the terms of the prohibition (refer to [Prohibitions and Exemptions](#) for more information).

TMDL Completion Dates

The RWB must adopt TMDLs for the impaired water bodies identified on the [303\(d\) list](#) in accordance with the dates specified (refer to [Figure 6.1](#) for more information regarding TMDL completion dates). Should the RWB not adopt a TMDL within two years of the specified date, coverage provided by the [OWTS Policy](#)'s waiver of waste discharge requirements will expire. This applies to any OWTS which has any part of its dispersal system discharging within the geographic area of an APMP. The RWB will then be responsible for the following, with regard to these OWTS:

- Corrective action, and
- Issuing:
 - Waste discharge requirements (site specific),
 - General waste discharge requirements (non-site specific), and
 - Waivers of waste discharge requirements.

OWTS Without an Adopted TMDL Implementation Plan

This section provides information regarding requirements for OWTS and supplemental treatment systems that have been permitted after the water body was initially listed in Attachment 2 of the OWTS policy, and have any discharge within the geographic area of the APMP.

Requirements for OWTS

In the absence of an adopted TMDL implementation plan, all new and/or replacement OWTS must:

- Utilize supplemental treatment.
- Meet performance requirements for nitrogen/pathogen impairment (see [OWTS Located Near Water Bodies Impaired for Nitrogen](#) and [Pathogens for](#) information regarding requirements).
- Comply with:
 - Setback requirements detailed in [Chapter 3](#), and
 - Any applicable requirements outlined within the Program.

OWTS Located Near Water Bodies Impaired for Nitrogen

When OWTS are located near water bodies which are impaired for nitrogen, the effluent from the supplement treatment component must meet a 50% reduction in total nitrogen when comparing the 30 day average influent to the 30 day average effluent. This will be accomplished by using supplemental treatment components, which meet the following requirements:

- Designed to reduce nitrogen, and
- Certified by National Sanitation Foundation (NSF) (or other approved third party tester).

Where a drip-line dispersal system is used to enhance vegetative nitrogen uptake, the dispersal system must have at least 12 inches of soil cover.

OWTS Located Near Water Bodies Impaired for Pathogens

When an OWTS is located near a water body impaired for pathogens, the supplemental treatment components (designed to perform disinfection of pathogens) must provide sufficient pretreatment of the wastewater so effluent from the supplemental treatment components:

- Does not exceed a 30 day average Total Suspended Solids (TSS) of 30 milligrams per liter (mg/L), and
- Will achieve an effluent fecal coliform bacteria concentration less than, or equal to, 200 Most Probable Number (MPN) per 100 milliliters.

The minimum soil depth and the minimum depth to the anticipated highest level of groundwater below the bottom of the dispersal system will not be less than 3 feet. All dispersal systems will have at least 12 inches of soil cover.

OWTS Installed Within an APMP

All OWTS installed within an APMP must:

- Meet the requirements for Alternative Treatment Systems (refer to [Chapter 5](#) for more information regarding Alternative Treatment Systems), which require:
 - An annual operating permit, and
 - Monitoring and maintenance of the OWTS.
- Connect to a sewer as soon as it is available, and properly abandon the supplemental treatment system.
- Monitor the OWTS in accordance with the operation and maintenance manual for the OWTS (or more frequently as required by the County and/or RWB).
- Be equipped with a visual and/or audible alarm, as well as a telemetric alarm, which will alert the owner and service provider in the event of a system malfunction.

Note: Where telemetry is not possible, the owner (or owner's agent) will inspect the system at least monthly while the system is in use as instructed by a service provider. The owner/owner's agent must also notify the service provider not less than quarterly of the observed operating parameters of the OWTS.

Testing and Inspection of Wastewater

All OWTS installed near water bodies impaired for pathogens will be inspected quarterly by a service provider for proper operation, unless a telemetric monitor system is capable of continuously assessing the operation of the disinfection system. Testing of the wastewater flowing from the supplemental treatment components that perform disinfection will be:

- Sampled at a point in the system:
 - After the treatment components, and
 - Before the dispersal system.
- 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 will be taken by a service provider and analyzed by a California Department of Public Health (CDPH) certified laboratory.

CHAPTER 7: LAMP SCOPE OF COVERAGE

There are types of wastewater treatment which are not under the County's purview. These can range from cesspools, which are prohibited in the State of California, to wastewater treatment plants treating high strength waste, or Onsite Wastewater Treatment Systems (OWTS) receiving a projected flow over 10,000 gallons per day (GPD) [which are under the purview of the Regional Water Quality Control Boards (RWBs)]. This chapter provides information regarding the County's role and the scope of coverage provided by the Program in the monitoring of OWTS within the County of San Bernardino's boundaries.

Onsite Inspections and Monitoring

Onsite inspections and/or monitoring are required for all new OWTS in Designated Maintenance Areas (DMAs), sewage holding tanks and alternative treatment systems. This section provides information regarding the inspection and monitoring required for various OWTS.

New OWTS

DEHS may conduct an onsite inspection of percolation testing for new OWTS on any lot which is:

- Located in the mountain areas, this includes any area:
 - Within National Forest boundaries, or
 - Above 4,500 feet, if outside of National Forest boundaries.
- Less than 1.5 acres, and is not served by a permitted water system.
- Located:
 - On a slope greater than 20%,
 - Within 200 feet of a river (in the horizontal map direction), or
 - Within 100 feet of a stream (perennial or ephemeral).
- Located in an area which cannot meet the minimum setback requirements for a conventional septic system due to:
 - Historically high groundwater, or
 - Perched groundwater.

Note: For more information regarding minimum setback requirements, refer to [Chapter 3](#).

Required Onsite Inspection

The Division of Environmental Health Services (DEHS) must complete an onsite inspection for percolation testing when the Qualified Professional submitting the report has:

- Not submitted a report to DEHS in the previous 2 years, or
- Previously submitted reports which have been deemed:
 - Incomplete, and/or
 - Significantly deficient.

DEHS may also, at its discretion, determine an on-site inspection is necessary in instances not mentioned above, or where it is determined the installation of an OWTS may have an adverse impact to water quality, public health and safety.

OWTS in DMAs

All OWTS which are located within a DMA are required to maintain an operating permit with DEHS. These OWTS are inspected biennially. DEHS has approximately 1,200 permitted OWTS within the DMAs. Refer to [Designated Maintenance Areas \(DMAs\)](#) for more information regarding the DMAs located within the County of San Bernardino.

Sewage Holding Tanks

All sewage holding tanks located within the County are required to:

- Maintain an operating permit with DEHS, and
- Be inspected annually.

Note: Refer to [Sewage Holding Tanks](#) for more information.

Alternative Treatment Systems

Owners of alternative treatment systems located within the County are required to:

- Maintain an operating permit and pay the required fees,
- Ensure the alternative treatment system is inspected annually and a report provided to DEHS, and
- Submit quarterly water samples during the first year of use. Quarterly samples are required each year thereafter if not owner occupied.

Note: Sample frequency may be reduced to annually at DEHS discretion when all four quarterly wastewater samples show that the system is meeting the supplemental treatment requirements. Refer to [Alternative Onsite Treatment Systems](#) for more information.

Variances

On a case by case basis, DEHS may establish alternative OWTS siting and operational requirements where it is determined by DEHS that the alternate requirements will provide a similar level of protection. There will be situations, however, where variances are not granted. This section details the instances when variances will not be granted.

Above Surface Discharge

Variances will not be granted for any OWTS which utilizes any form of effluent disposal discharging on, or above, the post installation ground surface; this includes, but is not limited to sprinklers, exposed drip lines, free-surface wetlands, and lagoons.

Sewer Availability

Variances will not be granted for any OWTS where there is a public sewer available. DEHS and/or the Building and Safety Division may require a “Will or Will Not Serve” letter from the local sewer purveyor with each new or replacement OWTS proposal in order to evaluate the proximity and availability of community systems to the proposed OWTS site. This will ensure septic systems are only installed in areas where a sewer is unavailable. The “Will or Will Not Serve” letter must:

- Include the following:
 - Parcel number for the property where the OWTS is being proposed.
 - Distance to the nearest available sewer line.
 - Whether or not the sewerage entity will provide service to the parcel.
- Be completed and signed by the appropriate official representing the sewerage entity and be filed with DEHS:
 - Prior to submittal of the percolation report/plot plan, or
 - Upon request once the percolation report/plot plan has been submitted.

Sewer Requirement

Connection to a public sewer system is required within established sewer service districts and outside such districts with an out of agency service agreement and LAFCO approval. Developments must connect to a sewer system when the nearest property line is within 200 feet of an available sewer line. This requirement will be increased by 100 feet for each additional equivalent dwelling unit within the development/project.

Ground Slope

Variances will not be granted for slopes greater than a 30% incline without a slope stability report approved by a Qualified Professional. Refer to [Error! Reference source not found.](#) for more information regarding natural ground slope requirements.

Leaching Areas

As referenced in [Leach Line Dispersal Systems](#), the maximum allowable decreased leaching area for International Association of Plumbing and Mechanical Officials (IAPMO) certified infiltrator type systems will be a multiplier of 0.70. No variances will be granted for systems using a multiplier of less than 0.70.

Supplemental Treatment

As referenced in [Alternative Onsite Treatment Systems](#), OWTS utilizing supplemental treatment require periodic monitoring or inspections. No variances will be granted for supplemental treatments that are unable to meet this requirement.

Depth to Groundwater

No variance will be granted for OWTS with a separation from the bottom of the dispersal system to groundwater less than 5 feet for leachlines. Seepage pits will have a separation of no less than 10 feet. Refer to the [Soil Depth](#) section for more information.

Note: At the discretion of the County, the depth to groundwater requirement may be reduced to 2 feet when there is a supplemental treatment unit with disinfection installed.

Recreational Vehicle (RV) Holding Tanks

No variances will be granted for OWTS receiving significant amounts of wastes from RV holding tanks.

Minimum Horizontal Setbacks

All new and replacement OWTS must meet the minimum horizontal setbacks from community water sources. This section provides details regarding the minimum horizontal setback requirements for OWTS located near public water sources.

Setbacks Determined by Depth

The minimum horizontal setbacks for effluent dispersal systems are dependent on the depth of the system. The following table describes the required setbacks for effluent dispersal systems located near public water wells:

If the depth of the effluent dispersal system...	Then the required horizontal setback from the public water well is...
Does not exceed 10 feet,	150 feet.
Exceeds 10 feet,	200 feet.

Where the effluent dispersal system is within 600 feet of a public water well, and the depth exceeds 20 feet, a Qualified Professional must conduct an evaluation. The evaluation is to determine the horizontal setback required to achieve a two-year travel time for microbiological contaminants. In no case, however, will the setback be less than 200 feet.

Dispersal Systems Near Surface Water Intake Points

The following minimum horizontal setbacks will be determined when effluent dispersal systems are located:

- Near a public surface water intake point (e.g., reservoir, lake, or flowing water body),
- Within the catchment of the drainage area, and
- In such a way that it may impact water quality at the intake point (i.e., upstream of the intake point for flowing water bodies).

When the effluent dispersal system is located ...	Then the dispersal system will be no less than...
Within 1,200 feet of the intake point,	400 feet from the high water mark.
<ul style="list-style-type: none"> • More than 1,200 feet, and • Less than 2,500 feet from the intake point, 	200 feet from the high water mark.

OWTS Within Required Setbacks of a Public Water Supply

Existing or proposed OWTS (in close proximity to public water wells, and surface water treatment plant intakes) have the potential to adversely impact source water quality. [County Code Section 33.0636](#) indicates horizontal setback requirements which apply to all OWTS located in the proximity of individual and public water supply wells. Refer to [Setback Requirements](#) for information regarding OWTS located within required setbacks of a public water supply.

Replacement OWTS Not Meeting Horizontal Setback Requirements

Replacement OWTS not meeting the horizontal setback requirements must meet the separation requirements to the greatest extent practicable. When this occurs, the OWTS must use mitigation measures (i.e., supplemental treatment) to ensure the public water source is not adversely affected.

Mitigation measures, including supplemental treatment, will not be required when DEHS and/or the RWB find there is no indication that the previous OWTS adversely impacted the public water source.

This will be determined based on:

- Topography,
- Soil depth,
- Soil Texture, and
- Groundwater separation.

Separation Requirements for OWTS Pre-existing the Program

New OWTS installed on parcels of record existing on the effective date of this Program, which are unable to meet the horizontal setback requirements, must:

- Meet the separation requirements to the greatest extent practicable,
- Use the supplemental treatment for pathogens as detailed in the APMP (refer to [Chapter 6](#) for more information regarding the APMP), and
- Use other mitigation measures, if necessary, as determined by the permitting authority.

Note: No variances will be granted for any of the minimum horizontal setback requirements outlined in this section.

Site Assessment

Prior to approving the use of an OWTS, a site evaluation by the Building and Safety Division may be required to:

- Ensure the proper system design.
- Determine compliance with site suitability, and whether adequate capacity is available.

Septage disposal from septic tanks is reported by septic tank pumpers monthly to DEHS with the location pumped, quantity pumped and the disposal location declared. These reports are entered into an electronic database.

Cesspool Elimination

Cesspools are not permitted in the County of San Bernardino. When County staff discovers a cesspool is still in use, the property owner will be required to replace the cesspool with an OWTS, which meets current standards. The timeframe for complying with this requirement will vary based on the condition of the cesspool and the potential threat it represents to water quality public health and safety. While the County does not have a point of sale requirement for existing septic systems certification, voluntary certifications are performed routinely and system upgrades are permitted and replacements are constructed under Building permit. .

Public Education

Reference and educational material for owners of OWTS can be found on the [DEHS website](#). These educational documents provide information for owners regarding how to locate, operate, and maintain their OWTS.

Local Watershed Management

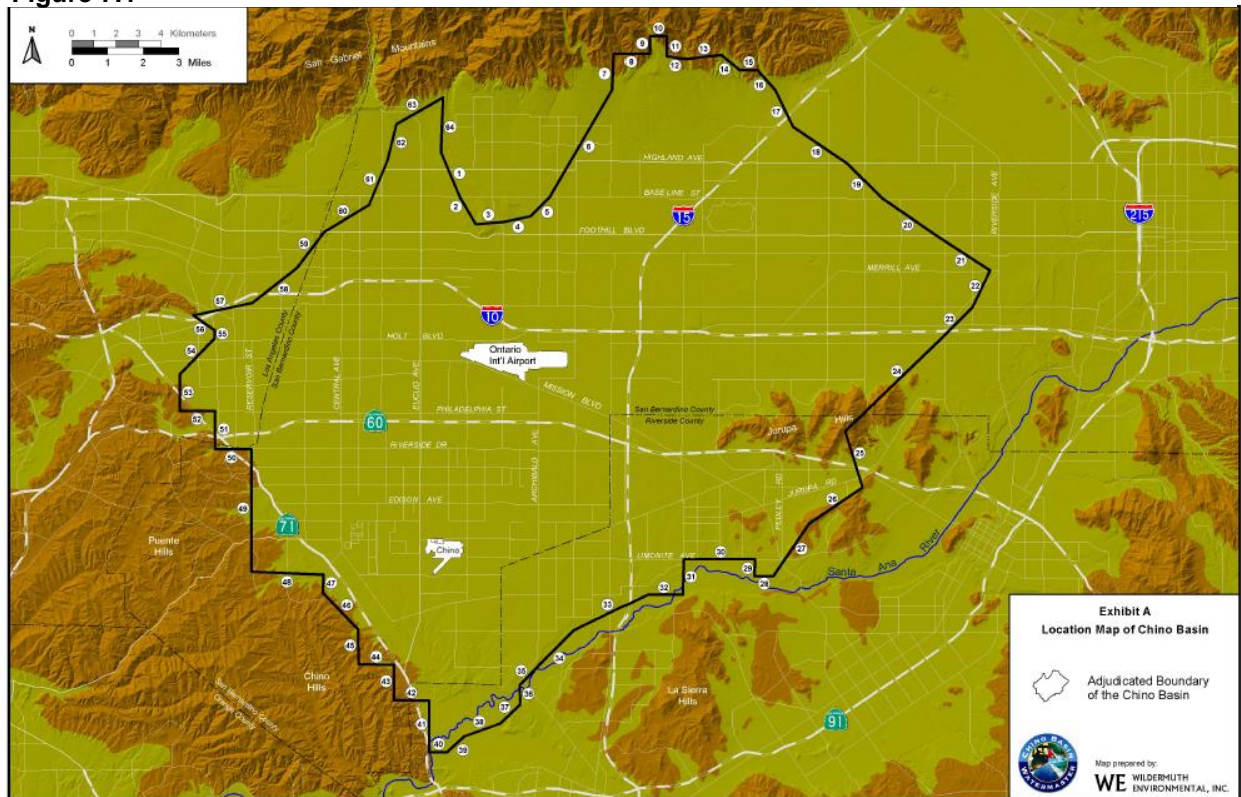
The County of San Bernardino has three local watershed management agencies which manage the watersheds located within their boundaries. These agencies include the Chino Basin Watermaster, the Mojave Water Agency (MWA), and the San Bernardino Municipal Water District. DEHS notifies the local watershed management agencies regarding all new well construction within their boundaries, as well as attends meetings, as needed, to stay informed of any relevant water quality concerns. This section provides information regarding each local watershed management agency.

Chino Basin Watermaster

The Chino Basin Watermaster is a consensus based organization, which facilitates development and utilization of the Chino Groundwater Basin. The basin:

- Consists of approximately 235 square miles of the upper Santa Ana River watershed, and
- Has an estimated storage capacity of five to seven million acre feet (refer to the figure below for a map of the Chino Basin Watermaster boundaries).

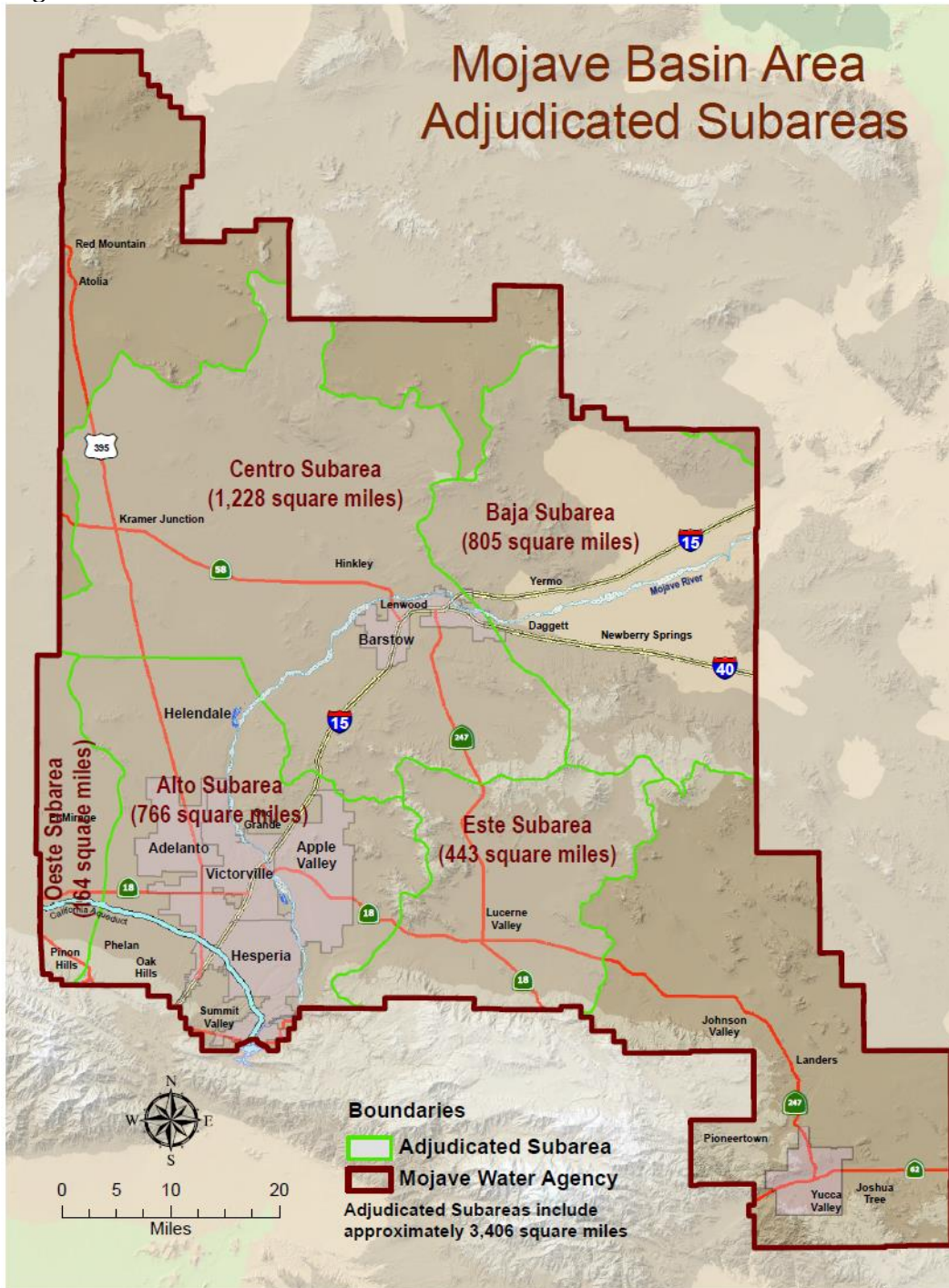
Figure 7.1



Mojave Water Agency (MWA)

The MWA is a State water contractor which manages an annual allotment of 82,800 acre feet of water from the State Water Project via the California Aqueduct. The MWA boundaries encompass approximately 4,900 square miles of the High Desert area within the County (refer to the figure below for a map of the MWA boundaries).

Figure 7.2

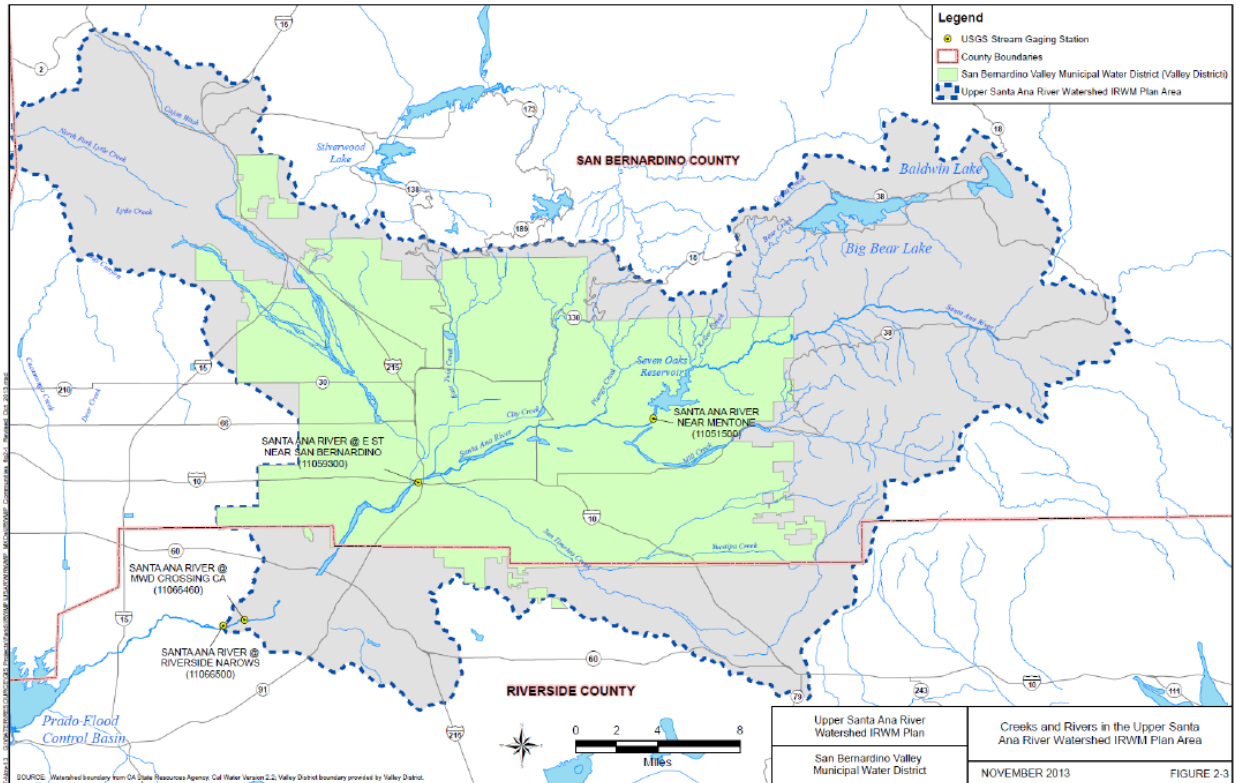


San Bernardino Valley Municipal Water District

The San Bernardino Valley Municipal Water District:

- Covers approximately 353 square miles in the southwestern region of the County,
- Spans two-thirds of the San Bernardino Valley,
- Imports water through the State Water Project, and
- Manages water storage within its boundaries (refer to the figure below for a map of the San Bernardino Valley Municipal Water District boundaries).

Figure 7.3



CHAPTER 8: REPORTING REQUIREMENTS AND DATA COLLECTION

As a condition to having oversight of the Onsite Wastewater Treatment Systems (OWTS) within the County of San Bernardino, the County must collect certain data and report it to the Regional Water Quality Control Boards (RWBs), and in some instances to the Division of Drinking Water (DDW), and owners of water systems. This chapter provides information regarding the minimum reporting responsibilities, the OWTS Water Quality Assessment Program, and the Program assessment.

Reporting to the Regional Water Quality Control Boards (RWBs)

The County must report the following information to the RWBs on an annual basis, no later than February 1st of each year.

- The quantity and location of complaints pertaining to OWTS in the unincorporated areas of the County, and specifying which complaints were investigated, and how the complaints were resolved.
- The permits issued for new and replacement OWTS, including the number, location and description of the permits, and which Tier the permit was issued under.
- The quantity, location and description of permits issued for OWTS where a variance from the approved Program was granted.
- The number, location and results of septic tank pumper inspection reports which were received.
- A list of the applications and registrations issued for the Liquid Waste Hauler Program.

OWTS Water Quality Assessment Program (WQAP)

The WQAP was developed to provide a better understanding regarding how OWTS located within the County of San Bernardino were affecting and/or contributing to ground water contamination by nitrates and pathogens. This section provides information regarding the WQAP, including individual well sampling, establishing the water quality baseline levels, constituents of concern and monitoring for pathogens and nitrogen.

Individual Well Sampling

The Division of Environmental Health Services (DEHS) permits and regulates small public water systems and issues well permits throughout the County. In addition, all new individual wells are sampled for the following:

- Total coliform bacteria,
- Nitrates, and
- Other constituents of concern, which include:
 - Arsenic,
 - Perchlorate,
 - Chromium VI, and
 - Gross alpha and uranium.

Establishing Water Quality Baseline Levels

All community drinking water wells, which will be utilized as a public water system, are analyzed for chemicals regulated by [Title 22](#) to ensure the well meets drinking water standards. To establish water quality baseline levels, DEHS will use data obtained from:

- All public water systems regulated by the County,
- Permitted individual and community drinking water wells, and
- Random sampling of existing wells.

Note: Once the baseline is established, the sample data from new permitted wells, and random samples of existing wells, will be used to maintain a reliable OWTS water quality assessment. DEHS will support agencies in their cumulative impact assessments for non-sewered areas.

Constituents of Concern

As part of the WQAP, DEHS has identified areas within San Bernardino County which have elevated levels of constituents of concern. The following table indicates those areas and the constituents of concern. In addition to total coliform and nitrate testing, sampling will be required for all new well construction in the areas indicated (this list will be updated as new information dictates).

Constituent	Areas
Arsenic	<ul style="list-style-type: none">• Hinkley• North of Barstow to State Line• Calico/Yermo• Newberry Springs to Ludlow• Kramer Junction• Pioneertown• 29 Palms and north of 29 Palms
Perchlorate	<ul style="list-style-type: none">• Loma Linda• Rialto• Fontana• Ontario• Barstow (near the I-15 and Hwy 58 intersection)• Within a 5-mile radius of George Air Force Base
Gross Alpha and Uranium	<ul style="list-style-type: none">• Pioneertown• Morongo Valley• Twin Peaks• Fawnskin• Crestline• Running Springs• Lake Arrowhead
Chromium VI	<ul style="list-style-type: none">• Hinkley• Oak Hills

Pathogen and Nitrogen Monitoring

In an effort to distinguish water quality degradation which is attributable to OWTS, and water quality degradation which does not have a relation to OWTS, DEHS will monitor and collect water quality data for pathogens and nitrogen from the following available sources:

- Alternative treatment systems.
- Water quality sample data received from:
 - County agencies which have National Pollutant Discharge Elimination System (NPDES) permits (i.e., San Bernardino County Flood Control), and
 - Various water agencies [i.e., Mojave Water Agency (MWA)].
 - Crestline Sanitation District
 - Lake Arrowhead CSD
- Ground water data collected as part of the Groundwater Ambient Monitoring Assessment Program, which is available in the [Geotracker database](#).
- The Salt and Nutrient Management Plan for Region 8 is now incorporated into the Basin Plan. The Basin Plan specifies surface and groundwater water quality objectives for TDS and N and identifies those groundwater basins that have no TDS assimilative capacity. The Basin Monitoring Program Task Force (BMPTF) periodically assesses the water quality for TDS and N within the region. The OWTS impact to TDS and N objectives will be included in the County's 5 year evaluation of OWTS impacts to groundwater and surface water.

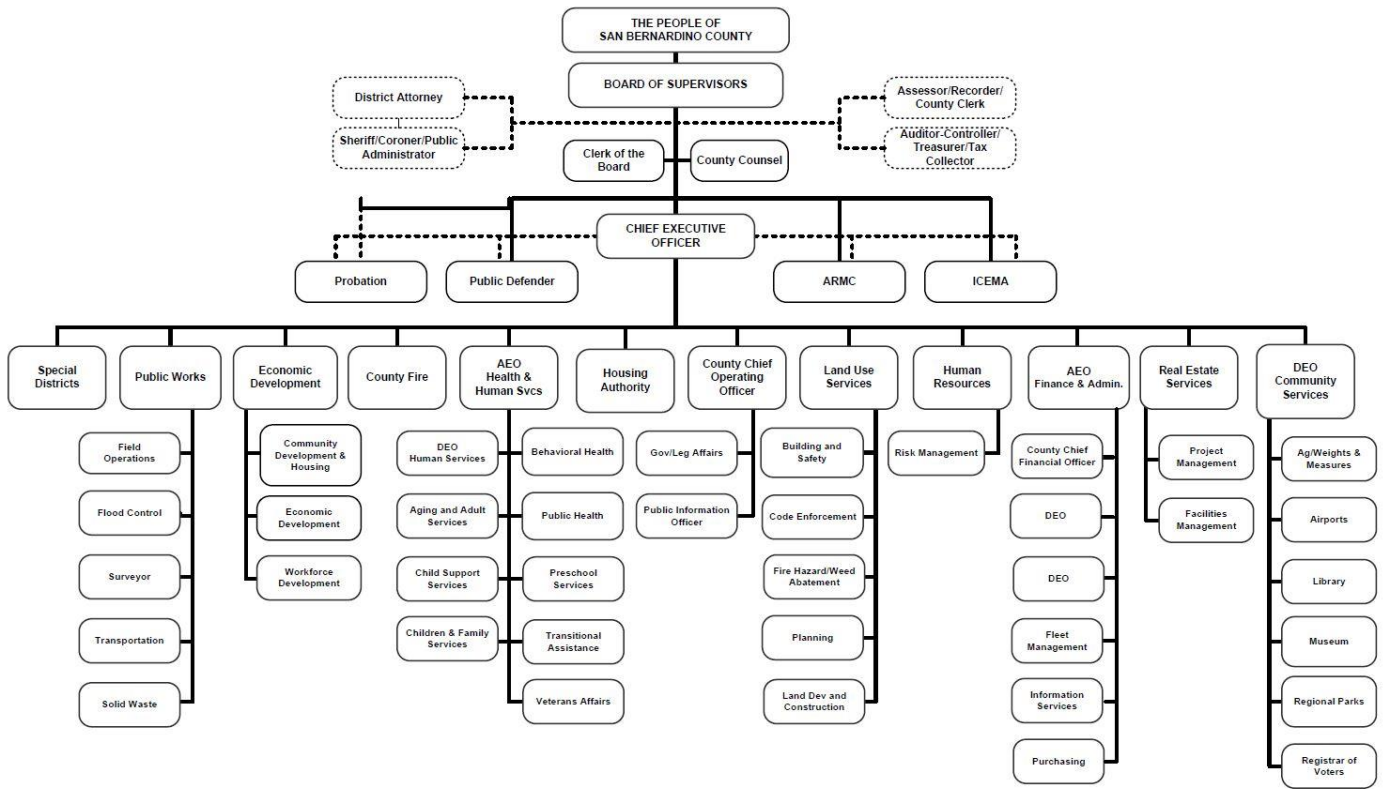
Program Assessment

Every five years an assessment will be completed to evaluate the Program and determine whether OWTS within the County are affecting water quality. During this review the Program will be modified, as needed, to address the impacts of OWTS. This section provides information regarding how the information will be compiled and reviewed, as well as how the information will be submitted to both the California Environmental Data Exchange Network (CEDEN) and Geotracker. In order to assess the operational status of the OWTS within the County, the County will compile and review:

- Septic tank pumper inspection reports, volume generated and hauled and the disposal locations,
- Complaints and abatement activities for failing OWTS,
- Variances issued for new and/or repair OWTS,
- Sample data from the WQAP,
- Water quality monitoring reports for alternative treatment systems or other OWTS having an operating permit, and
- Septic system certifications of existing OWTS in connection with:
 - Building additions/remodel projects,
 - Land Use Reviews with existing septic systems

All groundwater monitoring data generated will be submitted in electronic deliverable format (EDF) for inclusion into Geotracker. Surface water monitoring will be submitted to CEDEN in a Surface Water Ambient Monitoring Program (SWAMP) comparable format.

SAN BERNARDINO COUNTY ORGANIZATION CHART







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Environmental Health Services

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12/20/2016

Appendices for use in reviewing San Bernardino County's LAMP

**Appendix A – On-Site Wastewater Disposal System;
PERC Test report standards** PAGE 2

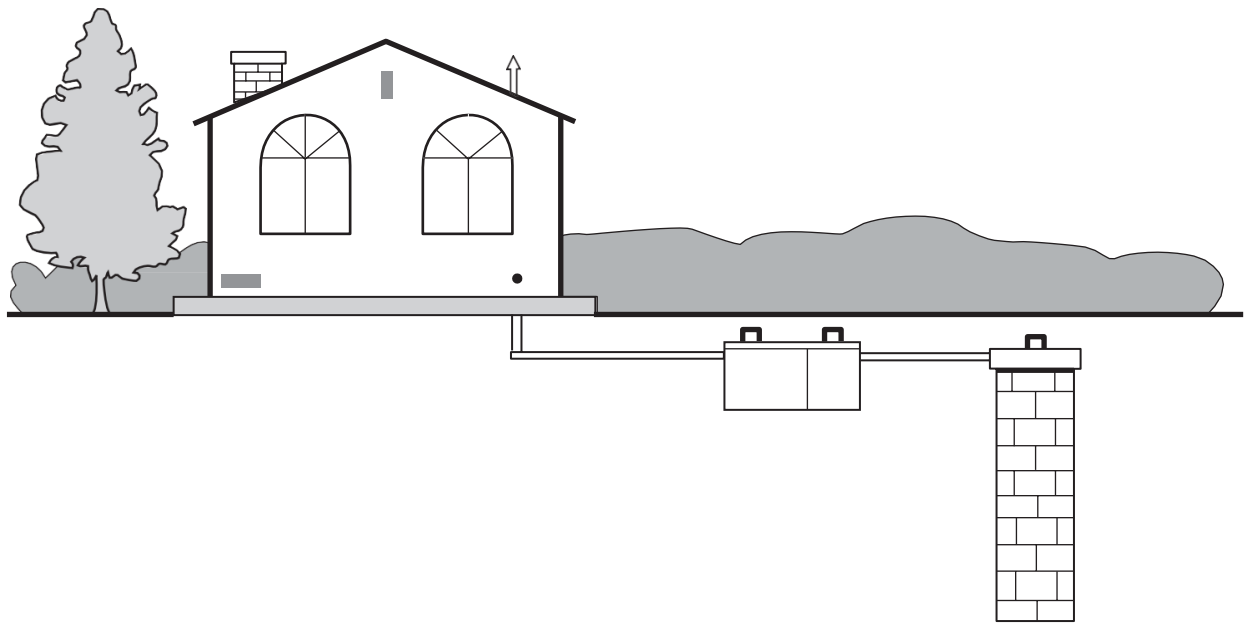
**Appendix B – San Bernardino County Ordinance Code,
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**Appendix C – San Bernardino County Water Systems
and Well Locations** PAGE 61

**Appendix D – San Bernardino County Ordinance Code –
Sewage Holding Tanks** PAGE 63

On-Site Wastewater Disposal System

Soil Percolation (PERC) Test Report Standards: Suitability of Lots and Soils for Use of Leachlines or Seepage Pits



FOREWORD

A soil percolation report is a technical document which establishes whether on-site sewage disposal systems can be used for a specific parcel of land to serve a given type of development (such as single/multiple family dwellings, restaurant, campground, etc.).

The soil's percolation condition is determined by testing at the specific site and topographical, geologic, and hydrologic conditions are determined and described in the report. The on-site system is then designed in accordance with this information and County Standards. A properly installed, operated and maintained system should not be subject to premature failure causing nuisances, odors or public health hazards.

Complete reports must be submitted, and all appropriate fees paid to the Division of Environmental Health Services (DEHS), prior to the approval of the use of any on-site percolation system and the application of the design rate.

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SAN BERNARDINO COUNTY
DIVISION OF ENVIRONMENTAL HEALTH SERVICES

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SOIL PERCOLATION (PERC) TEST REPORT STANDARDS
SUITABILITY OF LOTS AND SOILS FOR
USE OF LEACHLINES OR SEEPAGE PITS

NOTICE:

At least two working days before conducting routinely scheduled percolation tests, you must contact the Division of Environmental Health Services. Please provide the following: assessor's parcel number, firm's name and person to contact, date(s) of testing, and telephone number. At the option of the specialist, a field inspection during testing or shortly thereafter may be conducted. The date that the specialist (or DEHS Water/Wastewater Section) was contacted must be stated in the report.

I. A perc report is required by DEHS:

- a) For all subdivisions of land, except those for which a waiver has been granted. (see pg A-10, item 4 for criteria.)
- b) For any parcel or land division where existing data will not allow the county liquid waste specialist to set a sewage disposal rate.
- c) For any single lot where space or soil conditions for on-site sewage disposal are critical (i.e., very small or steep lots, very slow perc times, shallow groundwater with fast perc times, etc.)
- d) For all new on-site septic systems within the San Bernardino or Angeles National Forest boundaries and in other mountain areas.
- e) For all on-site septic systems requiring an exemption from California Regional Water Quality Control Board (CRWQCB) wastewater discharge prohibitions. (Check with Specialist/RWQCB for designated areas.)
- f) For any commercial or sanitary wastes from industrial developments utilizing on-site percolation systems.
- g) For a replacement system where existing data will not allow the county liquid waste specialist to set a design rate.

II. Those who prepare perc reports must have professional experience and be knowledgeable in assessing the site's on-site sewage disposal feasibility. They assume responsibility for the report's contents in accordance with the obligations of their professional registration and may be held liable if false or misleading information is presented. Preparers must possess one of the following professional registrations:

- a) A State of California Registered Civil Engineer,
- b) A State of California Certified Engineering Geologist,
- c) A State of California Registered Environmental Health Specialist,
- d) A State of California Registered Geologist,
- e) A State of California Geotechnical Engineer

Reports must be properly documented with the original signature, stamp, professional registration number and license expiration date of the preparer. Photo copied signatures are not acceptable. Preparers shall be identified by name, field technicians by initial.

III. Format and other requirements:

1. DESCRIPTION OF SITE AND OF PROPOSAL

1.0 Date/individual that was notified of testing.

1.1 Prepared for: Name of client, address and phone number.

1.2 Location of land:

- a) Provide a sufficiently detailed vicinity map, township, range, section, assessor’s parcel map or subdivision map, and/or legal description of property. Make sure you have the right parcel; state how the property is identified. (Owner’s word alone is not acceptable.) Indicate landmarks and street addresses when possible. Specify those survey monuments found and if the property lines were surveyed, by whom.

1.3 Proposed Development/Project/Land use:

- a) State the type of project: i.e., condominium, subdivision tract, lot sale, parcel map, shopping center, etc.
- b) State the total acreage, the number of lots, and the average and range of the lot sizes.
- c) State the type of sewage disposal system: i.e., septic tank or package plant, leachline(s), or seepage pit(s), separate or common system, other.
- d) State if grading is proposed for the development, and how much.

1.4 Description of site and surroundings: (A photograph is often useful.)

- a) Topography: Include a topographic map prepared by a Registered Civil Engineer or Licensed Land Surveyor, unless the site and the surroundings are flat or have a uniform, constant slope (+ or - 1% variation) of less than 20%. For instance, “slope of 10% downward from north property line to south property line”.

<u>% Slope</u>	<u>Maximum Interval of Contours in Feet For Topo Map</u>
0-2	2
>2-10	4
>10	10

Describe the topography in the area of the proposed disposal site(s) and its location relative to the proposed development.

- b) Water courses: Indicate and show on the plot plan any floodway, floodplain, spring(s),

stream(s), and drainage course(s) which encroach within a distance of 1 ½ times the required minimum setback from the disposal area(s).

- c) Vegetation type and density (especially groundwater indicators such as willows, reed grasses, cattails, and smoke trees) as well as trees in general, area(s) of proposed system(s).
- d) Existing structures: (1) General description of proximity, density, probable kind and number of neighboring septic systems. (2) Indicate whether the proposed system could adversely impact any existing structure's disposal system(s) or replacement area on or in the vicinity of the parcel being tested where known. (3) Indicate location of nearest sewer, and any sewer manholes observed.
- e) Indicate the location of any active or inactive well(s) (and their construction details where known) located within 300 feet of the proposed disposal area. Indicate proposed source of domestic water. Identify future well sites, when appropriate.
- f) Rock outcroppings: Specify the type of rock (shale, slate, schist, granite).
- g) Indicate the depth to historic groundwater and how it was determined. Provide the date and source of information used (Flood Control Agency, local water companies, California Department of Water Resources Bulletin, USGS, DEHS Water/ Wastewater Section, etc.)
- h) Any other feature that may affect sewage disposal: fill material, spots of vegetation, obvious signs of slope instability, fractured bedrock, root channels, cracks in the soil profile, suspected infiltration galleries or old mine tunnels, proposed grading over the system, etc.

2. EQUIPMENT

Describe in detail equipment used to perform perc test - backhoe with 12" bucket, rig with 8" diameter, screw-type auger (identify type), 6" posthole digger, shovel, fork and spoon, measuring tape with 1/8" divisions, wire-onfloat sliding on 1/10" gradation scale, etc.

3. METHODOLOGY AND PROCEDURES

- 3.1 **Location of borings and trenchings.** Under most circumstances, the random grid method should be utilized. In the event that other methods are used, explain the method and state the specific reason(s) it was used in lieu of the grid method. It is the report preparer's responsibility to ensure that tests were conducted where described in the report. Indicate locations on the plot plan. For easy identification leave three-foot laths marked with your initials, hole/trench number, and the date the test was conducted at each backfilled hole. Estimate theoretical cuts and fills and perform the tests and borings at the depths at which percolation will occur when the system is installed. When final grading is unknown, indicate that leachlines will be located in natural soil ± two (2) feet of cut or fill (± five (5) feet if pits) or at tested depths. If the final system design is not located within the stated range, additional testing will be required prior to final recordation or issuance of a building permit.
- 3.2 **Soil characteristics to determine number of borings or trenchings and tests.** Unless deviations are permitted in advance by the county liquid waste specialist, the minimum number of explorations and tests in Tables 3.3, 3.4, and 3.5 is determined based on the following soil characteristics:

- A. **Favorable** is defined by the following:
 1. Ideal soil conditions are anticipated.
 2. There is no visual evidence of shallow groundwater, bedrock, impervious materials, etc. Tests and borings performed agree with the visual evidence. Natural or finished slope of the disposal area is 20% or less.
- B. **Moderate** is defined by the following:
 1. Only isolated areas of the property are suspected to encounter problems due to groundwater, bedrock, impervious materials, etc.
 2. No more than 10% of the tests and deep borings fail to meet standards.
 3. The minimum number of tests and borings should be spaced in a random grid, the additional tests describe the limits of the problem area(s).
 4. Natural or finished slope of the disposal area is less than 30%.
- C. **Severe** is defined by the following:
 1. Obvious surface features indicating site conditions that will hinder subsurface disposal are present.
 2. Through random testing, more than 10% of the tests and borings do not meet standards.
 3. Acceptable testing rates approach the upper limit of approval, or a nonuniform pattern of test rates develop.
 4. Natural or finished slopes of the disposal area equal or exceed 30%.

3.3 Minimum number of exploratory borings

	<u>Gross Lot Size</u>	<u>Soil Conditions</u>	
		Favorable to Moderate	Severe
Subdivisions and individual lot sales	<1 acre	3 borings first 10 lots 1 boring every 10 thereafter	8 borings first 10 lots 5 borings every 10 thereafter
	1-5 acres	5 borings first 10 lots 3 borings every 10 thereafter	2 per lot*
	>5 acres	1 boring per lot*	2 per lot*
Residential lot		1 boring*	2 per lot*
Commercial lot, confluent systems under one ownership		1 boring per 4,000 gallons septic tank capacity*	1 boring per 2,000 gallons septic tank capacity*
Parcel Map	5 acres or less	1 boring in the center of the undivided parcel	2 borings evenly spaced in the undivided parcel

* In the area of the disposal system, if known.

3.3.1 Boring/Trenching Results - Number each hole or excavation. Graphically describe soil strata at each hole or excavation.

- a) Soil profile descriptions shall be written under the supervision of the registrant for all of the excavations. The thickness (in inches or tenths of a foot) of the different soil horizons observed shall be indicated. Soil horizons shall be described on the basis of color, field texture analyses, soil mottles, bedrock, structure, roots, and pores. Depths shall be measured from the existing ground surface.
- b) Where the soil lithology is stratified and low-permeability layers such as sandy silts and clays, or caliche could affect the on-site disposal system performance (leachlines and seepage pits bottomed less than 20 feet below grade), the soil profile shall be described by direct visual observation: i.e., in a backhoed trench, road cut, suitable large (> two (2) feet diameter) boring, or splitspoon sampling.
- c) Textures - Use any of the classifications in Appendix pages A1-4. State the approximate percentage of cobbles, gravel, sand, silt, and clay.
- d) Colors (dry/moist), reduction-oxidation mottling. (See Appendix.) The Munsell soil color chart shall be the descriptive tool utilized to determine the background soil color.
- e) Presence and extent of small/large roots.
- f) Ease of excavating/drilling, depth to bedrock and rock competency (soft, firm, hard, refusal).
- g) Moisture - If soil at or near the point of saturation is encountered in the exploratory boring, observe the borehole after 24 hours to determine the presence of free water.
- h) Free water - The depth to groundwater, if present, shall be reported. Observed groundwater shall be reported at the level groundwater reaches in the excavation, or at the highest level of sidewall seepage into the excavation after 24 hours. Measurements shall be made from the ground level. Soil above the water level in the excavation shall be checked for conditions associated with saturation (mottles).
- i) Structural characteristics, stratigraphy, and geologic origin shall be described when determined necessary by the consultant for severe sites only.
- j) Indicate method of boring abandonment.

Test Hole: 1. A hole of diameter 5.5" - 8" (D) or square 5" - 7" (S) should normally be used.

2. Larger holes than stipulated in coarse soils with a rate of less than 8 minutes/inch (mpi) will require a correction factor using the formula:

$$\frac{\text{mpi (test)} \times 6}{\text{actual "D" or "S" dimension}} = \text{mpi corrected}$$

Rates greater than 8 mpi do not need to be corrected.

3. Depth - The minimum test hole depth is 13". All sides to be vertical. (Below the test excavation bottom or at least 5 feet horizontal distance to daylight in a trench bench.)
4. All loose material must be removed from the test hole and the bottom of the hole should be in natural, undisturbed soil.
5. Place two (2) inches of 1/4" to 3/4" gravel over the bottom of the test hole. A perforated can may be placed over the gravel. (Note: if the can has a bottom, gravel may not be necessary.)

Pre-Soak: Fill the hole with 12" of clear water (10" above the gravel or the bottom of the perforated can.)

1. If ten (10) inches of clear water seeps away in two consecutive readings in less than ten (10) minutes each and the soil is of coarse texture, testing can be conducted immediately. Otherwise:
2. Pre-soak by:
 - a. Maintain the water level in the test hole at ten (10) inches above the gravel, for at least four (4) hours, or;
 - b. For augered test holes with a total depth over four (4) feet from the surface to the gravel, fill the entire hole to the surface. This pre-soak method may require recleaning of the hole and new gravel placement prior to testing, or;
 - c. For augered test holes of less than four (4) feet total depth, fill the test hole to the surface and invert a five (5) gallon bottle of water in the hole. This pre-soak method may require recleaning of the hole and new gravel placement prior to testing.

NOTE: All of the above procedures are designed to allow a minimum of five (5) gallons of water to percolate and saturate the lower 12 inches of the test hole. Other pre-soak methods that also accomplish this may be used, but should be fully described in the final report.

Testing: 1. Begin testing 15-26 hours after the beginning of soaking (except for sandy soils as

- noted), to allow time for swelling of clays but prevent soil from drying out.
2. Fill or refill the hole with clear water to eight (8) inches from the bottom of the hole, (6) six inches over the gravel.
- Readings:
1. If more than five (5) inches of water is gone in 30 minutes, take readings every 10 minutes for one hour minimum. Refill after each reading. All final time intervals shall provide a minimum of a one (1) inch drop and not more than a three (3) inch drop.
 2. If less than one (1) inch is gone in 30 minutes, take 60 minute readings for three (3) hours minimum. Do not refill until at least a one (1) inch drop has occurred.
 3. For all other cases, take 30 minute readings for three (3) hours minimum. Refill after each reading. All readings shall provide a minimum 1 inch drop, and a maximum 3 inch drop.
- Accuracy: All measurements will be read to the closest 1/8". If the difference between the last two readings is greater than 10%, additional measurements shall be made.
- Results: The reported results shall be the most conservative reading in minutes/inch drop.

3.4.2 Continuous Pre-Soak Percolation Test Procedure-Leachlines

DESCRIPTION

This method requires the use of a water reservoir to provide a continuous volume of water in the hole during the pre-soak period. After a predetermined volume of water has seeped through the test hole, the measurement of the percolation rates may commence.

The method described in the following procedure utilizes a 5-gallon water bottle inverted in the test hole. This procedure can be modified to use a reservoir and a float device to control the water level as described:

PROCEDURE:

Excavation: The test excavation shall be constructed so as to facilitate the placement of the 5-gallon reservoir of water over the test hole. The excavation shall reach to within 13 inches of the actual test depth which corresponds to the approximate depth of the leachline or the bed trench bottom. Vary the depths in order to include testing of the sidewall if the disposal system is to be more than three feet below the ground surface. In addition, perform one test if the soil type changes within 5 feet of the proposed trench bottom.

- Test Hole:
1. Auger or hand excavation.
 2. A hole of diameter 5.5" - 8" (D) or square 5" - 7" (S) shall normally be used.
 3. Larger holes than stipulated in coarse soils with a rate of less than 8 minutes/inch (mpi) will require a correction factor using the formula:

$$\text{mpi corrected} = \frac{\text{mpi (test)} \times 6}{\text{actual "D" or "S" dimension}}$$

Rates greater than 8 mpi do not need to be corrected.

4. The minimum test hole depth is 13 inches.
5. All loose material must be removed from the test hole and the bottom of the hole should be in natural, undisturbed soil.
6. Place 2 inches of 1/4" to 3/4" gravel over the bottom of the test hole. A perforated pipe is then placed in the hole to prevent caving and to support the water bottle. The pipe length shall be approximately the same as the test hole depth.

Pre-Soaking: To start, fill the test hole with water to 8 inches above the gravel. Invert a full 5-gallon bottle of clear water over the hole (in a bottle support) so that the hole is filled continuously to approximately 8 inches over the gravel.

When the 5 gallons of water has percolated through the test hole, or after 15 hours but before 26 hours from initiating pre-soak, testing may commence.

- Testing:
- A. Same day testing - When the 5 gallons has percolated while the tester is present, the test may proceed the same day as the pre-soak.
 1. Remove the bottle and adjust the water level to 6 inches above the gravel:
 2. Take a minimum of four (4) consecutive measurements at timed intervals that provide not less than a one (1) inch nor more than a 3 inch drop. Refill the water level to 6 inches above the gravel after each measurement.
 - B. Next day testing - (15-26 hours after starting pre-soak)
 1. If water is still present in the test hole, the test shall not start less than 15 hours from initiating the pre-soak.
 - a. Remove the bottle and adjust the water level to 6 inches above the gravel.
 - b. Take a minimum of two (2) consecutive measurements at time intervals that provide not less than a 1 inch nor more than a 3 inch drop in the water level. Refill the water level to 6 inches above the gravel after each measurement.
 2. If no water is left in the test hole, the test shall begin within 26 hours from starting the pre-soak. (Repeat the pre-soak procedure if more than 26 hours have passed.)
 - a. Remove the bottle and adjust the water level to 6 inches above the gravel.
 - b. Take a series of readings for a minimum of two hours, or four consecutive readings at time intervals that provide not less than a 1 inch nor more than a 3 inch drop in the water level. Refill the water level to 6 inches above the gravel after each measurement.

Accuracy: All measurements shall be read to 1/8". If the difference between the last two readings is greater than 10%, additional measurements shall be made.

Results: The reported results shall be the most conservative reading in minutes/inch drop.

3.4.3 Leachline Test Results

3.4.3.1 Tabulate all the results, including all tests that "failed" to meet the minimum acceptable standards.

3.4.3.2 Provide copies of all the field data and calculations using the following format:

Leachline Test:

1. Hole No:
2. Diameter in inches:
3. Hours presaturation; gallons used, time presoak initiated:
4. Depth (of bottom) below grade:
5. Types of strata tested:
6. Condition of hole: caving or siltation?
7. Any method used to prevent sidewall caving?
8. Name of tester:
9. Date tested:

Provide numerical values for each of these parameters

$$t_1 \quad | \quad \text{depth}_1 \quad | \quad t_2 \quad | \quad \text{depth}_2 \quad | \quad \frac{\Delta t}{\Delta d} \quad | \quad \frac{\Delta t}{\Delta d} \text{ mpi (or mpc)}$$

Where:

t_1 = initial time when filling or refilling is completed - minutes

d_1 = initial depth of water in hole

t_2 = final time in minutes

d_2 = final depth of water in hole

Δt = change in time - minutes

Δd = change in depth - inches

3.5 Minimum Number of Tests for Seepage Pits:

	Gross Lot Size	Soil Conditions		
		<u>Favorable</u>	<u>Moderate</u>	<u>Severe</u>
Subdivisions (Note: Individual lot sales require 100% testing)	<1 acre	3 tests first 10 lots; 2 tests for every 10 lots thereafter	6 first 10 3 next 10	1/lot*
	1 acre to 2.5 acres	4 tests first 10 lots; 2 tests for every 10 lots thereafter	7 first 10 4 next 10	1/lot*
	>2.5 acres to 5 acres	5 tests first 10 lots; 3 tests for every 10 lots thereafter	8 first 10 5 next 10	1/lot*
	>5 acres	6 tests for first 10 lots; 4 tests for every 10 lots thereafter	1/lot*	2/lot*
Residential lot		2 tests*	3 tests*	
Commercial lot, c o n f l u e n t systems under one ownership		2 tests/4,000* gallons septic tank capacity in sewage disposal area	2/3,000* 1/2,000	2/3,000* 2/2,000
		1 additional test per 2,000 gallons of septic tank capacity or fractional part thereof		
Parcel Map		2 tests evenly spaced on the undivided parcel	3 tests evenly spaced on the undivided parcel	4 tests evenly spaced

Note: *In the general area of the disposal systems (primary and expansion); if known or where proposed.

3.5.1 Seepage Pit, Weighted Average Percolation Test Procedure

Test each stratum as for leachlines, in Section 3.4.1. Multiply the thickness of each stratum by its perc time; add the results. Divide the total by the sum of all the thicknesses. The result is the average mpi for the given total depth. Exclude all strata with $pi > 30$. This is not an easy procedure to perform without very accurate instruments.

3.5.2 Sewage Pit, Falling Head Percolation Test Procedure

Test Holes:

- a) Holes are 6" to 8" in diameter. Exploratory borings (6"-8") may be backfilled at least 10 feet and used for testing. When backfilling, if soils are too coarse (less than 20% fines) mix top of backfill with driller's mud or other material approved by the Division of Environmental Health Services; cover with one (1) foot of gravel.
- b) Depth - Same as the depth estimated for the pit based on the soil log. If distinctly lower permeable stratum (strata) are found with higher permeable stratum within the test boring, the lower permeable stratum should be tested separately. Vary depths when unsure.
- c) Because caving may invalidate the results in anticipated adverse areas of percolation, precautions, such as gravel packing, should be used.

Measurements

- a) Carefully fill the hole with clear water until the water level is even with the surface of the ground. Refill to the surface for all but the last two (2) readings. The final refills shall be to the proposed depth of the inlet or a minimum of 4 feet below the ground surface.
- b) In very sandy soils, where the water on two consecutive readings seeps faster than half the initial wetted depth in 30 minutes, the time intervals shall be 10 minutes or shorter and measurements shall be taken for at least one additional hour until three consecutive readings do not vary by more than 10%. Gravel packed holes must have four (4) consecutive readings where the water seeps faster than half the initial wetted depth in 30 minute intervals to compensate for the reduced water volume of each pre-soak.
- c) In soils with fines, soak the hole and let it set overnight. The perc rate measurements shall be made on the day following the soaking, not more than 26 hours after the pre-soak. From the reference point, measure the drop in water level over thirty minute periods for at least six hours. For the final two readings, read every 30 minutes without refilling and check for possible nonuniform absorption; measure how fast the water level keeps on falling until it gets down to the bottom or slows down. The consultant must determine if the minimum six hour testing should be extended for another 30-60 minutes.
- d) Remeasure the depth of the hole with each reading to see if caving has occurred. Caving in excess of 15% of total depth may invalidate the results of shallow test holes.

3.5.3 Seepage Pit Test Results

3.5.3.1 Tabulate all the final results, including all tests that "failed" to meet the standards.

3.5.3.2 Provide copies of all the field data and calculations using the following format:

- a) Seepage Pit Test (Falling Head):
1. Boring number
 2. Diameter of hole in feet:
 3. Hours presaturation, time presoak initiated:
 4. Depth (of bottom) below grade
 5. Strata peculiarities:
 6. Name of tester:
 7. Date tested:
 8. Method to prevent sidewall caving: Gravel Packed. See Appendix, page A-13.

Provide numerical values for each of these parameters

$$t_i \quad | \quad t_f \quad | \quad \Delta t \quad | \quad d_b \quad | \quad d_i \quad | \quad d_f \quad | \quad F = \frac{d_f - d_i}{d} \quad | \quad Lave = \frac{Q = \frac{FD}{9}}{Lave \Delta t} \quad | \quad \text{pit mpi} = \frac{180}{Q}$$

Where:

- t_i = initial time when filling or refilling is completed, hour: minute
- t_f = final, end-time of fall, hour: minute
- Δt = usually .5 or .166 hour
- d_b = depth to water bottom, feet
- d_i = depth to water surface at t_i feet
- d_f = depth to water surface at t_f feet
- Lave = average length of water column, feet
 $d_b - (d_i + d_f) / 2$
- D = diameter of hole in feet
- Q = gallons of sewage (or septic tank capacity, whichever is greater) per square foot per day (g/sf/d).

Show your work!!

- b) Seepage pit - weighted average method - use format per 3.4.3.2

4. Discussion of Results

- 4.1 Discuss the uniformity of the soils in regards to the soil classification (favorable, moderate or severe) and percolation times obtained. (Uniform is defined as 4 test results falling within + 1/4 of their mean percolation time.) Based on boring/trenching data, discuss how the most restrictive layer below the disposal area was tested, or can be avoided by proper separation or design. For a given system, at least 3/4 of tests must show acceptable results. For example, if there is a failing test on a lot in a proposed tract/minor subdivision, three additional acceptable tests must be shown on that lot.
- 4.2 Discuss possible sources of error or variability of results such as: measurement accuracy, cavings, one atypical location, etc. Siltation or caving of test holes may require special construction measures to prevent the soil absorption system from suffering the same fate. Discuss in #7 under Recommendations.
- 4.3 Especially if seepage pit testing was done by procedure 3.5.2, interpret the results in light of

the soils profile and the final readings. Do not rely only on the formula results. The falling head test is not a suitable test procedure for markedly different strata, unless the strata are tested separately, or mounding analyses performed. (Check references) Discuss under 7.3.

5. Design

5.1 General Criteria

5.1.1 For uniform soil units, use a mpi between mean and most conservative mpi(s), i.e., average mpi = 7, most conservative mpi = 9, design mpi = 8. If there are no uniform soil units, use the most conservative mpi for the entire area. (See 4.1 - Note: Use pit mpi, not Q, for averaging.)

5.1.2 Unless an area has been determined to have degraded groundwater by a CRWQCB, there shall be a minimum of 5 feet (leachlines) or 10 feet (seepage pits) of original soil between the bottom of the soil absorption system and groundwater. If a soil has a perc time less than 5 mpi, then the soil for a total thickness of five (5) feet below the bottom of a leachline to groundwater shall contain at least 15% of material passing the #200 U.S. standard sieve (and less than one fourth (1/4) of the representative soil cross-section shall be occupied by stones larger than 6"). Where this requirement is not met, a 40-foot separation shall be maintained below the bottom of the leachline and the highest historic groundwater level based on recorded data or on observed mottling. Fairly uniform coarse-textured soils (SM or more coarse) shall not be used for seepage pits when a "pit mpi" is less than 10 and where a sieve analysis shows less than 15% fines passing the #200 U.S. standard sieve for a thickness of 10 feet and the separation to groundwater is less than 40 feet. Lahontan Region criteria are more stringent; Board clearance is required.

Basis for 100% passing - 3/8" sieve.

5.1.3 The design Q for seepage pits must be > 1.1 g/sf/day of sewage, but < 4 g/sf/day. Q's greater than 4 g/sf/d will not be credited. Caving seepage pit test holes in coarse textured soils shall not be credited with rates greater than 3 g/sf/day.

5.1.4 Gallons per day are calculated per the most current addition of the UPC Table 1-4/UBC Table 33A and either UPC Table I-2 or Table I-3. 5.2

5.2 Convert percolation times to leachline design rates

5.2.1 Leachline application rates for domestic sewage (Source: EPA's Design Manual, 1980) minimum square feet of absorption area per gallon of effluent per day

UTILIZE GRAPH FOR APPLICATION RATE

For single homes you may use:

<u>Bedrooms</u>	<u>Gallons of Effluent Per Day</u>	<u>Gallons of Septic Tank Capacity</u>
1-2	500	750
3	670	1,000
4	800	1,200
5-6	1,000	1,500

5.3 Convert Q to seepage pit design rates

5.3.1 Seepage Pit Design - Falling Head Method

Square feet/ gallons septic tank capacity (sf/gstc)

$$1/Q \times 100 = \text{sf}/100 \text{ gstc}$$

$$\text{Design depth below inlet} = \frac{\text{septic tank capacity}}{Q \times D \pi}$$

D = Diameter of pit in feet $\pi = 3.14$

Depth below inlet shall be limited to tested depth or by groundwater.

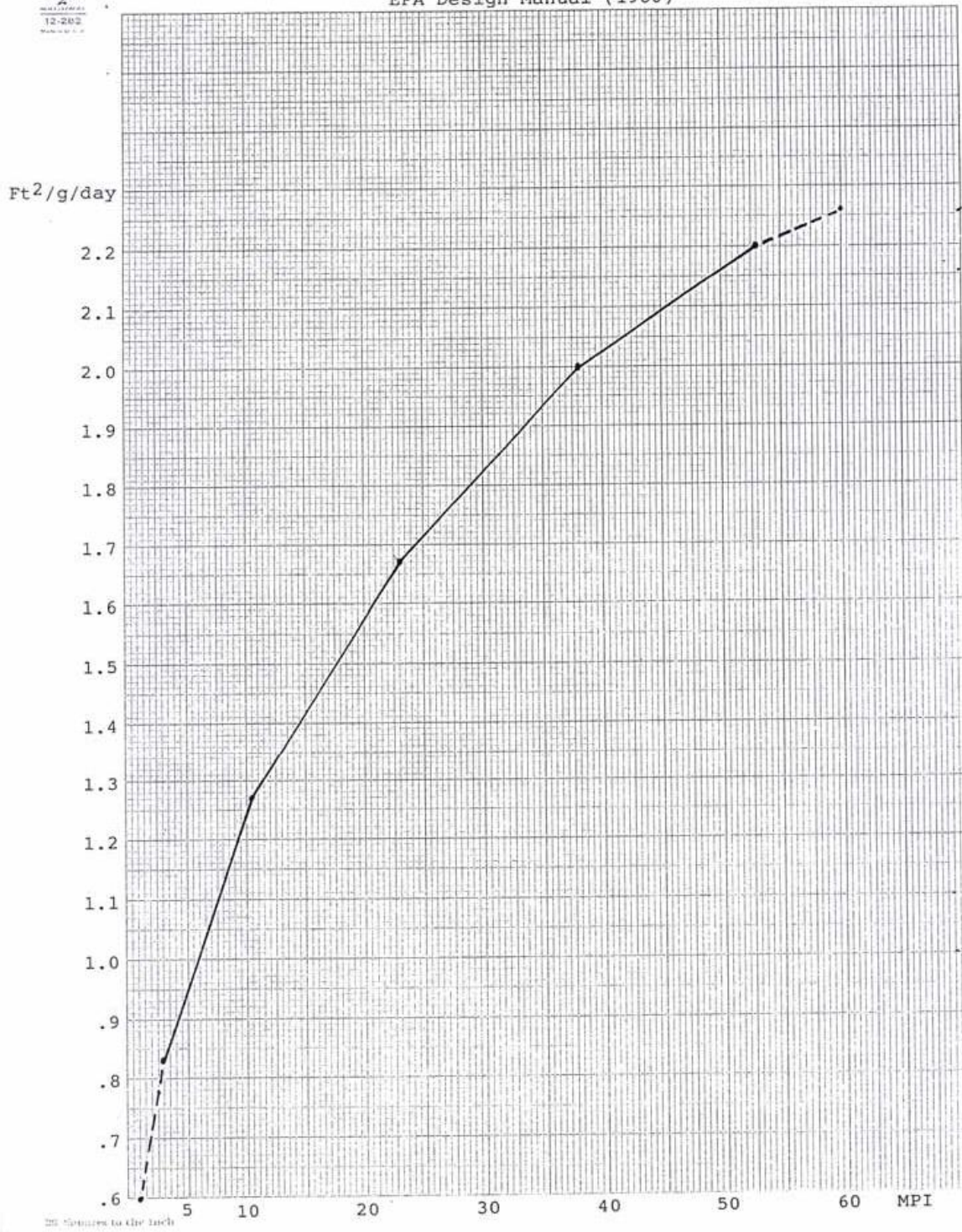
5.3.2 Seepage Pit Design - Weighted Average Method.

Use EPA Design Graph for square feet of pit sidewall.

5.4 Special Criteria

5.4.1 If leachlines or pits serve a common system for two or more units, add 30% more square footage.

Midpoints of ranges for leachfield design, from the
EPA Design Manual (1980)



- 5.4.2 For laundromats, restaurants, and confluent systems serving mobilehome parks or shopping centers (three or more retail shops), or if septic tank volume is calculated for flows > 2000 gpd with Vol = .75 flow +1125, multiply square footage by 2.5.
- 5.4.3 **Credit for Alternating Fields:**
 A credit of 10% reduction in square footage may be given for installation of alternating leach fields or seepage pits (unless the consultant specifies otherwise).
 Single houses on lots less than 10,000 square feet in area or with leach fields on ground naturally sloping >30% (with CRWQCB approval) may require alternating leach fields. The 100% expansion area can be used for one of the alternating leach fields. The report preparer must recommend that adequate future access to install the replacement system be maintained. Alternating systems, as well as standard systems, are not recommended in areas where mechanical obstruction of the system(s) may occur due to root intrusion.
- Alternating systems may be considered when future access, or critical soils are limiting factors.
- 5.4.4 Special considerations: See Appendix page A-7, Section B.1.a.

6. Plot System Per Currently Adopted Uniform Plumbing Code

Draw tested property to scale:

Single Family Home, Small Commercial Minimum 1" = 30'
 Parcel Map, Subdivision, Large Commercial Minimum 1" = 40'

- 6.1 Plot system and 100% expansion area, show existing and potential structures, wells, streams, etc. (Check Appendix for allowable separations.) Include contours, significant vegetation (including trees), rock outcropping, location of all borings and tests, and the proposed house pad.
- 6.2 For lot sales zoned for single family homes (lot sale subdivisions) show a hypothetical system for a five (5) bedroom home on each and every lot; if zoned for multi-unit development, show a hypothetical system sufficient for the effluent discharged by an average of three bedrooms per unit.
- 6.3 Where grading is expected, include original and finished elevations. If the grading plan was prepared by others, comment as it regards the recommendations set forth in the report. If grading is unknown, include qualifying statements in area(s) for the primary and expansion systems (see 3.1), or title the report "Preliminary". (Preliminary reports must still be adequate for purposes of recordation with recommendations to be followed for building permit purposes.)
- 6.4 The proposed dwelling/development shall be located so that the initial subsurface sewage disposal system and the required 100% expansion area shall function by gravity flow unless otherwise approved.

- 6.5 A pump system will be considered only under the following hardship conditions:
- a. To salvage an existing structure when an adequate disposal area cannot be reached by gravity flow.
 - b. To allow new house construction on an existing lot when there is absolutely no other alternative to pumping. This hardship consideration will be based on reasonable site development.
 - c. See Appendix, Page A-9.
- 6.6 All designed systems construction details are subject to review by the DEHS and approval by the Department of Building & Safety. Minimum conventional construction details are to be found in the currently adopted Uniform Plumbing Code.

7. General Discussion and Conclusions or Recommendations

- 7.1 Specify any pertinent CRWQCB requirements and state whether they are being met. All systems must meet the CRWQCB requirements. See Appendix pages A-17-A-22.
- 7.2 State whether each lot has sufficient area to support an individual sewage disposal system that will meet DEHS standards for the use intended. Include a qualifying statement if swimming pools, building expansions, etc. are or may be allowed; also if grading must be restricted, or if grading plans must be reviewed prior to grading, and installation inspected after grading by soils consultant, or if special construction techniques are required.
- 7.3 Discuss sewage mounding if lots are to be developed commercially or industrially with flows of 1500 g/d or greater and/or as determined necessary under 4.3. In addition, for commercial and industrial discharges, discuss the on-site system's ability to adequately treat harmful waste constituents prior to entering the groundwater if other than sanitary wastes may be discharged. Indicate if a special treatment process study should be done after the exact nature of the discharge(s) has been determined.
- 7.4 Recommend that a copy of the DEHS septic system handout *Taking Care of Your Septic System* be obtained by the owner/developer, or provide a copy in report Appendix.

** APPENDIX **
August 1992

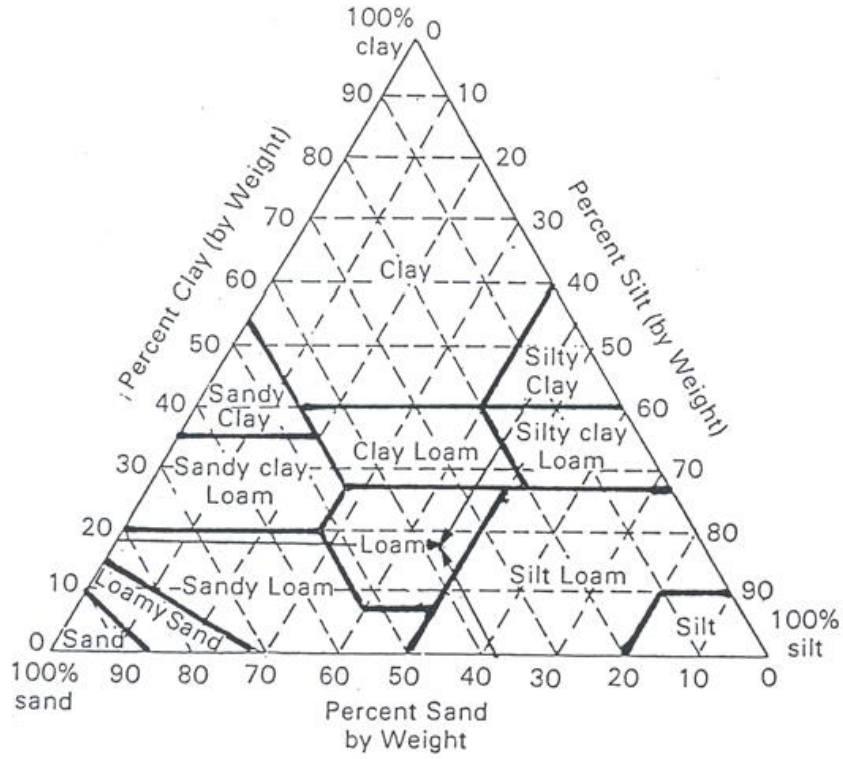
Note: The Regional Water Quality Control Board criteria are current at time of publication, but may change. It is the consultant's responsibility to be aware of the minimum criteria. Changes will be made as necessary to the Appendix by the Department.

SOURCE: EPA DESIGN MANUAL FOR ON-SITE SYSTEMS
TEXTURAL PROPERTIES OF MINERAL SOILS

Characteristics & Appearance

<u>Soil Class</u>	<u>Dry Soil</u>	<u>Moist Soil</u>
MINIMUM REQUIREMENTS FOR LOCATION OF		
Sand	Loose, single grains which feel gritty. Squeezed in the hand, the soil mass falls apart when the pressure is released.	Squeezed in the hand, it forms a cast which crumbles when touched. Does not form a ribbon between thumb and forefinger.
Sandy Loam	Aggregates easily crushed; very faint velvety feeling initially but with continued rubbing the gritty feeling of sand soon dominates.	Forms a cast which bears careful handling without breaking. Does not form a ribbon between thumb and forefinger.
Loam	Aggregates are crushed under moderate pressure; clods can be quite firm. When pulverized, loam has velvety feel that becomes gritty with continued rubbing. Casts bear careful handling.	Cast can be handled quite freely without breaking. Very slight tendency to ribbon between thumb and forefinger. Rubbed surface is rough.
Silt Loam	Aggregates are firm but may be crushed under moderate pressure. Clods are firm to hard. Smooth, flour-like feel dominates when soil is pulverized.	Cast can be freely handled without breaking. Slight tendency to ribbon between thumb and forefinger. Rubbed surface has a broken or rippled appearance.
Clay Loam	Very firm aggregates and hard clods that strongly resist crushing by hand. When pulverized, the soil takes on a somewhat gritty feeling due to the harshness of the very small aggregates which persist.	Cast can bear much handling without breaking. Pinched between the thumb and forefinger, it forms a ribbon whose surface tends to feel slightly gritty when dampened and rubbed. Soil is plastic, sticky and puddles easily. (Thumbprints visible)
Clay	Aggregates are hard; clods are extremely hard and strongly resist crushing by hand. When pulverized, it has a grit-like texture due to the harshness of numerous very small aggregates which persist.	Casts can bear considerable handling with breaking. Forms a flexible ribbon between thumb and forefinger and retains its plasticity when elongated. Rubbed surface has a very smooth, satin feeling. Sticky when wet and easily puddled.

TEXTURAL TRIANGLE DEFINING TWELVE TEXTURAL CLASSES OF THE USDA
 (ILLUSTRATED FOR A SAMPLE CONTAINING 37% SAND, 45% SILT, AND 18% CLAY)



METHOD OF SOIL CLASSIFICATION
(ASTM D 2487)

COARSE-GRAINED SOILS

LESS THAN 50% FINES*

GROUP SYMBOLS	DESCRIPTION	MAJOR DIVISIONS
GW	WELL-GRADED GRAVELS OR GRAVEL-SAND MIXTURES, LESS THAN 5% FINES	GRAVELS More than half of coarse fraction is larger than No. 4 sieve size
GP	POORLY-GRADED GRAVELS OR GRAVEL-SAND MIXTURES, LESS THAN 5% FINES	
GM	SILTY GRAVELS, GRAVEL-SAND-SILT MIXTURES, MORE THAN 12% FINES	
GC	CLAYEY GRAVELS, GRAVEL-SAND-CLAY MIXTURES, MORE THAN 12% FINES	
SW	WELL-GRADED SANDS OR GRAVELLY SANDS, LESS THAN 5% FINES	SANDS More than half of coarse fraction is smaller than No. 4 sieve size
SP	POORLY-GRADED SANDS OR GRAVELLY SANDS, LESS THAN 5% FINES	
SM	SILTY SANDS, SAND-SILT MIXTURES, MORE THAN 12% FINES	
SC	CLAYEY SANDS, SAND-CLAY MIXTURES, MORE THAN 12% FINES	

NOTE:
Coarse-grained soils receive dual symbols if they contain 5 to 12% fines (e.g. SW-SM, GP-GC, etc.)

FINE-GRAINED SOILS

MORE THAN 50% FINES*

GROUP SYMBOLS	DESCRIPTION	MAJOR DIVISIONS
ML	INORGANIC SILTS, VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS	SILTS AND CLAYS Liquid limit less than 50
CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS	
OL	ORGANIC SILTS OR ORGANIC SILTY-CLAYS OF LOW PLASTICITY	
MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SANDS OR SILTS, ELASTIC SILTS	SILTS AND CLAYS Liquid limit more than 50
CH	INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS	
OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY	HIGHLY ORGANIC SOILS
PT	PEAT, MUCK, AND OTHER HIGHLY ORGANIC SOILS	

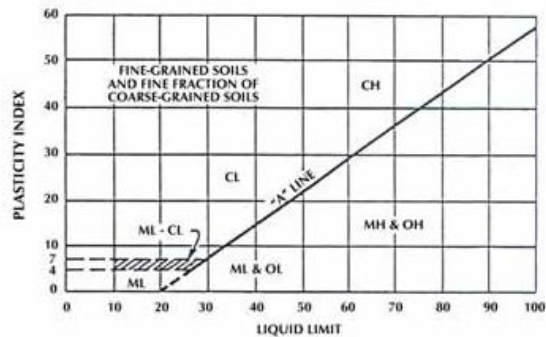
NOTE:
Fine-grained soils receive dual symbols if their limits plot in the hatched zone on the Plasticity Chart (ML-CL)

SOIL SIZES

COMPONENT	SIZE RANGE
BOULDERS	ABOVE 12 in.
COBBLES	3 in. to 12 in.
GRAVEL	No. 4 to 3 in.
Coarse	½ in. to 3 in.
Fine	No. 4 to ½ in.
SAND	No. 200 to No. 4
Coarse	No. 10 to No. 4
Medium	No. 40 to No. 10
Fine	No. 200 to No. 40
*Fines (Silt or Clay)	BELOW No. 200

NOTE:
Only sizes smaller than three inches are used to classify soils.

PLASTICITY CHART



MAJOR DIVISIONS			GROUP SYMBOLS	TYPICAL NAMES
COARSE GRAINED SOILS (More than 50% of material is LARGER than No. 200 sieve size)	GRAVELS (More than 50% of coarse fraction is LARGER than the No. 4 sieve size)	CLEAN GRAVELS (Little or no fines)	GW	Well graded gravels, gravel-sand mixtures, little or no fines.
			GP	Poorly graded gravels or gravel-sand mixtures, little or no fines.
		GRAVELS WITH FINES (Appreciable amt. of fines)	GM	Silty gravels, gravel-sand-silt mixtures.
			GC	Clayey gravels, gravel-sand-clay mixtures.
	SANDS (More than 50% of coarse fraction is SMALLER than the No. 4 sieve size)	CLEAN SANDS (Little or no fines)	SW	Well graded sands, gravelly sands, little or no fines.
			SP	Poorly graded sands or gravelly sands, little or no fines.
		SANDS WITH FINES (Appreciable amt. of fines)	SM	Silty sands, sand-silt mixtures.
			SC	Clayey sands, sand-clay mixtures.
FINE GRAINED SOILS (More than 50% of material is SMALLER than No. 200 sieve size)	SILTS AND CLAYS (Liquid limit LESS than 50)	ML	Inorganic silts, and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity.	
		CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays.	
		OL	Organic silts and organic silty clays of low plasticity.	
	SILTS AND CLAYS (Liquid limit GREATER than 50)	MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts.	
		CH	Inorganic clays of high plasticity, fat clays.	
		OH	Organic clays of medium to high plasticity, organic silts.	
HIGHLY ORGANIC SOILS		PT	Peat and other highly organic soils.	

BOUNDARY CLASSIFICATIONS: Soils possessing characteristics of two groups are designated by combinations of group symbols.

PARTICLE SIZE LIMITS

SILT OR CLAY	SAND			GRAVEL		COBBLES	BOULDERS
	FINE	MEDIUM	COARSE	FINE	COARSE		
	NO. 200	NO. 40	NO. 10	NO. 4	3/4 IN.	3 IN.	(12 IN.)

U. S. STANDARD SIEVE SIZE

UNIFIED SOIL CLASSIFICATION SYSTEM

Reference
The United Soil Classification System, Corps of Engineers, U. S. Army Technical Memorandum No. 3-357
Vol. 1, March, 1953 (Revised April, 1960)

LIQUID WASTE DISPOSAL SYSTEMS

The minimum requirements for the installation of new sewage disposal systems for either new or existing structures shall generally be as follows:

A. Minimum Separations

1. Septic tank to:

a.	Water supply well	100 feet
b.	Buildings or structures ¹	5 feet
c.	Property line adjoining private property	5 feet
d.	Perennial streams ²	50 feet
e.	Ephemeral streams ³	50 feet
f.	Large trees ⁴	10 feet
g.	Seepage pits or disposal fields	5 feet
h.	Private domestic water lines (building service line)	5 feet
i.	Public domestic water lines (water purveyor's line)	10 feet
j.	Groundwater	5 feet

2. Soil absorption system to:

a.	Water supply well - 100, 150, or 200 ft. depending on whether system has a:	
	Leaching field	100 feet
	Seepage pit	150 feet
	Any system discharging 5,000 gallons/day or more	200 feet
b.	Building or structures ¹	8 feet
c.	Property line adjoining private property (leachlines)	5 feet
d.	Property line adjoining private property (seepage pits)	8 feet
e.	Large trees ⁴ (seepage pits)	10 feet
f.	Perennial streams ²	100 feet
g.	Colorado River/Mojave River	200 feet
h.	Ephemeral streams/ Drainage Courses ³	50 feet
i.	Septic tank	5 feet
j.	Distribution box	5 feet

k.	Private domestic water line (building service line)	5 feet
l.	Public domestic water line (water purveyor's line)	10 feet
m.	High groundwater table level ⁵ Leachline Seepage pit	5 feet 10 feet
n.	Ground surface on sloping ground (When disposal fields and/or seepage pits are installed in sloping ground, the minimum horizontal distance between any part of the leaching system and ground surface shall be 15 feet.) Also see page A-16.	15 feet
o.	Lakes, water reservoirs	200 feet

3. The minimum separations listed herein are largely derived from the Uniform Plumbing Code. In some cases, additions or changes have been made in order to adequately protect the public health. Where differences exist, the greater separation prevails unless specifically waived for cause by the Department of Environmental Health Services.

Footnotes:

- ¹ Includes porches and steps whether covered or uncovered, breezeways, roofed porte cocheres, roofed patios, carports, covered walls, covered driveway, and similar structures or appurtenances.
- ² A listing of perennial streams will be maintained by the Division of Environmental Health Services. See pages A-14.
- ³ An ephemeral stream/drainage course is any stream not listed as a perennial stream by the Division of Environmental Health Services (see Footnote 2). To determine where the setback restrictions should be applied, the U. S. Geological Survey Maps are used as a guide. If a stream is designated on the USGS Map by a blue dash/dotted line, the setback requirements must be met. If not shown, but there is obvious visual evidence of water flow, the setback is determined by the topography and the geology of the proposed site, but is not less than 25'. Distances are measured from the edge of the channel or assumed 0-100 year flow.
- ⁴ Any tree with a trunk diameter of one foot or more within 5' of the system that are not to be removed during construction.
- ⁵ The highest known level to which groundwater is known to have occurred rather than the level at the time when testing occurred.

B. Other Factors

1. Special Soil Conditions

- a. Special soil conditions may require special consideration by the Division of Environmental Health Services and must be considered on a case-by-case basis, particularly in areas of high rainfall or in proximity to water sources.

- b. In the Carbon Canyon area for an individual system, the area of the disposal system tests must be located and tested such that borings are spaced 25 feet or less from proposed disposal area(s).
- c. San Bernardino County is known to be criss-crossed with flood control channels, water infiltration basins, perc ponds, tunnels and pipelines which supply water to water districts. Special care must be taken in siting the disposal systems. Check with county liquid waste specialist during notification.
- d. Mottled soil - A mottled soil is a soil that is marked with spots or blotches of contrasting color which is usually caused by saturation for some period during a normal year.

If this process has prevailed for significant periods over the recent geologic past, the resulting mottled soil colors can be readily observed.

Zones of seasonal or periodic soil saturation shall be estimated at the highest level of soil mottles. However, soil mottles can occur that are not due to zones of seasonal or period soil saturation; therefore, consult with County Specialist. Monitoring wells may be required to verify lack of groundwater. The abundance, size, contrast and color of the soil mottles shall be described in the following manner: (except frozen soils and soils with rapid permeability).

Abundance shall be described as “few” if the mottled color occupies less than 2% of the exposed surface; “common” if the mottled color occupies from 2% to 20% of the exposed surface; or “many” if the mottled color occupies more than 20% of the exposed surface.

Size refers to the length of the mottle measured along the longest dimension and shall be described as fine if the mottle is less than 5 millimeters (mm); medium if the mottle is from 5-15 mm; or coarse if the mottle is greater than 15 mm.

Contrast refers to the difference in color between the soil mottle and the background color of the soil and is described as faint if the mottle is evident, but recognizable with close examination; distinct if the mottle is readily seen but not striking; or prominent if the mottle is obvious and one of the outstanding features of the horizon. The color(s) of the mottle(s) shall be indicated.

- e. A leachline test hole 12 inches (30.5 cm) in diameter is used only when the soil is so stoney or coarse-textured that it is not feasible to dig or bore a standard diameter test hole. The results obtained with this larger diameter hole in minutes per inch or minutes per centimeter are multiplied by the correction factor contained in the leachline formula.

f. **Technical Modifications**

Where sidewall soil materials may slough into the test hole during soaking, two techniques are applied: gravel packing and manual removal.

For gravel packing, a perforated open-top cylinder is placed over the 2 inch (5.1 cm) layer of gravel at the bottom of the test hole. The cylinder is centered in the test hole. The 1 to 2 inch (2.5 to 5.1 cm) space between the hole sidewall and the cylinder is filled with loose, uncompacted, pea-sized gravel. The cylinder may be made out of a perforated piece of pipe, tin can, or hardware cloth. The measured water level drops must be corrected after calculating the effect of the gravel volume.

2. Special discharge conditions:

- a. Local hydrogeological conditions may necessitate more separation of the sewage disposal system for protection of special resources (drinking water supply, recreation areas, water storage reservoirs, lakes, etc).
- b. Fractured bedrock (decomposed granite is not included) and impervious strata are not suitable for sewage disposal. Impervious is defined for design purposes as a stratum with perc times of >120 mpi.
- c. The discharge of surface, rain or other clear water into a sewage disposal system is prohibited.
- d. Water softener and iron filter discharge to a sewage disposal system or on the ground surface is prohibited unless specifically approved by RWQCB. Discharge shall be by physical or manual removal to an approved disposal site.
- e. Discharge of toxic or hazardous chemicals to a domestic system is prohibited. Industrial developments shall have individual monitoring ports for each unit connected to a confluent sewage disposal system if there is a single owner of the development. Multi-owner industrial units (condo type) shall have a separate system for each unit.
- f. Other (Sand and grease interceptors and traps will be considered on a case-by-case basis).

3. Alternative On-Site Sewage Disposal Options

- a. Pump systems - All proposals for pumping shall be detailed in the perc report and shall be subject to DEHS and Building & Safety approval. A pump system may be approved when it is determined that the proposal is a hardship as defined. The following information is required for review:
 - 1. Percolation data
 - 2. Pump data
 - 3. Design of the pump chamber, to include a storage volume equal to 24 hours design flow, in the event of a power outage or a pump failure, or make provision for overflow to an adequately sized back-up gravity disposal area.
 - 4. Alarm system design
 - 5. Force main and backflow prevention design certified by AWWA Grade II cross-

connection specialist

6. Design of a receiving chamber at the disposal site which allows the simulation of gravity flow to the disposal system. In all cases, gravity flow to the septic tank is required, such that only settled effluent is pumped from the pump chamber. All components shall comply with the latest edition of the UPC and UBC standards.
- b. Where site conditions are such that individual septic systems are not feasible for the proposed development, the use of a multiple ownership septic system may be used, complying with the San Bernardino County Code, Title 3, Chapter 8, Article 7, and Water Quality Control Board Waste Discharge Requirements.
- c. The use of designed (demonstration) sewage disposal systems may be allowed with the concurrent approval of the appropriate Regional Water Quality Control Board, DEHS and the Department of Building & Safety. Designed sewage disposal systems include, but are not limited to: mound systems, evapotranspiration systems, denitrifying systems, and sand filtration systems. These systems shall not be approved for the creation of new lots unless specifically approved first by the Board of Supervisors and California Water Quality Control Board, but as a remediation for otherwise unsuitable existing lots on a case by case basis.

The conditions of approval and any required monitoring shall be part of the property's recorded deed.
- d. The use of holding tanks shall not be approved for subdivision purposes except if there is documented evidence that a sewer connection will be available within 24 months and the use of the holding tanks complies with San Bernardino County Code, Title 3, Chapter 8, Article 4.
- e. Utilization of advanced wastewater package treatment plants may be utilized on or off site for those developments which do not meet the Regional Board's guidelines for septic systems. A percolation report will be required for all developments. Siting of the system and the design of the disposal system shall meet DEHS and the Department of Building & Safety standards. The plant shall have a Waste Discharge Requirement (WDR) or National Pollutant Discharge Elimination System (NPDES) permit from the Regional Water Quality Control Board. The plant shall be under the control of: 1) a public entity or 2) serviced on a regular basis by qualified, certified wastewater treatment plant personnel.

4. Percolation Report Waiver Criteria

The percolation report requirement for non-critical area development (minor subdivision parcel maps) may be waived by the Division of Environmental Health Services upon presentation of the following:

- a. The person or consultant requesting the waiver shall refer to actual approved percolation tests performed on the land in question, or a contiguous parcel, and submit copies of the percolation reports (with the property owner's and consultant's written permission), or,
- b. The consultant shall provide a soil horizon identification study per the following criteria.
 - (1) The study shall be performed by a qualified professional: a Registered Civil

Engineer, Certified Engineering Geologist, Registered Environmental Health Specialist, Registered Geologist, or Geotechnical Engineer.

- (2) The site evaluation shall include soil descriptions, properties and expected permeabilities per 3.3.1, depth to zones of soil saturation, depth to impermeable material (s), slope, potential for flooding and type(s) of vegetation.
 - (3) The depth of the soil profile shall be a minimum 8 feet below the proposed depth of the leachline and 10 feet below the proposed depth of a seepage pit, and shall be of sufficient dimension to be accessible for soil evaluation: in addition, a minimum of two excavations for each lot will be required. Use a backhoe for leachlines, use a bucket rig for seepage pits (or sample in place the soils).
- c. The consultant shall provide a statement that there are no factors (list mitigation measures) which would adversely affect the installation of a subsurface sewage disposal system. These would include: water table levels (historic, source of information), drainage channels, cuts and fills, rock ledges and outcrops, steep slopes, and the location of any wells.
 - d. The document shall include the assessor parcel number, size of the parcels in acres or square feet, location of the property, proposed development on the property, and a plot plan showing building pad, sewage disposal area and 100% expansion.
 - e. The consultant shall state that the proposed sewage disposal system meets RWQCB standards, DEHS standards, shall not cause a public health nuisance nor degrade surface and/or groundwater. The consultant shall sign the document and include his/her stamp with registration number.
 - f. A fee shall be paid to the Division of Environmental Health Services as determined by the current fee schedule for review.

DAYLIGHT REQUIREMENTS

Any portion of the disposal field located to the top of a cut or on sloping ground shall maintain a 15 foot horizontal distance from daylight to any portion of the leachline or leach bed. The table gives the minimum cover required versus the percent of slope in the area of the disposal field to meet the 15 foot requirement. This table also gives a factor “f” by which to increase the length of the trench due to the assumed loss in evapotranspiration caused by the added cover.

Slope of the Ground in the Area of the Disposal System	Minimum Cover Over the Drain Lines	f
5%	1.00 ft	1.0
10%	1.50 ft	1.0
15%	2.25 ft	1.0
20%	3.00 ft	1.0
25%	3.75 ft	1.1
30%	4.50 ft	1.2
35%	5.25 ft	1.3
40%	6.00 ft	1.4
45%	7.00 ft	1.5

(Slopes greater than 30% require CRWQCB approval)

Note: If for design purposes additional cover is required over drain lines (e.g.; below fill), the cover factor is still applicable.

SPECIAL CONSIDERATIONS FOR ABSORPTION FIELD PLACEMENT IN SLOPING GROUND

1. If ground slope is > 30%, any portion of an absorption field (except solid pipe) shall be a minimum of 10 feet (horizontally) from the downslope property line(s). It is the report preparer’s responsibility to certify that this minimum is applied or expanded if the slope is less than or equal to 30%, but the soil conditions are such that a basement or curtain drain already built 5 feet downslope from the lower property line(s) may be affected by sewage effluent. Show setback on plot.
2. The minimum horizontal distance between any portion of an absorption field (except solid pipe) and an exposed downward sloping impermeable stratum or bedrock in “cut” slope shall be 50 feet. It is the report preparers responsibility to make recommendations so that systems do not daylight. It is the owner/contractor(s) responsibility to install systems per the recommendations. The consultant may wish to inspect installations to be assured that recommendations are followed. If so desired by consultant, make it a requirement of approval. Upon presentation of pertinent engineering data, the County Specialist may stipulate this requirement.

GRAVEL PACKING CORRECTIONS

If gravel packing was used, correct rates for the effect of the gravel volume. Show in detail measurements of the gravel volume and the calculations. The easiest way to calculate per cent gravel voids in the field is as follows:

Fill a 23½ oz. cylindrical tin can "A" with gravel. The gravel should be loose, uncompacted, just like in the test hole. Don't shake the can. * If the gravel is fine (pea size), fill with water and then drain thoroughly. Fill another identical can "B" with water; pour this water into can "A" until water barely drips out of its rim. (No spillages.) Per cent gravel void is equal to height of water missing in B divided by total height of can, times 100. Add formula correction factor to seepage pit or leachline design.

Correction Factor

$$\text{Formula} = [1 + P(C^2 - 1)] / C^2$$

$$C = r_2 / r_1$$

r_2 = radius of hole

r_1 = radius of pipe

P = % of voids

Another method for gravel packing corrections is by weighing the can with gravel, with gravel+water and with water using the formula below. By using this method, you do not have to assume to have two identical cans.

1. Weigh the can = A
2. Fill can with water to top; weigh = B
3. Empty can and fill with gravel (wet or dry as in other method); weigh = C
4. Fill gravel-packed can with water to top; weigh = D
5. Calculate the gravel correction factor using the following equation:

$$\frac{D - C}{B - A} = \text{Gravel Correction Factor (i.e. - \% voids)}$$

* If during field testing the gravel in the test hole is observed to compact, shake the can.

PERENNIAL STREAMS OF SAN BERNARDINO COUNTY

The following list of streams has been provided to the Department by the Regional Water Quality Control Boards. These are the streams which they consider to be wholly or in part perennial. The list may be amended from time to time in order to reflect better or more complete information as it becomes known to the Department.

- A. California Regional Water Quality Control Board, Lahontan Region
(Regional Board No. 6)
 - 1. East Fork of the West Fork of the Mojave River
 - 2. Seeley Canyon Creek
 - 3. Houston Creek
 - 4. Deep Creek
 - 5. Holcomb Creek
 - 6. Hooks Creek
 - 7. Shale Creek
 - 8. Crab Creek
 - 9. Little Bear Creek (Lake Arrowhead Dam to confluence with Deer Creek)
 - 10. Salt Creek (North of Baker, California)
 - 11. Heath Canyon Creek
 - 12. Swarthout Creek
 - 13. Sheep Creek (North of Highway 2)

- B. California Regional Water Quality Control Board
Colorado River Basin Region (Regional Board No. 7)
 - 1. Colorado River
 - 2. Whitewater River
 - 3. San Gorgonio River
 - 4. Pinto Creek
 - 5. Copper Basin Creek
 - 6. Arrastre Creek

- C. California Regional Water Quality Control Board,
Santa Ana Region (Regional Board No. 8)
 - 1. Santa Ana River - Reach 6 (Above confluence with Bear Creek)
 - a. Deer Creek
 - b. Hamilton Creek
 - c. Wildhorse Creek
 - d. Cienaga Seca Creek
 - e. Coon Creek
 - f. Fish Creek
 - g. Lost Creek
 - h. South Fork - Santa Ana River
 - i. Frog Creek
 - j. Barton Creek (east and west forks)
 - k. Forsee Creek
 - l. Schneider Creek
 - m. Gold Creek

PERENNIAL STREAMS OF SAN BERNARDINO COUNTY (Cont'd)

2. Mill Creek (above upper powerhouse)
 - a. Mountain Home Creek
 - b. Monkey Face Creek
 - c. Alger Creek
 - d. Falls Creek
 - e. Vivian Creek

3. Oak Glen Creek (above Oak Glen)
 - a. Birch Creek

4. Bear Creek
 - a. North Fork - Bear Creek
 - b. Grout Creek
 - c. Caribou Creek
 - d. Rathbone Creek
 - e. Metcalf Creek
 - f. Kidd Creek
 - g. Siberia Creek

5. Lytle Creek (above upper powerhouse)
 - a. Middle Fork - Lytle Creek

6. Devil Canyon Creek (east and west forks above power plant)

7. Cajon Creek (above Keenbrook)

8. Waterman Canyon Creek

9. City Creek (above gaging stations)
 - a. West Fork - City Creek
 - b. East Fork - City Creek
 - c. Middle Fork - City Creek

10. Plunge Creek (above gaging stations)
 - a. Little Mill Creek
 - b. Fredalba Creek

11. Alder Creek (tributary to Santa Ana Reach 5)
 - a. Middle Fork - Alder Creek
 - b. Hemlock Creek
 - c. Keller Creek

PERENNIAL STREAMS OF SAN BERNARDINO COUNTY (Cont'd)

12. East Twin Creek (above gaging stations)
 - a. Strawberry Creek
13. East Etiwanda Creek (within National Forest)
14. Day Canyon Creek (above gaging station)
15. Cucamonga Creek (above gaging station)
16. San Antonio Creek (1 mile above community of Mt. Baldy)
 - a. Ice House Canyon Creek
17. Chino Creek (from confluence with Santa Ana River to Pine Avenue)
18. Carbon Canyon

**REGIONAL WATER QUALITY CONTROL BOARD (RWQCB)
MINIMUM ON-SITE SEWAGE DISPOSAL CRITERIA**

SANTA ANA REGION

- A. Unless the developer demonstrates by substantial evidence or the local health authority finds that a pollution, nuisance, or contamination will not occur as a result of the discharge of domestic wastes, the following criteria are considered necessary for the protection of water quality objectives, to prevent impairment of beneficial uses, to prevent pollution, nuisance, or contamination, and to prevent unreasonable degradation of water quality:
1. Depth of soil between ground surface and anticipated high groundwater in the disposal area shall not be less than 10 feet.
 2. Depth of soil containing at least 10 percent of the particles smaller than 0.08 millimeters between the bottom of the disposal facilities and anticipated high groundwater shall not be less than 5 feet.
 3. Depth of soil between the bottom of any leaching system and impermeable strata shall not be less than 8 feet.
 4. Natural or finished ground slope in the disposal area shall not be greater than 30 percent.
 5. The percolation rate in the disposal area shall not be greater than 60 minutes per inch if the discharge is to be leachfield, and not less than 1.1 gallons of effluent per square foot per day if the discharge is through a seepage pit. If the percolation rates are faster than 5 minutes per inch, additional testing will be required to determine compliance with 2., or if percolation rates are faster than 5 minutes per inch, minimum depth to groundwater between the bottom of the disposal facilities and the anticipated high groundwater shall be 40 feet. (The percolation rates shall be determined in accordance with procedures prescribed by the appropriate public agency.)
 6. Compliance is required with all applicable local requirements, including but not limited to requirements on lot size, distance from wells, streams, drainage courses, reservoirs, adjoining properties, or other points.
- B. Minimum lot size requirements and exemption criteria for new developments using on-site septic tank-subsurface leaching/percolation systems:
1. A minimum lot size of one-half acre (average gross) per dwelling unit is required for new developments in the Region using on-site septic tank-subsurface leaching/percolation systems.
 - a. The term “one-half acre” specified as the minimum lot size requirement means an average gross area of land of one-half acre per dwelling unit. In the calculation of the average lot size, areas set aside for streets, curbs, commons, greenbelts, and other easements may be included.

- b. A “new” development is defined as a proposed tract, parcel, industrial or commercial development that has not been granted one or more of the following on or prior to September 7, 1989:
 - 1. Conditional approval or approval of a tentative parcel or tract map by the local agency such as the county/city Planning Commission, City Council, or the Board of Supervisors.
 - 2. A conditional use permit.
 - 3. Conditional approval or approval by the San Bernardino County Division of Environmental Health Services, Riverside County Department of Health, Orange County Health Care Agency, or other local agency.
- c. The minimum lot size requirement does not apply to existing developments where septic tank-subsurface disposal systems have been installed on or prior to September 7, 1989.
- d. Those tracts, parcels, industrial or commercial developments which have received one or more of the approvals listed in “b”, above, on or prior to September 7, 1989 are exempt from minimum lot size requirements for use of septic tank-subsurface disposal systems.
- e. A residential tract or parcel of five acres or less which is completely surrounded by tract(s) and/or parcel(s) with high density (i.e., less than one-half acre gross average per dwelling unit) residential developments and which has received zoning identical to that of the surrounding developments may be granted an exemption from the minimum lot size requirement, provided that all of the surrounding tract(s) and/or parcel(s) have been granted one or more of the approvals identified in “b”, above, on or prior to September 7, 1989. Non-residential property such as schools, churches, public utilities, shopping centers, etc. which border the tracts/parcels in questions are to be disregarded when conformance with this criterion is determined; conformance is to be based solely on the nature of the remaining developments surrounding the property.

This exemption criterion expires after December 31, 1991.

- f. For new industrial/commercial developments utilizing septic tank-subsurface disposal systems, the wastewater flow for each one-half acre of land may not exceed that from a three-bedroom, two-bath house as specified in the Uniform Plumbing Code (20 fixture units).
- g. This minimum lot size requirement does not affect the lot size criterion for continuing exemptions in prohibition areas (1 acre minimum).
- h. This minimum lot size requirement does not preclude the prescription of more stringent lot size requirements in specific areas if it is determined necessary to protect water quality.
- i. No exemptions may be granted for new developments on tracts/parcels which are 660 feet or less from a sewer which could serve that tract/parcel, barring legal impediments to such use.

- j. New lots of less than one-half acre may be formed by combining two or more lots which have received one of the approvals specified in Section 1.bl, above, on or prior to September 7, 1989. Individually, these existing lots would be eligible for an exemption from the minimum lot size requirement. Developments on the combined lots may also be granted an exemption provided that the total number of units proposed for the new parcel is equal to or less than the total number of units proposed for the existing parcel. For the purposes of this subsection, a combined lot of less than one-half acre formed from two or more existing lots shall not be considered a new development.

COLORADO RIVER BASIN REGION

1. In areas overlying groundwaters which are usable or potentially usable for domestic purposes:
 - a. Depth of soil between ground surface and high groundwater level or impervious strata in the disposal area shall not be less than 10 feet.
 - b. Depth of soil between the bottom of the disposal facility and fractured rock or high groundwater level shall be at least five feet for leachlines and 10 feet for seepage pits where the soil strata consists of at least 10 percent of the material passing a No. 200 sieve. Additional soil depth will be required as the effective grain size of the soil increases.
 - c. Natural or finished ground slope in the disposal area shall not exceed 30 percent.
 - d. The percolation rate in the disposal area shall not be greater than 60 minutes per inch if the discharge is to a leachfield, and not less than 1.1 gallons of effluent per square foot per day if the discharge is through a seepage pit. If the percolation rates are faster than 5 minutes per inch, additional testing will be required to determine compliance with 1-b, or if percolation rates are faster than 5 minutes per inch, minimum depth to groundwater between the bottom of the disposal facilities and the anticipated high groundwater shall be 40 feet. (The percolation rates shall be determined in accordance with procedures prescribed by the appropriate public agency.)
2. Other structural limitations, such as horizontal distance between a sewage leaching facility and a water well used for domestic purposes, a surface water used for domestic purposes or for water-contact sports, or other surface impoundment accessible to the public shall be as specified by the local regulatory agency.
3. In areas overlying groundwaters which are unusable for domestic or agricultural purposes:
 - a. Depth of permeable soil between ground surface and groundwater level shall not be less than four feet.
 - b. Depth of permeable soil between the bottom of the disposal facility and impervious strata shall not be less than four feet.
 - c. The acceptable percolation rate shall be determined by the county regulatory agency in

consideration of the required disposal area and other technical factors, in consultation with the Regional Board's Executive Officer or his designee.

- d. Compliance with the above-listed Criteria 1 through 3, as well as compliance with local codes and/or policies regulating sewage disposal, will be as determined technically by the appropriate county regulatory agency, subject to review by the Regional Board as to the provisions of said Criteria 1 through 3.

LAHONTAN REGION

1. Maximum Density

Individual waste disposal systems associated with new developments which have a gross density greater than two (2) single family equivalent dwelling units per acre will be required to have secondary-level treatment of wastewater. Equivalent dwelling units (EDUs) are defined as a unit of measure used for sizing a development based on the amount of waste generated from that development; the value used in implementation of these criteria is 250 gallons per day per EDU. For the purposes of these criteria, the discharge from a single family dwelling is equal to one EDU. For the purposes of these amendments, senior citizen dwelling units and second units as defined in Government Code Sections 65852.1 and 65852.2 will not be considered as additional dwelling units. In addition to residential developments, this secondary level treatment policy also applies to wastewater discharges from commercial, industrial, recreational and all other developments with wastewater discharge volumes exceeding two EDU per acre density (500/gal/day/acre based on 250 gal/day/EDU). Use of new septic systems is permitted in existing developments as of June 16, 1988 with lot sizes having a net area greater than or equal to 15,000 square feet. The net area is that contained within the boundaries as set forth in the legal lot description.

2. Minimum Distances

The Board has established the minimum distances (see Table entitled, "Minimum Distances for Siting Individual Waste Disposal Systems") necessary to provide protection to water quality and/or public health.

RWQCB MINIMUM ON-SITE SEWAGE DISPOSAL CRITERIA CONT'D

3. Additional Minimum Criteria

- a. The percolation rate in the disposal area shall not be slower than 60 minutes per inch if the discharge is to a leachfield or 30 minutes per inch if discharge is to a seepage pit. If percolation rates are faster than 5 minutes per inch, minimum distance to groundwater between the bottom of the disposal facilities and the anticipated high groundwater shall be 40 feet. (The percolation rates shall be determined in accordance with procedures prescribed by the appropriate local public health agency.)
- b. Clay, bedrock, or other material impermeable to the passage of water shall not be less than 5 feet below the bottom of the leaching trench or less than 10 feet below the bottom of the seepage pit.
- c. Depth to anticipated high groundwater below the bottom of the leaching trench shall not be less than 5 feet. Depth to anticipated high groundwater below the bottom of the seepage pit shall not be less than 10 feet. Greater depths are required if native material does not provide adequate filtration.
- d. Natural ground slope in the disposal area shall not be greater than 30 percent.

Exemptions to the Criteria for Individual Waste Disposal Systems

In certain locations and under special circumstances, the Board or its Executive Office may waive individual criteria.

1. Waiver of one or more individual criteria may occur if:
 - a. The area beneath the proposed septic system discharge has no significant amount of groundwater having present or future beneficial uses; or
 - b. It can be proven that no pollution, nuisance or unreasonable degradation of either surface or groundwaters will occur as a result of the proposed septic system density when considered individually or cumulatively with other discharges in the area; or
 - c. Construction of a community collection, treatment, and disposal system is imminent. Short term, interim use of individual waste disposal systems may be allowed.

MINIMUM DISTANCES FOR SITING INDIVIDUAL WASTE DISPOSAL SYSTEMS (in feet)

<u>Facility</u>	<u>Domestic Well</u>	<u>Public Well</u>	<u>Flowing Stream¹</u>	<u>Drainage Course or Ephemeral Stream²</u>
Septic tank or sewer line	100	100	50	25
Leaching field	100	100	100	50
Seepage pit	150	150	100	50

<u>Facility</u>	<u>Cut or Fill Bank³</u>	<u>Property Line⁴</u>	<u>Lake or Reservoir⁵</u>
Septic tank or sewer line	10	25	50
Leaching field	4h	50	200
Seepage pit	4h ⁶	75	200

¹ As measured from the line which defines the limit of a 100-year frequency flood.

² As measured from the edge of the channel.

³ Distance in feet equals four times the vertical height of the cut or fill bank. Distance is measured from the top edge of the bank.

⁴ When individual wells are used on the same lot. (Distances are to those property lines contiguous with neighboring lots and not street easements.)

⁵ As measured from the high water line.

⁶ As measured from the high seepage level.

ADDITIONAL REQUIREMENTS FOR SAN BERNARDINO MOUNTAIN AREAS

PER BOARD ORDERS 6-84-93, 6-81-3

1. Depth of soil* between ground surface and bedrock or any other material of low permeability shall not be less than 10 feet (3.0 m).
2. Depth of soil* between the bottom of the disposal facilities and groundwater shall not be less than 10 feet (3.0 m).
3. All facilities used for collection, transport, treatment or disposal of waste shall be adequately protected against either structural damage or a significant reduction in efficiency resulting from a storm or flood having a recurrence interval of once in 100 years.

* Soil is defined as a granular or weathered material having an effective porosity of greater than 15 percent.

Suggested References

- EHS Our Current "Standards" Booklet
- UPC Current Edition
- US EPA (1980) Design Manual, Onsite Wastewater Treatment and Disposal Systems. EPA 625/1-80-012. Available from NTIS, U.S. Department of Commerce, 5285 Port Royal Road, Springfield, VA 22151.
- Canter & Knox (1985) Septic Tank Systems Effects on Ground Water Quality - Lewis Publishers
- Kaplan (1987) Septic Systems Handbook - Lewis Publishers
- Winneberger, J.T. (1984) Septic Tank Systems, Ann Arbor Science (Butterworth Publ.) Boston

American Society of Agricultural Engineers, On-Site Wastewater Treatment Proceedings of the Third, Fourth, Fifth and Sixth National Symposia on Individual and Small Community Sewage Systems, ASAE Publications 1-82, 07-85, 10-87, 10-91, ASAE, 2950 Niles Road, St. Joseph, Michigan 49085-9659

Perkins (1989) On-site Wastewater Disposal, Lewis Publishers

All of the cited references are of interest, none is the last word on the subject.

Attachment A - Santa Ana

MINIMUM LOT SIZE REQUIREMENTS AND EXEMPTION CRITERIA FOR NEW DEVELOPMENTS USING ON-SITE SEPTIC TANK-SUBSURFACE LEACHING PERCOLATION SYSTEMS

On October 13, 1989, the Regional Board adopted Resolution No. 89-157, amending the Water Quality Control Plan to add a one-half acre minimum lot size requirement for new developments using on-site septic tank-subsurface leaching/percolation systems regionwide. Certain exemptions from the minimum lot size requirement were specified in Resolution No. 89-157. On December 7, 1990, the Regional Board adopted Resolution No. 90-158, which revised the exemption criteria. However, on June 7, 1991, the Regional Board adopted Resolution No. 91-51, rescinding Resolution No. 90-158 and revising the exemption criteria in Resolution No. 89-157. On July 16, 1993, the Regional Board adopted Resolution No. 93-40, revising the requirements and exemption criteria in Resolution No. 89-157, as amended by Resolution No. 91-51. Resolution No. 89-157, as amended by Resolution No. 93-40, stipulates the following:

- I. A minimum lot size of one-half acre (average gross) per dwelling unit is required for new developments in the Region using on-site septic tank-subsurface leaching/percolation systems.
 - A. The term “one-half acre” specified as the minimum lot size requirement means an average gross area of land of one-half acre per dwelling unit. Easements (including streets, curbs, commons, and greenbelts), or those portions thereof which are part of the property proposed for development shall be included in the calculation of the average gross area of land.
 - B. A “new” development is defined as a proposed tract, parcel, industrial or commercial development for which:
 1. One or more of the following has not been granted on or prior to September 7, 1989:
 - a. Conditional approval or approval of a tentative parcel or tract map by the local agency such as the county/city Planning Commission, City Council or the Board of Supervisors.
 - b. A conditional use permit.
 - c. Conditional approval or approval by the San Bernardino County Department of Environmental Health Services, Riverside County Department of Health, Orange County Health Care Agency or other local agency; or
 2. One or more of the conditional approvals or approvals listed under B.1., above, were granted on or prior to September 7, 1989 but had expired prior to September 7, 1989.
 - C. The minimum lot size requirement does not apply to existing developments where septic tank-subsurface disposal systems have been installed on or prior to September 7, 1989. Replacement of the existing septic tank-subsurface disposal systems shall be exempt from the minimum lot size requirements under the following conditions.

1. For Residential, Commercial and Industrial Developments
Replacement of the existing septic tank-subsurface disposal systems is necessary to bring the system up to code as required by the local health care agencies and/or the building and safety departments.
 2. For Single Family Residential Only
Replacement of the existing septic tank-subsurface disposal systems is proposed to allow additional flows resulting from additions to the existing dwelling unit. (This does not include any free-standing additional structures.)
(Note: Board staff does not consider the number of bedrooms and/or bathrooms for existing or proposed single-family dwelling units in determining compliance with the exemption criteria.)
 - a. An existing development on land zoned single-family residential will be considered as a new development if the addition of any free-standing structures which will result in additional wastewater flows to the septic system is proposed. Commercial and/or industrial developments will be considered as new development if any additions to the existing structures are proposed which will result in additional wastewater flows to the septic system.
 - b. For single-family residential developments, if the existing septic system could accommodate additional wastewater flows, then additional installations (rooms/bathroom) to these developments shall be exempt from the minimum lot size requirements.
- D. Those tracts, parcels, industrial or commercial developments which have received one or more of the approvals listed in B.1., above, on or prior to September 7, 1989 are exempt from minimum lot size requirements for use of septic tank-subsurface disposal systems. However, those tracts, parcels, industrial or commercial developments which had received one or more of the approvals listed in B.1., above, but for which the approval had expired prior to September 7, 1989 are considered as new development and are subject to the minimum lot size requirements.
- E. Industrial/commercial developments are developments other than single-family residential developments. For new industrial/commercial developments utilizing septic tank-subsurface disposal systems, the wastewater flow for each one-half acre gross area of land may not exceed that from a three-bedroom, two-bathroom single-family dwelling unit. For determining compliance with this criterion, a flow rate of 300 gallons per day shall be considered as the flow equivalent to that from a 3-bedroom, 2-bathroom single family dwelling. For industrial/commercial developments with lots smaller than one-half acre, this flow rate requirement shall be prorated. (For example, an industrial/commercial development on a one-quarter (1/4) acre parcel will be in compliance with this requirement if the wastewater flow does not exceed 150 gallons per day.)
- F. This minimum lot size requirement does not affect the lot size criterion for continuing exemptions in prohibition areas (1-acre minimum).
- G. This minimum lot size requirement does not preclude the prescription of more stringent lot size requirements in specific areas if it is determined necessary to protect water quality.
- H. No exemptions shall be granted for new developments on lots less than one-half acre which are 200 feet or less from a sewer which could serve that tract/parcel, barring legal impediments to such use.

All other developments shall be considered on a sliding scale, e.g., for each additional unit (any development which is more than a single family dwelling), this requirement should be increased by 100-feet per dwelling unit. For example, a 10-lot subdivision shall be required to connect to a sewer if the sewer is within 1,100 feet ($200 + 9 \times 100$ feet = 1,100 feet) of the proposed development barring legal impediments to connection to the sewer. For this subsection, a commercial/industrial development which produces a wastewater flow of up to 300 gallons per day would be considered equivalent to a single family dwelling unit.

- I. New lots of less than one-half acre may be formed by combining two or more lots which have received one of the approvals specified in Section B.1., above, on or prior to September 7, 1989. Individually, these existing lots would be eligible for an exemption from the minimum lot size requirement. Developments on the combined lots may also be granted an exemption provided that the total number of units proposed for the new parcel is equal to or less than the total number of units proposed for the existing parcel. For the purposes of this subsection, a combined lot of less than one-half acre formed from two or more existing lots shall not be considered a new development.
- J. Exemptions from the minimum lot size requirements for the use of septic tank-subsurface disposal systems on lots smaller than one-half acre may be granted if the following conditions are met:
 - 1. The project proponent implements an acceptable offset program. Under an offset program, the project proponent can proceed with development using septic systems on lots smaller than one-half acre if the proponent connects an equivalent number of septic systems to the sewer. The unsewered developments must be those which would not otherwise be required to connect to the sewer.
 - 2. If the septic systems (developments) proposed are not identical to the ones connected to the sewer (the offset), an engineering report shall be submitted certifying that the nitrogen loading rate from the proposed development(s) is(are) equivalent to or less than the nitrogen loading rate from the septic systems in the offset program.
 - 3. The proposed use of septic tank-subsurface disposal systems complies with the Regional Board's "Guidelines for Sewage Disposal from Land Developments."
- K. The project proponent may propose an alternative treatment system for sewage disposal as the basis for an exemption from the minimum lot size requirement. Each request for use of an alternative treatment system shall be reviewed on a case-by-case basis and submitted to the Regional Board for consideration.

Attachment B - Lahontan

Individual Wastewater Treatment Systems (Septic Systems)

The following principles and policies will be applied by the Regional Board in review of water quality factors relating to land developments and waste disposal from individual waste disposal systems:

1. The following criteria will be applied as the minimum to ensure continued adequate protection of water quality, protection of present and future beneficial uses, and prevention of pollution, contamination and nuisance conditions. The Regional Board will prohibit the discharge from individual disposal systems which do not conform to these criteria.
2. These criteria prescribe minimum conditions for waste disposal from individual on-site systems and do not preclude the establishment of more stringent criteria by local agencies or the Regional Board. The Regional Board does not intend to preempt the authority of local agencies and will support local agencies to the fullest extent possible, particularly in the implementation of more stringent regulations.
3. Detailed procedures to implement these criteria and to process exemptions to these criteria are included in “Regional Board Guidelines for Implementation of Criteria for Individual Waste Disposal Systems” (see Appendix C).
4. The criteria contained herein are applicable to the entire Lahontan Region and pertain to any and all proposed building that involves wastewater discharges to other than a community sewer system. The criteria apply to: (1) proposed building on lots within new subdivisions or parcels, and (2) proposed building on existing subdivided lots or parcels, and (3) proposed subdivisions. The criteria do not apply to: (1) existing individual waste disposal systems, or (2) projects which have final building permits prior to June 16, 1988, unless evidence exists which necessitates retrofit of septic systems to conform with current criteria. The “Regional Board Guidelines for Implementation of Criteria for Individual Waste Disposal Systems” specifies separate exemption procedures for existing developments and for new developments. Existing development includes projects for which final development plans, such as a final tract map, were approved by local agencies prior to June 16, 1988. New development includes subdivisions or individual parcels which do not have final development plans approved by local agencies prior to June 16, 1988.
5. These criteria do not apply to projects within septic system prohibition areas where the criteria are more stringent (for prohibitions, see Section 4.1 of this Chapter); and these criteria will preempt less stringent criteria in septic system prohibition areas.
6. Where community sewer systems are available, the Board will encourage connection to the sewer system in lieu of use of individual disposal systems.

Criteria for Individual Waste Disposal Systems

1. Maximum Density

Individual waste disposal systems associated with new developments which have a gross density greater than two (2) single family equivalent dwelling units per acre will be required to have secondary level treatment of wastewater. Equivalent dwelling units (EDUs) are defined as a unit of measure used for sizing a development based on the amount of waste generated from that development; the value used in implementation of these criteria is 250 gallons per day per EDU. For the purposes of these criteria, the discharge from a single family dwelling is equal to one EDU. Senior citizen dwelling units and second units as defined in Government Code Sections 65852.1 and 65852.2 will not be considered as additional dwelling units. In addition to residential developments, this secondary level treatment policy also applies to wastewater discharges from commercial, industrial, recreational and all other developments with wastewater discharge volumes exceeding two EDU per acre density (500/gal/day/acre based on 250 gal/day/EDU). Use of new septic systems is permitted in existing developments with lot sizes having a net area greater than or equal to 15,000 square feet. The net area is that contained within the boundaries as set forth in the legal lot description.

2. Minimum Distances

The Regional Board has established the minimum distances (see Table 4.4-1 entitled, "Minimum Distances For Siting Individual Waste Disposal Systems") necessary to provide protection to water quality and/or public health. Local hydrogeological conditions may necessitate greater separation of the sewage disposal system from a well or watercourse for protection of beneficial uses (e.g., drinking supply and water contact recreation).

3. Additional Minimum Criteria

- a. The percolation rate in the disposal area shall not be slower than 60 minutes per inch if the discharge is to a leachfield or 30 minutes per inch if discharge is to a seepage pit. If percolation rates are faster than 5 minutes per inch, then the soil for a total thickness of five feet below the bottom of the leaching trench shall contain at least 15% of material passing the No. 200 U.S. Standard Sieve and less than one-fourth of the representative soil cross-section shall be occupied by stones larger than 6 inches in diameter. Where the percolation rates are faster than 5 minutes per inch and the above requirement is not met, the minimum distance to ground water between the bottom of the disposal facilities and the anticipated high ground water shall be 40 feet. (The percolation rates shall be determined in accordance with procedures prescribed by the appropriate local public health agency.)
- b. Clay, bedrock, other material impervious to the passage of water, or fractured bedrock, shall not be less than 5 feet below the bottom of the leaching trench or less than 10 feet below the bottom of the seepage pit. Impervious is defined for design purposes as a stratum with percolation times of greater than 120 minutes per inch.
- c. Depth to anticipated high ground water below the bottom of the leaching trench shall not be less than 5 feet. Depth to anticipated high ground water below the bottom of the seepage pit shall not be less than 10 feet. Greater depths are required if native material does not provide adequate filtration.
- d. Ground slope in the disposal area shall not be greater than 30 percent.
- e. Minimum criteria specified above must be met within the area of the proposed system and within the 100% expansion area for the proposed system.

Exemptions to the Criteria for Individual Waste Disposal Systems

In certain locations and under special circumstances, the Board or its Executive Officer may waive individual criteria.

1. Waiver of one or more individual criteria may occur if:
 - a. The area beneath the proposed septic system discharge has no significant amount of ground water having present or future beneficial uses; or
 - b. It can be proven that no pollution, nuisance or unreasonable degradation of either surface or ground waters will occur as a result of the proposed septic system density when considered individually or cumulatively with other discharges in the area; or
 - c. Construction of a community collection, treatment, and disposal system is imminent. Short-term, interim use of individual waste disposal systems may be allowed.

Implementation of Criteria for Individual Waste Disposal Systems

1. The Regional Board and the local agencies have adopted, through Memoranda of Understanding, criteria which are compatible with or more stringent than these criteria.
2. The Memoranda of Understanding include the procedures of the review and processing of applications for proposed discharge of wastewater from land developments which only discharge domestic waste, including single-family-unit residential, multi-unit residential, commercial, industrial and recreational developments. The Memoranda of Understanding include provisions for Regional Board review and processing of specific application (e.g., for industrial waste discharges).
3. For those local agencies which have adopted these or more stringent criteria, land developments which only discharge domestic waste, including single-family-unit residential, multi-unit residential, commercial, industrial and recreational developments, will be permitted entirely by the local agency. (However, the Regional Board reserves the authority to take action, if necessary, as described in item 6 below.)
4. Whenever the proposed development will not meet the minimum criteria and no Memorandum of Understanding or other equivalent document exists between the Regional Board and the local agency, applications for all projects shall be transmitted to the Regional Board along with a complete report of waste discharge and a filing fee.
5. The Regional Board will review, on a project-by-project basis, proposals for commercial, industrial, recreational and all other types of developments which discharge industrial waste. If required, the report of waste discharge will contain information on estimated wastewater flows, types of wastes, and occupancy rates which will enable the Regional Board to evaluate the discharge in terms of EDUs.
6. In any case, the Regional Board will prohibit the discharge of wastes from land developments which will result in violation of water quality objectives, will impair present or future beneficial uses of water, or will cause pollution, nuisance, or contamination, or will unreasonably degrade quality of any waters of the State.

Implementation for Other Types of Waste Disposal from Land Developments

1. Severe impact on water quality can result from failure to implement adequate measures to control storm drainage and erosion. Land developers must provide plans for the control of such runoff from initial construction up to the complete build-out of the development. (See "Land Development" section.)
2. The disposal of solid waste can have adverse impacts on water quality and public health. Land developers must submit a plan which conforms to the regional or county master plan and contains adequate provisions for solid waste disposal for complete build-out of the development.

3. The disposal of septic tank sludge is an important part of any area-wide master plan for waste disposal. Land developers must submit a plan which conforms to the regional or county master plan and contains adequate provisions for septic tank sludge disposal for complete build-out of the development.
4. The responsibility for the timely submittal of information necessary for the Board to determine compliance with these guidelines rests with persons submitting proposals for development or discharge. The Porter-Cologne Water Quality Control Act provides that no person shall initiate discharges of waste prior to filing a report of waste discharge and prior to (1) issuance of waste discharge requirements, (2) the expiration of 120 days after submittal of an adequate report of waste discharge, or (3) the issuance of a waiver by the Regional Board.

Alternative Individual Waste Disposal Systems

In areas where conditions do not support the use of conventional individual subsurface waste disposal systems (e.g., septic systems), the use of engineered alternative systems can be considered. Alternative waste disposal systems include, but are not limited to, mound systems, evapotranspiration beds, sand filters (intermittent and/or recirculating), and lined evaporation ponds. The Regional Board supports the use of engineered alternative systems for waste disposal as a remedy for otherwise unsuitable existing lots. However, the Regional Board discourages the use of engineered alternative systems for new construction, lots, or subdivisions.

Several factors the Local Health Officer and/or the Regional Board staff will consider when evaluating a proposal for the use of an alternative system include, but are not limited to:

1. **size of parcel**
2. **density of surrounding development**
3. **depth to ground water and bedrock**
4. **depth of soils suitable for waste disposal as classified under the USDA classification system**
5. **climate**
6. **access**
 - (a) for maintenance and pumping year-round
 - (b) control to prevent public contact
7. **emergency contingency plans (including plans for expansion, replacement or repair)**
8. **operation and maintenance requirements**
9. **distance to sewer**

Criteria for Alternative Systems

1. The conditions (soils, ground water, slope) which limit the use of conventional septic tank systems may also apply to alternative systems which rely on soil absorption for treatment and/or disposal of all or most of the wastewater generated (see Criteria for Individual Waste Disposal Systems).
2. **Mound Systems.** Mound systems shall be installed in accordance with criteria established in the State Board's Guidelines for Mound Systems (1980) or other criteria acceptable to the Executive Officer in conformance with standard engineering practices.
3. **Evapotranspiration Systems.** Evapotranspiration systems shall be installed in accordance with criteria contained in the State Board's Guidelines for Evapotranspiration Systems (1980) or other criteria acceptable to the Executive Officer in conformance with standard engineering practices.
4. **Sand Filters.** Sand filters shall be installed in accordance with the specifications for sand filters in the State of Oregon, Department of Environmental Quality's On-site Sewage Disposal Rules (July 1, 1991) or other criteria acceptable to the Executive Officer in conformance with standard engineering practices.

5. **Grey Water Systems.** Under certain circumstances, grey water systems may be an acceptable method of disposal in conjunction with a composting toilet or holding tank to handle black water. Examples of appropriate applications include recreational areas such as campgrounds, day use facilities, and trailheads. Grey water systems shall be installed in accordance with the California Plumbing Code (24 Cal. Code of Regs., Part 5) and the local administrative authority. If properly constructed and operated, grey water systems are not expected to create a nuisance or pollution.
6. Other proposals for alternative systems shall be evaluated jointly by the local regulatory agency and Regional Board staff on a case-by-case basis. Some engineered systems may be considered experimental by the Regional Board. Experimental systems will be handled with caution. A trial period of at least one year should be established whereby proper system operation must be demonstrated. Under such an approach, experimental systems are granted a one-year conditional approval.
7. All proposals for alternative systems shall be designed by a Civil Engineer, Engineering Geologist or Sanitarian licensed to practice in California.

Maintenance Requirements

System designers should be responsible for developing specifications and procedures for proper system operation. Designers should provide to system owners an informational operation and maintenance document that includes: (1) clear and concise procedures for operation and maintenance, and (2) instructions for repair and/or replacement of critical items within forty-eight hours following failure. Engineered systems should be inspected by a licensed Civil Engineer, Engineering Geologist or Sanitarian during installation to insure conformance with approved plans.

Permitting Authority

The County Health Officer may approve alternative systems when **all** of the following conditions are met:

1. The Health Officer has found the system to be in compliance with criteria approved by the Regional Board Executive Officer (see Criteria for Individual Waste Disposal Systems and Criteria for Alternative Systems above); and
2. The Health Officer has either: (1) informed the Regional Board Executive Officer of the proposal to use the alternative system and the Executive Officer agrees that it complies with the finding in (a) above; or (2) a written agreement that the Executive Officer has delegated approval authority to the County Health Officer; **and**
3. A public or private entity has agreed in writing to assume responsibility for the inspection, monitoring, maintenance, and eventual decommissioning/reclamation of the system.

If all of the above conditions cannot be met, the Regional Board will consider issuing waste discharge requirements for alternative systems.

§ 33.08101 Definitions.

Definitions herein shall supplement all definitions in Chapters [1](#) and [3](#) of this E.H. Code.

FAILING SYSTEM. A system which allows surfacing of effluent or septage, or back-up of septage toward the fixtures.

OWNER. For the purpose of this Article only, means any person or entity who owns property, including improvements and possessory interests on U.S. Government land, from which sewage is generated or discharged. The term shall not include persons who hold a right, title, or interest in such property for security purposes only.

SEWAGE. Any liquid waste which may include chemicals, household waste, human excreta, animal or vegetable matter in suspension or solution, and which is discharged from a dwelling, building, or other establishment.

WASTE DISPOSAL SYSTEM. Any process by which sewage is collected, treated, or disposed of by subsurface means. For the purpose of this Article, the term shall not include sewage holding tanks as defined in this Chapter.

(Ord. 3105, passed - -1986)

§ 33.08102 Designated Maintenance Areas.

The following areas are designated maintenance areas as defined by maps on file with the Clerk of the Board or Council of this jurisdiction.

- (a) U.S. Forest Service Polique Canyon Tract;
- (b) U.S. Forest Service Lakeview Tract;
- (c) Mill Creek Basin above 2,600 feet, including but not limited to the communities of Forest Falls, Angeles Oaks and Mountain Home Village;
- (d) U.S. Forest Service Pine Knot Tract;
- (e) U.S. Forest Service Metcalf Creek Tract;
- (f) U.S. Forest Service Big Bear Tract;
- (g) U.S. Forest Service Willow Glen Tract.

(Ord. 4166, passed - -2012)

§ 33.08103 Persons Authorized to Certify Compliance.

Any person possessing one or more of the following qualifications may certify compliance of a waste disposal system with the requirements of this Article, if such person is first registered with DEHS to do so:

- (a) State of California License as a C-42 Contractor;
- (b) State of California Registration as a Civil Engineer;
- (c) State of California Registration as a Sanitarian;

(d) State of California Certification as an Engineering Geologist.

(Ord. 3105, passed - -1986)

§ 33.08104 Revocation of DEHS Authorization to Perform Certifications.

Any person authorized by DEHS to perform certification of compliance with this Article may have such authorization revoked or suspended for:

(a) Having lost the status required under § [33.08103](#) above;

(b) Having falsified any information to DEHS on a material question. Administrative hearing procedures for the revocation or suspension of any DEHS certification authorization shall generally proceed as is set forth in [Chapter 2](#) of this E.H. Code.

(Ord. 3105, passed - -1986)

§ 33.08105 Minimum Requirements.

No person or entity shall install, construct, utilize, modify, maintain, or abandon any liquid waste disposal system within designated maintenance areas of this jurisdiction except pursuant to the minimum requirements hereinafter set forth, and of the Uniform Plumbing Code as adopted and amended by this jurisdiction.

(a) *Part I—Standards Generally.* The basic standards and criteria for liquid waste disposal within designated maintenance areas shall be as follows:

(1) Septic tank and leach field systems shall be the preferred method of individual on-site sewage disposal. Exceptions, modifications, and alternative systems will be considered upon petition to DEHS on a case-by-case basis.

(2) All liquid waste disposal systems shall have an initial review to determine compliance with these standards within one year of the date of adoption of the same. Within three years of adoption, systems shall be in compliance with these minimum standards. All failing systems shall be in compliance within 30 days or less as determined by DEHS.

(3) Chemical toilets shall not discharge to on-site disposal systems.

(4) Pit privies are prohibited.

(5) Cesspools are prohibited.

(6) No new or replacement liquid waste disposal system or the discharge component of that system shall be placed or installed on land with a ground slope greater than 30 percent unless engineering data is presented to DEHS to show that no surfacing of effluents or contamination of groundwater will occur.

(7) Percolation rates shall conform to the requirements adopted by this jurisdiction.

(8) Minimum separations shall be as follows:

(A) Septic tank to:

Water supply source: 100 ft.

Buildings or structures: five ft.

(Includes porches and steps whether covered or uncovered, breezeways, roofed porte-cocheres, roofed patios, carports, covered walls, covered driveways, and similar structures or appurtenances.)

Perennial streams: 50 ft.

Ephemeral streams: 50 ft.

Large trees: ten ft.

(Any tree with a trunk diameter of one foot or more.)

Disposal field(s): five ft.

Private domestic water lines: five ft.

(Building service line)

Public domestic water lines: ten ft.

(Water purveyor's line)

(B) Soil absorption system to:

Water supply source: 100 ft.

Building or structures: eight ft.

(Includes porches and steps whether covered or uncovered, breezeways, roofed porte-cocheres, roofed patios, carports, covered walls, covered driveways, and similar structures or appurtenances.)

Perennial streams: 100 ft.

Ephemeral streams: 50 ft.

Septic tank: five ft.

Distribution box: five ft.

Private domestic water line: six ft.

(Building service line)

Public domestic water line: ten ft.

High ground water table level: five ft.

(The highest known level to which ground water is known to have occurred rather than the level at the time when testing occurred.)

Ground surface on sloping ground: 15 ft.

(When disposal fields are installed in sloping ground, the minimum horizontal distance between any part of the leaching system and ground surface shall be 15 ft.)

(9) Special Requirements.

(A) Special Soil Conditions.

(I) Percolation rates of less than five minutes/inch may require substantial increases in the minimum separations normally applied.

(II) Special soil conditions may require special solutions and must be considered on a case-by-case basis by DEHS

(B) Special Discharge Conditions.

(I) Protection of special resources (drinking water supply, recreation area, etc.).

(II) Fractured rock.

(III) Other limitations requiring special solutions will be considered on a case-by-case basis by DEHS.

(b) *Part II—Review Inspections and Maintenance.* All existing liquid waste disposal systems within a designated maintenance area shall be reviewed to determine compliance as follows:

(1) Categories of Initial Review and Compliance Schedules:

(A) For systems installed under permit after December 31, 1984, only a limited initial inspection will be required to determine the systems are functioning properly and not failing.

(B) For systems installed prior to 1965 and where documentation provided to DEHS substantiates compliance with current standards, only a limited initial inspection will be required to determine such systems are functioning properly and not failing.

(C) Undocumented systems shall require an on-site certification inspection by a DEHS registered inspector to substantiate compliance.

(D) Absent such foregoing review and certification, nonfailing systems shall be deemed in noncompliance and shall be upgraded to meet current standards within three years after adoption of these standards.

(E) All systems shall be reviewed initially and every two years thereafter by DEHS or its agents for evidence of failure. All failing systems shall be brought to code compliance within 30 days or less as determined by DEHS to protect the public health and safety.

(2) When any initial limited or certification inspection is required, it shall be performed by a person registered (registrant) with DEHS for that purpose.

(3) Where only a limited initial inspection is required, the registrant shall certify the system is in compliance and acceptable for continued discharge prior to permit issuance.

(4) Initial certification inspection procedures shall include:

(A) Verification of the type of system (e.g., septic tank/leach line system).

(B) Verification that the capacity and construction of the septic tank comply with the requirements of that edition of the Uniform Plumbing Code adopted and as amended by this jurisdiction.

(C) An accurate plot plan showing the location of the liquid waste disposal system components relative to all improvements, buildings, large trees, and significant boulders and showing that the distance from banks of all perennial and/or ephemeral streams to the nearest portion of the disposal system discharge is in compliance with the requirements of the Code of this jurisdiction.

(D) Verification that all liquid waste discharges are made to an approved liquid waste disposal system.

(E) Verification that the dimensions and absorption area of the soil absorption system are per the currently adopted and as amended edition of the Uniform Plumbing Code of this jurisdiction.

(F) Data showing that separation between the bottom of the soil absorption system and the high level of groundwater is five feet or greater of suitable soil.

(G) Data on special soil and discharge conditions requiring special solutions, when applicable as required by DEHS.

(5) Biennial survey inspection procedures for failing systems shall include:

(A) Review of the plot plan for any changes since the previous inspection.

(B) Inspection of the liquid waste disposal system and site to determine if the system is failing.

(C) Review of any alternate liquid waste disposal system.

(D) At least 14 days prior notice of the survey dates by DEHS placing a legal advertisement in a local newspaper or by other suitable means of public notification.

(6) System maintenance requirements for all systems shall include:

(A) Verification submitted to DEHS prior to permit issuance or renewal indicating that the system has been pumped at least once every six years and more often as required; or

(B) In lieu of pumping, an inspection of the system by a registrant at least once every six years and certification to DEHS that the system does not require pumping or corrective action.

(7) Permit Requirements.

(A) All generators of liquid wastes shall possess a valid permit to do so as provided by this Article within one year of the adoption of these standards.

(B) Permit applicants with systems in compliance shall be granted regular permits. Applicants with noncompliance (but nonfailing) systems shall be granted temporary permits to operate until such date that the systems are required to be in compliance.

(C) Permits shall be renewed every two years. Temporary permits are not renewable.

(c) *Part III—Special Requirements for Certain U.S. Forest Service Tracts.* All requirements contained within this § [33.08105](#) as modified herein by Part III shall apply to the U.S. Forest Service Tracts listed in § [33.08102](#) at (a), (b), (d), (e), (f), and (g). These special requirements do not apply to new construction or additions equal to or exceeding 50 percent of the floor area of the structure involved.

(1) Septic tanks serving existing structures shall be 500 gallons or more. Any replacement components to a septic system shall conform to the currently adopted edition (as amended) of the Uniform Plumbing Code of this jurisdiction.

(2) Special Considerations for Existing Structures with Limited Water Supply.

(A) Where the owner of a structure can document that piped water under pressure is not available to that structure, an alternative sewage disposal system may be approved by DEHS.

(B) Where an adequate domestic water supply is available or becomes available, the owner shall provide piped domestic water to the structure and comply with the provisions of this Section.

(3) Adverse Site Conditions for Sewage Disposal. Where adverse site conditions will not allow installation of a septic system in conformance with this Section for an existing structure, DEHS may approve an alternative sewage disposal method until such adversities cease to exist.

(Ord. 3105, passed - -1986)

§ 33.08106 Permits Required.

No person or entity shall install, construct, utilize, modify, maintain, or abandon any waste disposal system within the designated maintenance areas except with an unexpired, unsuspended, unrevoked permit to do so from DEHS, and having paid all applicable fees to DEHS as set forth in the San Bernardino County Code Schedule of Fees.

(Ord. 3105, passed - -1986)

§ 33.08107 Holding Tanks.

Use of sewage holding tanks within the Designated Maintenance Areas shall be in accordance with the provisions of [Article 4](#) (Sewage Holding Tanks) of [Chapter 8 of Division 3 of Title 3](#) of the San Bernardino County Code, as the same may be amended from time to time, or the equivalent provisions of the Code of this jurisdiction.

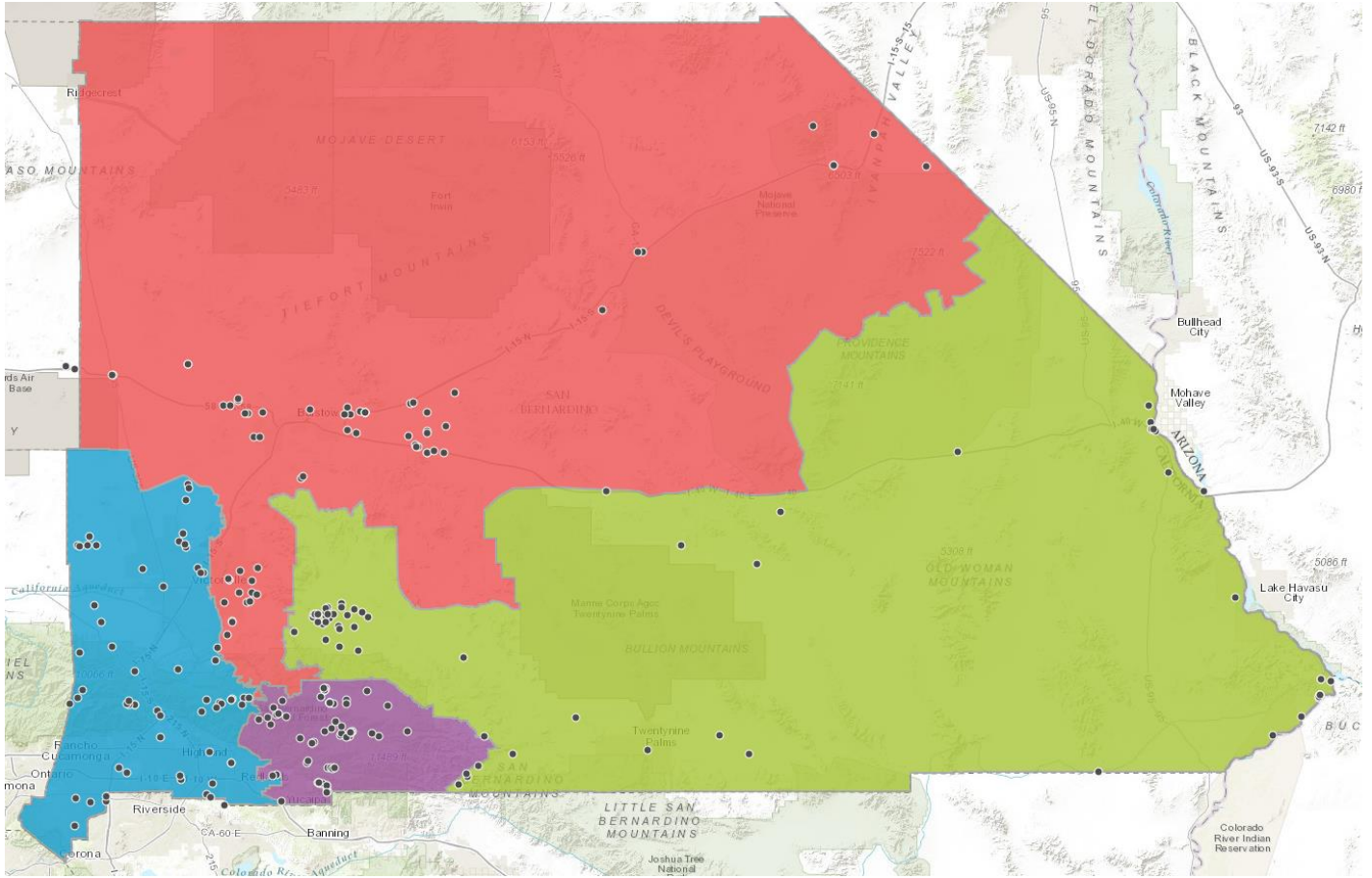
(Ord. 3105, passed - -1986)

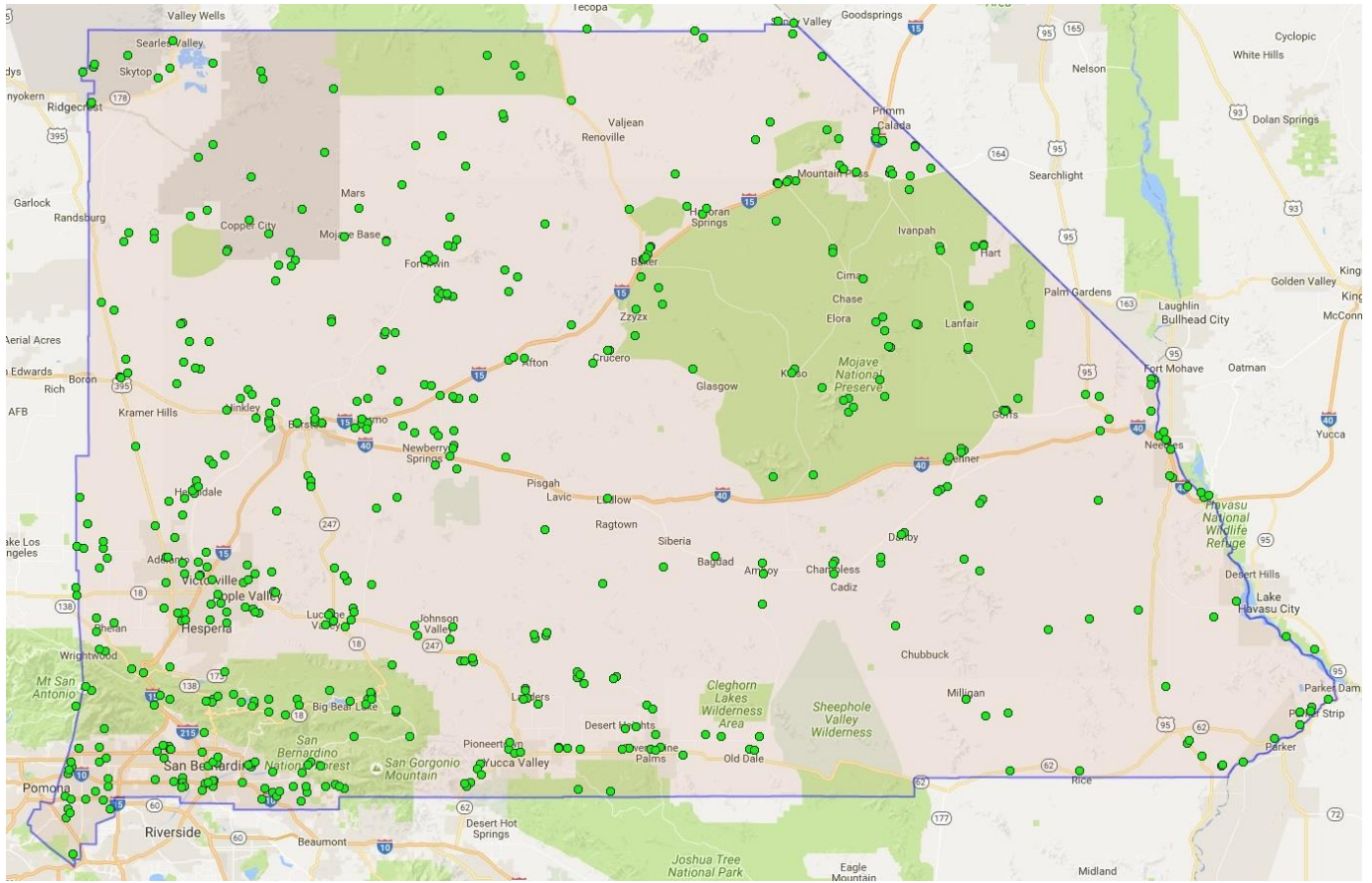
§ 33.08108 Administration, Enforcement, Remedies, and Penalties.

It shall be unlawful for any person or entity to violate any provision of this Article. Except as provided herein, all administration, enforcement, remedies, and penalties of this Article shall generally proceed as is set forth in Chapters [1](#), [2](#), and [3](#) of this E.H. Code, and be in addition to all others provided by law.

(Ord. 3105, passed - -1986)

Appendix C – San Bernardino County Water Systems and Well Locations





APPENDIX D: San Bernardino County Ordinance Code – Sewage Holding Tanks

§ 33.0870 Purpose and Authority.

The purpose of this Article is to ensure that sewage holding tanks are installed and utilized so as not to create a danger to the public health or safety. Pursuant to the authority cited in San Bernardino County Code [Title 3, Division 3, Chapter 1](#), Health and Safety Code §§ 5400 *et seq.* (Sewage and Other Waste), and other applicable State law, the Division of Environmental Health Services (DEHS) of the County of San Bernardino is designated as the enforcement authority for the purposes of this Article.

§ 33.0871 Definitions.

Definitions herein shall supplement all definitions in San Bernardino County Code [Title 3, Division 3](#), Chapters [1](#) and [3](#).

APPLICANT or **PROPERTY OWNER.** The person or entity who is the owner of record of the land for which a permit for a sewage holding tank has been sought.

CONTAMINATION. An impairment of the quality of waters within the unincorporated area of the County of San Bernardino by wastes or other degrading elements to any degree which creates a hazard to the public health through the possibility of poisoning or the spread of disease.

DISTRICT. Any sanitation district governed by the Board of Supervisors of the County of San Bernardino.

POLLUTION. An alteration of the quality of the waters within the unincorporated area of the County of San Bernardino by waste to a degree which adversely affects: (1) Such water for beneficial uses; (2) Facilities which serve such beneficial uses. **POLLUTION** may include contamination.

SEPTIC TANK PUMPER. Any person subject to [Article 3](#) of this Chapter (beginning with § [33.0850](#)) and holding such DEHS permit.

SEWAGE. A combination of liquid wastes which may include chemicals, house waste, human excreta, animal or vegetable matter, and other solids in suspension or solution, which are discharged from a dwelling, building, or other establishment.

SEWAGE HOLDING TANK. A watertight-covered receptacle designed to receive, and temporarily store, the discharge of sewage prior to periodic removal of its contents to an approved permanent disposal site. This does not include holding tanks used for the purpose of collecting and reusing graywater.

SEWERING ENTITY. Any public agency which operates sewage collection and treatment facilities.

§ 33.0872 Use of Sewage Holding Tanks Restricted. Permits Required.

No person or entity shall install, utilize, or control the use of any sewage holding tank within the unincorporated area of the County of San Bernardino for the confinement of sewage discharged from a dwelling, business establishment, or other facility except upon conditions provided in § [33.0873](#) herein and possessing a current unsuspended, unrevoked permit to do so from DEHS pursuant to the procedures set forth in San Bernardino County Code [Title 3, Division 3, Chapter 2](#) and paying fees to DEHS in accordance with the San Bernardino County Code Schedule of Fees.

§ 33.0873 Conditions for Construction and Operational Permits.

A permit to install, utilize or control a sewage holding tank may be granted by DEHS upon the following conditions:

(a) The property for which the permit is requested is within the boundaries or sphere of influence of a district or sewerage entity pursuant to § [33.0876](#) herein, and the property is unsuitable for a conventional sewage disposal system. For an existing dwelling, business establishment or other facility not within the boundaries or sphere of influence of a sewerage entity, an exemption from the requirement to be within the boundaries of a sewerage entity may be granted by DEHS in order to eliminate a hazardous condition or code violation where no other acceptable means of sewage disposal is feasible or available.

(b) A completed sewage holding tank application, including documentation that all required conditions of San Bernardino Code §§ [33.0876](#), [33.0877](#) and [33.0880](#) have been completed.

(c) Any cash bond required by § [33.0878](#) herein has been posted with the appropriate agency or with DEHS.

(d) The Division of Building and Safety of San Bernardino County has reviewed the proposed installation and found that the standards adopted in § [33.0879](#) herein have been met.

(e) The existence of a sewage holding tank on a property has been recorded on the real property pursuant to Government Code §§ 27280 *et seq.* or in a manner approved by DEHS.

(f) For an existing dwelling, business establishment or other facility not within the boundaries or sphere of influence of a sewerage entity, an exemption may be granted by DEHS in order to eliminate a hazardous condition or code violation, where no other acceptable means of sewage disposal is feasible or available.

§ 33.0874 Required Agreements with District or Sewering Entity.

Nothing in this Article precludes the sewerage entity or district from providing direct services, contracting with another sewerage entity or district, or contracting with a private agency to carry out the provisions of this Article.

The following written agreements shall be satisfactorily completed and signed by the appropriate official representing the sewerage entity, and filed with DEHS prior to the issuance of any permit.

(a) Subsequent to issuance of an operational permit, notice of the existence of a sewage holding tank as the approved means of sewage disposal for a property will be recorded by DEHS. The application for the permit shall serve as recordation notice and the signature of the property owner shall signify the owner(s) agreement to this recordation action. The cost of recordation shall be per the San Bernardino County Schedule of Fees.

(b) For all sewage holding tanks with operating permits that were installed prior to July 1, 1995, notice of the existence of a sewage holding tank on a property will be recorded by DEHS. Prior to recording notice of the existence of a sewage holding tank on a property, notice shall be sent to the owner of the property by mail at the address shown on the latest assessment roll or at any other address known to DEHS. Within 20 days of the date of the notice, the owner may present evidence that a sewage holding tank does not exist on the property. The cost of recordation shall be per the San Bernardino County Schedule of Fees.

(c) That the number of sewage holding tanks permitted by the district or sewerage entity is not exceeded by the addition of the applicant's proposed sewage holding tank.

(d) That the sewerage entity or district is authorized to hold any bond required as per § [33.0876](#) herein and to utilize said bond to render services necessary to eliminate any hazardous condition created by the applicant's sewage holding tank.

§ 33.0875 Required Agreements with Property Owners.

A written agreement with DEHS covering the following shall be satisfactorily completed and signed by all property owners utilizing the proposed sewage holding tank and filed with DEHS prior to the issuance of any DEHS permit.

(a) Properties served by a sewage holding tank shall be subject an annual operating permit fee, as set forth in the San Bernardino County Schedule of Fees, to pay the cost of routine inspections and program administration.

(b) Pursuant to Health and Safety Code §§ 101325 and 101340, where a permitted sewage holding tank is located on real property owned by the operator of a business, the property will be assessed the operating permit fee under the following circumstances:

(1) On all newly approved holding tanks;

(2) On existing holding tanks, when the property is transferred to a new owner;

(3) On existing holding tanks, when the operating permits fees have not been paid for 60 days or more beyond the permit expiration date.

(c) Pursuant to Health and Safety Code § 101345. in those instances where direct assessment is not authorized by Health and Safety Code § 101325, the DEHS may record a certificate specifying the amount, interest, penalty due and the name and last known address of the person liable for the permit fee. From the time of recordation of the certificate, the amount required to be paid constitutes a lien upon all real property in the County of San Bernardino owned or thereafter acquired by the liable person, which lien shall have the force, effect and priority of a judgment lien and shall continue for ten years from the time of recording. Prior to recording the lien, the DEHS shall determine that the operating permit fees have not been paid for 60 days or more beyond the permit expiration date and shall notify the person liable for the fees by certified mail of the intent to record such certificate.

(d) If the appropriate Regional Water Quality Control Board adopts rules or regulations which prohibit or curtail the use of sewage holding tanks, thereby rendering the property unavailable for occupancy, the County of San Bernardino shall be held harmless from the results of such action.

(e) If sewage collection lines become available for service to properties utilizing a sewage holding tank, the property owner shall connect within 90 days to the sewage collection line and abandon the sewage holding tank in accordance with the provisions of § [33.0879](#) of this Article.

(f) If property containing a sewage holding tank is sold, the present property owner shall notify the new property owner of the DEHS requirement to obtain a new permit. DEHS shall give the new property owner written notice of the permit conditions to be completed prior to occupancy of the property.

§ 33.0876 Bonds.

DEHS may require a cash bond, in the amount specified in the San Bernardino County Code Schedule of Fees, to be posted with DEHS or other appropriate agency. DEHS or the appropriate agency may utilize the bond to render services necessary to eliminate any hazardous conditions created by the sewage holding tank

which the property owner has failed to correct within 48 hours of being given notice by DEHS. If the required bond amount is increased in the Fee Schedule, the increase in the bond amount shall be provided upon demand by DEHS.

§ 33.0877 Standards.

The standards for the design criteria, location, and installation of the sewage holding tank shall be those contained within the County of San Bernardino Division of Building and Safety's handout entitled, "Guidelines for Design and Installation of Temporary Sewage Waste Holding Tanks," revised June 16, 1993, or the current edition of such publication of this jurisdiction, copies of which are on file in the Office of the Clerk of the Board of Supervisors. The Division of Building and Safety shall approve all plans for the design, location and installation of sewage holding tanks.

§ 33.0878 Contract with Septic Tank Pumper.

A copy of the current maintenance contract with a septic tank pumper required pursuant to § [33.0877](#) herein shall be placed on file with DEHS and shall include the following terms:

- (a) A minimum of one inspection of the sewage holding tank per month with servicing (pumping) as necessary;
- (b) That the pumper shall provide all emergency servicing required;
- (c) In the event the contract is cancelled or property ownership changes, the septic tank pumper shall immediately notify DEHS of the cancellation or change in ownership.

§ 33.0879 Abandonment of Sewage Holding Tanks.

If DEHS or any agency orders the abandonment of the sewage holding tank, or if connection is made to sanitary sewers, the permittee operating a sewage holding tank shall abandon the sewage holding tank. Abandonment means having the contents removed from the property by a septic tank pumper and either: (1) Removing the tank from the property; or (2) Backfilling the tank with a material acceptable to the San Bernardino County Division of Building and Safety. The abandonment operation shall be conducted under a valid permit from the Division of Building and Safety.

DEHS shall, upon payment by the property owner of fees per the San Bernardino County Schedule of Fees, record notice of removal of the holding tank with the County Recorder.

§ 33.0880 Violations, Remedies, and Penalties.

It shall be unlawful for any person or entity to violate any provision of this Article. Except as provided herein, all administration, enforcement, remedies, and penalties as to this Article shall be as provided in San Bernardino County Code [Title 3, Division 3](#), Chapters [1](#), [2](#), and [3](#) or as otherwise as provided by law.

(Am. Ord. 3564, passed - -1993; Am. Ord. 3624, passed - -1995