



Onsite Wastewater Treatment System
Guidance Manual



Onsite Wastewater Treatment System Guidance Manual

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*Onsite Wastewater Treatment
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Introduction

BACKGROUND

The County of Sacramento Environmental Management Department (EMD) is the regulatory agency that oversees (1) the design, installation, and operation of on-site wastewater treatment systems (OWTS), (2) the management of non-discharging liquid waste systems, and (3) liquid waste disposal requirements associated with land use modifications such as subdivisions, parcel splits, and lot line adjustments. EMD regulates these elements within the unincorporated areas of Sacramento and incorporated cities within Sacramento County. An OWTS consists of tanks, pipes, boxes, and disposal fields used to convey, treat, store, or dispose of potentially harmful wastewater when those wastewaters are not directly and immediately disposed in a public sanitary sewer. The authority for EMD to develop and adopt OWTS regulations is established in the California Health and Safety Code, Section 101000 et seq. and Sacramento County Code (SCC), Section 2.15.030.

The enactment of the Porter-Cologne Water Quality Control Act in 1971 resulted in the formation of California State Regional Water Quality Control Boards (RWQCB). The RWQCBs are vested with the authority to require individuals or entities intending to dispose of wastewater that has the potential to contaminate surface or groundwater to obtain Waste Discharge Requirements (WDRs) from the appropriate RWQCB. WDRs are designed to ensure that surface and/or groundwater is not impaired by wastewater discharges. RWQCBs conditionally waive WDRs for OWTS when a local enforcement agency (e.g. EMD) adopts and enforces regulations that protect water quality to a degree consistent with the applicable basin plan.

In accordance with the regulatory authority referenced above, the County of Sacramento Board of Supervisors adopted Chapter 6.32 (On-site Management of Wastewater) of the Sacramento County Code (SCC). SCC 6.32 is an ordinance that regulates various aspects of wastewater treatment and disposal. EMD developed these regulations in conjunction with the most current scientific research available at the time the ordinance was written, and with the collaboration of the Central Valley RWQCB. This On-site Wastewater Management Guidance Manual (Manual) is intended to complement SCC Chapter 6.32. The Manual provides additional detail regarding the OWTS site evaluation and permitting process in such a manner that compliance with SCC 6.32 can be easily achieved.

DEFINITIONS (Sacramento County Code Section 6.32.030)

1. “Alternative system” means an on-site wastewater treatment system requiring supplemental treatment or a system designed to address unfavorable site conditions such as high groundwater, impervious soil formations, unacceptable percolation rates, and disposal field size limitations. For the purposes of this chapter, an alternative system does not include a standard gravity flow or pressure dosed system, or an experimental system.
2. “As-built drawing” means a drawing that depicts the final placement of an on-site wastewater treatment system once it has been installed.
3. “Beneficial uses of the waters of the State” shall mean, but not be limited to, the use of water for domestic, municipal, agricultural and industrial processes; power generation; recreation; aesthetic enjoyment; navigation; and preservation and enhancement of fish,

- wildlife, and other aquatic resources or preserves (California Water Code Section 13050(f)).
4. “Certification of completion” means a certificate issued by the Department indicating an on-site wastewater treatment system was installed in accordance with this chapter, the Manual, and any other conditions placed on the construction permit by the Department.
 5. “Cesspool” means an excavation into the earth that is used for the reception, storage and disposal of untreated water carried sewage.
 6. “Chemical toilet” means a watertight, portable, self-contained toilet which may contain an environmentally safe bactericide and/or deodorant. A chemical toilet serves the same purpose and has the same meaning as a portable toilet.
 7. “Construction permit” means a written document issued and signed by the Department, which authorizes the permittee to begin the construction, installation, modification, replacement, or repair of an on-site wastewater treatment system, vault privy, wastewater holding tank, or wastewater treatment and/or processing facility.
 8. “Construction site” means the location on which actual construction of a building is in progress (California Health and Safety Code Section 5416).
 9. “Contamination” means impairment to the quality of the waters of the State from wastewater to a degree which creates a hazard to public health through toxicity or through the spread of disease. Contamination shall include any equivalent effect resulting from the disposal of wastewater, whether or not waters of the State are affected (California Health and Safety Code Section 5410(d)).
 10. “Deep trench” means any excavation into the earth that is longer than it is wide, extends into a permeable soil stratum, but not into a subterranean water-bearing stratum, is intended to accept and dispose of septic tank effluent, and the bottom of which terminates more than five feet below ground surface.
 11. “Department” means the Environmental Management Department of the County of Sacramento.
 12. “Development” means the uses to which the land which is the subject of a map shall be put, the buildings to be constructed on it, and all alterations of the land and construction incident thereto (California Government Code Section 66418.1).
 13. “Director” means the Director of the Environmental Management Department of the County of Sacramento.
 14. “Disposal field” means an area located on a parcel, above, at, or below ground surface, with appropriate surface cover, which has suitable soil conditions to effectively receive,

disperse, and/or dispose of treated or untreated septic tank effluent in a manner compliant with SCC Chapter 6.32 and the On-Site Wastewater Management Guidance Manual.

15. “Disposal field bed” means any excavation into the earth that is wider than three feet, extends into a permeable soil stratum, but not into a subterranean water-bearing stratum, is intended to accept and dispose of septic tank effluent, and the bottom of which terminates less than five feet below ground surface.
16. “Disposal field bottom” means the bottom of a disposal field bed, trench, or seepage pit.
17. “Domestic strength wastewater” means wastewater normally discharged from, or similar to, that discharged from plumbing fixtures, appliances and other household devices including, but not limited to toilets, bathtubs, showers, laundry facilities, dishwashing facilities and garbage disposals. Domestic wastewater does not include industrial/commercial-process water and will typically have total suspended solids of three hundred (300) mg/L and an available five-day biochemical oxygen demand less than three hundred (300) mg/L.
18. “Drainage system” means and includes all the piping within public or private premises that conveys wastewater to a point of disposal, but does not include the mains or laterals of a public sewerage system.
19. “Effective absorptive area” means sidewall or bottom area of a disposal field bed, trench or seepage pit, located below the point at which effluent is released from the disposal field piping, and consisting of undisturbed native soil strata having acceptable percolation rates and/or soil texture classifications meeting the requirements of this Manual.
20. “Effective absorptive soil” means soils with acceptable percolation rates and/or soil texture classifications meeting the requirements of this Manual.
21. “Effluent” means the wastewater discharged from any on-site wastewater treatment system.
22. “Experimental system” means any system that:
 - a. Does not have design guidelines adopted by the State Water Resources Control Board, the Department; or
 - b. Is a proprietary device or method that has not yet been evaluated and approved by the State Water Resources Control Board or the Department.
23. “Failure” means an on-site wastewater treatment system, vault privy, wastewater holding tank, or sewage pump-out station that:

- a. Fails to accept wastewater, thereby creating backup of wastewater into the structure;
 - b. Discharges untreated or inadequately treated wastewater to the ground surface, or waters of the State;
 - c. Exceeds the designed flow rate;
 - d. Causes contamination or pollution to groundwater;
 - e. Is not operated in compliance with permit requirements for operation, monitoring, and maintenance as specified in the Manual;
 - f. Results in the upward migration or ponding of wastewater above a tank or in a disposal field area;
 - g. Has non-functioning mechanical and/or electrical devices including, but not limited to, pumps, valves, control panels, or disinfection units;
 - h. Results in the daylighting of wastewater from the sides of a disposal field mound or from the side of a cut and fill bank;
 - i. Allows for the seepage of wastewater through the bottom or sides of a septic tank, pump tank, holding tank, or vault due to defects in material craftsmanship, natural environmental processes, material deterioration or structural defects;
 - j. Has a static wastewater level above the bottom of the effluent outlet in the septic tank or pump tank.
24. “Floodway” means areas of land subject to annual flooding from surface waters or rainwater runoff.
25. “Graywater” means untreated wastewater which has not been contaminated by toilet discharge, has not been affected by infectious, contaminated, or unhealthy bodily wastes, and which does not present a threat from contamination by unhealthful processing, manufacturing, or operating wastes. Graywater includes wastewater from bathtubs, showers, bathroom washbasins, clothes washing machines, and laundry tubs but does not include wastewater from kitchen sinks or dishwashers (California Water Code Section 14876).
26. “Grease trap” means a plumbing appurtenance or appliance that is installed in a sanitary drainage system that removes non-petroleum fats, oil, and/or greases (FOG) from a wastewater discharge. For purposes of this Manual, a grease trap shall also include a grease interceptor.

27. “Groundwater” means all water beneath the surface of the earth within the zone below the water table in which the soil is completely saturated with water, but does not include water that flows in known and definite channels (California Water Code Section 10752).
28. “High strength wastewater” means wastewater from an establishment, home, or business having a biochemical oxygen demand greater than three hundred (300) mg/L or total suspended solids greater than three hundred (300) mg/L.
29. “Holding tank” means any watertight container designed to receive and store wastewater for disposal at a different legal disposal location.
30. “Industrial/commercial-processed water” means wastewater from commercial or manufacturing operations that is not sewage but may contain products detrimental to human health or waters of the State.
31. “Land use project” means any entitlement process for development requiring a discretionary action and includes, but is not limited to, tentative subdivision maps, rezones, parcel maps, use permits, certificates of compliance, and boundary line adjustments.
32. “Leach line trench” means any excavation into the earth that is longer than it is wide, extends into a permeable soil stratum, but not into a subterranean water-bearing stratum, is intended to accept and dispose of septic tank effluent, and the bottom of which terminates less than five feet below ground surface.
33. “Licensed installer” means an individual possessing a valid General A Engineering, C-42, or C-36 license issued by the State of California.
34. “Liquid waste” means all nonhazardous wastes that are neither solid nor gaseous.
35. “Lot” means a parcel of land.
36. “Modification” as in system modification, means any addition to or change in the layout of an existing on-site wastewater treatment system, wastewater holding tank, vault privy, or sewage pump-out station for purposes other than to address a failure.
37. “Nuisance” means anything which:
 - a. Is injurious to health, or is indecent or offensive to the senses, or an obstruction to the free use of property, so as to interfere with the comfortable enjoyment of life or property; and
 - b. Affects at the same time an entire community or neighborhood, or any considerable number of persons, although the extent of the annoyance or damage inflicted upon individuals may be unequal; and

- c. Occurs during, or as a result of, the treatment or disposal of wastes (California Health and Safety Code Section 5410(f)).
37. “On-site wastewater processing and/or treatment facility” means all contiguous land and structures, other appurtenances, and improvements on the land used for the processing and/or treating of wastewater whereby such actions accomplish a measurable reduction in wastewater strength or composition. Such actions shall include, but not be limited to, the reduction of solids or organics, dewatering, coagulation, settling, filtration, aeration, and anaerobic digestion.
38. “On-site wastewater treatment system (OWTS)” means any system of piping, tanks, and/or disposal fields that effectively collect, hold, treat, and/or disposes of sewage without the use of community-wide sanitary sewers or sewage systems.
39. “On-Site Wastewater Management Guidance Manual (Manual)” means a manual developed by the Department containing guidelines for the siting, design, installation, operation, and maintenance of on-site wastewater treatment systems, wastewater holding tanks, vault privies, portable toilets and may include guidelines for the use of any other tank or device designed to effectively hold, treat, or dispose of wastewater.
40. “Operation and maintenance specialist” means an individual that is authorized by the Department to inspect, service, operate, and maintain an on-site wastewater treatment system while meeting the requirements for qualification as specified in this chapter.
41. “Parcel” means a piece of land shown upon a subdivision map, record of survey map, or described by metes and bounds that has been recorded in the County or appropriate City Recorder’s office.
42. “Pollution” means an alteration in the quality of waters of the State by waste to a degree which unreasonably affects:
- a. Such waters for beneficial uses; or
 - b. Facilities which serve such beneficial uses. “Pollution” may include “contamination” (California Health and Safety Code Section 5410(e)).
43. “Portable toilet” means a watertight, portable, self-contained toilet which may contain an environmentally safe bactericide and/or deodorant. A portable toilet serves the same purpose and has the same meaning as a chemical toilet.
44. “Pressure dosed on-site wastewater treatment system” means a standard on-site wastewater treatment system utilizing pressure dosing technology to distribute septic tank effluent throughout the disposal field.

45. “Pressure dosing” means a method of effluent distribution designed to distribute wastewater equally and evenly throughout a disposal field by placing the effluent under pressure in a disposal pipe.
46. “Public entity” means a local agency, as defined in the State of California Government Code Sections 53090 et seq., which is empowered to plan, design, finance, construct, operate, maintain and to abandon, if necessary, on-site wastewater treatment systems and on-site wastewater treatment facilities serving a land development. In addition, the entity shall be empowered to have supervision over the location, design, construction, operation, maintenance, and abandonment of on-site wastewater treatment systems within a land development, and shall be empowered to design, finance, construct, operate, and maintain any facilities necessary for the disposal of wastes pumped from the individual on-site wastewater treatment systems and to conduct any monitoring or surveillance programs required for water quality control purposes.
47. “Public sanitary sewer” means a sewage disposal system operated and maintained by a municipality, district or public corporation organized and existing under and by virtue of the laws of the State of California.
48. “Registered professional” means an individual who possesses a current registered environmental health specialist certificate issued by the State of California, or is currently licensed with the State of California as a professional civil engineer or professional geologist.
49. “Repair” as in system repair, means the installation, replacement, and/or relocation of any portion or portions (</=100%) of an on-site wastewater treatment system, wastewater holding tank, vault privy, or sewage pump-out station necessary to correct a failure, eliminate a public health hazard, or prevent contamination.
50. “Replacement” as in system replacement, means the entire system is replaced to correct a failure, eliminate a public health hazard, or prevent contamination.
51. “Restricted Area” means a geographical area located in Sacramento County, of which has been determined through years of data compilation, as having soil characteristics that are such that additional soil studies are required to determine the design of an OWTS (referenced by the Test Drill Map)
52. “Restrictive layer” means low permeability earth materials including rock, hard pan, or other type of restrictive layer which will prevent or significantly retard the downward migration of wastewater.
53. “Seepage pit” means an excavation into the earth that is cylindrical in shape, deeper than it is wide, extends into a permeable soil stratum, but not into a subterranean water-bearing stratum, is filled with clean drain rock, is used for the disposal of septic tank effluent, and is protected at the top with a concrete cover.

54. “Septage” means materials accumulated in septic tanks, cesspools, vault privies, portable toilets, holding tanks, or any other sewage holding apparatus that receives bodily waste or wastewater from plumbing fixtures. Septage does not include sewage sludge from municipal or community sewage treatment plants.
55. “Septic tank” means a watertight receptacle with a minimum of two compartments that is intended to receive the discharge from a drainage system or part thereof and is designed and constructed so as to retain solids, digest organic matter through a period of retention, and allow clarified effluent, but not scum or solids to discharge into a disposal field meeting the requirements of this chapter.
56. “Sewage” means liquid waste typically associated with human occupancy and includes wastewater from toilets, kitchen sinks, and dishwashers, but does not include graywater provided the graywater is not mixed with sewage.
57. “Sewage pump-out station” means a system of hoses, pumps, pipes, and tanks that are designed to remove and/or transfer wastewater from a vehicle or marine vessel’s wastewater holding tank for discharge into an on-site wastewater treatment system or wastewater holding tank.
58. “Site evaluation” means an assessment of the characteristics of a parcel sufficient to determine its suitability for the installation and sustainability of an on-site wastewater treatment system meeting the requirements of this chapter. A site evaluation shall take into consideration all public and environmental health aspects relating to the installation and operation of an on-site wastewater treatment system including, but not limited to, approved setbacks, anticipated wastewater flow, anticipated wastewater strength, soil texture, soil percolation rate, depth to groundwater, site topography, and useable space for the installation and repair of the wastewater disposal fields.
59. “Site evaluation report” means a report prepared by a registered professional or other individual approved by the Department that includes all information obtained from a site evaluation including detailed information regarding the design parameters of the on-site wastewater treatment system. The report will be used by the Department to ensure that a parcel is capable of sustaining an on-site wastewater treatment system that complies with this Manual.
60. “Standard system” means an on-site wastewater treatment system comprised of a two-compartment septic tank for primary treatment and a disposal field. The effluent will flow to the disposal field by gravity, or may be pumped to the first distribution box in the disposal field area.
61. “Substandard tank” means any tank that is not approved by the Department; or is constructed of wood or brick; or any tank constructed of concrete, fiberglass, polyethylene, or other similar material which has deteriorated to an extent that it

cannot effectively hold and/or treat wastewater; or because of its condition poses a threat to public health or safety; or is not designed for its intended use.

62. "System evaluation" means an expression of professional opinion stating that an existing on-site wastewater treatment system, wastewater holding tank, or vault privy is constructed and operating in compliance with the standards set forth in this Manual. Evaluations shall be performed by a licensed installer or other individual approved by the Department and shall not constitute a warranty or guarantee either expressed or implied.
63. "Test Drill Map" is a geographical map of Sacramento County, created from years of data compilation, that designates certain areas of the County that require an alternate OWTS design, or additional soil studies to determine the design of an OWTS
64. "Treatment" means any process or action that accomplishes a measurable reduction in wastewater strength or separation of liquid from solids, such as the reduction of solids or organics, dewatering, coagulation, settling, filtration, or aeration.
65. "Useable space" means a dedicated area of land on a parcel capable of sustaining the installation and operation of an on-site wastewater treatment system compliant with this Manual.
66. "Vault Privy" means a structure or outbuilding intended or used for the reception of human excreta and under which is a pit or watertight vault.
67. "Waste" means sewage and any and all other waste substances, liquid, solid, gaseous, or radioactive, associated with human habitation, or of human or animal origin, or from any production, manufacturing, or processing operation of whatever nature (Health and Safety Code Section 5410).
68. "Wastewater" as used in this chapter shall mean liquid waste typically associated with human occupancy that includes wastewater from toilets, kitchen sinks, and dishwashers, and may include graywater or other liquid waste determined by the Department to be detrimental to public health and/or the environment if not properly handled, treated, and/or disposed of. For purposes of this chapter, wastewater shall not include hazardous waste as defined in Sections 25115 and 25117 of the California Health and Safety Code.
69. "Wastewater hauler" means any person or firm carrying on or engaging in the business of removing, and/or disposing of the contents from septic tanks, portable toilets, cesspools, sewage seepage pits, grease traps, holding tanks, or any other tank or vault used to hold and/or treat wastewater.

70. “Waters of the State” means any surface water or groundwater, including saline waters, within the boundaries of the State (California Water Code Section 13050(e)). (SCC 1465 § 2, 2010.)

ORGANIZATION OF THIS MANUAL

This Manual is organized into Parts One through Five and Appendices. The Parts discuss the following aspects of Sacramento County Code Chapter 6.32:

- **PART ONE:** The OWTS permitting process for a new installation or a repair of an existing system.
- **PART TWO:** The design, construction, and installation requirements for OWTS.
- **PART THREE:** Requirements for non-discharging wastewater treatment systems such as holding tanks, pit privies, and portable toilets.
- **PART FOUR:** Operation and maintenance requirements for OWTS.
- **PART FIVE:** Siting and design requirements for subdivisions, parcel splits, lot line adjustments, use permits, and building permit approvals.



*Onsite Wastewater Treatment System
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PART ONE

***Permitting and Site Evaluation
Process***

PART ONE
Permitting and Site Evaluation Process

CHAPTER 1 – GENERAL BACKGROUND (SCC 6.32.050, 190, 210)

Every residence, place of business, or other building or place where persons reside, congregate, or are employed must have an approved means of sewage disposal that complies with SCC Chapter 6.32. In most cases, wastewater must be discharged via connection to public sanitary sewer or an OWTS. In unique situations, the Department may authorize the use of wastewater holding tanks, vault privies, or portable toilets to satisfy this requirement.

For those properties located within the Sacramento Area Sewer District (SASD), any property located within 200-feet of a public sewer, the property must be connected to the public sewer unless an acceptance is granted. The request for an acceptance is described in Chapter 3 E .

Any OWTS that proposes a flow of over 10,000 gallons-per-day must notify the Regional Water Quality Control Board and is not covered under this Manual.

The following are prohibited:

1. Cesspools of any kind.
2. Effluent disposal that discharges on or above the post installation ground surface such as sprinklers, exposed drip lines, free-surface wetlands or a pond.
3. OWTS dedicated to receiving significant amounts of wastes dumped from RV holding tanks.

Pursuant to SCC 6.32.190, no person shall construct, destroy, repair, alter or relocate an OWTS without obtaining a permit from this Department. Repairs or modifications required due to a failed system that creates a public health and safety hazard may be performed without first obtaining a permit provided the Department is notified prior to the time the work is to be performed. Notification shall be accomplished by contacting the Department at (916) 875-1500. Leave a message with the address of the parcel where the system is located, and the nature of the repair. A permit must be submitted to EMD by the next business day. The following actions DO NOT require a permit:

1. Replacing tight lines or clearing blockages in pipes.
2. Servicing or replacing installed mechanical or electrical parts of an OWTS, such as float switches, pumps, and electrical boxes.
3. Replacing sanitary tees in septic tanks.
4. Making minor structural corrections to the septic or pump tank such as riser or lid replacement.
5. Clearing blockages in a distribution box provided the box is not altered, modified, or replaced.
6. Repairing or replacing the main discharge line from the house to the tank or from the tank to the distribution box.

PART ONE
Permitting and Site Evaluation Process

CHAPTER 2 – THE PERMITTING PROCESS (SCC 6.32.170, 190, 270)

All permitted OWTS work shall be performed by a licensed septic system contractor who is experienced with OWTS design, operation, and maintenance. The installer must have knowledge of the area geology, state and local regulations, and Department policy.

Prior to Department’s permit approval to install, alter, modify, or repair an OWTS, the applicant must satisfy applicable site evaluation criteria as described in Chapter 4. The site evaluation ensures that the OWTS will be installed, altered, expanded, or repaired with minimal impact to public health, the environment and both surface and ground water.

CHAPTER 3 – PERMIT APPLICATION

A. Authorized Individuals (SCC 6.32.170)

Permit applications to construct, repair, or modify an OWTS can only be obtained by an individual or entity who:

1. Possesses a valid C-36, C-42, or General A contractor’s license issued by the State of California. General B contractors may also obtain a permit provided they are operating in compliance with the requirements required by the California State Contractor’s Licensing Board for General B contractors (responsible for completing at least three additional construction disciplines pertaining to the general project on the parcel).
2. Is the legal owner of the parcel upon which the OWTS is to be installed, modified, or repaired, or is the parcel owner’s authorized agent. If the property owner’s authorized agent applies for the permit, an authorization letter, signed by the property owner, must be submitted together with the permit application.

B. Application Requirements (SCC 6.32.200)

1. A permit to construct, repair, or modify an OWTS must be obtained prior to commencing work.
2. All sections of the application must be complete and legible.
3. The applicable installation or repair permit fee must be paid to the Department at the time of, or prior to application submittal.

C. Plot Plan Requirements (6.32.220)

1. All permit applications shall be accompanied with a plot plan showing the proposed placement or the existing location of the OWTS on the parcel in relationship to other site features. The plot plan must verify that the OWTS and/or replacement disposal field area can be installed in compliance with all setback requirements described in this Manual. For projects requiring building permits, the Department may issue a “tentative plot plan approval” prior to OWTS permit approval in order for the applicant to obtain a building

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Permitting and Site Evaluation Process

- permit. In such cases, the plot plan must match the plot plan submitted to the building authority. In some cases a site evaluation must be completed prior to tentative plot plan approval.
2. The plot plan must clearly delineate the following (SCC 1465 § 2, 2010):
- a. The proposed location of new OWTS or the location of existing OWTS and components, and replacement areas;
 - b. Lot dimensions, including all property lines;
 - c. Setbacks and side yards;
 - d. Paved areas and unpaved areas subject to vehicular traffic;
 - e. Easements and rights-of-way, public and private;
 - f. Structures, dwellings (including pools and auxiliary buildings);
 - g. Animal enclosures;
 - h. Fuel tanks, hazardous material storage;
 - i. Plumbing stub-out;
 - j. Water lines (public and private);
 - k. Areas subject to flooding, inundation, or storm water overflow associated with a ten-year storm event;
 - l. Existing and proposed wells, abandoned wells, springs, neighboring wells, streams, ditches, canals, culverts, ponds, lakes, swales, vernal pools, 10 year flood plains, or any body of water (intermittent or perennial) located within one hundred 100 feet of property lines;
 - m. Abandoned septic tanks, pretreatment and storage devices, sewer lines, storm sewers;
 - n. Location(s) of soil profile test holes, percolation test holes, and groundwater observation wells, as applicable;
 - o. Percent and direction of slope in disposal field area and 50 feet adjacent to it on all sides. A contour map is recommended for this purpose, and may be required by EMD depending on conditions observed at the site;
 - p. Trees within 10 feet of sewage disposal areas (including replacement areas);

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- q. Underground utilities within 10 feet of the OWTS (including replacement area);
- r. Cut banks, unstable land forms, bluffs and ravines;
- s. Floor plan indicating number of bedrooms.

D. Application Acceptance (6.32.190)

Once accepted, the Department will approve, conditionally approve, or disapprove the permit application. The permit applicant will be notified of the Department's decision once the review has been completed. In no case shall site work begin until the permit applicant has received an approved permit from the Department.

E. Public Sewer Availability

Sacramento Area Sewer District Ordinance SDI-0068 2.1.1 requires the connection to public sewer if sewer is available within 200 ft of the property. Section 2.1.2 defines the availability of the public sewer. The public sewer **is not** available when one or more of the following apply:

1. The public sewer is more than 200 ft from the property.
2. Connection is not practical in terms of physical configuration or property access.
3. For residential property only, the total costs to connect are greater than twice the total cost to repair or reconstruct the existing septic system.

Applicant must provide a repair or reconstruction cost estimate with the OWTS permit application, prepared by a licensed contractor or professional engineer. SASD will make the determination as to public sewer availability.

CHAPTER 4 – SITE EVALUATION (SCC 6.32.270)

A site evaluation is an assessment of parcel characteristics to determine its suitability for the installation and continuous operation of an OWTS, and to ensure that OWTS remain in compliance with state and local regulations protecting public health and the environment. A site evaluation is required to determine design parameters for new OWTS and permit-required repairs or modifications to existing systems (see Chapter 1).

Site evaluations are also required prior to submitting an application for a tentative subdivision or parcel map. Refer to Part Five of this Manual for specific information regarding OWTS requirements for subdivisions, lot line adjustments, use permits, and building permits.

At the Department's discretion, the site evaluation or elements may be waived if:

PART ONE

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- A. A site evaluation has previously been conducted by a registered professional or other individual accepted by the Department, and the evaluation was conducted in the area of the proposed project.
- B. The Department has reason to believe that soil conditions in the specific geographical area of the County under consideration are so homogeneous that previous site evaluations or geotechnical explorations conducted in close proximity to the proposed project area will provide sufficient information regarding soil type, percolation rate, and depth to groundwater to determine the viability of the proposed project.
- C. Performance characteristics and design specifications of nearby existing OWTS are available and sufficient to determine that an OWTS can be installed or repaired in compliance with both local and state regulations.

CHAPTER 5 – SITE EVALUATION APPLICATION (SCC 6.32.280)

- A. A site evaluation application shall be submitted to and approved by the Department prior to performing the evaluation.
- B. Site evaluation applications will only be accepted by the Department when the following conditions have been met:
 - 1. All sections of the application are complete and legible.
 - 2. Clear, written directions to the site have been provided.
 - 3. The application includes a plot plan indicating the proposed location of the OWTS, all setbacks, and primary and reserve disposal fields in relationship to property boundaries and landmarks.
 - 4. The application is signed by the applicant.
 - 5. All required fees have been paid to EMD.

CHAPTER 6 – SITE EVALUATION CONSIDERATIONS (SCC 6.32.270)

The site evaluation shall take into consideration the following site characteristics when determining the placement and design for an OWTS:

- A. Influent wastewater strength and quantity;
- B. Separation between disposal field bottom and groundwater or restrictive soil layers;

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- C. Required setbacks for all components of the OWTS including the replacement disposal field area and consideration not to cross property lines;
- D. Acceptable ground slope in the proposed disposal field areas;
- E. Acceptable soil application rates;
- F. The required level of wastewater treatment so as to not adversely affect water quality or endanger public health;
- G. Parcel size;
- H. Effective absorptive soil in the disposal field area (primary and replacement);
- I. Fluctuating groundwater levels;
- J. Seasonal saturated soil conditions;
- K. Soil bearing capacity with respect to proposed OWTS design;
- L. Appropriate mitigation measures when acceptable site conditions for installing and operating a standard gravity flow OWTS cannot be achieved.

A registered professional (registered environmental health specialist [REHS], professional civil engineer [P.E.], professional geologist [P.G.]) must perform a site evaluation in cases where (1) the site cannot support the installation of a standard gravity flow OWTS, (2) the anticipated daily wastewater flow exceeds 3000 gallons per day, or (3) wastewater strength is greater than domestic strength wastewater.

CHAPTER 7 – SITE EVALUATION REQUIREMENTS

- A. Soil Profile (SCC 6.32.300)
 - 1. For all disposal field types other than seepage pit or deep trench, a minimum of eight soil profiles shall be required on each parcel to determine site suitability for an on-site wastewater treatment system. Four soil profiles shall be excavated in both the primary and reserve disposal field areas.
 - 2. For seepage pit and deep trench disposal fields, a minimum of one soil profile in both the primary and reserve disposal field areas will be required.
 - 3. At the Department's discretion, additional soil profiles by may be required to adequately characterize site conditions or demonstrate soil uniformity.
 - 4. The Department may approve fewer soil profiles on a case-by-case basis depending on specific site conditions, areal limitations, or uniformity in initial soil profile soil characteristics.

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5. All soil profiles shall be excavated to Cal-OSHA standards.
 6. All soil profiles shall be performed in representative areas of both the proposed primary and reserve disposal fields to adequately characterize site conditions.
 7. Soil must be logged using the USDA soil classification system or other Department approved classification system.
 8. Soil profile dimensions
 - a. Shallow disposal field (trench bottom less than 5 feet)
 - i. Soil profiles are generally excavated by backhoe, but may be hand-dug when appropriate dimensions and spoils pile setback are maintained. The profiles must be at least 2 feet wide and must extend to a depth of at least 5 feet below proposed trench bottom to verify groundwater separation and soil lithology.
 - ii. Soil profiles must be excavated in a manner that complies with OSHA requirements while allowing the evaluator to observe soils.
 - b. Deep trench or seepage pit (trench/pit bottom 5-40 feet below ground surface)
 - i. The Department recognizes soils of type I and II (unconsolidated sands, silty sands, sandy loams) as acceptable soils when determining the effective absorptive sidewall area of deep trenches and seepage pits.
 - ii. Soil profile borings for deep testing are generally excavated with a bucket auger or other drill rig capable of drilling a 3 foot diameter hole to a minimum of 45 feet. A backhoe is generally used for testing at shallower depths.
 - iii. Soil profile boring depths shall extend at least 5 feet below the proposed disposal field bottom and at least 10 feet below the bottom of a seepage pit greater than 25 feet below ground surface to verify separation from groundwater.
- B. Percolation Testing (SCC 6.32.310)
1. Percolation tests may only be performed by a registered professional who is experienced in OWTS technology and design.
 2. For all disposal field types other than a seepage pit or deep trench, a minimum of six percolation tests shall be required on each parcel to determine site suitability for an OWTS. Three percolation soil profile borings shall be performed in both the primary and reserve disposal field areas.

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3. Seepage pit and deep trench type disposal fields shall have a minimum of one percolation test in both the primary and reserve disposal field areas unless otherwise waived by the Department.
4. At the discretion of the Department, additional percolation testing may be required to adequately characterize site conditions or demonstrate soil uniformity. Requests for fewer percolation tests may be approved by the Department and shall be determined on a case-by-case basis.
5. All percolation soil profiles shall be performed in representative areas of both the proposed primary and reserve disposal fields to adequately characterize site conditions (SCC 1465 § 2, 2010.)
6. Percolation testing procedure
 - a. For shallow disposal fields (up to 5 feet in depth):
 - i. There shall be a minimum of three percolation tests performed in addition to the soil evaluation for each disposal field area. In cases where the primary and reserve disposal field areas are separated by no more than 20 feet, a total of three percolation tests may be allowed if soil characteristics for each area are similar. Nothing in this section shall prohibit the Department from requiring additional soil profiles to further identify disposal field suitability.
 - ii. The diameter of the percolation test holes shall be 6 to 8 inches.
 - iii. The bottom of the percolation soil profile boring shall be at a depth equal to the proposed disposal field trench bottom or within the most restrictive strata of useable soil beneath the dispersal field.
 - iv. The sidewall of the percolation soil profile boring must be roughened to remove any smearing or compaction related to the excavation process. All loose soil shall be removed and 2 inches of pea gravel or other material approved by the Department shall be placed in the bottom of the hole.
 - v. The percolation soil profile boring may be used with or without a gravel side pack.
 - vi. , The soil profile boring must be presoaked with clean water for a minimum of four hours prior to percolation testing. The depth of the water must remain at least 12 inches above the bottom of the soil profile boring during the four hours.
 - vii. Percolation rates shall be measured to the nearest 1/8 of an inch from a fixed reference point.

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- viii. At the beginning of the percolation test, the water level in the soil profile boring must be adjusted to a depth of 6 inches above the pea gravel bottom.
- b. For deep trench disposal fields (five to twenty-five feet in depth):
- i. At least one soil profile shall be excavated to either the water table or 10 feet below the proposed trench depth, whichever comes first. The soil profile shall be at the lowest elevation.
 - ii. The percolation soil profile shall be performed in each representative area of the proposed primary and reserve disposal fields. A driller's log indicating soil types and depth-to-groundwater, if applicable, shall be prepared.
 - iii. All percolation tests shall be made in three-foot diameter pits unless otherwise approved by the Department, and landed at least five feet above the known water table in undisturbed soil.
 - iv. The soil profile boring shall be filled twice with water and allowed to soak overnight over the entire depth of the profile prior to percolation testing.
 - v. The depth to water after overnight soaking shall be recorded.
 - vi. Prior to beginning the percolation test, the soil profile boring must be filled with water until the water level is 3 feet below grade.
 - vii. The time interval for the water to fall one foot shall be recorded. Successive time intervals shall be recorded for each 1 foot drop in water until the water level drops five feet.
 - viii. Repeat number (vii) above until the rate measured at the 4 foot level does not vary by more than 10 percent.
 - ix. The slowest rate measured within ± 3 inches of the 4 foot level shall be considered the design percolation rate.
- c. For seepage pit disposal fields:
- i. At least 1 soil profile boring shall be advanced to the water table or ten feet below the proposed pit bottom if groundwater is not encountered.
 - ii. A minimum of 1 percolation test shall be made in the proposed disposal field area. The Department may require additional percolation tests based on observed soil conditions.

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- iii. All percolation tests shall be made in 3 foot diameter pits landed at least ten feet above the known water table and in undisturbed/native soil.
 - iv. The test holes must be filled with rock as a safety measure, with a sounding pipe placed in the pit for measuring purposes.
 - v. The percolation test hole shall be presoaked with water prior to performing the percolation test.
 - vi. Presoaking shall be accomplished by filling the soil profile boring to the top with water, then allowing the water to percolate into the soil until the water level reaches the 15 foot below ground surface level. The soil profile boring shall be filled to the top a second time with water and then the soil profile boring must be allowed to sit overnight before percolation testing may begin.
 - vii. Depth to water after overnight soaking shall be recorded.
 - viii. Before percolation rate measurements are recorded, the test hole must be filled to the top with water.
 - ix. The time intervals and water level readings shall be taken from the 5 foot level to the fifteen foot level before refilling the percolation test hole.
 - x. Fillings shall be repeated until successive percolation rates do not vary more than 10 percent. The slowest rate measured within ± 6 inches of the 10 foot level shall be considered as the design rate of percolation.
7. Percolation rate readings shall be taken at 30 minute intervals. The soil profile boring must be refilled as necessary to maintain 6 inches of water above the pea gravel bottom at each 30 minute interval. Readings shall be taken until two consecutive readings do not vary by more than 10 percent per reading, with a minimum of 3 readings. The last 30 minute interval is used to compute the percolation rate. If 4 inches or more of water seeps from the boring during the 30 minute interval, readings may be taken at 10 minute intervals. In such case readings shall be taken until 2 consecutive readings do not vary by more than 10 percent per reading with a minimum of 3 readings. The last 10 minute interval is used to compute the percolation rate. The correction factors found in Table 2 shall be used for gravel packed-borings to determine the corrected percolation rate:

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Table 2.

Percolation Rate Correction Factor for Gravel Packed Holes

Hole Diameter	Gravel Pack Thickness	Correction Factor
6"	1"	1.59
6"	1/2"	1.27
7"	1/2"	1.04
8"	1"	1.14

Corrected percolation rate in minutes per inch (MPI) = Observed percolation rate (MPI) X correction factor.

C. Seasonal High Groundwater Monitoring (SCC 6.32.320)

1. The Department may require information pertaining to seasonal high groundwater levels prior to approving a design for an OWTS or a proposal for a subdivision of land to ensure compliance with groundwater separation requirements as specified in this Manual. Areas proposing to utilize OWTSs that are subject to monitoring include, but are not limited to:
 - a. Valleys, ravines, swales
 - b. Areas near waterways or springs
 - c. Areas with soils having confined and unconfined sand and gravel strata
 - d. Areas with shallow topsoil
 - e. Areas with soil strata that show mottling and/or grey to black colorations
 - f. Areas with a known history of seasonal high groundwater
 - g. Areas with swampy/marshy appearances or supporting the growth of water-seeking vegetation such as cattails, willows, perennial grasses.
2. A registered professional or other individual accepted by the Department shall perform all groundwater monitoring, and all data shall be collected in coordination with the Department.
3. An application shall be submitted to the Department prior to beginning of such monitoring.
4. The appropriate fee if applicable has been paid to the Department.

5. Seasonal high groundwater monitoring shall be performed once between the months of November through April.

CHAPTER 8 – SITE EVALUATION REPORT (SCC.6.32.290)

- A. Following the completion of all soils testing, a site evaluation report shall be forwarded to the Department for review.
- B. Unless the Department specifies otherwise, a site evaluation report shall contain the following information:
 1. A scaled (1" = 50' minimum) site plan identifying the location of all soils testing performed;
 2. A brief description of the site characteristics and soil testing methodology;
 3. All soils testing data including but not limited to classifications of the encountered soils and raw percolation test results;
 4. Monitoring requirements (if applicable)
 5. A scaled (1" = 50' minimum) drawing of the proposed on-site wastewater treatment system including, but not limited to:
 - a. Required setbacks
 - b. Disposal field type
 - c. Required disposal field size
 - d. Location of reserve disposal field area
 - e. Disposal field design parameters (depth, width, length, rock size, pipe size, etc.)
 - f. Tank size and location
 - g. Anticipated wastewater strength and quantity



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CHAPTER 9 – STANDARD VS. ALTERNATIVE SYSTEMS (SCC 6.32.340, 240)

The Department discourages the use of alternative OWTS in lieu of a standard gravity flow or standard pressure-dosed system when the proposed site can meet the requirements for the installation of such system. Alternative OWTS require an annual operating permit issued by this Department.

CHAPTER 10 – DESIGN CONSIDERATIONS (SCC 6.32.340)

All OWTS shall be designed based on the following:

- A. Available effective absorptive area in both primary and reserve disposal fields;
- B. Separation between disposal field bottom and groundwater or a restrictive soil layer;
- C. Ground slope in both the primary and reserve disposal field areas;
- D. Influent wastewater strength and quantity;
- E. Setback requirements; and
- F. The required level of wastewater treatment so as to not adversely affect water quality or endanger public health.

CHAPTER 11 – SOIL REQUIREMENTS (SCC 6.32.340)

	Percolation Rates	Soil Texture¹	Separation to Groundwater	Separation to Restrictive Layer	Ground Slope
Standard Leach Line/Bed (shallow trench)	5-60 mpi	A-D	5 Feet	5 Feet	<30%
Standard Deep Trench	5-60 mpi	A-B	5 Feet	5 Feet	<30%
Standard Seepage Pit	5-60 mpi	A-B	10 Feet	5 feet	<30%
Pressure Dosed Leach Line/Bed	0-120 mpi	A-D	3 Feet	3 Feet	30% <30%
Alternative	<5, >120 mpi	A-D	<3 to 2 feet	N/A	<30% ²

1. All effective absorptive soil shall be non-cemented.
2. See requirements for steep slope systems in Chapter 26 of this Manual

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CHAPTER 12 – PROJECTED DAILY WASTEWATER FLOW (SCC 6.32.340 E)

Residential

2 Bedroom	350 gallons
3 Bedroom	400 gallons
Each additional bedroom after 3	100 gallons
Second dwelling (guest home), condominium, multifamily (duplex, triplex, etc.)	Same as for full single-family residence

Commercial

Type of Business or Facility	Minimum Flow (Gallons per Day)
Barbershop/salon	100 (per chair)
Camps (4 persons per campsite, where applicable)	
with central comfort stations	35 (per person)
with flush toilets, no showers	25 (per person)
construction camps (semi-permanent)	50 (per person)
day camps (no meals served)	15 (per person)
resort camps (night and day) with limited plumbing	50 (per person)
Churches	
with kitchen	15 (per seat)
without kitchen	5 (per seat)
Country clubs	
per resident member	100
add per nonresident member present	5
add per employee	15 (per 8-hour shift)
Dentist office	
per wet chair	200
add per non-wet chair	15
Factories	
with shower facilities, no food service or industrial wastes	35 (per person, per shift)
without shower facilities, no food, service or industrial wastes	15 (per person, per shift)
Hospitals	250 (per bed space)
Hotels or motels	

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Type of Business or Facility	Minimum Flow (Gallons per Day)
with private baths	100 (per room)
without private baths	80 (per room)
Institutions other than hospitals	125 (per bed)
Laundries, self-service washing machines	500 (per machine)
Limited agricultural building	100 (per building)
Mobile home parks	250 (per space)
Parks, public picnic areas	
with toilet wastes only	5 (per person)
with bathhouses, showers and flush toilets	10 (per person)
Restaurants	
with multi-use utensils	50 (per seat)
with single service utensils	25 (per seat)
with bars and/or cocktail lounges	50 (per seat)
Retail stores	
for customer	Use comparable flows from similar businesses and population
add for each employee	15 (per 8-hour shift)
Shopping center	2 (per parking space)
Schools	
boarding	100 (per person)
day (without gyms, cafeterias or showers)	15 (per person)
day (with gyms, cafeterias and showers)	25 (per person)
day (with cafeteria, no gym or showers)	20 (per person)
Service stations	500 for 1st pump set, 300 for each additional
Swimming pools and bathhouses	10 (per person)
Theaters	
movie	5 (per seat)
drive-in	20 (per car space)
Recreational vehicle parks	
without individual water and sewer hookups	50 (per space)
with individual water sewer hookups	100 (per space)

Source: SCC 1465 § 2, 2010

Minimum Flow: In no case shall an OWTS be designed for a flow of less than 100 gallons per day.

Maximum Flow: In no case shall an OWTS be designed for a flow over 10,000 gallons per day.

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Other Approved Methods

If proposed, the projected daily flow may be calculated by actual potable water meter readings, or facility wastewater influent or effluent meter readings if such records are available from the service provider or from water meters certified to be accurate within 2 percent by the water purveyor or, in the case of wastewater metering, the meter read values are certified as “correct” by a registered professional and agreed to by the Department. Average daily flows shall be calculated from peak flow days as follows:

- A. If the water meter records are recorded on a daily basis, the highest 10 day flows for a 12 month period may be averaged and used for the design flow.
- B. If the water meter records are recorded on a weekly basis, the design flow shall be calculated by dividing the number of days the facility was in use into the highest weekly flow over a t 12 month period and then multiplying by 1.2.
- C. If the water meter records are recorded on a monthly basis, the design flow shall be calculated by dividing the number of days the facility was in use into the highest monthly flow over a 12 month period and then multiplying by 1.5.
- D. If the water meter records are recorded on a quarterly basis, the design flow shall be calculated by dividing the number of days the facility was in use into the highest quarterly flow over a 12 month period and then multiplying by 2.0.

CHAPTER 13 – REQUIRED ABSORPTIVE FIELD AREA (SCC 6.32. 340 D)

Required absorptive field area shall be calculated by using available effective absorptive soil and the applicable soil application rate depicted in Table 2 (below) if effective absorptive soil is determined by soil textural classification, or by referring to Figure 1 of this chapter if percolation testing was conducted.

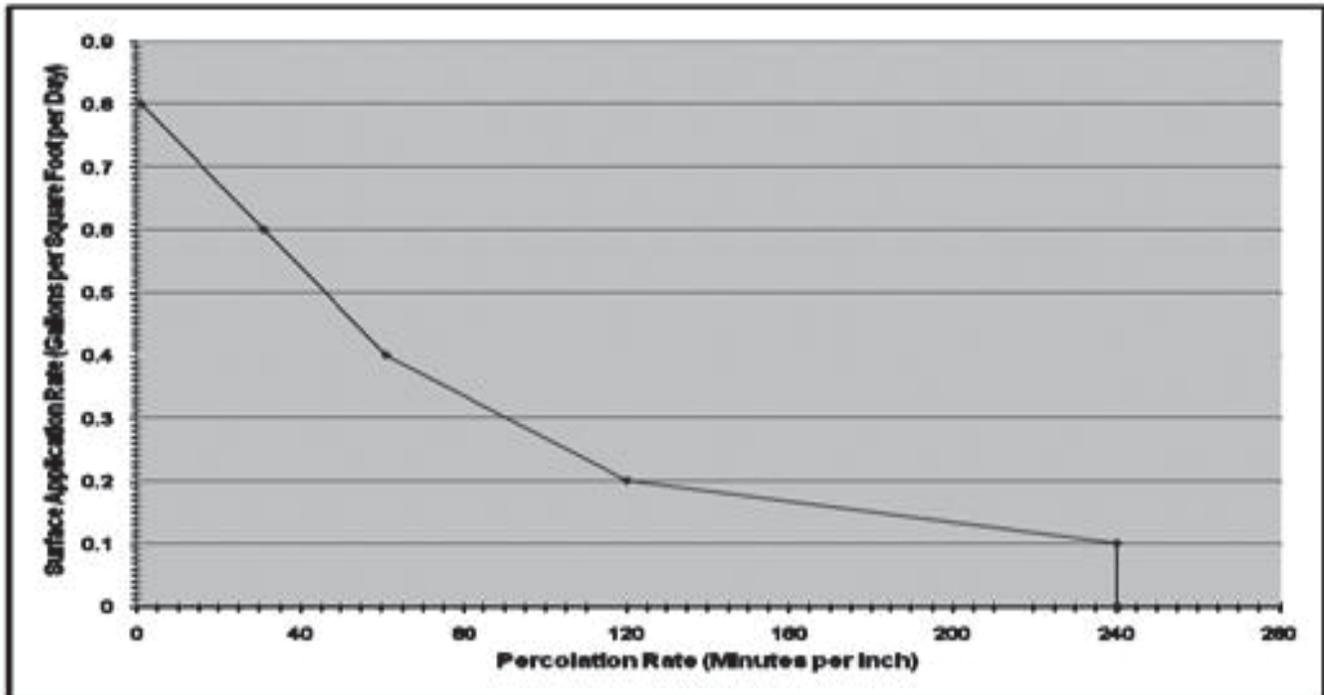
Table 2
Soil Application Rate Based on USDA Textural Classification

USDA Textural Classification	Soil Group	Application Rate (gdp/ft ²)
Course to medium sand	A	1.2 or less
Fine sand, loamy sand	B	1.1 to 0.8 or less
Sandy loam, loam	C	0.8 to 0.6 or less
Silt loam	D	0.6 to 0.4 or less
Clay loam, sandy or silty clay loam, sandy clay	E	0.4 to 0.1 or less

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Figure 1
Soil Application Rate Based on Percolation Rate



Soil application rates derived from percolation test results shall be calculated by using the slowest percolation test result obtained from all percolation soil profile borings in the area in which the disposal field will be located.

Soil application rates derived from soil textural classification, if permitted by the Department, shall be determined by using the most restrictive effective absorptive soil group encountered within five feet from the bottom of a shallow trench or disposal field bed. Soil application rates for deep trench or seepage pit type disposal fields shall be determined by using the most restrictive effective absorptive soil encountered within the trench or pit profile below the point at which effluent leaves the disposal piping.

Only sidewall or bottom area but not both shall be used when calculating the required disposal field area for a shallow trench or bed type disposal field. Only sidewall area shall be used with deep trench or seepage pit type disposal fields.

Installation of a standard OWTS on parcels less than 1 acre in size requires that a reserve disposal field be installed concurrently with the primary field. The disposal fields are to be separated by an approved valve to divert flow from field one to field two at the recommended interval.

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Repair to the existing disposal field of an OWTS shall require 100 percent replacement of the required disposal field area. At the Department's discretion, a valve or distribution box shall be installed in the tight line to allow the flow of effluent between each disposal field.

CHAPTER 14 – RESERVE DISPOSAL FIELD AREA (SCC 6.32.340 F)

A reserve disposal field area with suitable site conditions must be set aside for the future installation of a replacement disposal field. The reserve area must be:

- A. Equal to 100 percent of the capacity required for the primary disposal field;
- B. Separate from the primary disposal field area;
- C. Able to meet all current design requirements for the type of disposal field proposed, including soil depth, soil type, slope restrictions, and setbacks, etc.;
- D. Fully protected to prevent damage to soil and any adverse impact on the immediate surroundings that may affect the installation of the reserve disposal field or its function.

CHAPTER 15 – SEPTIC TANK (SCC 6.32.340 H)

- A. Septic tank capacity shall be a minimum of 1000 gallons and a maximum of 10,000 gallons. Tanks in excess of 3000 gallons shall have design specifications conforming to the most current version of the Uniform Plumbing Code (UPC) submitted to the Department for approval.
- B. For residential dwellings, the minimum liquid capacity of any septic tank shall be 1200 gallons for up to a three bedroom residence, 1500 gallons for up to a five bedroom residence, and an additional 200 gallons for each bedroom thereafter.
- C. Septic tank capacity for commercial applications shall be determined by doubling the calculated average daily flow.
- D. All septic tanks, pump tanks, and distribution boxes shall be watertight and installed level on a stable surface to prevent settling. All tanks may be subject to a water tightness test at the Department's discretion.
- E. All septic tanks and pump tanks shall have water tight pumping risers extending to ground surface or above on all compartment access ports of the tank. Risers shall be a minimum of 24 inches in diameter and have gas-tight tamper-proof lids. Tanks and/or risers in potential traffic areas shall be traffic rated and capable of supporting all anticipated loads. The original tank compartment access port lids shall remain in place or Department approved safety grates shall be positioned over access port openings within each riser.
- F. Pump tanks shall have a minimum liquid capacity equal to or greater than one day's projected sewage flow.
- G. Designs for new OWTS serving commercial establishments capable of generating wastewater containing fats, oils, grease (FOG), grit, or sand shall be required to incorporate an outdoor grease trap and/or sand-oil separator into

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the system design. Grease trap or sand-oil separator size and installation requirements shall comply with the UPC.

- H. Septic tanks shall have an anti-buoyancy component installed when site conditions are such that the tank may move out of its original position due to flood waters or other high water conditions.

CHAPTER 16 – SETBACK REQUIREMENTS (SCC 6.32.340)

New OWTS shall conform to the setbacks described below. Systems requiring repair shall conform to these setbacks to the greatest extent possible. An inability to maintain required setbacks shall require an alternative OWTS or a design proposed by a registered professional with experience in OWTS design. For OWTS, installed on parcels of record existing at the time of the OWTS Policy that cannot meet the horizontal separation associated with public water supply wells and public water supply surface water intake requirements, the OWTS shall meet the horizontal separation to the greatest extent possible and shall utilize supplemental treatment for pathogens.

		Pre June 2010	Post June 2010	LAMP Requirements
SEPTIC TANK, PUMP TANK, Aerobic Treatment Unit	TO: WATER WELL	100'	100'	
	LAKE OR RESERVOIR	50'	50'	
	FLOWING STREAM OR CREEK	30'	50'	
	PONDS³	----	50'	
	DRAINAGE COURSE OR EPHEMERAL STREAM	25'	50'	
	CURTAIN DRAINS - VERTICAL CURTAIN DRAINS	----	20'	
	UP-GRADIENT	----	25'	
	DOWN-GRADIENT			
	CUT OR FILL BANK (IN EXCESS OF 2.5')	25'	20'	
	STRUCTURE¹	5'	5'	
	EASEMENT	----	CLEAR	
	PROPERTY LINE	5'	5'	
	D-BOX	3'	3'	
	WATER SUPPLY LINES	10' laterally, 1' above leach line		
	ON-SITE DOMESTIC WATER SERVICE LINE		5' (UPC)²	
	PRESSURE PUBLIC WATER MAIN		10'(UPC)²	
	LEVEE (TOE) – CCR TITLE 23	10'	10'⁴	
D-BOX	TO: PROPERTY LINES	10'	5'	
	BUILDINGS¹	5'	5'	
	SEPTIC TANK, PUMP TANK OR DISPOSAL FIELD	3'	3'	
	LEVEE (TOE) – CCR TITLE 23	10'	10'⁴	

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		Pre June 2010	Post June 2010	LAMP Requirements
	DISPOSAL FIELD (PIT, LEACH LINE, TRENCH)	3', ----, ----	3'	
LEACH PITS	TO: WATER WELL (DOMESTIC AND PUBLIC)	150'	150'	
	WATER WELL - PUBLIC			200'*
	PUBLIC WATER SURFACE WATER INTAKE			1,200' and 400' High water mark**
	LAKE OR RESERVOIR	200'	200'	
	FLOWING STREAM OR CREEK	50'	100'	
	PONDS³	----	100'	
	DRAINAGE COURSE OR EPHEMERAL STREAM	25'	50'	
	CURTAIN DRAINS - VERTICAL CURTAIN DRAINS			
	UP-GRADIENT	----	20'	
	DOWN-GRADIENT	----	50'	
	CUT OR FILL BANK (IN EXCESS OF 2.5')	25'	4 x the height of the bank, to a maximum of 50'	
	STRUCTURE¹	10'	5'	
	EASEMENT	----	CLEAR	
	PROPERTY LINE	5'	5'	
	D-BOX	3'	3'	
	SIDEWALLS OF PITS	16'	16'	
	PIT BOTTOM TO GROUNDWATER	10'	10'	
	WATER SUPPLY LINES	10' laterally, 1' above leach line		
	ON-SITE DOMESTIC WATER SERVICE LINE		5' (UPC)²	
	PRESSURE PUBLIC WATER MAIN		10'(UPC)²	
	LEVEE (TOE) – CCR TITLE 23	10'	10'⁴	
SHALLOW TRENCH	TO: WATER WELL (DOMESTIC AND PUBLIC)	100'	100'	
	WATER WELL-PUBLIC			150'
	PUBLIC WATER SURFACE WATER INTAKE			1,200' and 400' High water mark**
	LAKE OR RESERVOIR	100'	200'	
	FLOWING STREAM OR CREEK	30'	100'	

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	Pre June 2010	Post June 2010	LAMP Requirements
PONDS³	----	100'	
DRAINAGE OR EPHEMERAL STREAM	25'	50'	
CURTAIN DRAINS - VERTICAL CURTAIN DRAINS			
UP-GRADIENT	----	20'	
DOWN-GRADIENT	----	50'	
CUT OR FILL BANK	25'	4 x the height of the bank, to a maximum of 50'	
STRUCTURES¹			
EASEMENTS	----	CLEAR	
PROPERTY LINE	5'	5'	
D-BOX	----	3'	
LEACH LINE ON CENTER	10'	10'	
TRENCH BOTTOM TO GROUND WATER	----	5'	
WATER SUPPLY LINES	10' laterally, 1' above leach line		
ON-SITE DOMESTIC WATER SERVICE LINE		5' (UPC)²	
PRESSURE PUBLIC WATER MAIN		10' (UPC)²	
LEVEE (TOE) – CCR TITLE 23	10'	10'⁴	
DEEP TRENCH TO:			
WATER WELL (DOMESTIC OR PUBLIC)	100'	150'	
WATER WELL - PUBLIC			200'
PUBLIC WATER SURFACE WATER INTAKE			1,200' and 400' from high water mark**
LAKE OR RESERVOIR	200'	200'	
FLOWING STREAM OR CREEK	30'	100'	
PONDS³	----	100'	
DRAINAGE OR EPHEMERAL STREAM	25'	50'	
CURTAIN DRAINS - VERTICAL CURTAIN DRAINS			
UP-GRADIENT	---	20'	
DOWN-GRADIENT	----	50'	

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	Pre June 2010	Post June 2010	LAMP Requirements
CUT OR FILL BANK	25'	4 x the height of the bank, to a maximum of 50'	
STRUCTURES¹	10'	5'	
EASEMENTS	----	CLEAR	
PROPERTY LINE	5'	5'	
D-BOX	----	3'	
TRENCHES ON CENTER	10'	10'	
TRENCH BOTTOM TO GROUNDWATER			
<15' DEEP	5'	5'	
>15' DEEP	10'	5'	
WATER SUPPLY LINES	10' laterally, 1' above leach line		
ON-SITE DOMESTIC WATER SERVICE LINE		5' (UPC)²	
PRESSURE PUBLIC WATER MAIN		10' (UPC)²	
LEVEE (TOE) – CCR TITLE 23	10'	10'⁴	

*Setbacks to public water wells less than 600 ft and greater than 20 ft in depth requires a 2-year travel time for microbiological contaminates shall be evaluated.

** If located 1,200 to 2,500 ft the dispersal field can be reduced to 200 ft from the high water mark.

1. Includes foundation lines for any structure including garages, out-buildings, in-ground swimming pools, porches, steps, breezeways, etc. (SCC 6.32, 2010 UPC).
2. Setback is for parallel construction. EMD approval required when crossing lines (1' above may be option).
3. Ponds less than 5000 gallons exempt from setback.
4. Verify setback requirement with applicable reclamation district.

CHAPTER 17 – GENERAL OWTS INSTALLATION REQUIREMENTS

- A. Septic tanks must be installed on a level, stable base of either pea-gravel or sand.
- B. Septic tanks located in high groundwater areas must incorporate anti-buoyancy measures to prevent flotation.
- C. All septic tanks must be installed with watertight risers extending to finished grade. Grading of the surrounding soil shall facilitate drainage away from the riser.
- D. Septic tanks must be installed in a location that provides access for servicing and pumping.
- E. Systems shall not be installed when moist or wet conditions cause trench sidewall or bottom area degradation of

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- soil structure and porosity (appears as smearing and compaction).
- F. Each disposal field trench will have disposal piping that is centered horizontally in the trench.
 - G. Disposal field trenches must be installed on contour.
 - H. Prior to backfilling, the trench drain rock must be covered with either filter fabric untreated building paper or a minimum of 2 inches of compacted straw.
 - I. Backfill must be carefully placed to prevent damage to the system.
 - J. Backfill must be native soil free of large stones, masonry, stumps, waste construction materials, or other materials that could damage the system.
 - K. All distribution boxes must be bedded on a level concrete base.
 - L. Observation ports, as approved by the Department, shall be installed at the end of each disposal field trench or in each leaching pit.
 - M. Adequate erosion control measures must be utilized at all times which conforms with applicable County regulations.
 - N. Slope of Lines
 - 1. Tight line from the house (4 inch diameter pipe) to the tank must maintain a 1/8 to 1/4 inch drop per running foot (1% to 2% slope). 2-45 degree fittings and a cleanout shall be installed when a step-down is necessary. The step-down is to be located as close to the house and as far from the septic tank as possible to avoid unnecessary turbulence in septic tank.
 - 2. Tight line from the septic tank to a distribution box or pump tank must be level with positive flow to the perforated drain laterals.
 - 3. Perforated disposal field laterals shall have a maximum allowable fall of 1 inch per 10 feet. An end cap must be installed on each lateral. Lateral pipe shall be rotated so that perforations are at the 5:00 and 7:00 position.
 - O. In such cases where a trench excavation could act as a conduit for surface or ground water movement between system components, the trench must be backfilled with sufficiently restrictive material (such as clay) to prevent such flow. Disposal field lines shall be installed on contour.

CHAPTER 18 – STANDARD SYSTEM REQUIREMENTS

A standard system is an OWTS that consists of a septic tank, distribution box, and distribution disposal field which terminates into a shallow trench, deep trench, or seepage pits. Standard systems utilize either gravity to facilitate the movement of effluent from the septic tank, or a pressure-dosed system (without pre-treatment) that pumps the effluent to the distribution disposal field.

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A. Site Requirements

1. Soils in the primary and replacement disposal field area must allow a minimum vertical separation of 5 feet between trench bottom and groundwater or a restrictive soil layer. In the case of seepage pits, 10 feet of separation between the seepage pit bottom and groundwater is required.
2. Site conditions cannot be modified in any way that could negatively affect the operation of the system.
3. The site cannot be located on an unstable landform that could adversely affect the operation of the system.
4. The site of the disposal field and disposal field replacement area cannot be covered by asphalt, concrete, or permanent structure unless site constraints allow no other feasible alternative. The Department may allow for the placement of asphalt or concrete over seepage pits or deep trench disposal fields if no alternative is possible.
5. The site of the disposal field and disposal field replacement area must not be subject to activity associated with vehicular traffic, corrals, pens, riding arenas or other consolidation of livestock, or any activity that could adversely affect the soil or integrity of the system. The Department may allow such activities over seepage pits or deep trench disposal fields if no alternative is possible.
6. The slope of the ground in the disposal field and disposal field replacement area shall not exceed 30% for a standard gravity system. In cases where the slope exceeds 30%, the Department may consider a design prepared by a qualified professional.

B. Effluent Distribution

1. Level Sites

- a. Disposal fields requiring two or more laterals require the use of a distribution box to ensure equal distribution.
- b. Risers shall be installed at the end of each lateral to allow for monitoring of each line. Caps shall be placed on the top of each riser.
- c. Distribution boxes shall be leveled with water to ensure the effluent flow is equal to each leach line, trench, or seepage pit. Equalization devices for distribution boxes are recommended.

2. Sloped Sites

- a. Effluent shall be distributed equally among each lateral using a distribution box(es). Disposal field lines shall be installed on contour.

C. Pump Systems

When a lift pump is required to assist gravity disposal to a leach field that is upslope of the structure to be

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served, the following additional requirements apply:

1. The pump chamber may be either:
 - a. The second compartment of a two compartment septic tank provided:
 - i. The septic tank is a minimum of 1,500 gallons;
 - ii. The wall separating the two compartments of the tank is equipped with a properly positioned sanitary "T" to prevent the discharge of sludge or scum into the second compartment that is utilized as the pump chamber;
 - iii. The wall separating the two tank compartments has the structural integrity to allow the first compartment to remain full while the second compartment is empty; or
 - b. A separate pump tank that meets the requirements specified in this Manual.
2. The pump intake must be provided with a screen.
3. The pump tank (or second compartment of the septic tank) must have a capacity sufficient to deliver the design dose, and have a minimum additional storage capacity of one day's capacity above the high level alarm.
4. Each tank (septic, pump) must be installed on a stable level base, generally consisting of three inches of pea gravel or sand.
5. Each pump tank must be provided with a watertight riser extending to ground surface or above, with a minimum inside horizontal measurement equal to or greater than the tank access manhole. Provisions must be made to secure the manhole cover to prevent unauthorized access.
6. Pump tanks in high groundwater areas must be weighted or provided with an anti-buoyancy device to prevent flotation per the manufacturer's recommendations and as required by this Manual.
7. The purpose of a pump and pump basin is to address the issue of plumbing elevation differences for a section of a residence, or to accommodate a remote bathroom or outbuildings. In these cases:
 - a. A pump basin with a pump may be utilized when the servicing toilet (residential only) is not the sole toilet utilized by the residence.
 - b. A solids handling pump, rather than a grinder pump, must be used and must pump directly into the septic tank and extend 4 inches. The pump basin must be a minimum of 10 feet from the septic tank.

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D. Shallow Trench Design Requirements

1. Shallow trenches must be constructed in accordance with the following standards, unless otherwise specified:
 - a. Length maximum: 100 feet
 - b. Bottom width minimum: 18 inches
 - c. Bottom width maximum: 36 inches. Wider excavations may be considered by the Department on a case-by-case basis
 - d. Depth: 18-60 inches
2. Minimum distance of undisturbed soil between shallow trenches shall be 10 feet, on center.
3. Shallow trenches must have a minimum of 12 inches of backfill over the installed drain rock.
4. Drain rock shall extend the full width and length of the disposal field trench. There shall be at least 6 inches of drain rock under the distribution pipe and at least 2 inches over the distribution pipe.
5. A soil barrier must be placed on top of the drain rock to exclude fines. The barrier will consist of filter fabric, straw, or untreated building paper.
6. Inspection ports must be installed at the end of each shallow trench as follows:
 - a. Each inspection port must extend to the finished grade.
 - b. The ground surrounding the inspection port must be graded so that surface water does not accumulate adjacent to the port.
 - c. The inspection port must be capped to prevent tampering and vector intrusion.
 - d. Inspection ports must have a minimum diameter of 4 inches.
 - e. A proposal from the registered professional for fewer inspections ports may be accepted by the Department if the proposed number and placement will allow for the observation of the conditions of each leach line lateral.

E. Capping Fill

A capping fill system is a system utilizing a disposal field where the effective absorptive sidewall area originates at the ground surface. This type of disposal field requires cover (cap) of approved soil to be placed over the disposal field rock to achieve the same level of public health protection as a properly designed shallow disposal field. A capping fill system is effective for areas with shallow groundwater or restrictive soils.

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1. Capping fill systems must be constructed in accordance with the following standards:
 - a. Length maximum: 100 feet
 - b. Bottom width minimum: 18 inches
 - c. Bottom width maximum: 36 inches. Wider excavations may be considered by the Department on a case-by-case basis
 - d. Depth: 0-36 inches
2. Minimum distance of undisturbed soil between shallow trenches shall be 10 feet, on center.
3. Shallow trenches must have a minimum of 12 inches of backfill over the installed drain rock.
4. Drain rock $\frac{3}{4}$ " to 2 $\frac{1}{2}$ " washed cleaned non-reactive gravel shall extend the full width and length of the disposal field trench. There shall be at least 6 inches of drain rock under the distribution pipe and at least 2 inches over the distribution pipe.
5. A soil barrier must be placed on top of the drain rock to exclude fines. The barrier will consist of filter fabric meeting the minimum specifications outlined in this Manual.
6. Inspection ports must be installed at the end of each shallow trench as follows:
 - a. Each inspection port must extend to the finished grade.
 - b. The ground surrounding the inspection port must be graded so that surface water does not accumulate adjacent to the port.
 - c. The inspection port must be capped to prevent vandalism and tampering.
 - d. Inspection ports must have a minimum diameter of 4 inches.
 - e. A proposal from the designer for fewer inspections ports may be accepted by the Department if the proposed number and placement will allow for the observation of the conditions of each leach line lateral.
7. Capping criteria
 - a. The soil used for the cap must be approved by the Department and be equivalent to the native top-soil at the project site or one textural class finer.
 - b. All vegetation shall be removed from the disposal field site and the soil scarified parallel to contours no deeper than 6 inches.
 - c. The soil cap shall extend a minimum of 5 feet beyond exterior trench boundaries in all directions.

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- d. The site must be landscaped for erosion control in accordance with those requirements found in the “Mound” section of this Manual.
- e. Pressurized capping fill systems must also comply with the requirements for pressure dosed systems as described in this Manual.

F. Deep Trench Design Requirements

Disposal field trenches greater than 36 inches in depth will be subject to the following additional requirements:

- 1. The designer must determine the depth of any seasonal groundwater
- 2. The system will be sized based on the texture and/or percolation rate of the most restrictive soil in the bottom of the trench.
- 3. The minimum disposal field trench spacing within a disposal field shall be 10 feet, on center.

G. Gravelless Disposal Field Design Requirements (Exclusive of Subsurface Drip Dispersal Systems)

1. General Requirements

- a. The use of a gravelless disposal field will not provide for a reduction in the minimum surface area requirements established in the Sacramento County On-Site Wastewater Management Ordinance.
- b. The use of gravelless disposal fields will not reduce the wastewater system sizing or the requirement for an additional 100% of the disposal field area reserved for system repair.
- c. Wastewater from residential sources must receive pretreatment at least equal to that provided in a conventional two-compartment septic tank, before discharge to a gravelless disposal field.
- d. Disposal fields using gravelless distribution products must be installed according to the manufacturer's instructions, in a manner that is consistent with these guidelines and with state and local regulations.

H. Seepage Pit Requirements

A seepage pit is a drilled, rock-filled excavation installed to allow disposal of effluent from a septic tank or other OWTS. When an OWTS with a seepage pit component is proposed, the following requirements apply:

- 1. New OWTS incorporating seepage pits cannot be installed:
 - a. If a parcel can support a standard gravity-flow leach line system; or
 - b. When the site meets the requirements for other shallow standard system types described in this Manual.

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2. Seepage pits must be a minimum of 36 inches in diameter.
3. The seepage pit must be filled with 1½"- 4" drain rock, up to the concrete collar, or with other drain rock approved by the Department. The drain rock must be washed clean so as to be free of debris and dirt.
4. The concrete collar must be a minimum of 4 inches thick.
5. A system with multiple pits must be designed so that effluent is equally distributed to each pit within the system. Equal distribution shall be achieved with the use of single or multiple distribution boxes.
6. Seepage pit header pipe inlets, risers, and collars must be watertight.
7. The minimum spacing between seepage pits shall be 16 feet of undisturbed soil, sidewall to sidewall.
8. Proposals for seepage pits that are utilized for new construction shall include the following:
 - a. At least one exploratory boring must be advanced to groundwater or ten (10) feet below the proposed design depth of the pits, whichever comes first. The boring must be advanced in the lowest area of the proposed disposal area in order to evaluate soils. Additional borings may be required at the discretion of the Department to determine the suitability of the site for seepage pit disposal fields.
 - b. At the discretion of the Department, seasonal groundwater monitoring data may be required to assure a vertical separation of 10 feet between pit bottom and groundwater on a year-round basis.
 - c. Unless otherwise approved by the Department, the depth of a seepage pit must be a minimum of 20 feet and a maximum of 40 feet deep.
 - d. When evaluating the effective pit sidewall area, soil types A-D, with or without gravel, may be considered capable of supporting effective wastewater disposal.
 - g. An acceptable test boring will have a cumulative minimum 10 foot column of effective soil (soil types A-D)
 - h. The seepage pit design shall be a minimum of 1 pit per bedroom and no more than 2-pit per bedroom. In no instance shall there be less than two pits installed for any system.
 - i. The seepage pit system must be designed by a registered professional.
9. Requirements when seepage pits are utilized for a system repair
 - a. On a case-by-case basis, the Department may allow for exceptions to the requirements specified in this Manual in order to facilitate a timely repair.

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CHAPTER 19 – PRESSURIZED DISTRIBUTION SYSTEM REQUIREMENTS

A. Pipe, Valves, and Fittings

1. All pressurized disposal pipes and fittings, including transport lines, manifolds, laterals and fittings, must be adequately sized for the design flow.
2. Pressurized transport piping must be uniformly supported along the trench bottom (shaded), and at the discretion of the Department must be bedded in sand or other approved material.
3. The ends of lateral piping shall have 90 degree long sweeps with threaded caps housed in valve boxes that accommodate threaded plugs or caps.
4. All joints in pressurized disposal manifolds, lateral piping, transport piping, and fittings must be solvent welded using the appropriate solvent for the pipe material;
5. A gate valve or ball valve must be placed on the pressurized transport pipe inside or outside of the pump riser, in or near the dosing tank.
6. A check valve must be placed between the pump and the gate valve. A check valve is not required if the pump has an internal check valve. All check valves and gate valves must be in a protected and accessible location for maintenance and repair.
7. An anti-siphon valve must be placed between the pump and leach field when the leach field is down slope of the pump.
8. All valves must be placed in protective boxes accessible for maintenance from the surface.

B. Dosing Tanks

1. The capacity of the tank must be sufficient to deliver the design dose, including additional storage capacity of one day's design flow above the high level alarm. The liquid capacity must be measured from the invert elevation of the inlet fitting to the bottom of the tank.
2. Duplex alternating pumps may be required by the Department for specific installations (e.g. large systems approved for commercial facilities)
3. The dose volume must be calculated to effectively achieve equal distribution throughout the system. Dose volume must be sufficient to disperse the dose.

C. Dispersal Trenches

1. The top of the drain rock must be covered with filter fabric straw, or untreated building paper.
2. A minimum of 12 inches of backfill is required over the filter material within the disposal field trench.

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D. Hydraulic Design

1. Orifices shall have a minimum diameter of 1/8 inch (or per manufacturer's specs) and be evenly spaced at a distance between 2 and 6 feet. Orifices other than 1/8 inch shall be evaluated by the Department on a case-by-case basis due to design constraints related to dose volume, effluent quality, and dispersal field size.
2. There must be a minimum of 2 psi at the orifice farthest from the manifold and no more than a 10% head variation within a disposal field trench.
3. The effect of back drainage of the pressurized disposal system must be evaluated for its impact on the dosing tank and system operation.

E. Installation

1. Pressurized disposal lateral orifices must be covered with shields to prevent soil washout.
2. Lateral piping must be installed in the center of the trench and be level to within 2 inches per 100 feet.
3. Inspection ports must be placed at the end of each pressurized disposal lateral within the disposal field trench as described in Chapter 27 of this Manual.
4. Each dosing tank must be installed on a stable, level base.
5. Each dosing tank shall be provided with risers to grade as described in this Manual.
6. Dosing tanks located in high groundwater areas must be weighted or provided with an anti-buoyancy device to prevent flotation as per the manufacturer's recommendation, and as required in of this Manual.

F. Sloping Sites

1. Ball or gate valves or flow restrictors must be installed on each pressurized disposal lateral to facilitate regulation of flow within each lateral.
2. The Department will inspect the pressurized disposal system for verification of hydraulic head over the pressurized disposal laterals ("squirt test").
 - a. Water and a source of electricity must be available for this inspection.
 - b. Photographic documentation of the pressure test may be accepted by the Department on a case-by-case basis.
 - c. Where site conditions preclude the entire disposal field being left open for the pressure test, the Department may allow a portion of the trenches to be covered prior to the test and observe the pressurized flow at the distal end of each lateral.

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CHAPTER 20 – SUBSURFACE DRIP DISPERSAL REQUIREMENTS

Subsurface Drip Dispersal is a method of dispersing wastewater uniformly over a large area by using numerous emitters installed at a shallow depth and very small doses.

- A. Supplemental treatment is required prior to dispersal utilizing subsurface drip irrigation.
- B. Minimum depth of drip line must be 6 inches.
- C. Subsurface drip dispersal systems must be designed, installed and managed to provide even distribution and un-saturated subsurface flow.
- D. All subsurface drip dispersal system materials must be warranted for use with wastewater by the manufacturer and be resistant to clogging from materials such as solids, bacterial slime (biomat) and roots.
- E. Fittings for drip line connections to the distribution and flush manifolds must be used per the manufacturer's recommendations.
- G. The subsurface drip dispersal system must be designed in a configuration that prevents effluent from flowing to the lowest area of the field when the pump shuts off or when the system flow depressurizes.
- H. A minimum velocity of 2 feet per second (or per manufacturer's specs) for field flushing of the laterals is required.
- I. All subsurface drip dispersal systems must be designed with a dosing controller to be used for automatic field flushing, zone alternating, dose frequency, dose volume and back-flushing of the filters.
- J. Filter flushing may be either automatic or manual.
- K. All subsurface drip dispersal systems must be designed with a bypass line to facilitate field flushing.
- L. All subsurface drip dispersal systems must be designed with filters to remove particles of 100 microns or larger.
- M. All subsurface drip dispersal systems must be designed with air relief valves placed at the highest point on both supply and return manifolds.
- O. Sizing criteria must be based on the manufacturer's recommended hydraulic loading rates.
- P. All subsurface drip dispersal systems must be installed by licensed installers, specifically trained in the installation of subsurface drip dispersal systems. Proof of the required training may be provided in the form of a certification or letter from a qualified trainer.
- Q. Installation of the subsurface drip dispersal system must be completed per the manufacturer's specifications.

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CHAPTER 21 – SUPPLEMENTAL TREATMENT SYSTEM REQUIREMENTS

Supplemental treatment systems are advanced on-site wastewater treatment systems that provide a specified level of wastewater treatment prior to release of effluent to the disposal field. Supplemental treatment may be required in areas where there is concern for surface and groundwater quality, a need for increased protection to public health, or other conditions where a cleaner effluent is required prior to release to the disposal field.

A. Supplemental Treatment Components

1. Supplemental treatment components must be designed to meet the Biological Oxygen Demand (BOD) and Total Suspended Solids (TSS) concentrations indicated below. Where nitrogen is identified in the RWQCB basin plan as a water quality concern, the following nitrogen effluent concentration must be achieved:
 - a. 30-day average BOD concentration will not exceed 30 milligrams per liter (mg/L), or alternately, a carbonaceous BOD (CBOD) in excess of 25 mg/L
 - b. 30-day average TSS concentration will not exceed 30 mg/L
 - c. 30-day average Total Nitrogen (TN) concentration will not exceed 10 mg/L as nitrogen
 - d. Total Coliform, if required by an applicable Operation and Management Plan (O&M Plan), must be less than 10,000 Most Probable Number (MPN) per 100 milliliters.
2. Testing to comply with these performance standards must be conducted based on effluent analyses with the following minimum detection limits:

<u>Parameter</u>	<u>Detection Limit</u>
BOD	2 mg/L
TSS	5 mg/L
Total Nitrogen	1 mg/L

B. Disinfection Components

1. Add-on components performing disinfection must be designed to achieve a total coliform bacteria effluent concentration at the 95th percentile, not to exceed the following:
 - a. 10 MPN per 100 ml prior to discharge into the dispersal field, where the soils exhibit percolation rates of 1-10 minutes per inch or where the soil texture is sand, or
 - b. 1,000 MPN per 100 ml prior to discharge into the dispersal field where the soils exhibit percolation rates greater than 10 minutes per inch or consist of a soil texture more restrictive than sand.

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2. Effluent from supplemental treatment must be tested quarterly using an analytical method capable of achieving a minimum detection limit of 2.2 MPN total coliform. Such systems must be maintained to comply with the applicable performance requirements during operation/lifetime of the system.
- C. Where feasible, as determined by the Department, supplemental treatment components must be equipped with a telemetric alarm that notifies the owner and O&M Specialist in the event of system malfunction.
- D. All supplemental treatment systems must disperse effluent under pressure, except where seepage pits are utilized following the specifications of Chapter 18.
- E. All supplemental treatment systems must be designed by a registered professional and installed by licensed installers with specific training in the installation of the type of system utilized. Proof of the specified training by way of certification or a letter from an approved trainer is required.
- F. All supplemental treatment systems must maintain a current Operating Permit and be periodically inspected and monitored by a certified O&M Specialist, as required in the OWTS Ordinance and Part 3 of this Manual.
- G. Supplemental treatment systems in lieu of standard systems
- H. When a disposal field site is utilized that meets the criteria described above, nothing will preclude the applicant from opting to use a supplemental treatment system in lieu of a standard system.
- I. When siting an OWTS, the disposal field must be located, whenever possible, on that portion of the parcel with a minimum vertical separation of 36 inches to groundwater, underlain by soil groups B, C, or D, and having a percolation rate of 1-60 minutes per inch.

CHAPTER 22 – SINGLE-PASS SAND FILTER REQUIREMENTS

A. Influent Wastewater Strength

1. Single-pass sand filters are designed for treating residential strength wastewater. The wastewater applied to the single-pass sand filter must not be higher in strength than 220 mg/l BOD5 or 145 mg/l TSS). Lesser wastewater strengths, without increased flow rates, are preferable for assuring long term operation of a single-pass sand filter system. High-strength wastewater shall require pre-treatment in order to reduce its strength prior to introduction into a single-pass sand filter and the soil dispersal component.

B. Daily Wastewater Flow-Design Estimates

The minimum wastewater design flow shall be as specified in Chapter 12 of this Manual.

C. Locational Requirements

1. The minimum setback requirements for closed-bottom single-pass sand filters will be the same as those for septic tanks.

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2. The minimum setback requirements for open-bottom single-pass sand filters will be the same as those for a standard gravity drain-field or leach bed.

D. Design Standards

1. Media Specifications

Filter media must meet the specifications outlined in Chapter 27 of this Manual.

2. Filter Bed Sizing

Loading Rate - The loading rate to the sand filter must not exceed 1.0 gallon/day/square foot, using a maximum daily wastewater flow design estimate.

3. Depth of Media

The media depth must be a minimum of 24 inches.

4. Filter Bed Containment

The filter bed is contained either in a flexible membrane-lined excavation as specified in Chapter 27 of this Manual, or in another containment vessel approved by the Department.

5. Wastewater Distribution

- a. Pressure distribution - Pressurized disposal is required within the sand filter for dispersal of sand filter treated effluent, and must comply with the requirements for pressurized disposal as specified in Chapter 20 of this Manual.
- b. Wastewater Application to the Filter Bed -The wastewater must be applied to the layer of drain rock atop the filter media as specified in Chapter 19 or sprayed upward against the top of gravelless chambers.

6. Minimum Dosing Frequency

Timed dosing system is required. The dosing frequency or dose volume is dependent on the media specification used with the sand filter.

F. Installation

1. Containment must be structurally sound and have sufficient geometric and dimensional integrity to protect the liner.
2. To prevent differential settling when the sand filter is put into service, the density of the filter media must be uniform throughout.

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3. A geotextile filter fabric must be placed on top of the gravel bed.
4. The cover must consist of no greater than one foot of soil. The cover soil must be capable of:
 - a. Maintaining vegetative growth while not impeding the passage of air (sandy loam or coarser);
 - b. Be contoured and landscaped in order to shed water, control erosion and to prevent surface drainage onto the sand filter;
 - c. Plant cover must be shallow root vegetation as generally described in the system design and operation and maintenance manual.
5. Observation and monitoring ports: 2-observation/ monitoring ports must be installed in the sand filter. One observation/monitoring port must be installed at the interface between the bottom of the drain rock and the top of the media. A second observation/monitoring port must be installed to the bottom of the underdrain. The pump chamber may be used as the second observation port.
6. Liner patches, repairs and seams shall have the same physical properties as the parent material.
7. Site considerations and preparation

The supporting surface slopes and foundation to accept the liner shall be stable and structurally sound, including suitable compaction (per design specs).
8. Addition of soil stabilizers such as cementitious or chemical binding agents shall not adversely affect the membrane.
9. Construction and installation
 - a. Sand filters shall be installed per the registered professional's design specifications. At a minimum, the bottom of the excavation shall be graded, to provide a sloping liner surface, from the outer edge of the filter toward the point of underdrain collection. The slope must be equal to 8 inches fall overall or one inch of fall per foot of run, whichever is the greatest.
 - b. The sides of the excavation shall be smooth and free of possible puncture points.
 - c. Watertight boots shall be bedded in sand and installed in accordance with manufacturer's specifications.
 - d. Liner placement
 - i. Liners shall be installed in accordance with manufacturer's specifications, which may include:
 - (1) Temperature or precipitation
 - (2) Sand bedding
 - (3) Sealant type and procedure for use
 - (4) Liner size

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- (5) Transport, handling, and storage
 - (6) Deployment of panels
 - (7) Anchoring of liner edges
 - (8) Field seaming when necessary
 - (9) Field repairs
- ii. Site inspection

A site inspection shall be carried out by the registered professional and the licensed installer prior to liner installation to verify surface conditions and adherence to manufacturer's and designer's specifications.

- iii. Final inspection and acceptance

Completed liner installations shall be visually checked for punctures, rips, tears and seam abnormalities before placement of any backfill. At this time the licensed installer shall also manually check all factory and field seams with an appropriate tool. Other tests as recommended by the manufacturer may be used in lieu of, or in addition to, manual checking of seams by the licensed installer.

CHAPTER 23 – MOUND SYSTEM REQUIREMENTS

A. Influent Wastewater Strength

Mound systems are designed for treating residential strength wastewater. The wastewater applied to the mound system shall not exceed 220 mg/l BOD5 or 145 mg/l TSS). Lesser wastewater strengths, without increased flow rates, assure long term operation of a mound system.

B. Daily Wastewater Flow -Design Estimates

The minimum wastewater design flow shall be as specified in Chapter 12 of this Manual.

C. Setback Requirements

The minimum setback requirements from the toe of the mound system will be the same as those for a standard gravity disposal field or leach bed.

D. Design Standards

1. Minimum Effective Soil Depth

Mound systems must be located on a minimum of 18 inches of undisturbed, unsaturated, native soil.

2. Media Specifications

- a. Filter media must meet the specifications outlined in Chapter 27 of this Manual.

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- b. To prevent differential settling when the mound is put into service, the density of the filter media must be uniform throughout.

3. Application Rates

- a. The application rate for the mound infiltration area (gravel bed) must not exceed 1.0 gpd/ft² (source USEPA Onsite Wastewater Treatment Systems Manual, Table 4-3)
- b. The application rate for basal area shall be based on soil type.

4. Minimum Dosing Frequency

A timed dosing system is required. The registered professional shall determine the dosing frequency or dose volume based on the filter media specifications.

E. Installation

- 1. Unless otherwise specified in this Manual, mound systems shall be installed following the procedures and specifications delineated in the *Mound System Manual*, in its current final draft form or as hereafter adopted and updated by the State Water Resources Control Board (SWRCB). Copies of the *Mound System Manual* will be maintained and provided by the Department.
- 2. Cap and Topsoil Depth
 - a. The cover soil must be capable of:
 - i. Maintaining vegetative growth while not impeding the passage of air (sandy loam or coarser);
 - ii. Be contoured and landscaped in order to shed water, control erosion and to prevent surface drainage onto the sand filter.
 - b. The final settled depth of the cap and topsoil shall be no less than 12 inches above the center and 6 inches above the outer edge of the bed. Additional depth of topsoil may be needed during final construction activities to assure that the minimum depths are achieved following natural settling of the soil.
 - c. Erosion control measures must be implemented to maintain the integrity of the mound.

F. Mound Placement on Slopes

- 1. On sloping sites, the mound must be aligned with its longest dimension parallel along the site contours to facilitate equal distribution throughout the mound and prevent excessive saturation of effluent in a small section of the mound.
- 2. The mound must not be designed or constructed so that it is perpendicular with the contours.

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3. The infiltration bed must be as long and narrow as possible to ensure all effluent percolates into the native soil before it reaches the toe of the filter media.
4. If the site does not permit the design of a "long and narrow" mound along the contours of the site, other OWTS and dispersal technology must be selected. Mound systems are only suitable for sites where all of the design and siting criteria can be satisfactorily met.

G. Effluent Dispersal within Mound

A method for providing uniform distribution with timed dosing throughout the bed in the filter media is required, either through use of pressure distribution as specified in Chapter 19 of this Manual, or through use of subsurface drip dispersion, as specified in Chapter 20 of this Manual.

H. Monitoring and Observation Ports

Each mound shall have a minimum of two monitoring and observation ports, one placed in the infiltration bed down to the gravel/sand, and one down-slope from the bed down to the sand/native soil interface. Unless otherwise specified in this Manual, down-gradient observation and monitoring ports shall be installed as specified in the *Mound System Manual* (SWRCB) in its current final draft, or as adopted and updated by the SWRCB.

I. Protection of Mound System Placement Area

The registered professional will be responsible for the adequacy of, and the installer's substantial compliance with, the approved construction plan. The construction plan must include best management practices for protecting the area where the mound is to be located:

CHAPTER 24– USE OF ENGINEERED FILL

A. Pre-Treatment

Wastewater discharged into engineered fill will have supplemental treatment (Chapter 24) meeting the effluent specifications described below.

B. Site/Fill Evaluation

1. The primary and replacement disposal field area will be analyzed by a registered professional to assure that breakout of wastewater will not occur outside the boundaries of the disposal area.
2. Site preparation and placement of fill must be under the direct supervision of a California professional civil engineer (P.E.).
3. The engineered fill area shall be evaluated for the presence of winter groundwater when site conditions or previous groundwater monitoring results indicate the seasonal groundwater level may be less than two feet below original grade.

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C. Native Receiving Soil

1. Native soil depth shall be a minimum of 18 inches (after removal of the organic top soil layer) in all areas of the proposed disposal field and repair area.
2. If the limiting layer consists of material coarser than sand or fractured material, the registered professional shall demonstrate that saturated soil conditions will not form at the soil/limiting layer interface due to capillary forces.

D. Fill Material

1. Fill shall compensate for the lack of in-place soil at a 1.5 to 1 (1.5:1) ratio so that a one foot deficiency in soil column depth shall require 1 ½ feet of fill. A minimum of 12 inches of compensating fill shall be required.
2. Fill will be engineered to the specifications of loamy sand with no more than 15% fines (clay and silt). At least 75% of fill material shall pass a 2 mm sieve. Any sieve analyses falling outside of a loamy sand specification (USDA Soil Classification) shall be cause for rejection of such fill material. A minimum of two sieve analyses shall be conducted prior to placement to test for oversize material.
3. Engineered fill shall be evaluated after stabilization by the Department and supervising registered professional for adequate permeability and percolation. At least 3 percolation tests shall be performed in the consolidated fill material after placement. Post- stabilization fill must have a percolation rate between 5 and 60 minutes per inch (mpi).
4. All organic material and material over 1" in diameter shall be removed from fill.

E. Dispersal

1. Supplemental treatment shall be dispersed by drip disposal at a maximum application rate of 0.2 gallons/square foot-day.
2. The drip line layout design shall be reviewed by a registered professional.
3. The emitters will be placed at the top of the compensating fill layer with an additional 12 inches of cover material over the emitters.
4. The use of engineered fill for standard gravity flow systems may be approved by the Department on a case-by-case basis.

F. Construction

1. The slope of the area to receive engineered fill shall not be greater than 20% unless a slope stability analysis conducted by a PE is performed.
2. Fill shall be as dry as possible during placement to prevent excessive compaction.

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3. An initial fill lift of 6 inches shall be blended into the scarified native soil. Subsequent lifts of fill shall be no greater than 6 inches. The top 2 to 3 inches of each subsequent lift shall be scarified prior to addition of each subsequent lift.
4. After placement, soil shall be consolidated by a means chosen by the PE. Examples include, but are not limited to:
5. Light compaction by tracked equipment,
6. Allowing the soil to consolidate naturally over a rainy season or,
7. Watering with at least enough water to saturate the estimated pore volume of the fill.
8. Side slopes shall be a 3 to 1, (3:1) slope. A registered professional may propose shallower slopes for less permeable soils. The side slopes shall begin 48 inches from any dispersal line.
9. After the fill is placed and approved, the fill shall be crowned with a loam or sandy loam soil type to create a final cap. The fill cap shall be seeded with shallow rooted grass. Seeded areas shall be watered as necessary to establish and maintain vegetation.
10. The toes of the fill material shall remain accessible and visible with no vegetation taller than 2 inches in height.
11. Each system shall be provided with an acceptable method for evaluating system function, as approved by the Department.

CHAPTER 25 – PROPRIETARY SUPPLEMENTAL TREATMENT SYSTEM REQUIREMENTS

A proprietary supplemental treatment provides treatment of wastewater by exposing the effluent to a contact medium under aerobic conditions in a self-contained enclosure.

- A. Proprietary supplemental treatment systems must be designed to meet the level of treatment specified in Chapter 21 of this Manual. Disinfection may be required if the proprietary system does not meet the specified treatment level.
- B. Before the installation of any proprietary supplemental treatment OWTS, all proposed treatment components must be listed with the National Sanitation Foundation (NSF) or IAPMO approved, unless otherwise approved by the Department.
- C. Installation of a proprietary supplemental treatment system must be performed by a registered professional, certified by the proprietor and accepted by the Department.

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CHAPTER 26 – NON-STANDARD, NON-SUPPLEMENTAL TREATMENT SYSTEM REQUIREMENTS

Non-standard, non-supplemental treatment systems are OWTS designed to address specific site and/or wastewater generation conditions. Examples include but are not limited to steep-slope systems, commercial systems, holding tanks, seepage pits, vault privies, and portable toilets. Non-standard, non-supplemental systems are acceptable for use on existing lots only; such systems are not suitable for use in the creation of new lots.

A. Steep Slope Systems

When the site's ground slope in the disposal field area exceeds 30%, the following additional requirements and restrictions will apply:

1. A registered professional shall design the system.
2. Steep slope systems are not permitted for the creation of new parcels.
3. Steep slope systems for existing parcels may only be developed in conformance with the county General Plan, zoning restrictions, recorded restrictions and notes on the subdivision or parcel map, and other applicable county requirements.
4. For purposes of determining effective soil depth and vertical separation, the depth of limiting layer beneath the bottom of the trench must be measured from the upslope side of the disposal field trench bottom
5. The maximum trench width shall not exceed 24 inches.
6. The registered professional shall provide verification of slope stability prepared and stamped with a wet seal by a civil engineer.
7. The OWTS must utilize pressurized or subsurface drip dispersal only.

B. Non-Residential Systems

1. A registered professional shall design the system.
2. High strength waste is prohibited.
3. For projected daily sewage flows up to 1,500 gallons, the septic tank shall have a liquid capacity equal to at least one and a half days sewage flow.

CHAPTER 27 – MATERIALS

A. Main Building Sewer and Tight Lines

All main building sewer and tight lines must be plumbed with materials in conformance with building sewer standards as identified in the most recent version of the UPC adopted by the County of Sacramento. All main

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building sewer and tight lines must have a minimum diameter of 4" (3" is acceptable for modular homes or other structures that are plumbed with 3" lines during the manufacturing process).

B. Septic Tanks

1. General criteria

- a. Septic tanks shall be precast reinforced concrete or other material approved by the Department. Wood and metal tanks are prohibited. Cast-in-place concrete, fiberglass and polyethylene tanks may be considered if they are NSF listed or International Association of Plumbing and Mechanical Officials (IAPMO) approved. Tanks must have two compartments, divided into sections of 2/3:1/3, oriented with the largest compartment upstream of the distribution box or manifold.
- b. The manufacturer's name and tank capacity (gallons) must be permanently displayed on the uppermost portion of the tank so as to be easily readable. If the tank is constructed of fiberglass or polyethylene, the model number must also be displayed in a conspicuous location.
- c. Septic tanks shall be protected against flotation in areas subject to flooding or with high ground water conditions.
- d. Septic tanks shall be constructed and installed so as to be watertight.

2. Structural Integrity

- a. All tanks and treatment units, regardless of material or method of construction shall be designed and constructed to withstand anticipated earth loads according to manufacturer's specifications and warranties :
- b. Precast concrete tanks must have a minimum wall, compartment and bottom thickness of 3 inches, and must be reinforced. The top must be at least 4 inches thick.
- c. All tank construction joints shall be watertight and bonded together in a structurally sufficient manner so as to prevent separation at the bonded seam.

3. Risers

- a. Each tank compartment must be provided with an approved watertight riser extending to finished grade or above. Exceptions may be granted by the Department for tanks less than 12 inches below ground surface.
- b. All joints must be properly sealed with a sealant and/or an interlocking mechanism, as approved by the Department, to render the riser watertight to prevent infiltration of surface water into the tank. Sealing with cement grout alone is not an approved method of sealing joints.
- c. Surface water must be diverted away from the riser cover by creating a sloping surface away from the riser or by extending the riser a minimum of 2 inches above finished grade and grading

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the soil around the riser so that it slopes away from the riser in all directions.

- d. The cover must be securely fastened with stainless steel or other corrosion resistant fasteners to ensure the riser is tamper resistant. No cover may exceed 75 pounds.
- e. Risers must have a minimum inside horizontal diameter equal to or greater than the access manhole.
- f. A grate capable of preventing unintentional entry into the tank is required to cover the access manhole below inside any riser if the original concrete tank lids are to be permanently removed.

4. Tank Fittings

- a. The inlet and outlet fittings must be constructed of Schedule 40 PVC, Schedule 40 ABS, or other materials approved by the Department, with a minimum diameter of 3 inches.
- b. All fittings must be secured with a sealant approved by the Department and must be constructed to be watertight. Tank fitting locations must be properly engineered to ensure the structural integrity of the tank.
- c. The inlet fitting must be a sanitary "T" with minimum pipe diameter not less than the connecting building sewer or less than 3 inches. It must extend at least 4 inches above and 12 inches below the liquid level.
- d. The outlet fitting must be a sanitary "T" with minimum pipe diameter no less than 4 inches to accommodate an effluent filter. The outlet fitting must extend at least 4 inches above the liquid level and at least 12 inches below the liquid level and extend into the tank approximately equal to the flow level through the baffle.
- e. Unless otherwise specified by a registered professional, an effluent filter shall be installed prior to discharge of the effluent to the disposal field. It must be commercially designed and manufactured, intended for effluent filtration, and be readily accessible for inspection and cleaning.
- f. The invert of the inlet fitting must not be less than two (2) inches above the invert of the outlet fitting.
- g. Sanitary "T"s must be accessible and directly below the manhole access riser.
- h. Baffles must be equipped with a minimum 3 inches or greater diameter "T" fitting or baffle slot. The "T" fitting shall be located in the shared compartment wall, using the same material specifications as required for the outlet fitting. The invert of the "T" fitting or baffle slot must be located approximately fifty (50) percent into the liquid in the first compartment of the tank. A vent opening in the baffle wall above the liquid level shall be equivalent in size to the diameter of the main building sewer line. The baffle must be constructed of the same material as the tank and extend a minimum of 4" above the liquid level.

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C. Distribution Box

1. Distribution boxes must be constructed of concrete or other materials as approved by the Department.
2. Distribution boxes must be designed to accommodate all effluent lines. The top, walls, and bottom of concrete distribution boxes must be at least 1-1/2 inches thick.
3. Distribution boxes must be designed to be water tight.
4. Distribution boxes must be installed to provide equal distribution of effluent to the disposal field trenches or pits.
5. Each distribution box must be provided with a sump extending at least 1 inch below the invert of the outlets.
6. The size of each distribution box shall be a minimum of 12" x 12" with at least 3 inch of liquid depth. The flow line of the influent pipe shall be at least 1 inch above the flow line of the effluent pipe(s).
7. Proposals for the use of new or revised distribution box designs will be reviewed by the Department on a case-by-case basis. All proposals shall include written documentation verifying that the box design, materials and construction are NSF listed, IAPMO approved, and/or comply with requirements of the most recently adopted version of the Uniform Plumbing Code.
8. All distribution boxes must be installed level on Department approved bedding material. Approved plastic distribution boxes shall be bedded in concrete.

D. Diversion Valve

1. Diversion valves must be constructed of durable material and be of a design approved by the Department. They must be corrosion-resistant, watertight, and designed to accommodate the inlet and outlet pipes.
2. Each diversion valve must have a positive stop.
3. Proposals for the use of new or revised diversion valve designs will be reviewed by the Department on a case-by-case basis. All proposals shall include written documentation verifying that the valve design, materials and construction are NSF listed, IAMPO approved, and/or comply with requirements of the most recently adopted version of the Uniform Plumbing Code.
4. Diversion valves are to be switched as specified in the system owner's O&M Manual.

E. Dosing and Pump Tanks

1. Each dosing tank employing 1 or more pumps must have a liquid capacity sufficient to deliver the design dose and have a minimum additional capacity of one day's design flow above the high level alarm. Should maximum daily flow be greater than average daily flow, the Department may base the tank size on maximum volume of wastewater capable of being generated on any given day.

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2. Each dosing tank must be marked with the liquid capacity in gallons and the manufacturer's business name on the uppermost section on the outside of the tank.
3. Proposals for the use of new or revised dosing tanks designs will be reviewed by the Department on a case-by-case basis. All proposals shall include written documentation verifying that the tank design, materials and construction are NSF listed, IAPMO approved, and/or comply with requirements of the most recently adopted version of the Uniform Plumbing Code. The manufacturer shall submit a proposal with specifications for each tank design prepared by a civil engineer. Subsequent revisions to each design shall be resubmitted for review. The appropriate plan review fee must accompany submitted proposals.
4. Any lift station transporting effluent or solids to a septic tank must extend into the septic tank with a minimum 3-inch diameter sanitary "T." Effluent lines under pressure that are plumbed to a septic tank shall be connected to a larger diameter pipe at least 10 feet upstream of the septic tank to prevent wastewater turbulence. The larger diameter pipe shall be at least 1 inch greater in diameter than the pressurized line.

F. Pumps, Controls, and Alarms

Electrical components used in OWTS must comply with the Uniform Electrical Code and the following:

1. Motors must be continuous-duty, with overload protection.
2. Pumps must have durable, sewage rated impellers.
3. Submersible pumps must be provided with a corrosion resistant lifting device and be easily accessible to service the pump.
4. Pumps must be automatically controlled with mechanical or electrical switches designed for use with pump and control panels.
5. Pumps must have an automatically resetting audible and visual high water level alarm with a manual silencing switch located in or near the building serviced by the pump. The alarm must be configured so that only the audible alarm may be silenced by the resident. The electrical box for the pump and alarm system must be protected from the elements.
6. All electrical wiring must be installed according to the manufacturer's requirements. If required, all electrical wiring must be performed under permit from the local regulatory agency.
7. The pump and alarm must be connected to separate circuits.
8. To ensure the system is not exceeding the design flow rate, total daily flow shall be determined by use of a flowmeter, non-resettable digital pump cycle counter, or other mechanism as accepted by the Department.
10. A manual override switch shall be installed in the electrical box to facilitate dosing control during inspections.

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G. Pipe

1. All pipe installed throughout the wastewater treatment system must be clearly labeled and oriented in the trench so that the labeling can be readily identified by Department staff. Shading or pipe bedding must not obscure the label on the pipe. The pipe identification must cover at least 50% of the length of the pipe.
2. Main line tight lines shall be installed using schedule 40 or ABS.
3. Schedule 40, ABS or SDR 35 (ASTM D 3034) shall be used for the following applications:
 - a. Septic tank to the distribution box (if applicable).
 - b. Septic tank to the pump chamber (if applicable).
 - c. Distribution box outlet to disposal field.
4. Gravity Distribution (leach line) Dispersal
 - a. One of the following grades of 4-inch perforated pipe must be used:
 - i. SDR 35 (ASTM D 3034)
 - ii. ASTM F810
 - b. Alternatives to piping, such as gravelless chambers, may be used as approved by the Department. All gravelless chambers must have a sufficient number of orifices to provide uniform distribution of effluent throughout the disposal field.
5. Pressurized transport pipe, disposal manifolds, and disposal laterals (piping and fittings), must meet the most current requirements for schedule 40 or greater PVC pressurized pipe as, identified in ASTM Specifications D-1785, or other material approved by the designing registered professional. All pressurized disposal laterals, transport and manifold piping must be adequately sized for the design flow.
6. Curtain drain pipe must meet the requirements specified in this Manual for gravity disposal field pipe.
7. Other types of pipe may be approved by the Department, provided it can be demonstrated that the selected pipe has the structural integrity for the proposed application.

H. Drain Rock

1. Drain rock shall be 1 ½ inches to 4 inches in diameter. Uniformly graded material is recommended to maximize pore space. Drain rock must be clean, washed and non-deteriorating. Alternatives to drain rock, as described in this Manual may be accepted by the Department on a case-by-case basis.
2. Gravelless systems are allowed provided they are NSF listed or, IAPMO approved. Credits to decrease leaching area will not be granted.

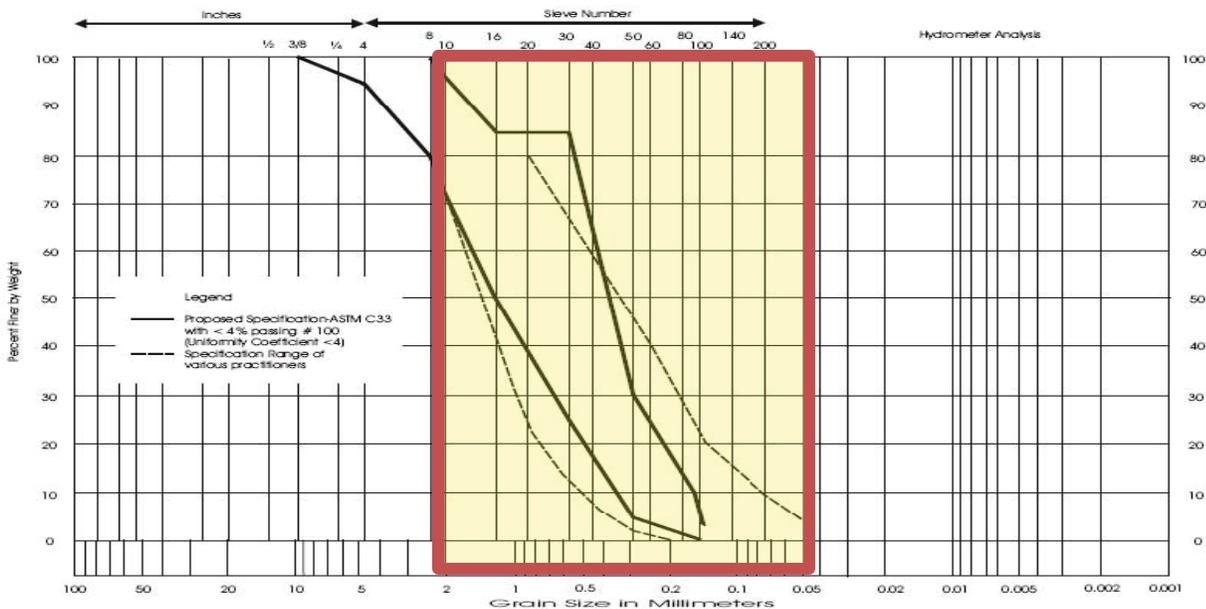
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I. Barrier Material

1. Filter fabric, untreated building paper or a minimum of two inches of straw may be used for standard gravity systems.
2. Filter fabric must be used for non-standard systems and must meet approved design specifications.

J. Single-Pass Sand Filter and Mound System Filter Material

The chart below outlines filter material specifications for single-pass sand filter and mound systems.



K. Containment Vessel for Intermittent Sand Filter

1. The liner for a sand filter installed in an excavated pit must be leak proof and puncture proof to the satisfaction of the Department.
2. A concrete containment vessel must be designed as follows (unless it is designed by professional civil engineer):
 - a. Above ground tank
 - i. Walls
 - (1) At least 6 inches thick.
 - (2) 4 feet or less in height.
 - (3) Rebar reinforcement: 3/8 inch diameter rebar on 2 foot centers horizontally and

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vertically, with continuous lengths wrapped around the corners.

ii. Floor

(1) At least 3 1/2 inches thick.

(2) Reinforced with steel mesh (CRSI standard #6-1010) to prevent cracking and to maintain water-tightness.

iii. Tank is to be designed, constructed, and sealed to be watertight.

b. Below ground tank.

Any below-ground concrete tank must be watertight. The design of such tank is to be approved by a qualified professional engineer and, where required by local and/or state regulation.

L. Observation Port

Observation ports are required when circumstances warrant additional monitoring of the disposal field. The observation port shall be designed and installed as agreed upon between the registered professional and the Department.

CHAPTER 28 – CURTAIN DRAINS

A curtain drain may be required to intercept and/or drain water from a disposal field area. The Department may require verification of dewatering capability prior to issuing a construction permit.

CHAPTER 29 – OFF-SITE SEWAGE EASEMENTS

- A. Off-site easements are prohibited under most circumstances. The Department may evaluate easement requests on a case-by-case basis where a system cannot be located on the lot or parcel to be served.
- B. Off-site easements are to be utilized for repairs of existing systems and may not be considered as an option for creating new lots or parcels, except when utilized for placement of and/or connection to a community wastewater system.
- C. Owners of systems that cross a property line of separate properties with different owners will be required to record an easement and/or covenant against conflicting uses. Properties under common ownership will be required to record a deed restriction against conflicting uses.
- D. Exhibits and legal descriptions of easements and deed restrictions must be prepared by a licensed land surveyor unless otherwise indicated by the Department. A licensed surveyor will flag or otherwise delineate the easement area for field inspection.



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CHAPTER 30 – APPLICABILITY (SACRAMENTO COUNTY CODE 6.32.240 A)

O&M Plan shall be required for the following OWTS:

- A. Alternative and experimental OWTS not previously approved by the Department.
- B. Existing alternative and experimental OWTS, at the time a repair or modification permit is obtained. This applies only to repairs and modifications that require a repair permit pursuant to SCC 6.32.190 et. seq.
- C. Existing OWTS, regardless of design, if the Department determines that oversight is critical to ensure the proper functioning and longevity of the system. Examples include, but are not limited to:
 - 1. Parcels with insufficient area to install a replacement disposal field;
 - 2. Systems subject to excessive peak wastewater flows;
 - 3. Systems requiring a grease removal device;
 - 4. Systems requiring a variance from any provision of SCC Chapter 6.32 (On-site Management of Wastewater).

CHAPTER 31 – AUTHORITY

Sacramento County Code Chapter 6.32. Sections 240 to 260, and 450.

CHAPTER 32 – ADMINISTRATION

A. Administrative Overview

The operation and maintenance program will be administered by the Department.

B. Roles and Responsibilities

- 1. Department
 - a. Develop and administer the O&M program.
 - b. Establish a record keeping and reporting system to ensure that current records are kept of the location, ownership, site evaluation, design, and O&M reports so that performance of the systems can be monitored.
 - c. Monitor and analyze the performance of OWTS within the County by reviewing O&M data in relationship to performance standards.

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- d. Assure timely follow up and correction, including enforcement action when necessary, when problems are encountered with or with treatment and dispersal technologies which are being monitored through the O&M program.
 - e. The Department may perform O&M inspections as needed for quality assurance/quality control, surveys, and investigations.
2. System Owner (SCC 6.32.250 A)
- a. Operate and maintain the OWTS in conformance with its design specifications.
 - b. Assure continued operation and maintenance of the OWTS in a manner that is consistent with SCC Chapter 6.32 and with the Manual.
 - c. Report to the Department within 24 hours of discovery any system malfunction that results in surfacing sewage.
 - d. Contact an O&M specialist within 24 hours of discovering any of the following conditions that could indicate a system failure or malfunction including, but not limited to:
 - i. Surfacing sewage in the area of the tank or leach field.
 - ii. Activation of the system's audible and/or visual alarm.
 - iii. Wastewater backing up into plumbing fixtures, toilets not flushing properly, or sink drains that do not function properly.
 - e. Correct deficiencies in the OWTS that have been identified by the Department and/or an O&M specialist.
3. Wastewater Hauler
- a. Must be registered with the Department as specified in SCC 6.32 Article 7.
 - b. Pump septic tank and inspect the tank. Electronically report findings to the Department, when available.
 - c. Report all OWTS malfunctions that result in surfacing sewage to the Department within 24 hours of discovery.
4. Registered Professional
- a. For each system designed, develop and provide the owner of the new system an O&M Plan that meets the requirements found in this Manual.
 - b. Submit an electronic version of the O&M Plan to the Department for review and comment.

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5. Proprietary System Authorized
 - a. Provide instructions regarding the O&M of the system or device(s) to the Department, registered professional, and owner of the OWTS or device(s).
 - b. Provide instruction, in sufficient detail, so that O&M specialists can perform required maintenance when needed.
6. O&M Specialist
 - a. Meet and maintain the requirements for qualification as specified in this Manual (SCC 6.32.250 B1).
 - b. Provide all required maintenance and monitoring reports to the Department within 30 days of service. All inspection results shall be submitted to the Department in a format prescribed by the Department. Reports will not be accepted unless legible and complete. The submission of inspection reports may require a fee.
 - c. Report to the Department, within 24 hours of discovery, any system malfunction that results in surfacing sewage.
 - d. Notify the Department of any system malfunction that will require a repair permit as specified in SCC 6.32.190.
 - e. Conduct O&M inspections.

CHAPTER 33 – PROGRAM ELEMENTS

A. Homeowner Education

The Department shall create a public education program that provides OWTS owners with information regarding the proper use and maintenance of an OWTS. The program goal is to provide system owners with the information needed to properly operate and maintain an OWTS.

B. O&M Data Management

The Department shall track the maintenance and performance of all OWTS in the O&M program.

C. O&M Plan

1. For standard OWTS, the licensed installer shall provide educational material to the owner of the new system at the time of installation.
2. For alternative or experimental OWTS, the registered professional shall provide the system owner with an O&M Plan and provide an electronic version to the Department.

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D. Operating Permit

1. Requirements for a “Final”

- a. “Final” installation approval by the Department for a newly installed or repaired system will not be given until an operating permit has been issued by this Department, as specified in Chapter 30 of this Manual.
- b. An O&M Plan, specific for the installed system, has been provided to the system’s owner and the Department (SCC 6.32.230 B4).
- c. An accurate “as-built” drawing of the system, certified by the registered professional, has been provided to the Department.
- d. If required by the Department, documentation showing proof that the operating permit requirements and servicing agreement with an O&M specialist have been recorded on the property deed (SCC 6.32.240).

2. Operating Permit Renewal Frequency

Operating permits are required to be renewed at a frequency based on the OWTS system type.

3. Operating Permit Renewal Procedures

- a. The Department will notify the system owner of the need to renew their system’s operating permit. The notice will list O&M Plan specialists who may be available to the homeowner for the inspection and maintenance of the system.
- b. The Department will renew the operating permit upon receipt of the appropriate renewal fee and verification of compliance with system O&M requirements.

4. Notice on Property Deed

If required by the Department, owners of systems that require an operating permit shall record the following information on the property deed for the benefit of future owners and successors:

- a. Notice of the requirement for an Operating Permit
- b. An agreement granting the Department access to inspect the system after providing the property owner with proper notification.

CHAPTER 34 – INSPECTION FREQUENCY AND MAINTENANCE CHECKS

A. Inspection Frequency

1. Frequency of OWTS O&M inspection will be dependent on the complexity and maintenance requirements of the system components, and based upon:

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- a. Manufacturer recommendations;
 - b. Industry standards of practice; and
 - c. Conditions and/or terms placed on the operating permit by the Department.
2. Unless otherwise determined by the Department, minimum inspection frequency shall comply with Table 1.

TABLE 1
INSPECTION FREQUENCY

Inspection Interval	(Residential) Standard or Pressure Dosed System*	(Commercial) Standard or Pressure Dosed System*	Mound or Single- Pass Sand Filter	ATU or Packed- Bed Filter	Disinfection Units (Telemetry required on all disinfection units)
First 6 weeks					PL or OM (Required)
First 3 months		OM (Recommended)	OM (Required)	PL or OM (Required)	
Monthly					
Annually	Pressure dosing system PL or LI or PO or OM (Recommended*)	OM (Recommended)	OM (Required)		
As required by the manufacturer or NSF, but not less than once a year				PL or OM (Required)	PL or OM (Required)
Year 1—2 of cycle					
Year 3 of cycle					
Year 4 of cycle					
Year 5 of cycle	CP or LI or PO or OM (Recommended*)				

CP = Certified Pumper, LI = Licensed Installer, OM = Certified Operation and Maintenance Specialist, PL = Proprietary Device Licensee (also must be certified as O&M Specialist), PO = Property Owner.

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3. Existing standard and pressure dosed OWTS are subject to SCC Section 6.32.240(A)(3), and may require inspections and maintenance checks should an Operating Permit be required.

B. Minimum Inspection Requirements

A registered professional, licensed installer or wastewater hauler (if applicable) shall inspect system components, such as the following:

1. Septic Tank
 - a. Verify scum and sludge measurements.
 - b. Observe integrity of tank, including observation for:
 - i. Cracks or indications of structural deterioration
 - ii. Condition of inlet and outlet "T"
 - iii. Condition of lids
 - iv. Indication of leaks
 - c. Observe condition of effluent filter, if present.

Recommend routine pumping of septic tanks every 3-5 years, unless inspection or O&M Plan indicates alternate pumping interval.

2. Pump and Dosing Chamber
 - a. Verify scum and sludge measurements.
 - b. Observe integrity of tank, including observation for:
 - i. Cracks or indications of structural deterioration
 - ii. Condition of inlet and outlet "T"
 - iii. Condition of lids
 - iv. Indication of leaks
 - c. Observe condition of and correct operation of all floats.
 - d. Verify all electrical cords are routed and harnessed per specifications.
 - e. Observe condition of pump intake screen.
 - f. Verify pump cycle.
 - g. Verify siphoning devices are functioning (if installed).

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Pump and/or dosing chamber shall be pumped if inspection warrants or per O&M Plan specifications.

3. Control Panel

- a. Verify timer and digital counter readings.
- b. Verify cycles on digital counter.
- c. Verify audible and visual alarms functioning.
- d. Verify that the run time is appropriate for the daily flow.
- e. Verify that the electrical box is free from moisture and all connections are secured.
- f. Inspect other system components as per manufacturer's maintenance specifications.

4. Gravity Disposal Field

- a. Measure depth of effluent throughout the trench.
- b. Verify maintenance and accessibility of observation ports.
- c. Ensure disposal field is not obstructed by roads, structures, livestock, and vehicular traffic. Ensure surface water drainage and/or down spouts are diverted away from disposal field.
- d. Confirm results of hydraulic loading test, if required.
- e. Inspect disposal field for surfacing sewage. If observed, report to the Department within 24 hours of observation. Prevent effluent from running offsite and repair as soon as possible. Submit permit to the Department when applicable.

5. Pressure Distribution Disposal Field

- a. Measure depth of effluent throughout the trench.
- b. Ensure disposal field is not obstructed by roads, structures, livestock, and vehicular traffic. Ensure surface water drainage and/or down spouts are diverted away from disposal field.
- c. Verify maintenance and accessibility of observation ports.
- d. Verify equal distribution to all laterals.
- e. Observe condition of end orifices, if possible; verify integrity of lines if required.
- f. Inspect disposal field for surfacing sewage. If observed, report to the Department within 24 hours of observation. Prevent effluent from running offsite and repair as soon as possible. Submit permit to the Department when applicable.

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6. Mound

- a. Inspect mound for surfacing effluent. If observed, report to the Department within 24 hours of observation. Prevent effluent from running offsite and repair as soon as possible. Submit permit to the Department when applicable.
- c. Ensure disposal field is not obstructed by roads, structures, livestock, and vehicular traffic. Ensure surface water drainage and/or down spouts are diverted away from disposal field.
- d. Verify maintenance and accessibility of observation ports.
- e. Verify uniform distribution.
- f. Observe condition of end orifices, if possible; verify integrity of lines if required.

7. Single-Pass Sand Filters

- a. Inspect sand filter for surfacing effluent.
- b. Ensure disposal field is not obstructed by roads, structures, livestock, and vehicular traffic. Ensure surface water drainage and/or down spouts are diverted away from disposal field.
- c. Verify maintenance and accessibility of observation ports.
- d. Verify uniform distribution.
- e. Observe condition of end orifices, if possible; verify integrity of lines if required.
- g. Verify pump chamber components as per Chapter 34B(2) of this Manual.

8. Aerobic Treatment Units, Including Packed Bed Filters

Refer to manufacturer's requirements.

9. Add-on Disinfection Component

Refer to manufacturer's requirements.

All deficiencies observed during inspection of septic system components shall be repaired as soon as reasonably possible. If a deficiency creates a threat to public health or safety, repair(s) shall be performed within 24 hours upon discovery of the deficiency. A permit may be required for certain repairs. The responsible party must ensure that permits are obtained from all appropriate regulatory agencies prior to repairing any septic system component.

C. Effluent Wastewater Quality Testing

1. When required by the Department or an O&M Plan, effluent shall be monitored at least annually in the following manner:
 - a. Treated effluent, shall be sampled and tested for BOD, TSS, and other constituents of concern.

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- b. OWTS that require nitrogen reduction shall be tested for Nitrate and Total Nitrogen, in addition to constituents noted in section “a” above.
- c. When effluent testing results indicate that the OWTS exceeds the minimum treatment levels required by the Department, a second sample shall be taken within 90 days of the last sample. If the follow-up sampling results indicate that OWTS is not performing to the treatment levels specified in the Operating Permit or Department standards, the O&M specialist shall inform the Department in writing within 14 days of receipt of sample results. The O&M specialist shall also implement a corrective action plan to achieve the treatment levels specified in the Operating Permit or Department standards. The Corrective Action Plan shall be submitted to the Department within 30 days of receipt of sample results for review prior to implementation. Compliance shall be verified by two consecutive compliant sample results within a 90 day period. Sample results shall be submitted to the Department for review and documentation of compliance.
- d. Untreated influent may require sampling and testing as determined by the O&M Plan or the Department.

CHAPTER 35 – O&M PLAN

- A. The owners of new alternative and experimental OWTS requiring an Operating Permit shall be provided with an O&M Plan prepared by the designing registered professional and accepted by the Department.
- B. The O&M Plan shall be amended by the registered professional if the system is upgraded or requires repair.
- C. The plan shall include at a minimum:
 - 1. Diagrams of all system components.
 - 2. An accurate scaled as-built drawing of the system.
 - 3. A narrative describing how the system achieves its treatment standards.
 - 4. A narrative of the system’s general function, operational expectations, and owner responsibilities.
 - 5. The system’s required routine maintenance schedule.
 - 6. The names and telephone numbers of the registered professional, licensed installer, and OWTS operation and maintenance specialists.
 - 7. A list of proprietary system components, including manufacturer names and model numbers.
 - 8. Information on “troubleshooting” common operational problems that may occur with a specific system.

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CHAPTER 36 – O&M SPECIALIST CRITERIA

An O&M specialist may provide operation and maintenance services for proprietary or alternative systems if:

- A. The O&M specialist possesses a current registration with the National Association of Wastewater Transporters (NAWT) as a certified Operation and Maintenance Specialist or,
- B. The O&M specialist is one of the following:
 - 1. Registered Environmental Health Specialist (REHS)
 - 2. Professional Engineer (PE)
 - 3. Professional Geologist (PG)

Note: Individuals or entities such as wastewater haulers, licensed installers, proprietary system authorized agents, and property owners, who meet the qualification criteria as listed in A&B above, may be authorized by the Department to perform O&M on standard OWTS on a case-by-case basis.



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PART FOUR
***Non-Discharging Wastewater
Treatment Systems***

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Non-Discharging Wastewater Treatment Systems

Non-discharging OWTS are OWTS that do not discharge wastewater. They are designed to collect, hold, and/or treat sewage without direct connection to sanitary sewers or to an OWTS. The most commonly used non-discharging OWTS include holding tanks, portable toilets, and vault privies. Composting and incinerating toilets are also examples of non-discharging OWTS.

CHAPTER 37 – APPLICABILITY

The following standards shall apply to the siting, design, construction, installation, repair, modification, operation, replacement, maintenance, and destruction of new and existing non-discharging wastewater treatment systems, whether proposed as part of a new installation, repair, modification, land subdivision, building permit, land use permit, or special event.

These standards shall not apply to wastewater holding tanks, vault privies, or portable toilets regulated by a State or Federal regulatory agency.

CHAPTER 38 - AUTHORITY

These standards are pursuant to Sacramento County Code Chapter 6.32 Sections 005, 020(A1, A3), 050, 080, 085, 090, 350, 370, and 420-450.

CHAPTER 39 - WASTEWATER HOLDING TANK

A holding tank is a watertight container designed to receive and store wastewater for disposal at another approved location.

A holding tank may be used as a means for sewage disposal only if the following conditions apply unless otherwise approved by the Department on a case by case basis:

- A. The site cannot be approved for the installation of a standard system or supplemental treatment system.
- B. A public sewer system is not legally and/or physically available to the site.
- C. The holding tank will serve only non-residential or non-commercial, limited use applications, such as a limited use agricultural buildings or recreational facilities.
- D. The cumulative sewage volume shall not exceed 300 gallons per day.
- E. The holding tank meets the specifications as specified in Part 2 of this Manual.
- F. The property owner shall record a deed restriction agreeing to be served by a public sewer system when connection is feasible as described in the Ordinance.
- G. The property owner shall provide the Department with:
 - 1. A copy of a contract with a Department-registered wastewater hauler that shows the tank will be pumped at regular intervals, or as needed to prevent use of greater than 75% of the tank's capacity. The contents of the tank must be disposed of at an approved septage receiving facility, in an approved manner; and

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2. A record of pumping dates and amounts pumped must be maintained by the property owner and made available to the Department upon request.
- H. A holding tank must be designed and installed under the inspection and approval of a registered professional.
- I. Each tank will have the holding capacity of the highest anticipated daily flow plus 100% storage capacity.
- J. Holding tanks will not be used as a method for sewage disposal for the creation of new parcels.
- K. An Operating Permit is required and must be renewed annually.
- L. All installations shall conform with the following:
 1. A holding tank shall be located and designed to facilitate a visual inspection of the tank and allow for easy pumping of the contents.
 2. A holding tank shall be equipped with both an audible and visual alarm that indicates when the tank is 75% full. Only the audible alarm shall be user-cancelable
 3. The overflow vent shall not be at an elevation lower than the overflow level of the lowest fixture served.

CHAPTER 40 – VAULT PRIVIES

A vault privy is a structure used for disposal of human waste without the use of water. It consists of a structure or outbuilding that is built above a watertight subsurface vault, of which is used to receive human waste. A vault privy is not connected to a water source. Vault privies require the following:

- A. The vault privy services only non-residential, non-commercial, limited use applications, such as:
 - Primitive-type picnic grounds,
 - Campsites, camps and recreation areas where the Department has made the determination that an OWTS cannot be installed.
- B. Vault privies must be located and designed to facilitate easy removal of accumulated waste. Vault privy proposals will be evaluated by the Department on a case-by-case basis.
- C. The vault shall be constructed in compliance with the specifications for septic tanks.
- D. Vault privies shall not be sited in areas prone to flooding, and shall be routinely maintained to prevent health hazards and pollution of public waters.
- E. As a condition of a construction permit approval, vault privies may require an Operating Permit.
- F. The vault shall not be allowed to become filled with human waste to such a degree that the waste has accumulated to within 2 feet of the top of the vault.
- G. Waste that has accumulated in the vault shall be pumped out by a registered septic tank cleaner or wastewater

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hauler at such an interval so as to prevent overflow.

- H. The vault privy shall be maintained in a safe and sanitary condition.
- I. Water-carried sewage shall not be discharged into a vault privy. The contents of vault privies shall not be discharged into storm drains, on the surface of the ground, or into the waters of the State of California.
- J. Vault privy structures shall be free of unsafe conditions, such as exposed nail points, splinters, sharp edges, and rough or broken boards. All vault privies shall provide privacy and protection from the elements.
- K. Vault privies shall be vented to the outside atmosphere using a vent stack with a minimum inside diameter of 4 inches. Ventilation for vault privy structures shall be adequate to allow for unhindered use. All vents shall be screened with durable fine mesh screen.
- L. Buildings shall be insect and rodent resistant. Doors shall be self-closing and equipped with an inside latch.
- M. Interior floors, walls, ceilings, partitions, and doors shall be constructed of an impervious material that is easily cleanable, resistant to wastes and cleaning agents, and resistant to the entry of vermin.
- N. The stool opening shall be covered with an attached, open-front toilet seat equipped with a lid.
- O. A toilet tissue holder shall be provided for each seat.
- P. Vault chambers shall be watertight and constructed of reinforced concrete, plastic, fiberglass, or other material of acceptable durability and corrosion resistance, as approved by the Department.
- Q. Stools shall have a minimum clear space of 24 inches between multiple-unit installations and a clear space of 12 inches from the seat opening to the side building wall in single and multiple units.

CHAPTER 41 – PORTABLE TOILETS

A portable toilet is a watertight, portable, self-contained toilet structure that may contain an environmentally safe bactericide and/or deodorant. A portable toilet is not directly connected to a water source. The uses of portable toilets include, but are not limited to:

- A. Portable toilets are intended to be used as a method of sewage disposal for non-residential, limited use applications, such as primitive-type picnic grounds, campsites, special events, and temporary construction sites where the Department has made the determination that an OWTS is not feasible. Portable toilets shall not be used as a method of sewage disposal for residential or commercial applications.
- B. An Operating Permit is not required for temporary use of portable toilets.
- C. Portable toilets must be routinely maintained to prevent public health hazards and pollution of water.
- D. Water-carried sewage shall not be discharged into a portable toilet.
- E. The contents of portable toilets shall not be discharged into storm sewers, on the surface of the ground, or into

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the waters of the State of California.

- F. The requirements or the use of vault privies, as listed in Chapter 40 of this Manual, Sections I - P will also apply to portable toilets and are hereby incorporated by reference.
- G. Portable toilets shall have waste detention chambers constructed of stainless steel, plastic, fiberglass, or of other material approved by the Department.
- H. Waste passages shall be constructed with smooth surfaces and be free of obstructions, recesses or cross braces that restrict or interfere with the flow of sewage.
- I. Biocides and oxidants shall be added to waste detention chambers as recommended by the manufacturer.
- J. Waste detention chambers shall provide a minimum storage capacity of 50 gallons per seat.
- K. Portable toilet structures shall at a minimum:
 - 1. Display the business name and phone number on the exterior of the structure, in legible sized print, of the servicing registered wastewater hauler service.
 - 2. Provide screened ventilation to the outside atmosphere.
 - 3. Provide a minimum floor space of 9 ft² per seat, outside of the riser.
 - 4. Provide separate compartments with doors and partitions or walls of sufficient height to ensure privacy in multiple-unit structures. Separate compartments are not required for urinals.
- L. The minimum recommended quantity of portable toilets and handwashing lavatories for private and public events may be determined as follows (Special Events Contingency Planning Job Aids Manual. FEMA, March 2005):
 - 1. Criteria to determine the quantity of portable toilets that are required for a special event include, but are not limited to:
 - a. Duration and type of event
 - b. Weather conditions
 - c. Predetermined vs. undetermined patron volume
 - d. Consumption of alcohol
 - 2. Where local laws or regulations do not exist, the following guidelines (Table 1) may be used to calculate the number of portable toilets required for an event:

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**Table 1
Toilet Facilities For Events Where Alcohol Is Not Available**

Patrons	Male			Female	
	Toilets	Urinals	Sinks	Toilets	Sinks
<500	1	2	2	6	2
<1000	2	4	4	9	4
<2000	4	8	6	12	6
<3000	6	15	10	18	10
<5000	8	25	17	30	17

**Table 2
Toilet Facilities For Events Where Alcohol Is Available**

Patrons	Male			Female	
	Toilets	Urinals	Sinks	Toilets	Sinks
<500	3	8	2	13	2
<1000	5	10	4	16	4
<2000	9	15	7	18	7
<3000	10	20	14	22	14
<5000	12	30	20	40	20

These figures may be reduced for shorter duration events as follows:

Events lasting more than eight hours = 100%

Events lasting six to eight hours = 80%

Events lasting four to six hours = 75%

Events less than four hours = 70%

Source: Special Events Contingency Planning Job Aids Manual. FEMA, March 2005, Sections 2-28, 2-29

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CHAPTER 42 – COMPOSTING TOILETS

A. General

A composting toilet is an OWTS designed to aerobically treat (compost) human waste to an extent that a stable, soil-like byproduct (humus) is generated.

Owners and operators of a composting toilet must be made aware that the successful operation of this type of toilet requires constant attention to the composting process. Individuals must be willing to accept the responsibility of the composting operation before considering installation of a composting toilet. Composting toilets that are improperly operated, or not routinely monitored and maintained can spread disease, pollute surface and groundwater, or create a public health hazard and/or nuisance.

Owners and operators of composting toilets must also be made aware of how the final composted product may be disposed of or used for beneficial purposes. Federal, State, and local regulations may determine the proper disposition of the final product of a composting toilet. Composting toilets should only be considered for limited use applications where public sewer or the parcel is capable of supporting an OWTS, but the property owner wishes to pursue this type of alternative technology.

B. Requirements

No person shall install, use, or maintain a composting toilet, except where all of the following requirements are met:

1. The local building authority has granted permission for the use of the composting toilet.
2. The parcel is capable of supporting a compliant OWTS, or a connection to public sewer is provided.
3. A permit is obtained from the local building authority.
4. An Operating Permit is obtained from the Department.
5. The composting toilet is installed, maintained, or replaced in accordance with the manufacturer's recommendations.
6. No material is placed in a composting toilet other than the material for which it has been designed.
7. Installation of the toilet has been inspected by the local building authority.
8. An O&M plan is provided to the homeowner and the Department by the manufacturer.

C. Selection of Composting Toilet

1. The toilet shall be specifically designed for the holding and processing of human waste associated with toilet usage, and shall employ the process of biological decomposition in which human waste is converted into a compost-like substance.
2. The toilet shall be currently listed by the NSF under NSF/ANSI Standard 41.

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3. The type of the composting toilet selected must be appropriate for the quantity of waste to be treated, and shall be sized according to the manufacturer's specifications. The assumed number of users shall be calculated based on either:

- a. Calculation by Number of Bedrooms:

The number of occupants of each dwelling unit shall be calculated as follows:

- i. First Bedroom = 2 occupants
- ii. Each additional bedroom = 1 additional occupant, or

- b. Calculation by Anticipated Actual Number of Users:

The applicant indicates the maximum foreseeable number of persons who will be living at the residence and using the composting toilet. Examples include:

- i. If only 1 person will reside in a three bedroom home, the composting toilet selected shall be a toilet recommended to serve at least 4 residents.
- ii. If 5 people will reside in a 1 bedroom home, the composting toilet selected shall be a toilet recommended to serve at least 5 occupants.

D. Management of Finished Compost and Liquid By-Products

1. The residual liquid waste by-product of the composting toilet shall be collected, transported, and discharged in a manner compliant with all federal, state, and local regulations. Acceptable methods of disposal include:
 - a. Discharge into sanitary sewer or a permitted OWTS, or
 - b. Pump out by a septic pumper truck registered with this Department.
2. The residual solid by-products of composting digestion shall to be handled and disposed of only after the digestion process is complete, per manufacturer's specifications.
3. Composting toilets have been shown to be capable of achieving pathogen reduction via microbial processes that take place within the composting chamber. Due to external conditions or operational irregularities, the conditions in the unit may not always be optimal for pathogen reduction, and improper handling and disposal of the product could negatively impact public health. The composted residual solid by-product must be transported and disposed of in a manner that does not create a public health hazard or nuisance, is in compliance with the requirements of the Operating Permit and manufacturer's specifications.
 - a. Acceptable methods for the disposal of composted residual solid by-product include transportation by a septic pumper truck registered with this Department to an approved wastewater treatment plant or solid waste disposal facility capable of accepting human waste; or

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- b. Disposal by the homeowner on the property where the toilet is located, shall meet all the following conditions:
 - i. Bury the waste under a minimum of 6 inches of compacted soil;
 - ii. The location for burial shall be shown on a site plan submitted with the Operating Permit.
 - iii. Waste shall not be buried in any present or planned food crop growing areas or dairy pasture; and
 - iv. The waste shall not be buried where there is less than 36 inches of native, undisturbed soil between the bottom of the burial excavation and a seasonal, perched water table, or in an area subject to seasonal runoff where the discharge could flow into surface or subsurface water.

E. Site Evaluation Requirements

A site evaluation, submitted to the Department, shall be performed by a registered professional that indicates that the parcel is capable of accommodating an OWTS for typical domestic wastewater disposal, in addition to the disposal of the residual liquid and solid by-products of the composting toilet.

Setback requirements for the disposal site of the residual solid by-products shall be the same as those for OWTS.

F. Operating Permits.

1. A composting toilet shall require an Operating Permit for installation and replacement.
2. Operating permits for composting toilets, unless suspended or revoked by this Department for non-compliance with the permit requirements, are valid for the period the permittee resides on the property and utilizes the toilet.
3. A person selling a parcel on which there is an approved Operating Permit for a composting toilet must notify the Department of the transfer, and disclose to the prospective purchaser the presence of a composting toilet, the requirement to obtain an operating permit, and the location (as approved by the Department) for disposal of the residual liquid or solid by-product.
4. Operating Permits are not transferrable from the seller to the buyer upon sale of the property.
5. The Department will revoke an Operating Permit if any of the following conditions exists:
 - a. An unsanitary condition has been caused by the toilet or its use;
 - b. The residual by-products of composting digestion has been improperly transported, disposed of, or used;
 - c. The toilet is not operated or maintained as specified in the Operating Permit or O&M Plan, or fails to meet its design or operating specifications; or

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d. Continued use of the toilet poses an imminent health hazard.

G. O&M Plan

1. No person shall install, maintain, or replace a composting toilet unless an O&M plan is provided to the owner, and is readily available for reference.
2. The O&M plan shall at a minimum, contain all the following information:
 - a. Potential health risks from improper use or maintenance of the composting toilet;
 - b. Manufacturer's name and model number;
 - c. Manufacturer's NSF listing;
 - d. Manufacturer's recommended operational capacity;
 - e. Manufacturer's O&M recommendations;
 - f. Trouble-shooting information;
 - g. Service provider's contact information;
 - h. Method of handling and site for disposal of the residual liquid and solid by-products of composting.

H. Recorded Disclosure Document.

A notification in the form of a deed restriction shall be recorded informing future property owners of the following:

1. The potential health risks associated with the product of composting digestion;
2. The property owner's responsibility to maintain an O&M Plan for the composting toilet;
3. The property owner's responsibility to maintain a current Operating Permit for the composting toilet;
and

It is the property owner's responsibility for properly operating and maintaining the system in accordance with the O&M Plan and the Operating Permit.



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PART FIVE

***Subdivisions, Lot Line Adjustments,
Use Permits, Building Permits***

PART FIVE

Subdivisions, Lot Line Adjustments, Use Permits, Building Permits

CHAPTER 43 – USE PERMITS AND BUILDING PROJECTS

A. Applicability

This document applies to all individuals applying for a building permit or Use Permit for a parcel that relies on or will require an OWTS.

B. Regulation

1. Any person proposing to develop on a parcel that requires the use of an OWTS, regardless of the type of development, shall first obtain approval from the Department.
2. A building permit or Use Permit shall not be issued for a parcel, place of business, or other project that requires the use of a new or existing OWTS, without prior approval from the Department.

C. Approval Required

Department approval of a “tentative plot plan” is required for the following:

1. The building project will require a means of wastewater disposal other than public sewer.
2. The building project will increase the footprint of an existing structure that currently relies on an OWTS.
3. The building project will add additional bedrooms or increase the daily wastewater flow to an existing structure that relies on an OWTS.
4. The building project or Use Permit will result in the increase of the wastewater strength beyond that of domestic- strength wastewater.
5. The building project will add additional structures or outside fixtures that may impact any component of an existing OWTS, including the disposal field replacement area. Such structures and outdoor fixtures shall include, but are not limited to, garages, barns, sheds, built-in swimming pools, and driveways.

D. Approval Criteria

1. New Construction

- a. A site evaluation, as described in Part One of the Manual, is required for all commercial projects. Residential projects located within restricted areas of the county (as depicted on the “Test Drill” map) also require a site evaluation. The Department will not process a “tentative plot plan” for commercial or restricted area residential projects unless there is an approved OWTS design on file for the specific project or parcel.
- b. Applicants requesting a “tentative plot plan” approval must submit drawings (which include both a plot plan and a floor plan) to the Department for review.

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- c. Plot plans must clearly show the following (existing or proposed):
 - i. Vicinity map;
 - ii. Scale used;
 - iii. Lot dimensions, including all property lines;
 - iv. Setbacks and side yards;
 - v. Paved areas and unpaved areas subject to vehicular traffic;
 - vi. Easements and rights-of-way, public and private;
 - vii. Structures, dwellings (including pools and auxiliary buildings); Animal enclosures;
 - viii. Fuel tanks, hazardous material storage;
 - ix. Plumbing stub-out;
 - x. Water lines (public and private); 10-year storm event;
 - xi. Existing and proposed wells, abandoned wells, springs, neighboring wells, streams, ditches, canals, culverts, ponds, lakes, swales, vernal pools, 10-year flood plains, or any body of water (intermittent or perennial) located within 100' of property lines;
 - xii. Existing and proposed on-site wastewater treatment systems (including replacement areas), abandoned septic tanks, pretreatment and storage devices, sewer lines, storm sewers;
 - xiii. Soil profile test holes, percolation test holes, groundwater observation wells;
 - xiv. Percent and direction of slope in disposal field area and 50' adjacent to it on all sides. A contour map is recommended and may be required by this Department depending on conditions observed at the site;
 - xv. Trees within 10' of sewage disposal areas (including replacement areas);
 - xvi. Underground utilities within 10' of OWTS (including replacement area);
 - xvii. Cut banks, unstable land forms, bluffs and ravines;
 - xviii. Floor plan (including number of bedrooms).
- d. The appropriate plot plan review fee has been paid to the Department.

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2. Remodels, Addition of Bedrooms

- a. The Department must have an OWTS design on file before a “tentative plot plan” may be processed. If an OWTS design is not on file, a system evaluation may be required. A system evaluation consists of a written professional opinion stating that an existing OWTS was constructed and is operating in compliance with state and local regulations. Evaluations shall be performed by a registered professional, licensed installer, or an individual accepted by the Department.
- b. Deficiencies observed in an existing OWTS design must be corrected pursuant to current state and local regulations.
- c. The appropriate plot plan review fee has been paid to the Department.
- d. Submitted plot plans must comply with the requirements of section D.1.c. above.

3. Residential Accessory Buildings

- a. A separate OWTS is required for a Residential Accessory Building.
- b. Approval process is the same as D.1 above.

4. Temporary Medical Hardship

- a. A temporary medical hardship may connect to an existing OWTS without modification to that system under the following conditions:
 - i. The addition of the temporary structure is in compliance with all local rules and regulations.
 - ii. EMD has a record of the OWTS. In lieu of EMD records an inspection meeting the requirements of Chapter 34.b.1 will be required.
 - iii. The addition of the temporary structure will not exceed 100% of the design capacity of the existing OWTS as determined by current standards.
 - iv. The existing OWTS is functioning properly. A system evaluation may be required prior to approval.
 - v. Submitted plot plan must comply with the requirements of section D.1.c above.

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CHAPTER 44 – SUBDIVISIONS, PARCEL SPLITS, AND LOT LINE ADJUSTMENTS

Given the complexity of an OWTS and land use projects, applicants are encouraged to consult with the Department prior to commencement of a land use project.

A. Applicability

This document applies to all divisions of land and lot line adjustments in areas of the County where public sewer is not available.

B. Background

A new Ordinance was adopted by the Sacramento County Board of Supervisors in 2010. The new Ordinance changed the minimum lot size requirements to allow for:

1. Provide for adequate OWTS repair area availability, while allowing property owners to make reasonable property improvements, and
2. Ensure the protection of groundwater by decreasing the concentration of untreated OWTS effluent disposed of over a given area of land.

C. Regulation

1. Parcels created after the effective date of the Ordinance require a minimum parcel size of 2 acres if both an OWTS and a private well are proposed. Parcels that require the use of an OWTS but are connected to a public water system require a minimum parcel size of 1 acre.
2. Lot line adjustments and parcel splits for existing parcels currently serviced by an OWTS shall be prohibited when such actions interfere with the original siting, design, construction, or operation of an existing OWTS, including encroachment of the reserve disposal field area. The applicant for such project may be subject to a system evaluation as defined in Section 43 D 2 of this Manual.
3. No parcel shall be developed beyond its capacity to properly absorb sewage effluent.
4. Any person proposing to develop property that requires the use of an OWTS whether for new construction, remodel, addition or replacement, must first obtain approval from the Department. The person proposing such development shall submit to the Department a copy of the general plot plan and a copy of the floor plan for project evaluation. A site evaluation or system evaluation may be required by the Department prior to project approval.

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D. Requirements

1. Lot Line Adjustments

- a. Prior to the approval of any application for a lot line adjustment, the Department must have sufficient information on file regarding the siting and design of an existing OWTS to ensure compliance with local regulations. If the OWTS design information is not available, a system evaluation may be required. A system evaluation consists of a written professional opinion stating that an existing OWTS was constructed and is operating in compliance with state and local regulations. Evaluations shall be performed by a registered professional, licensed installer, or an individual accepted by the Department.
- b. Deficiencies observed in an existing OWTS design must be corrected pursuant to current state and local regulations.
- c. Submitted project plans must comply with the requirements of Section 43 D.1.c. above.

2. Subdivisions and Parcel Splits

- a. Unless waived by the Department, no subdivision final map shall be recorded without an approved OWTS design that is on file with the Department. Parcel maps shall be required on a case-by-case basis.
- b. Minimum lot size for parcels created after September 19, 2010 shall be two (2) acres if they will require an OWTS and water from a private well. If public water is available, the required minimum lot size is one (1) acre.
- c. Site Evaluation
 - i. The following categories of development shall require percolation testing as described in Part One of this Manual:
 - 1) Subdivisions of 5 lots or more
 - 2) Subdivisions of four (4) or fewer parcels at the discretion of the Department
 - 3) Commercial or other non-residential development, unless waived by the Department
 - 4) Any development proposing to use OWTS as a means of sewage disposal.
 - ii. Each individual lot in the restricted area shall be evaluated to determine the type and size of OWTS to be installed. Testing shall comply to the requirements of the site evaluation process described in Part One of this Manual.
 - iii. Projects that have been determined by the Department as having the potential for a

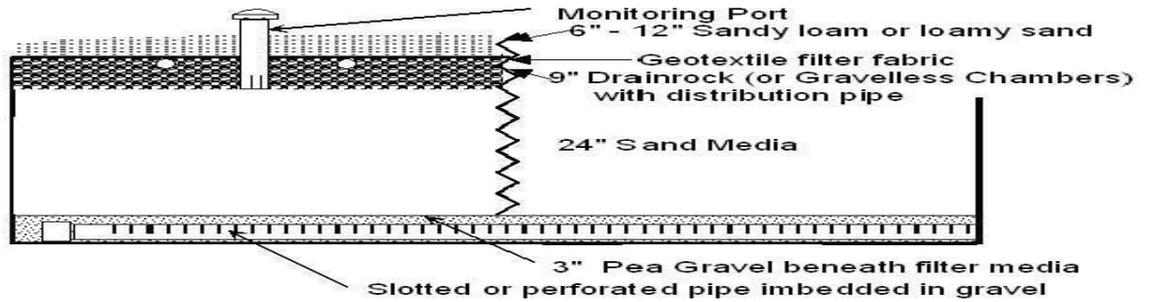
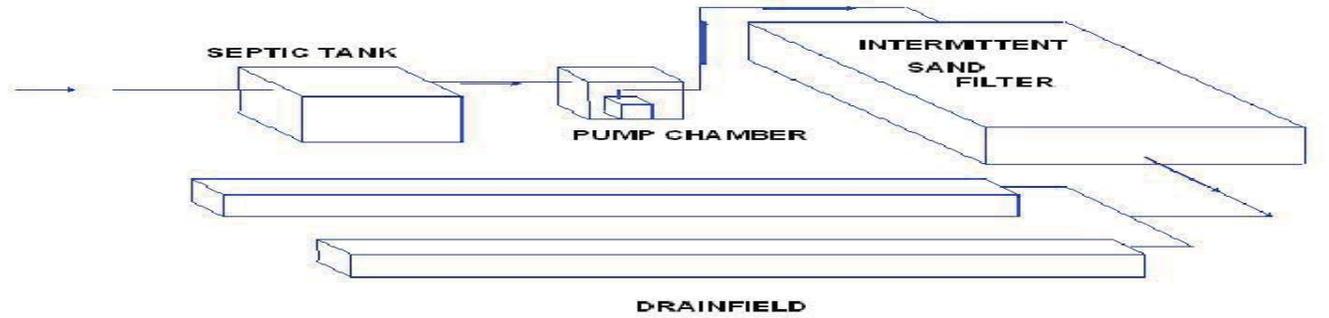
PART FIVE

Subdivisions, Lot Line Adjustments, Use Permits, Building Permits

negative impact on surface and/or groundwater may require a hydrogeological study of the area and a report submitted to the Department for review. The report must address the potential impact to groundwater quality and must include but not be limited to the quantity and quality of wastewater discharged, groundwater recharge, soil transmissivity, fluctuations in groundwater level, and any other appropriate variables.

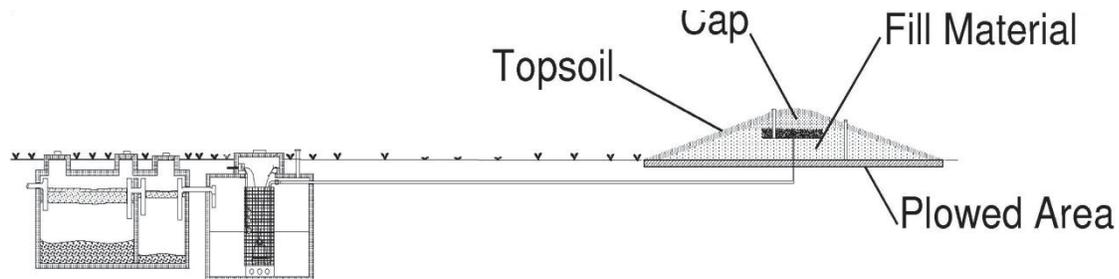
APPENDIX A

SYSTEM DRAWINGS



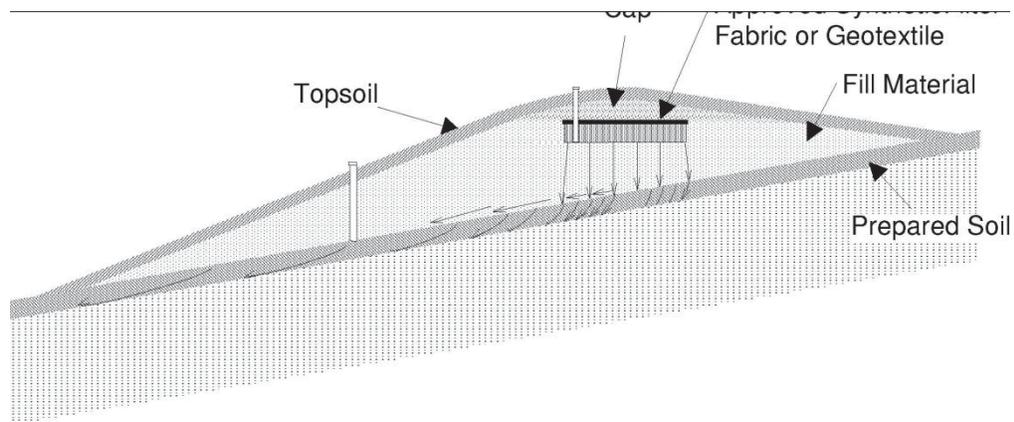
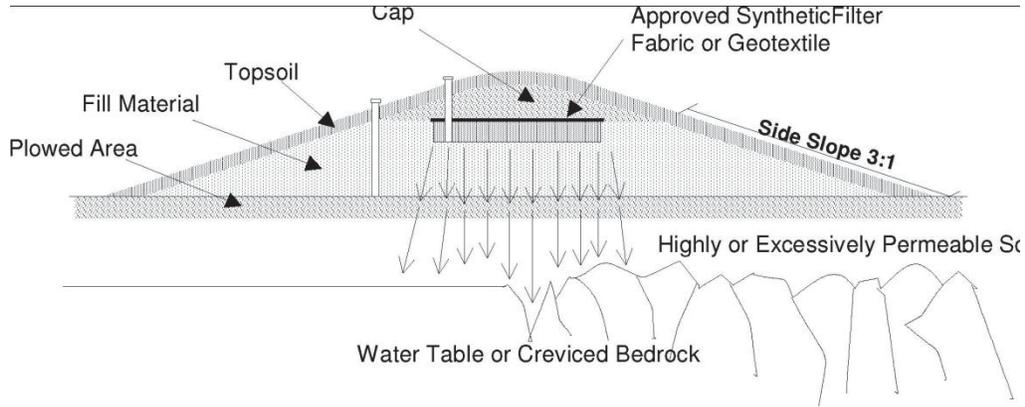
Mound System Drawings

Septic Tank Pump Chamber Mound



APPENDIX A

Cap Approved Synthetic Filter Fabric or Geotextile Fill Material Topsoil



DEPARTMENT APPROVED PROPRIETARY COMPONENTS AND SYSTEMS

1. Tuf Tite Distribution Boxes (D-Box)

4-9 hole D-Boxes approved for use; must be set in a concrete base to increase stability

2. Infiltrator gravelless trench chambers

All size and profiles approved for use in lieu of rock and standard perforated pipe; reduction in sidewall area not allowed

3. Ring Industrial Group E-Z Flow Drainage Systems gravelless trench perforated piping

Approved for use in lieu of rock and standard perforated pipe; reduction in reduction in infiltration area (sidewall) not allowed.

4. Tanks constructed of material other than concrete

Must be IAPMO approved or NSF listed; installer must provide tank specifications/cut sheets

5. Hoot Aerobic Systems

Must be designed by a registered professional; may require additional tank to allow for 48 hour retention; reduction in reduction in infiltration area (sidewall) not allowed.

6. Orenco Systems, Inc.

Must be designed by a registered professional; may require additional tank to allow for 48 hour retention; reduction in reduction in infiltration area (sidewall) not allowed.

7. Presby Environmental, Inc. Advanced Enviro-Septic Treatment System

Must be designed by a registered professional; reduction in reduction in infiltration area (sidewall) not allowed.