Conventional and Non-Conventional Onsite Wastewater Treatment Systems - Requirements and Procedures

LOS ANGELES COUNTY DEPARTMENT OF PUBLIC HEALTH
ENVIRONMENTAL HEALTH
LAND USE PROGRAM
July 2016

ACKNOWLEDGEMENTS

This document was developed by the Los Angeles County Department of Public Health, Environmental Health – Land Use Program. This document builds upon the work of Patrick Nejadian, Chief Environmental Health Specialist, who developed the prior guidance documents issued by the Department. The Land Use Program thanks the following individuals for their efforts and contributions to the Requirements and Procedures:

Jacqueline Taylor, Director of the Bureau of Environmental Protection

Scott Abbott, Manager of the Bureau of Environmental Protection

Aura Wong, Manager of the Bureau of Environmental Protection

Michelle Tsiebos, Chief Environmental Health Specialist

Eric Edwards, Chief Environmental Health Specialist

Vicente Banada, Land Use Program

Chris Gibson, Land Use Program

Bitania Girma, Land Use Program

Cathy Goldsberry, Land Use Program

Richard Jefferson, Land Use Program

Winsor Kawamoto, Land Use Program

Luis Martinez, Land Use Program

Kenneth Mattison, Land Use Program

Ian Phung, Land Use Program

DPH would also like to thank members of industry, environmental groups, and local municipalities who reviewed and provided comments on our draft documents, including: Steve Braband, BioSolutions; and Joseph Hilsinger, Jet Industries and Jessica Ballesteros, San Bernardino County, Barry Marczuk, Ventura County, and Andrew Sheldon, City of Malibu.

Table of Contents

Purpose, Authority and Approval Process 4
Approval Process Flowchart 5
DEFINITIONS 6
CHAPTER 1. PROJECTS THAT REQUIRE PLAN REVIEW AND FEASIBILITY REPORTS 9
CHAPTER 2. PROFESSIONAL QUALIFICATIONS FOR PREPARING FEASIBILITY REPORTS AND INSTALLATION OF OWTS 10
CHAPTER 3. DOCUMENTS AND INFORMATION REQUIRED FOR OWTS PLAN REVIEW 11
CHAPTER 4. SETBACKS AND OTHER CONSIDERATIONS 14
CHAPTER 5. SEPTIC TANK CAPACITY AND REQUIREMENTS 16
CHAPTER 6. DISPERSAL METHODS FOR CONVENTIONAL OWTS 18
CHAPTER 7. FUTURE EXPANSION AREA 21
CHAPTER 8. PROCEDURES FOR DETERMINING DEPTH OF SUBSURFACE WATER 22
CHAPTER 9. REQUIREMENTS APPLICABLE TO ALL PERCOLATION TESTING TYPES 24
CHAPTER 10. PERCOLATION TESTING FOR LEACH LINES AND LEACH BED DISPERSAL SYSTEMS 25
CHAPTER 11. PERCOLATION TESTING FOR SEEPAGE PIT AND GRAVEL PACKED PIT DISPERSAL SYSTEMS 27
CHAPTER 12. NON-CONVENTIONAL ONSITE WASTEWATER TREATMENT SYSTEMS (NOWTS) 30
CHAPTER 13. NOWTS START UP AND LEAK TEST 35
Appendices 39
- Appendix A – Application Forms 39
- Appendix C –Setback Required by Plumbing Code 41
- Appendix D – Septic Tank Capacity 43
- Appendix E – Dispersal Methods for Conventional OWTS 43
- Appendix F – Future Expansion Area 44
- Appendix G – Gravel-packed Pit Requirements and Considerations 45
- Appendix H – List of Impaired Water Bodies and Current TMDLs 46
- Appendix I – Sample Covenant Non-Conventional Onsite Wastewater Treatment Systems 47

Purpose, Authority and Approval Process

Purpose

The County Los Angeles, Department of Public Health (DPH) has submitted a Local Agency Management Plan (LAMP) to the Regional Water Quality Control Board (RWQCB). This process required DPH to review and update its 2013 version of the Professional Guide to Requirements and Procedures for OWTS. Since the approval of the LAMP by the RWQCB and the County Board of Supervisors may require up to two years, it was decided to publish an updated version of the Professional Guide without the requirements of the State OWTS Policy and LAMP included. In addition to the document being renamed, other minor changes have been made to the requirements, including the acceptance of all NOWTS meeting NSF Standard 245 and requirements of the State OWTS policy regarding impaired water bodies which went into effect with the approval of the State OWTS Policy in 2012. Other changes have been noted in the guidelines. Otherwise, the intent of this document is to provide the information in the 2013 Professional Guide in a user friendly, easy to reference document.

These Requirements and Procedures shall apply to plan reviews for domestic wastewater systems producing under 20,000 gallons per day, including single family homes, multi-family units, and businesses where wastewater generated is primarily from toilets, sinks, clothes washers, bathtubs and showers, which are submitted prior to the approval of the Local Agency Management Plan (LAMP) which adopts the State OWTS Policy. The granting of an approval by the Department for an OWTS serving a Single Family Home grants the owner an exemption from obtaining a Waste Discharge Requirement (WDR) permit from the local regional water quality control board. All other applicants are required to obtain WDR permits from the local Regional Water Quality Control Board for all OWTS approvals prior to submitting plans to the Department. Developers are advised to consult with the appropriate field office of the RWQCB prior to contacting the Department for such projects.

Authority

The Department of Public Health entered into agreements with the Los Angeles Regional Water Quality Control Board and the Lahontan Regional Water Quality Control Board in 2004, which authorized DPH to continue approving OWTS while the State continued to develop the OWTS policy required by AB 885. Upon the adoption of the State OWTS Policy in 2012, the County was authorized to continue approving OWTS while the LAMP was developed and under review by the RWQCB.

This guide is prepared in accordance with the requirements set forth in the Los Angeles County Codes, Title 11 (Health and Safety) and Title 28 (Plumbing) and other regulations applicable to OWTS. It is intended to provide standardized guidelines for preparation and submittal of plans and feasibility reports in order to obtain the Department of Public Health – Environmental Health (the Department) approval for design, siting, and installation of an OWTS or NOWTS.

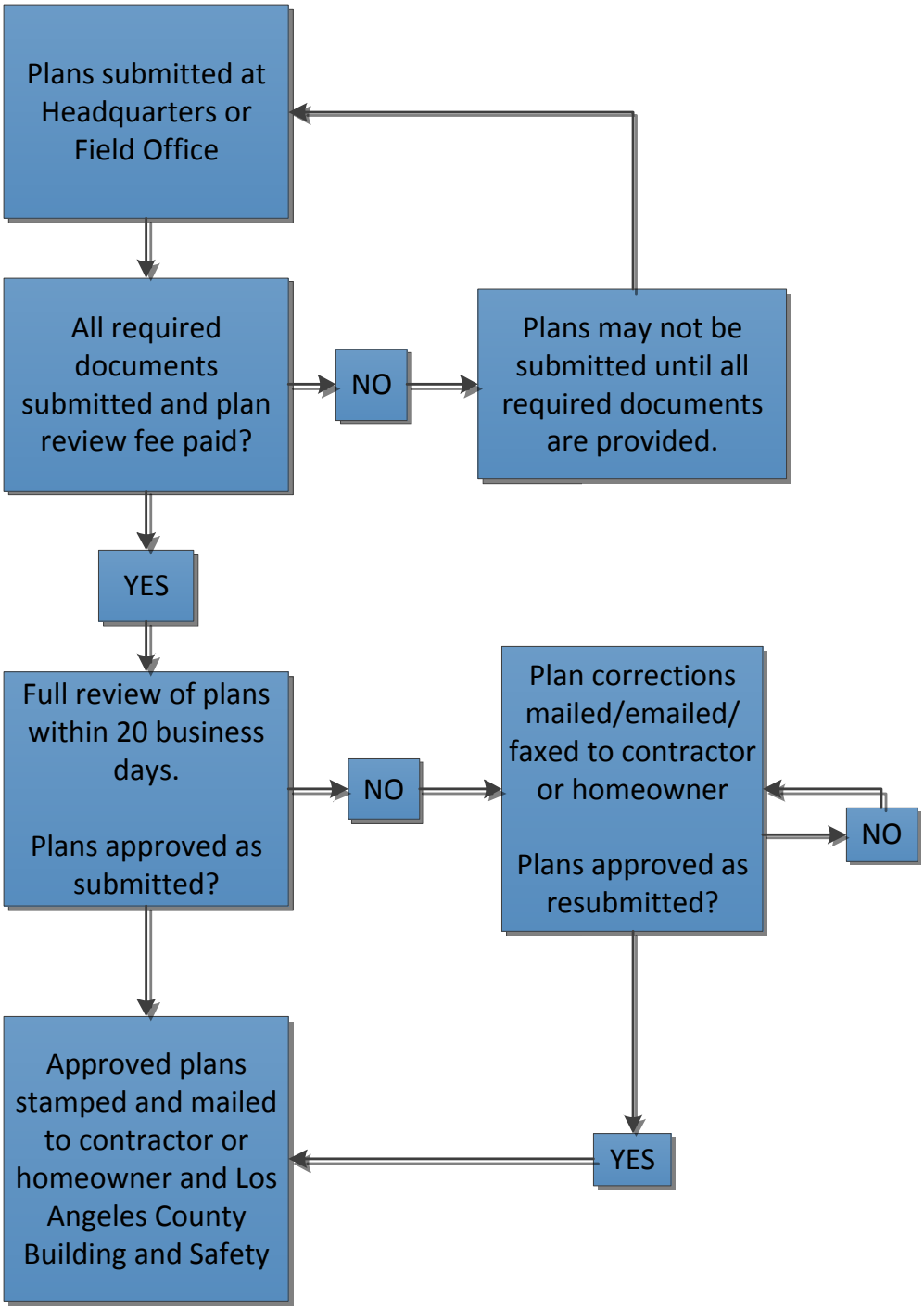
All requirements in this document are subject to amendments when deemed necessary by the Department. The Department will make every effort to notify the related industry and all interested parties of any revisions to these guidelines 30 days prior to the effective date of the implementation. This document does not represent all applicable regulations in their entirety; other requirements may apply.

Approval Process

Plans may be submitted at any Land Use field office or Environmental Health Headquarters for review (please call ahead for directions and/or hours). Refer to the Plan Submittal Checklist and Service Request Application in Appendix A to ensure that all required documents are submitted for review. Incomplete submittal packages will not be accepted and projects will not be reviewed until all fees are paid. If you are unsure of the payment amount, please contact a field office or headquarters.

Once a review has started, the Land Use Program will try to notify you within 20 business days of your plan status. After a full review, you will be advised that either your plan is approved as submitted or corrections to the plan are needed. Every effort will be made to review and approve plans in a timely manner from the time all required documents and payment are received.

Approval Process Flowchart



DEFINITIONS

Alluvium – unconsolidated rock and/or soil that has been redeposited and typically lies above consolidated bedrock.

Bedroom or Bedroom Equivalent – a room designed to afford privacy, which does not lead into other rooms and is equipped with window(s) on its exterior walls; OR any room that is designed in such a manner that could function and potentially be used as a bedroom is considered a bedroom equivalent. Rooms identified as sleeping rooms, dens, studios, sewing rooms, game rooms, libraries, theater rooms, lofts, study rooms, offices, lounges, gyms, or any room with an area of 70 square feet or greater in size shall be considered to be a bedroom or bedroom equivalent regardless of whether the room is equipped with a door or not. The Department may grant exception if a room, by its design, cannot function as a bedroom.

Bedrock – any consolidated rock, either weathered or not, which usually underlies unconsolidated alluvium. Bedrock would include sedimentary rocks excluding alluvium.

Core Room – a room in a single-family dwelling, recognized as a kitchen, living room, bathroom, utility room, dining room, or family room.

Day-Lighting – the act of effluent from an OWTS reaching the surface either due to failure of the effluent to percolate into the ground or through a slope or manmade cut.

Dispersal Area – the location of a dispersal system and expansion area.

Dispersal System – a method used for discharge of liquid sewage effluent from a septic tank, dosing tank or treatment tank. Standard dispersal systems include but are not limited to leach beds, leach lines, infiltrative chambers, seepage pits, and gravel-packed pits.

Domestic Wastewater – is wastewater normally discharged from plumbing fixtures, appliances, and other household devices including toilets, sinks, showers, bathtubs, laundry facilities, dishwashing facilities and garbage disposals. This may include wastewater from commercial buildings such as office buildings, retail stores, and some restaurants or from industrial facilities where domestic wastewater is segregated from industrial wastewater. Domestic wastewater does not include systems receiving a significant portion of RV holding tank discharges such as at RV dump stations.

Effluent – sewage or partially treated sewage flowing out of a septic tank, aerobic treatment unit, dispersal system, or other OWTS component.

Existing OWTS – an OWTS that was constructed and operating prior to the effective date of this Guideline or an OWTS for which a construction permit was granted up to one year prior to the effective date of this Guideline.

Feasibility Report – the documents, test results, geological reports, etc. that are required to be prepared and submitted in order to demonstrate the feasibility of installing an OWTS or NOWTS, including the 100% future expansion area.

Future Expansion Area – an area designated as the location for an additional dispersal system once the original dispersal system fails.

Failing Onsite Wastewater Treatment System – any onsite wastewater treatment system where wastewater is no longer safely treated or discharged and presents a health risk to humans or adversely impacts the environment. Evidence of a failing system includes, but may not be limited to:

- A backup of sewage into a structure which is caused by a septic tank or dispersal system problem other than a plumbing blockage.
- A discharge of sewage or effluent to the ground surface.
- A septic tank that requires frequent pumping in order to provide adequate dispersal of sewage.
- A structural failure that causes effluent to discharge at a location other than where intended or allows groundwater to infiltrate the system.
- A system that affects or will affect groundwater or surface water to a degree that makes it unfit for drinking or other uses or causes human health or other public nuisance condition.
- Inability to use the system as intended.

Family Room – a room with at least one wall designed with an unobstructed opening of at least one-half the length or area of that wall. A family room is an informal, all-purpose room, usually located adjacent to a dining room or a kitchen and has doors leading to the outdoors. A maximum of one room can be identified as a family room for each single family dwelling.

Groundwater – water located below the land surface in the saturated zone of the soil or rock. Groundwater includes perched water tables, shallow water tables, and zones that are seasonally or permanently saturated.

IAPMO – the International Association of Plumbing and Mechanical Officials.

Impaired Water Body – those surface water bodies or segments thereof that are identified on a list approved first by the State Water Board and then approved by US EPA pursuant to Section 303(d) of the federal Clean Water Act.

Inspection – checking, observing, testing, and/or evaluating an onsite wastewater treatment system to determine the operating condition of the onsite wastewater treatment system.

Maintenance – work related to the upkeep or repair of an onsite wastewater treatment system. Examples include but are not limited to: any installation, repair or replacement of septic tank baffles, risers, effluent filters, tees, ells, tops, access port lids, pumps and blowers.

Mottling – a soil condition that results from oxidizing or reducing minerals due to soil moisture changes from saturated to unsaturated over time. This soil condition can be indicative of historic seasonal high groundwater level.

Mounding – upward movement of the effluent relative to the level of water observed last at the end of percolation test.

Non-conventional Onsite Wastewater Treatment System (NOWTS) - an onsite wastewater treatment system that utilizes, in addition to the septic tank, one or more supplemental treatment components to treat the effluent prior to discharge to the dispersal field.

NSF – the National Sanitation Foundation, a not for profit, non-governmental organization that develops health and safety standards and performs product certification.

Onsite Wastewater Treatment System (OWTS) - an onsite wastewater treatment system composed of a septic tank and a dispersal system that uses leach lines, a leach bed or seepage pits and does not include non-conventional onsite wastewater treatment systems.

Percolation Test - a subsurface test conducted to measure the absorption rate of water in soil strata. The test is conducted after initial presaturation and is usually expressed as minutes per inch or gallons per square foot of surface area per day.

Qualified Contractor – (QC) an individual who possesses a valid California License as General Engineering Contractor (Class A), General Building Contractor (Class B), Sanitation System Contractor (Specialty Class C-42), or Plumbing Contractor (Specialty Class C-36). The qualifying contractor under this definition may perform all work related to installation of new and replaced OWTS, and repair of existing OWTS in accordance with California Business and Professions Code and Title 16 of the California Code of Regulations.

Qualified Professional – (QP) a California Professional Geologist, a California Certified Engineering Geologist, a California Registered Professional Engineer, a California Registered Professional Soil/Geotechnical Engineer or a California Registered Environmental Health Specialist who is not currently employed by the County of Los Angeles.

Renovation – restoration, replacement, or alteration of any malfunctioning or damaged component of an onsite wastewater treatment system except those defined in this section as maintenance. The alteration of a hollow seepage pit to a rock filled seepage pit for the purposes of this article shall be considered a repair.

Seepage Pit – an excavation at least 10 feet deep and 4 – 6 feet in diameter, typically cylindrical in shape with 6 inches of rock between the pit wall and a concrete or brick liner, constructed for the purpose of disposing of sewage effluent from a septic tank or treatment tank.

Septic Tank – a water tight, compartmentalized, covered receptacle designed and constructed to: receive the discharge of sewage; separate the solids from the liquid; digest organic matter; store digested solids for a period of retention, and allow the resultant effluent to discharge from the tank.

Sewage – waste substance, liquid or solid, associated with human habitation, or which contains or may contain human or animal excreta or excrement.

Shallow Drip System – a treated wastewater dispersal system using filters, flexible tubing, drip emitters and a flushing mechanism to disperse directly to the soil without stone aggregate or chambers.

Soil – the naturally occurring body of porous mineral and organic materials on the land surface, which is composed of unconsolidated materials including sand, silt, and clay mixed with varying amounts of larger fragments and organic material.

Telemetry – the automatic collection and transmission of data by wire, radio, or other means.

TMDL – Total Maximum Daily Load. Limitations placed on pollutants causing the impairment of a 303(d) listed water body. The TMDL contains implementation plans detailing how water quality standards will be attained.

Utility Room – a room containing clothes washing and drying appliances, utility/mop sink, and space for storage or household supplies or other similar uses.

Waste Discharge Requirement or WDR – means an operation and discharge permit issued for the discharge of waste pursuant to Section 13260 of the California Water Code.

CHAPTER 1. PROJECTS THAT REQUIRE PLAN REVIEW AND FEASIBILITY REPORTS

A. Land Development Projects

Conditional Use Permit and land Subdivision projects where a public sewer is not available.

B. Building Construction

Any new construction where a public sewer is not available within 200 feet of the building.

C. Building Expansion

Any renovation of an existing building that entails expansion beyond the current footprint of the permitted structures, the addition of a room, the addition of plumbing fixtures or a combination of any of the above that will increase the design flow or demand a greater capacity than the capacity indicated on the previous approval for the existing system.

D. Addition of a Building or Structure on the Property

The addition of a new building or structure such as a garage, gazeebo, patio, deck, swimming pool, spa, or driveway, whether or not it includes any plumbing or bedroom equivalents must be evaluated to determine whether the new structure encroaches on the setbacks for the existing system and to ensure that a tested and approved area remains for the 100% future expansion area.

E. OWTS/NOWTS Renovation or Repair

- Any repair, renovation, or replacement of the septic tank, supplemental treatment components, or dispersal system where there are no records of the previous approval.

- Any repair, renovation or replacement of the septic tank, supplemental treatment components, or dispersal system where it is discovered that the existing system is nonconforming and does not meet the current requirements.

- Any repair, renovation or replacement of a previously approved, existing septic tank, supplemental treatment components, or dispersal system where geological conditions have been identified that may adversely affect the operation of the system. The replacement of a septic tank at a previously approved system requires plan submission but does not require a feasibility report.

- If you are rebuilding as a result of a fire or other natural disaster, please consult our Guidelines for Rebuilding Residential and Commercial Structures Following a Fire or Other Natural Disaster.

F. Activation of the 100% future expansion area

The feasibility of installing the 100% future expansion area shall be demonstrated if the previous approval was based on soil category evaluation or where the 100% future expansion area was not tested at the time of the original approval even if the plans or records refer or illustrate to a location for the future expansion area.

CHAPTER 2. PROFESSIONAL QUALIFICATIONS FOR PREPARING FEASIBILITY REPORTS AND INSTALLATION OF OWTS

A. Feasibility reports shall be prepared by <u>Qualified Professionals (QP)</u> who possess a valid California license / permit to conduct the required testing and / or to prepare or contribute to the preparation of a feasibility report.

1. The following are considered Qualified Professionals (QP):
   A California Professional Geologist, a California Certified Engineering Geologist, a California Registered Professional Engineer, a California Registered Professional Soil/Geotechnical Engineer or a California Registered Environmental Health Specialist who is not currently employed by the County of Los Angeles.

2. All above listed QP are qualified to design a new or replacement OWTS and to perform all necessary soil and site evaluations where the treatment or dispersal system will be replaced or expanded, except as noted below. The design of new and replacement OWTS shall be based on influent wastewater quality, quantity, the site characteristics and the required level of treatment for protection of water quality as well as public health.

3. For a person to be considered a QP for the following activities, the individual must have one of the qualifications noted next to the activity:

   - A site evaluation of the property, including subsurface exploration to determine the depth of groundwater, down-logging of a soil profile excavation hole and preparing a written report of findings – California Professional Geologist or California Certified Engineering Geologist
   - Determination of uniform geology where extreme geologic conditions do not exist – Professional Geologist
   - Preparation of soil profile of any test pits – California Professional Geologist or California Certified Engineering Geologist
   - Address potential for slope destabilization for any proposed hillside installation – California Certified Engineering Geologist or a California Registered Professional Soil/Geotechnical Engineer,
   - Prepare and certify a hydrological assessment to request a waiver of setback requirements from a blue line stream or tributary confirming that neither the proposed dispersal system nor the subject drainage course will ever generate sufficient lateral infiltration that could negatively impact each other, declaring the location for the proposed dispersal area suitable – Registered Geologist, Hydro-geologist or Engineering Geologist.

4. The QP who prepares the feasibility report shall sign the report. Additionally, he/she shall affix a professional stamp on the plot plan and the report adjacent to the signature, acknowledging the responsibility for the overall preparation of the report and agreeing to the following declaration: *"This submittal is intended to represent a complete feasibility report that conforms with the applicable provisions of the Los Angeles County Code – Title 28 Plumbing Code and the feasibility report requirements of the Department of Public Health - Environmental Health".*

B. Installation of OWTS shall be performed by a <u>Qualified Contractor</u>.

For the purposes of construction of OWTS, a Qualified Contractor is an individual who possesses a valid California License as General Engineering Contractor (Class A), General Building Contractor (Class B), Sanitation System Contractor (Specialty Class C-42), or Plumbing Contractor (Specialty Class C-36). The qualifying contractor under this definition may perform all work related to installation of new and replaced

OWTS, and repair of existing OWTS in accordance with California Business and Professions Code and Title 16 of the California Code of Regulations.

For the purposes of certification inspection of existing OWTS, contractors who only possess a General Building Contractor (Class B) license are not qualified to perform the required OWTS inspection.

CHAPTER 3. DOCUMENTS AND INFORMATION REQUIRED FOR OWTS PLAN REVIEW

A. Service Request Application

- The location of the property, including a legal description (state how the property is identified) and the Assessor's Parcel Number (APN).
- The property owner's name, mailing address, phone number, and email address.
- The contractor's name, address, phone number, and email address. The geologist's name and contact information is to be included with the feasibility report.
- The service requested.

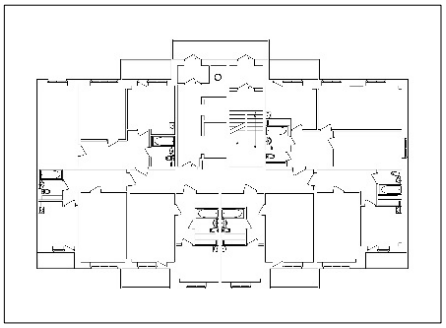
B. Feasibility Report

Feasibility reports contain "proprietary information" and are not released to the public or industry professionals. The feasibility report shall clearly identify the following:

- The property address, ownership information, the Qualified Professional's information, the date of the testing, and the description of the procedures.
- The name and the profession of the person(s) who performed the actual percolation testing procedure and their working relationship with the QP who signed the report.
- A site-specific determination of seasonal and historical subsurface water levels, including information regarding the methods utilized to reach the determination. This should include all available historical data that supports the findings concluded by the QP.
- Percolation testing data including the failures of test holes.
- A general soil description and any features that may affect subsurface wastewater dispersal.
- A soil profile excavation down-logged by a California Professional Geologist or California Certified Engineering Geologist. This report is to be included with the percolation test data.
- See Chapters 8. Determining Depth of Groundwater; Chapter 9. Requirements Applicable to all Percolation Tests; Chapter 10. Percolation Testing for Leach Lines and Leach Fields; and Chapter 11. Percolation Testing for Seepage Pit for additional information on what is required to be included in the Feasibility Report.

C. Floor Plan

A floor plan shall be submitted for the building(s), reduced to 11” X 17”, to illustrate all rooms along with a listing of all plumbing fixture units. A scale indicator shall be included on the map and shall not be subject to change due to reduction or enlargement of the plan. For new construction the floor plan shall include all proposed rooms and their designated use. For evaluation of existing systems required due to building expansion, addition of a new building, OWTS repair, or activation of the future expansion area, the plans shall indicate all current rooms and their designated use.



D. Grading Plan

A copy of an approved grading plan from the DPW, Building & Safety Division. A copy of the rough grading geology review sheet approval for hillside properties that is required by the DPW, Building & Safety Division shall be submitted prior to final approval. The proposed system shall conform to the rough grading approval by the County Geology Division.

E. Plot Plan

A plot plan shall be submitted, professionally drawn to scale, not less than 1”= 20’ for parcels of one acre or less, and 1”= 40’ for parcels over one acre, signed by a QP. A scale indicator shall be included on the map and shall not be subject to change due to reduction or enlargement of the plan. For very large parcels, insertion of the specific wastewater dispersal areas may also be required. The typeface and size must remain legible (preferably size 12 font) when the plan is reduced to 11 x 17 inches. The plot plan may be on 8 ½ x 11 or 11 x 17 inch paper. Multiple pages may be used to clearly identify all relevant features of the site. Photographs may be included to illustrate site conditions. The plot plan shall illustrate a northerly indicator and contain the following information:

1. The dimension of the lot including property lines, easements for roads, utilities, utility easements, access to other lots, etc. (Submittal of easement documents with underlined dimensions that match the dimensions shown on plans and the description of the purpose for each easement shall be required).

   See **Appendix B** for further information on easements, including conditions when an OWTS/NOWTS may be installed in an easement.

2. All slopes and topographical features, including location of all down banks, man-made cuts, and unstable land masses, on or off the property, affecting “day-lighting” requirements shall be indicated. Typically, the day-lighting setback is measured from the point where wastewater is being discharged within the dispersal system. The day-lighting setback for infiltrative chambers is measured from the discharge point of the infiltrative chamber; for leach lines, it is measured from the trench wall; and for seepage pits, it is measured from the closest side wall at the capping depth. (Note: this was clarified here and in Chapter 4, Setbacks, both sections previously indicated that the daylighting setback was from the point of discharge, however, the descriptions were contradictory.)

3. All vegetation and trees, especially oak trees and groundwater indicators such as willows, reeds, cattails, and other hydrophilic plants shall be shown with clear indication of their trunk. A minimum of 10 feet of horizontal setback from the trunk of a tree to any part of OWTS is required.

   For oak trees, in addition to the location of the tree trunk, the drip-line of the tree shall be illustrated. In unincorporated area of Los Angeles County, the setback clearance from an oak tree shall be in conformance with the Los Angeles County Oak Tree Ordinance, extending to a point

that is at least 5 feet outside the drip line or 15 feet from the trunk of the tree, whichever is the greater.

Best Practice: Maintain a minimum 10 foot setback clearance measured horizontally from the **anticipated drip line of a tree at its maturity**.

4. All sources of water including, the proposed source of drinking water, all existing, abandoned, or proposed water wells on or off the property within 200 feet of the dispersal system; all water mains, domestic onsite water lines and service connections, culverts, ripraps, French drains, key-ways, and sub-drains on the subject property.

5. All flowing surface water bodies such as streams, springs, drainage courses, watercourses, and flood ways, whether year-round or ephemeral, within 200 feet of the property lines. The site plan shall illustrate the natural or levied bank.

6. All horizontal set-back distances as required by the Los Angeles County Plumbing Code – Title 28 Table H-1.7. Each setback distance should be indicated on the plan.

7. The location of all percolation tests, including failures, and their corresponding percolation rates; all borings to establish current and historical groundwater water levels; and test locations and borings shall be identified by numbers corresponding to the collected field data.

8. The location of rock outcroppings.

9. The location of all existing and proposed structures to include cesspools, tanks, out-buildings, car ports, swimming pools, driveways, paved areas, retaining walls, steps, decks, patios, cantilevered balconies, etc.

10. The location and components of the entire dispersal system to include:

    a) The dimensions (length, width and depth) of the leach lines, depth and diameter of seepage pits, or size of any other style of dispersal field, and the distances between trenches and seepage pits.

    b) The distribution box located at the head of the dispersal system when the dispersal system is comprised of more than one leach line or seepage pit.

    c) The required setbacks from the building are measured out from the vertical plane of the closest edge of the building exterior, clear to sky, to include any protrusions, such as, roof overhang, balcony, deck, etc.

    d) Any supplemental treatment components and disinfection treatment components.

    e) The required day-lighting setback applied to underground structures where the structure is at or below the level of the point of discharge measured out from the vertical plane of the closest edge of the structure.

11. The location, size and rating of the septic tank to be installed.

12. The proposed area reserved for the 100% future expansion. Where access to the future absorption area is compromised by the construction of the dwelling or by any future use of the property, the 100% future expansion system shall be installed with the present system. The 100%

future expansion system installed with the present system shall not be activated until the life of the present system has come to its end.

13. All information required in **A**. must also be included on the plot plans.

F. Cross Sectional View of the Dispersal Field or Seepage Pit

A cross-sectional view of the proposed installation of the entire dispersal field or seepage pit and its components, illustrating setbacks to preclude day-lighting. Any extra gravel in excess of the required 12 inches below the distribution line(s) shall be indicated on cross sectional view.

G. Site Identification

The address of the job site is to be clearly posted at the construction site. Clearly visible residential addresses meet this requirement. If an inspector attempting to conduct a site evaluation as part of the plan approval process is unable to locate the property because the address is not properly posted, the contractor may be required to pay additional fees for a second site evaluation.

H. Additional Information Required Depending on the Project

- An evaluation of the current system by a Qualified Contractor is required for existing systems without evidence of prior approval and approved systems operating for over 15 years whenever the project includes building expansions without additional bedrooms or plumbing fixtures, repairs of the existing system, the addition of new buildings or structures to the property, or the activation of a future expansion area.

- A Slope Evaluation Report approved by a qualified professional is required whenever natural ground slopes in dispersal areas are greater than 30%. (Note: This is a change from the prior requirement of evaluation by DPW Geological Materials and Engineering Division for slopes of 2:1 or greater. This change is due to DPW informing DPH that they are no longer performing this service.)

- A report by registered engineer indicating that the wastewater generated by the OWTS will not surcharge and mound on any caisson, column, pillar or footing that is intended to support an above ground structure, installed below grade extending down to or below the point of discharge, even though it may be lesser in width than the dispersal system (i.e., smaller than the diameter of seepage pit or width of trench) with which it interfaces. Any such structures with width equal to or wider than the interfacing dispersal system shall be considered an underground structure and a 15-foot day-lighting setback requirement shall apply.

- Identification of types of filler material such as rock or gravel to be used in the dispersal fields of leach lines and beds, or to line the outside of the seepage pit liners. Documentation from the supplier attesting that all filler materials/rocks have been washed to be reasonably free of fines shall be available at the time of installation.

CHAPTER 4. SETBACKS AND OTHER CONSIDERATIONS

A. Setbacks

1. All new OWTS/NOWTS installations and all replacement conventional OWTS shall comply with the setback requirements of the Los Angeles County Plumbing Code. A table with all of the required setbacks is provided in **Appendix C**.

2. The setback requirements for a NOWTS that is replacing a currently installed OWTS shall meet all of the setback requirements as is feasible. When setback requirements cannot be met, the Department shall specify the required level of treatment provided by the NOWTS.

3. A minimum of 10 feet separation shall exist between the bottom of a dispersal system and groundwater.

4. The minimum setback for day-lighting is 15 feet and it's considered the shortest horizontal distance measured from the nearest point that wastewater is being discharged (i.e., from the edge of the trench or closest edge of the seepage pit at the cap depth) to the edge of sloping grounds or to any underground structure.

5. OWTS/NOWTS shall not be built in a flood zone.

   See **Appendix C** for requirements to obtain a waiver for certain setbacks.

B. General Project Requirements

1. No plans will be accepted or approved for the installation, alteration, or repair of any OWTS or part thereof, for any building for which a connection to the public sewer is available within 200 feet.

2. All approved plans are valid for 1 year from the original date of approval. If the Building Permit has not been issued within the one-year period, the property owner may apply for an extension prior to the expiration of the one-year period. There will be a maximum of two (2) one-year extensions granted as long as it is determined that the original approval remains in conformance with the current code.

3. Projects that have not received a building permit within the two one-year extensions require submission of a new application and review of the feasibility report and are subject to plan check fees of equivalent to a renovation project.

4. The representative of the Department who is assigned to review the project will only communicate the outcome of the review and the required corrections with the property owner and the Qualified Professional or Qualified Contractor named on the Service Request Application submitted for the project.

5. All departmental issued documents, such as, plan correction response letters, inspection reports, approvals and other related documents are considered public records and may be released upon request. Proprietary information, including geological data compiled through tests, explorations, excavations, borings, evaluations, etc. performed by a qualified professional on a specific site to produce a feasibility report for installation of OWTS are not considered public records.

6. Prior to conducting an evaluation of an existing OWTS, the qualified contractor shall notify this Department of the date and the time of the uncovering of the OWTS, at least one business day in advance, for possible observation and verification by the Department representative.

7. The evaluation of an existing system must include whether the existing system was properly installed, is currently functional, and structurally in good repair. The qualified contractor shall submit to the Department a signed report attesting to such capability for the existing OWTS. The inspection report of the current system required in shall include:

a. Verification that all components were installed/constructed in an acceptable manner (i.e., setbacks are met) and all components are intact and in good repair.
b. Verification of the structural integrity of the entire system, to include tank, baffles, plumbing lines, distribution box, diverter valves, and any other related component.
c. The report shall attest to the current condition of the dispersal system. For example, the extent which the perforated pipes for leach lines and the gravel below are clogged; the presence of organic build up in the seepage pit; the observed level of standing wastewater in seepage pit and if the wall of the seepage pit is stained due to constant contact with wastewater that may have happened in the past, etc.
d. The report shall include a plot plan that clearly identifies and illustrates the entire OWTS to include the tank size and related details of the dispersal system.

8. If the evaluation of an existing system determines that the septic tank is inadequate the tank shall be upgraded to meet the current departmental requirements.

9. When a previously approved OWTS fails but the proposed expansion area does not meet the current percolation rates, a NOWTS shall be required even though there are no concurrent improvements planned for the structure.

10. When a previously approved OWTS fails and surface or subsurface water conditions are such that the current setback requirements cannot be met, a NOWTS including disinfection shall be required.

CHAPTER 5. SEPTIC TANK CAPACITY AND REQUIREMENTS

The liquid capacity of all septic tanks shall conform to Tables H 2.1 and H 2.1(1) of the Los Angeles County Code, Title 28 – Plumbing Code. See **Appendix D** for Table 2.1.

A. Capacity of Septic Tanks

The determination of the capacity of a septic tank is subject to the following requirements:

- The capacity for a septic tank to be utilized for single or multiple family dwelling shall be determined based on the number of bedrooms and bedroom equivalents.

- The septic tank capacity for commercial establishments shall be determined based on fixture units count specified in Table H 2.1 and in accordance with the type of the establishment indicated in Table H 2.1(1), whichever provides a greater capacity.

- When determining the septic tank size for establishments that are composed of both single or multiple family dwelling units and commercial establishments, whether based on fixture unit count or bedroom and bedroom equivalent or combination of both, the largest resulting capacity shall be proposed.

- All rooms with the exception of core rooms shall be considered a bedroom or bedroom equivalent when determining the minimum capacity for a septic tank and sizing of a dispersal system. As

noted in Chapter 3, the application for construction of a new OWTS shall include a detailed floor plan (see Chapter 3 for complete details).

- Detached structures/rooms with windows that are greater than 70 square feet in area and are not equipped with water lines or plumbing fixtures shall not be considered a bedroom or bedroom equivalent. Plans for construction shall clearly describe the purpose of such structure/room and indicate that the structure/room is not equipped with any plumbing fixtures.

- A guest house with kitchen shall require a separate OWTS, large enough to accommodate the wastewater dispersal needs of the structure, independent of the main house. Sizing of OWTS for guesthouses with kitchen shall be computed based on the number of bedrooms and bedroom equivalents. The construction of a guesthouse with kitchen requires approval from the Department of Regional Planning, in addition to Building and Safety Division.

Best Practice: Septic tanks may be voluntarily oversized to improve the retention time. This should be clearly noted on the plans.

B. Structural Requirements for Septic Tanks

- All new septic tanks shall comply with the most current version of the Los Angeles County Plumbing Code, Title 28, Appendix H.

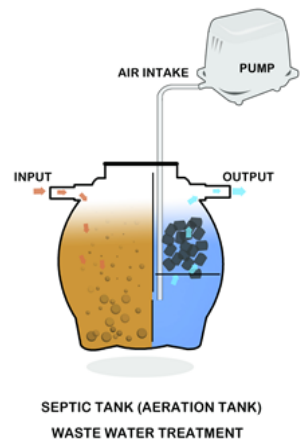
- All new or replacement tanks shall be meet the standards of the local Building Official and their installation shall be according to manufacturer's recommendations.

- All joints between the septic tank and its components shall be watertight and constructed of solid, durable materials to prevent excessive corrosion or decay.

- The inverts of all outlets shall be level and the invert of the inlet shall be at least one inch higher than the outlets.

- All septic tank access points shall have watertight risers the tops of which are set not more than six (6) inches below grade. Access openings at grade or above shall be locked or secured to prevent unauthorized access.

- Aerobic systems may be used in place of conventional septic tanks provided they provide equivalent treatment to a conventional system when the aeration unit is not operational.



Example of an Aerobic Treatment Tank

- Any tank proposed to be installed within a driveway must be traffic-rated and equipped with traffic-rated risers with traffic-rated covers set at grade. Non-traffic rated tanks shall not be installed within 5 feet of any road or driveway.

- OWTS that utilize pumps to move effluent from the septic tank to the dispersal system shall be equipped with one of the following: a visual, audible, or telemetric alarm that alerts the owner or service provider in the event of pump failure. All pump systems shall, at minimum, provide sufficient storage space in the pump chamber during a 24-hour power outage or pump failure and shall not allow an emergency overflow discharge. The capacity for the storage

space for pump chamber shall be equal or greater than the sum of 300 gallons for first bedroom and 150 gallons for each additional bedrooms or bedroom equivalent rooms thereafter.

- When the existing system is required to be exposed to establish the size and capacity of the septic tank and/or dispersal field or seepage pit, the Department staff shall visit the site and verify the dimensions with the QP/QC. The QP/QC shall notify this Department of the date and the time of the uncovering of the OWTS, at least one business day in advance for possible observation by the Department representative.

CHAPTER 6. DISPERSAL METHODS FOR CONVENTIONAL OWTS

A. General Dispersal System Requirements

1. If the percolation tests for a proposed leach bed or leach line results in an absorption rate that slower 60 MPI, the soil conditions do not meet the minimum requirements of a conventional system. **Soil Replacement as detailed in Chapter 12. Non-Conventional Onsite Wastewater Treatments – Supplemental Treatment and Soil Replacement is required**.

2. If the percolation test for a proposed leach bed or leach line results in an absorption rate that is less than 5 minutes for the water level to drop from the 5th to 6th inch, the soil conditions do not meet the minimum requirements of a conventional system. **Supplemental treatment as detailed in Chapter 12. Non-Conventional Onsite Wastewater Treatments – Supplemental Treatment and Soil Replacement Requirements is required.**

3. If the percolation tests for a replacement seepage pit or gravel packed pit results in an absorption rate exceeding 5.12 gallons per square foot of dispersal area per 24 hours**, Supplemental treatment as detailed in Chapter 12. Non-Conventional Onsite Wastewater Treatments – Supplemental Treatment and Soil Replacement Requirements is required**.

4. No excavation for a leach line, leach bed, or seepage pit shall extend to within 10 feet of groundwater.

5. Where two or more leach lines are installed, an approved distribution box of sufficient size to receive lateral lines shall be installed at the head of the dispersal field. Similarly, two or more seepage pits shall be connected by means of a distribution box and not in series.

6. Distribution boxes shall be of an approved type with protective coating on interior surfaces, sufficient in size, designed to ensure equal flow and be installed on a level concrete slab in natural or compacted soil.

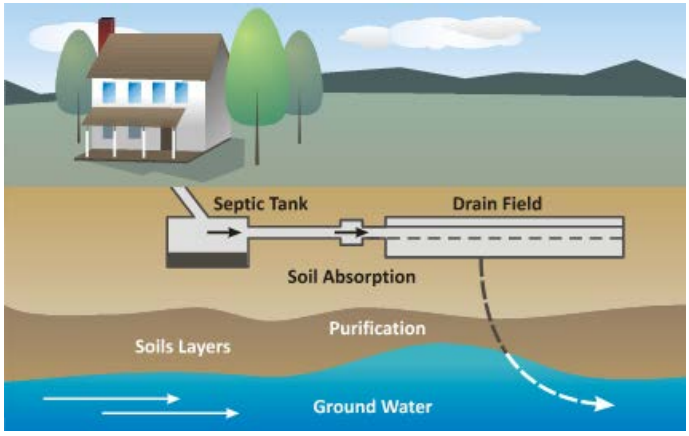


Illustration of an OWTS with a Drain Field

7. There shall be at least three (3) feet of natural, continuous, undisturbed soil beneath the bottom of a conventional dispersal system. When there is not 3 feet of natural, continuous, undisturbed soil between the bottom of the dispersal system and fractured bedrock or bedrock,

Supplemental treatment as detailed in Chapter 12. Non-Conventional Onsite Wastewater Treatments – Supplemental Treatment and Soil Replacement Requirements is required.

8. The dispersal area shall be configured to exclude all failed test holes (see Chapter 6). The minimum distances between failed test holes to the nearest component of the proposed dispersal system shall be not less than the required setback for the respective dispersal component (i.e., 12 feet for seepage pits, 4 feet for leach lines).

9. Dispersal fields for leach lines and leach beds shall be installed at the shallowest practicable depth to maximize elements critical to treatment of effluent in the soil. The total depth for a trench or bed, from ground level to the bottom of trench/bed, may not exceed 5 feet. The total depth of fill over leach lines to ground level, to include the gravel over the pipe, shall not exceed 24 inches. A depth of 12 to 18 inches of earthen cover is required over leach lines. See **Appendix E** for reason for shallow dispersal system.

10. On sloping grounds, to compensate for excessive line slope, leach lines and leach beds shall be stepped. The lines between each horizontal section shall be made with watertight joints and shall be designed so each horizontal dispersal trench or bed shall be utilized to the maximum capacity before the effluent shall pass to the next lower leach line or bed.

11. A slope stability report is required for any slope of 30% or greater. A California Certified Engineering Geologist or a California Registered Professional Soil/Geotechnical Engineer shall address whether the any unstable land mass or areas subject to earth slides require a setback of 100 feet or indicate other setbacks that should be allowed. (Note: This is a new requirement as the Department of Public Works, Geological and Materials Engineering Division has informed DPH that they no longer review slope stability reports.)

12. Leach lines on hillside properties shall be installed level with the contour of the land.

13. The dispersal field/area may not be covered or paved over and in no case may a vehicle be driven or placed over the dispersal field/area. See **Appendix E** for additional information.

B. Leach Bed

This system consists of multiple perforated lines installed in an excavation with a minimum 36 inches in width, maximum of 100 linear feet in length and containing 12 to 36 inches of gravel beneath a system of perforated distribution pipes through which sewage effluent seeps into the surrounding soil. Perforated pipes shall neither be installed greater than 6 feet apart nor closer than 3 feet to the sidewall of the leach bed.

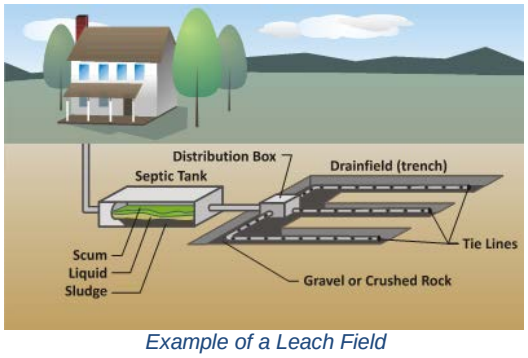
Construction of a Leach Bed

The area designated as a leach bed shall be at least 50% greater than the area required for leach lines.

Gravel, stone, slag and similar materials used for filtration purposes shall be thoroughly washed to be free of fines (small particles).

C. Leach Line

This system consists of one or more trenches. Each trench shall be 36 inches in width, maximum of 100 feet in length, and contain 12 to 36 inches of gravel beneath a single perforated distribution pipe through which sewage effluent seeps into the surrounding soil.



Example of a Leach Field

When more than 1 leach line is required to be installed, they shall equal in length and size and be provided effluent from a distribution box rather than an overflow pipe connecting the leach lines in series. See **Appendix E** for additional information regarding leach lines of uneven length or leach lines required to bend.

The distance between trenches shall be a minimum of 4 feet, measured from closest sidewall to sidewall. The distance between trenches shall be increased by 2 feet for every 1 foot of gravel beneath the perforated lines.

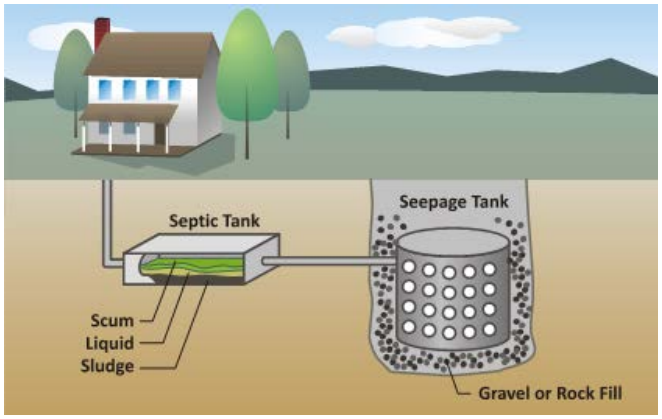
Gravel, stone, slag and similar materials used for filtration purposes shall be thoroughly washed to be free of fines (small particles).

D. Infiltrative Chamber

This system consists of semicircular chambers installed contiguously with open portion of the infiltrative chambers on the ground. The infiltrative surface area credit shall be limited to the calculated floor area beneath the open portion of the chamber, excluding the area beneath the base of walls where infiltrative chamber is placed on the ground. The infiltrative surface area may be reduced to seventy percent (70%) of the area that it would be required for a conventional leach field dispersal system. Use of gravel under the infiltrative chambers is optional; however, no additional sidewall credit will be given when gravel is used.

E. Seepage Pit

This system consists of one or more covered circular excavations, four to six feet in diameter with an interior lining of six inches of gravel and sewer brick or concrete liners allowing effluent to seep into the surrounding soil. The pit shall have a minimum effective sidewall of 10 feet below its sewer inlet pipe.



Example of a Seepage Pit

The seepage pit(s) must be sized to hold a volume of at least five (5) times the volume of the proposed size of the septic tank divided by the amount of water absorbed during the percolation test. When groundwater depth prevents a single pit from meeting this requirement, additional seepage pits must be constructed. Multiple seepage pits shall have effluent delivered to them from a distribution box rather than connecting the pits in series.

Gravel-packed Pit

Gravel packed pits are seepage pits that are filled with gravel of ¾ to 2 ½ inches in size up to the cap level, allowing effluent to seep into the surrounding soil. The gravel must be washed and free of silt. All of the limitations on seepage pits apply to gravel packed pits.

The gravel packed pit(s) must be sized to hold a volume of at least five (5) times the volume of the proposed size of the septic tank divided by the amount of water absorbed during the percolation test. The same requirements for percolation testing of a seepage pit apply to a gravel packed pit if the test is performed without gravel pack being added.

CHAPTER 7. FUTURE EXPANSION AREA

A. Every new OWTS and NOWTS, regardless of the type of the dispersal system, shall be provided with a sufficient land area for an entirely new dispersal system (100% future expansion area).

1. When soil profile and percolation tests confirm alluvium geology and uniformity in geology has been established by the Professional Geologist, the required percolation testing for the 100% future expansion area may be waived. The uniformity in geology shall be established through both soil profile studies and percolation testing of more than one hole.

2. Where proposed future expansion areas are in bedrock, hardpan or fractured rock formation, the future pits shall be tested to establish percolation rates for each individual pit.

B. If the dispersal system proposed for the 100% future expansion area is installed concurrently with the construction of a new system, the future expansion system may not be utilized until the present system has failed.

C. Any expansions beyond the current footprint of the existing structure or addition of any new detached structures, such as swimming pools, spas, patio, decks, stairs, walls or any permanently constructed structures shall require the demonstration of the feasibility of installing the 100% future expansion area, regardless of whether the proposed renovation will increase the design flow or demand greater capacity than the existing OWTS.

1. As a part of an approval for 100% future expansion, a previously approved existing OWTS that has been in service for more than 15 years is required to be inspected by a Qualified Contractor (see Chapter 4).

2. If previous approval of the OWTS is not available or did not include approval of the 100% future expansion area AND the renovation/expansion neither increases the design flow, nor demands a greater capacity, the existing OWTS shall be evaluated by a Qualified Contractor, in addition to proving out the 100% future expansion area by a Qualified Professional (see Chapter 4).

D. When the present dispersal system has failed and the 100% future expansion area is to be utilized, a new 100% future expansion area shall be demonstrated through tests and be reserved for future use.

This requirement may be waived if one of the following conditions is met:

- When the 100% future expansion area (dispersal system) that is being activated is equipped with supplemental treatment component;

- When the property is one acre or greater in size and the geology report prepared for the 100% future expansion area that is being activated confirms no unfavorable geological conditions, such as, bedrock formation, etc. exist;

- Where the geology report for the existing present dispersal system, if available, concurs with the geology report prepared for the 100% future expansion area that is being activated, confirming uniform and favorable soil and geological conditions throughout the property.

E. An expansion of up to 10% of the current footprint may be allowed without requiring to prove out the feasibility for the 100% future expansion area so long as the expansion:

1. Does not increase the design flow or require greater capacity,

2. Does not take up more than 10% of the remaining available undeveloped area on the property, where no unfavorable geological conditions, such as, bedrock formation, etc. exist,

3. All required setbacks can be met,

4. The location and direction of the proposed expansion is in a manner that will not interfere with the installation of the 100% future expansion area when needed in the future.

5. Applicants who elect to utilize the exemption under 10% expansion rule, shall submit a signed statement from a California Professional Geologist or a California Certified Engineering Geologist substantiating that there are areas available on the property for the installation of the 100% future expansion area and there are no unfavorable geological conditions, such as, bedrock formation, etc. exist within the property that may prevent the installation of the 100% future expansion area when needed in the future.

6. **Only one use of the 10% expansion rule will be granted to a property.**

F. In situations where adequate land is not available for a second 100% future expansion area, the dispersal system that is being installed shall be equipped with supplemental treatment component.

G. When approving a future expansion area for a system without prior approval, **the approval issued by the Department will only encompass the 100% future expansion area, approving only the renovation/expansion and not the existing OWTS. The Department may require other additional improvements to ensure that the minimum required standards have been met.**

See Appendix F for additional considerations for a future expansion area.

CHAPTER 8. PROCEDURES FOR DETERMINING DEPTH OF SUBSURFACE WATER

Prior to conducting any percolation tests, a site evaluation, including subsurface exploration, shall be conducted by a California Professional Geologist or a California Certified Engineering Geologist to determine the depth of groundwater. A groundwater exploration test hole shall be excavated at the lowest possible elevation within the immediate vicinity of the proposed dispersal system in order to monitor and determine the static depth of the seasonal high groundwater.

In areas with alluvial geology, the groundwater exploration test hole should be within a 35 foot radius and evenly distanced from the proposed seepage pits or leach lines (or both ends of a single leach line).

When unfavorable geological conditions, such as, bedrock formation, etc. exist, the groundwater determination shall be obtained from test borings made that overlie the leach lines or any of the seepage pits proposed for dispersal system.

The groundwater water test hole shall be down-logged by a professional geologist. The geologist shall take precautions to ensure safety. When it's deemed unsafe by the geologist, the required information shall be obtained through alternative methods advised by the geologist and acceptable to the Department.

The Geologist's log of the groundwater exploration test hole shall include the description of the earthen material in the excavation, any observation of mottling, oxidation, staining, crystal buildup, seeps, weeps or other features that may indicate the past or current presence of groundwater. The report shall provide an interpretation of the observation and include a statement by the professional geologist substantiating whether the infiltration and presence of water, if any, is temporary.

A 4 inch perforated pipe should be placed in the groundwater exploration test hole with soil backfilled around it to allow observation of the test hole. The test hole shall remain covered and secured for a minimum of 5 days and shall be monitored periodically by the QP, at least once on 2nd day and once at the end of 5th day to establish the static level of the water and when feasible by Environmental Health Specialist to observe the water level. The report generated by QP shall indicate the monitoring intervals, fluctuation of the water level and establish the final level where the water was stabilized. The covering and securing of any open test excavations/borings/pits shall be in conformance with DPW, Building & Safety Division's requirements.

Groundwater exploration test holes are required to comply with the Monitoring Well Standards Bulletin 74-90 requirements for exploration holes in Part I Section 7 – Reporting and Part III – Destruction of Monitoring Wells. Large volume excavations greater than 10 feet in depth that penetrate a layer that impedes movement of water of low quality, must be reestablished to the degree possible to protect subsurface waters per the Monitoring Well Standards Bulletin 74-90 Part I Section 4 – Exclusions.

In areas with alluvial geology where previous excavations and prior reports by Professional Geologists within the property have proven that there are no high subsurface water concerns, and the soil profile is similar within 10 feet of the anticipated bottom of dispersal field or seepage pit, a statement signed by a QP attesting to the data that substantiates the findings may be accepted.

Known or observed high subsurface water

In areas that are known to have high groundwater and/or where observation of mottling, oxidation, staining, crystal buildup, seeps, weeps or other features that may indicate presence of groundwater in the past or present or where groundwater or moisture seepage (seeps, perched-water, etc.) is present within 10 feet below the expected bottom of the dispersal field or seepage pit, the QP shall, on a continuous basis, monitor and measure the presence of moisture and depth to high groundwater through a groundwater level observation well in a manner described below:

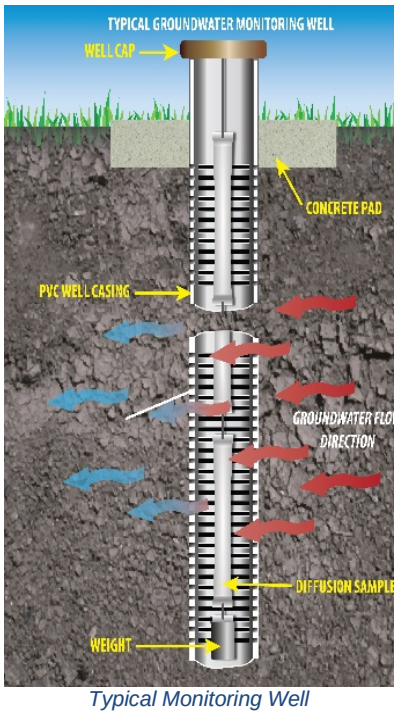
- A permit for a monitoring well is required from the Drinking Water Program. Call (626) 430- 5420 for information on applying for a permit to construct a monitoring well.

- The high groundwater determination exploration shall be conducted throughout the months of March through May.

- The groundwater level shall be monitored and measured on a regular basis to determine the highest level that water has reached during the monitoring period and the final static water level. The groundwater level shall be measured in consistent intervals of at least once every two weeks, during the entire monitoring period.

  When a minimum of 2 inches of rainfall has been recorded during a 10 day period within the area where the groundwater monitoring is being conducted, the interval between two monitoring events shall be reduced to once a week, starting after 3 weeks from the last rainfall that constituted the 2-inch rainfall. If rainfall continues to occur during the monitoring period, the monitoring intervals shall continue to remain at least once a week.

  The groundwater measurements could be achieved by physical observation or by using a piezometer or any instrument intended for this purpose to record the groundwater level. The piezometer or instrument may be a float device that mechanically or electrically records the highest groundwater level.



Typical Monitoring Well

- The groundwater level observation well shall be installed to a minimum depth of 10 feet below the anticipated depth of dispersal field or seepage pit, at the lowest possible elevation in the vicinity of a proposed wastewater dispersal system.

  If an impermeable layer is present at a depth of less than 10 feet below the anticipated bottom of the dispersal field or seepage pit, the depth of the subsurface water level observation well shall extend beyond the depth of the impermeable layer to a depth of 10 feet below the anticipated bottom of the dispersal field or seepage pit, unless demonstrated in other manners acceptable to the Department.

- Seeps and perched-water are considered infiltration of water and are considered as evidence of high groundwater being present. The QP shall monitor the excavated groundwater test hole during the entire observation period as specified above to observe the presence of water, continuation of seeps, increase/decrease in the seepage and any fluctuation of the water level or if the water has been dissipated and the excavated test hole is completely dry. The professional geologist shall interpret the observation in the geology report and substantiate that the infiltration and presence of water no longer exists, if so.

- In areas that are subject to special circumstances such as snowmelt or irrigation, measurements to determine the annual high groundwater level shall be conducted during the period when the special circumstances occur.

- The exploratory groundwater test hole may utilized as a seepage pit if the hole is backfilled with native soil to 10 feet above the point where groundwater was encountered and compacted to match the compaction of the surrounding area, then topped with one foot of neat cement or hydrated bentonite to ensure the required vertical setback from the groundwater.

CHAPTER 9. REQUIREMENTS APPLICABLE TO ALL PERCOLATION TESTING TYPES

A sufficient number of percolation tests shall be conducted within the anticipated dispersal system on all properties proposing to use an OWTS. The entire percolation test procedures, including presoak shall be performed by a QP or individual(s) that are supervised by the QP.

- Prior to performing percolation testing, the QP shall notify the Department of the date and time of all percolation tests to be performed, at least one business day in advance. The Department representative may visit the site to observe the testing procedure. All QPs are strongly advised to consult with the Department, prior to performing the tests, to reach an agreement on the number of test holes required when it's anticipated that unusual circumstances may be encountered.

- When a minimum of 2 inches of rainfall has been recorded within a 10 day period in the area where the percolation test is to be conducted, the start of percolation test, including the presoak shall be delayed a minimum of 3 weeks provided that there shall be no rainfalls during the 3-week period.

- All percolation testing shall be performed within the immediate proximity of the actual anticipated dispersal area. All test holes, successful or failed, shall be clearly identified and labeled by durable monuments and tags so that the correct locations for dispersal system (leach fields and seepage pits), as established through successful tests, can be easily identified during the construction.

- Where extreme geological conditions (e.g., bedrock formation or variation in water table, etc.) do not exist on a property and where uniform geology has been established by a Professional Geologist within a certain limited area on the property, the results of soil profile and percolation testing conducted in the area may be accepted as a representation for a dispersal field or seepage pit as long as the test holes are within a 35 feet radius of the proposed dispersal field or seepage pit.

- The distances between percolation test holes shall be the same as the setback required for the respective dispersal system when constructed. An exception may be allowed when due to extenuating circumstances test holes cannot meet minimum setback requirements.

- Results from previously conducted percolation testing may be accepted for a project, if the proposed dispersal field or seepage pit is in the same location where tests were conducted and referenced in updated geology reports, except when significant changes in geology (e.g., flood, earthquake, significant groundwater recharge, etc.) have occurred or the Department's procedures for percolation test has changed after the date of the testing. All plan approvals of the entire construction proposal will expire one year from the date of the approval.

CHAPTER 10. PERCOLATION TESTING FOR LEACH LINES AND LEACH BED DISPERSAL SYSTEMS

A. Requirements

1. There shall be a minimum of 3 successful test holes in the proposed present dispersal area and 3 successful test holes in the proposed 100% future expansion area unless a waiver on testing the future expansion area has been granted (see Chapter 5. Future Expansion Areas).

   Requiring only 3 test holes represents the most optimal situation with a minimum size system and shall be authorized only when uniformity in geology and absorption rates has been demonstrated. Larger dispersal fields, significant variation in absorption rates of percolation tests or less favorable geological conditions, such as, hard rock formation require additional testing. It's recommended and may be necessary to excavate and test a sufficient number of percolation

test holes in the proposed present, and future dispersal areas to provide a complete and accurate representation of the absorption rate for each proposed dispersal area.

2. The location for percolation testing on each line shall be strategically selected so as to provide a true representation of the entire leach line.

3. The percolation test locations shall be evenly spaced along the proposed present and 100% future expansion leach fields/lines in a manner that the test holes are not greater than 35 feet apart from each other.

4. During the percolation testing, the slowest successful percolation time observed among all tested holes shall be considered for determining the size of the proposed dispersal field.

B. Percolation Test Procedures for Leach Beds and Leach Lines.

1. Prior to performing percolation tests, a determination of the topography and plumbing hydraulic grade shall be made to appropriately determine the level of the dispersal field.

2. An excavation shall be made at least 10 feet below the calculated depth of the trenches to determine if seasonally high groundwater precludes the use of a conventional system. Based on this information, the size of the system may be estimated and a determination made concerning a representative number of test holes.

3. Excavation for the test holes shall be made at the same depth as the proposed depth for the leach lines or leach bed. These test holes shall be at least 3 feet square and dug to the depth of not less than 2.5 feet. A 1 cubic foot hole (1' x 1' x 1') shall be provided at the bottom. All percolation tests shall be performed so that the top of the 1 cubic foot test hole is at the same level as the anticipated bottom of the trench.

4. The sides and bottom of the 1 cubic foot holes shall be scarified so as to remove the areas that became smeared by the auger or other tool used to develop the hole.

5. The 1 cubic foot holes shall be thoroughly presoaked 24 hours prior to percolation test. If water is found in any test holes after 24 hours of the presoak, that test hole is considered failed. This procedure is to ensure that the soil is given ample opportunity to swell and to approach the condition it will be in during the wettest season of the year.

   The soaking must be done with clean water, and the water should be added carefully (to avoid disturbing the sides of the test hole) to a minimum depth of twelve inches. There are three options for conducting the presoak:

   - 1st option: Maintain 12 inches of clear water for a minimum of 4 hours. After 4 hours, allow the water column to drop overnight. Testing must be done within 15-30 hours after the initial 4-hour presoak.

   - 2nd option: The hole should be continuously soaked overnight, which may require constant addition of water from a make-up reservoir, possibly by means of an automatic siphon. The percolation measurements are made 24 hours after the start of the soaking period.

   - 3rd option: In sandy soils with little or no clay, no swelling of the soil will occur. If, after filling the hole twice with 12 inches of water, the water seeps completely away in less than ten minutes, the test can proceed immediately.

6. Following the presoak, the test holes shall be completely filled with water again and allowed adequate time for the water level to drop. As the water level drops, each one inch of drop shall be recorded as Minutes per Inch (MPI). The size of the dispersal field shall be determined by the amount of time required for the water to drop from the 5th to the 6th inch. The slowest acceptable elapsed time recorded on the property shall be used as the representative of the percolation rate for the area being tested and utilized in the Ryon Formula calculation.

7. At or before 24 hours later, after a successful presoak, the test holes shall be completely filled with water again and allowed adequate time for the water level to drop. As the water level drops, the time of each one inch of drop shall be recorded. The size of the dispersal field shall be determined by the amount of time required for the water to drop from the 5th to the 6th inch. The slowest acceptable elapsed time recorded on the property shall be used as the representative of the percolation rate for the area being tested and utilized in the Ryon Formula calculation.

   Ryon Formula: $A = \frac{T + 6.24}{29} x \frac{C}{2}$

   Where A = Square feet of 3-foot wide trench dispersal area
   T = Time in minutes for the 6th inch of water to drain
   C = Proposed septic tank capacity

   The resulting "A" must be divided by 3 to arrive at the length of a 3 foot wide trench with 1 foot of filter material below the perforated pipe provided for the dispersal system. For trenches proposing 2 feet of filter material below the pipe, "A" must be divided by 5 to arrive at the length of trench. For trenches proposing 3 feet of filter material below the pipe, "A" must be divided by 7.

CHAPTER 11. PERCOLATION TESTING FOR SEEPAGE PIT AND GRAVEL PACKED PIT DISPERSAL SYSTEMS

A. Requirements

1. The soil profile excavation hole shall be down-logged by a California Professional Geologist or California Certified Engineering Geologist unless reasonably deemed unsafe by the Geologist. When reasonably deemed unsafe by the geologist the required information shall be obtained through alternative methods advised by the geologist. When test holes are required to be down-logged by Geological and Materials Engineering Division (GMED) of DPW, a copy of the field data shall be submitted to the Department.

2. Results from the soil profile and percolation testing of different pits shall be accepted where the proposed seepage pits locations are within 35 feet of the actual soil profile and percolation testing area, where uniform geology has been established by a Professional Geologist, except where the proposed seepage pits are located in bedrock/hardpan/fractured rock formation.

3. Every seepage pit located in bedrock, hardpan or fractured rock formation shall be tested to establish percolation rates for each individual pit.

4. Where proposed future expansion areas are in bedrock, hardpan or fractured rock formation, the future pits shall be tested to establish percolation rates for each individual pit.

5. When one pit is marginally dispersing water and it has to be supplemented with more pit(s) to achieve the required septic tank capacity, each pit shall be tested for the entire 8 hours to assess the exact capability of the pit(s) and to ensure 10-feet drop can be achieved at the end of the tests.

6. When proposing a cluster system comprised of numerous pits, the Professional Geologist may request for reconsideration of this requirement in light of sufficient data that might support an alternative scope of testing. Such data should be presented to the local office prior to commencing the test procedure, in order to reach an agreement as to the scope of testing that will be required.

7. The water metered in shall be under pressure and shall be metered in constantly through a hose with a minimum of 1½ inch in diameter. A written certification, confirming that the water meter used for the percolation test has been calibrated and certified within the last 12 months prior to the date of the test shall be made available during the test for verification purposes and submitted with the feasibility report.

8. A decrease in the effective height of the seepage pit due to a cap level adjustment after percolation test has been completed shall require an additional percolation test in order to demonstrate adequate absorption and the 10 feet of drop can be successfully achieved.

9. The covering and securing of any open test excavations/borings/pits shall be in conformance with DPW, Building & Safety Division's requirements**.**

B. Procedures:

1. A circular boring with a minimum 2 foot diameter and maximum 6 foot diameter shall be excavated to the anticipated depth of the seepage pit for percolation testing purposes. Approval shall be obtained prior to construction of any pit having an excavated diameter greater than 6 feet. No pits shall be finished, bricked or capped, without prior authorization by the Department. If a seepage pit is to be installed, it will be necessary to secure a permit for the installation of a test pit from DPW, Building & Safety Division.

2. Presoak the test pit by filling it with clear water up to the proposed level of the inlet and allow it to permeate for 24 hours. The water drop after 24-hour presoak period shall equal or exceed 10 feet**.**

   When percolation testing holes cannot be filled to presoak or to conduct a conventional percolation test due to drainage of water from the hole, the test may be stopped once a volume of water equal or greater than the nominal volume of the hole has been metered in during the presoak test or a volume equal or greater than 5 times the required tank capacity has been metered in during the percolation test. In this case the maximum absorption capacity allowed by the Los Angeles County Plumbing Code is considered to be exceeded and a NOWTS is required. The feasibly report shall include the volume of water dispersed, the percolation rate and the required calculations.

3. At or before 24 hours later, after a successful presoak achieving a minimum 10 feet drop, the level of the water remaining in the pit is measured and considered the starting level for the percolation testing (Zero Level). Then, clear water under constant pressure is continuously metered into the test pit to the proposed cap level through a hose with a minimum 1½ inch diameter size, corresponding with the water meter being used. The water is allowed to drop for equal intervals of 30 to 60 minutes. The water level shall be measured and documented after each equal interval during the 8-hour period. The pit is re-filled with water to the cap level after each drop. At the end of the 8-hour testing, the pit is filled back up with water to the cap level for one final time.

4. Twenty-four (24) hours after the start of the 8-hour testing period or 16 hours after the end of percolation test, the water level in the test pit shall be measured to determine that there has been at least a 10 feet drop in the water. The volume of water dispersed during the percolation test is

computed based on the “effective height”, which is measured by subtracting the height (level) of the remaining water from the cap level. The total amount of water that percolated into the soil is then calculated by subtracting the volume of water remaining in the test pit from the total volume of water metered into the test pit over the 8-hour testing period.

5. After completion of the percolation test, where water is remaining at the bottom of the test pit, the test pit shall be periodically monitored for the next 16 hours by a QP to observe the fluctuation in water level, lack of absorption or any infiltration of the subsurface water into test pit to rule out the possibility of mounding and to observe whether the remaining water has been partially or completely dissipated. The geologist shall explain why the remaining water in the test pit after 24 hours from the start of the testing will not adversely affect the dispersal of expected wastewater load and attest that mounding will not occur in future. For the intent of this section, mounding is defined as any elevation in water level, above the level recorded after 24 hours from the start of the 8 hour percolation test.

C. Calculation

The percolation rate is calculated by adding the sum of the surface area of the bottom of the pit and sidewall area of the seepage pit that absorbed the water (total area of sidewall shall be calculated based on the “effective height” as described under number Note # above). Then the total number of gallons of water that the pit absorbed is divided by the sum of the areas; the result is the percolation rate.

1. The seepage pit(s) must have a volume large enough to hold five times the capacity of the septic tank divided by the total volume of water absorbed.

2. When volumetric determinations are being made for testing in a two foot boring, credit will be given for 23.5 gallons per vertical foot that the water drops.

3. The volume of water absorbed by the 2 feet diameter test hole may be adjusted to a larger volume based on the ratio of the side wall surface areas:

    a) A 4 feet diameter pit would be given credit for 2 times the volume percolated in a 2 feet diameter test hole.
    b) A 5 feet diameter pit would be given credit for 2.5 times the volume percolated in a 2 feet diameter test hole.
    c) A 6 feet diameter pit would be given credit for 3 times the volume percolated in a 2 feet diameter test hole.

4. Sidewall determinations are based on the boring diameter. Volumetric calculations are based on the liner diameter. The pilot hole for reaming out a pit is not calculated in the sizing of a pit and shall not extend to within 10 feet of the level of groundwater.

5. Seepage pits shall be constructed with 6 inches of washed gravel between the pit lining and the excavated sidewall and shall have an excavated diameter of not less than four 4 feet. The following chart provides the capacity for different diameters of finished bricked/lined seepage pits and gallons of wastewater dispersed for each size.

Seepage Pit Diameter	Gallons per Vertical Foot
4 Feet	53 Gallons
5 Feet	94 Gallons
6 Feet	147 Gallons

6. During the percolation test, when the volume of water dispersed collectively by more than one test pit, has been marginally greater than the required amount AND the absorption capability of one pit is significantly less that the other(s), the QP shall design the dispersal system (set the distribution box) in a manner to ensure that the volume of wastewater received by each pit is proportionate to its respective absorption capability. The designing QP shall provide information describing the design configuration and include a statement attesting that the design will not create inundation in either seepage pit.

7. **Absorption rates of less than 0.83 gallons per square foot of dispersal area per 24 hours shall not be accepted. Absorption rates that exceed 5.12 gallons per square foot of dispersal area per 24 hours do not meet the minimum requirements for conventional OWTS. Replacement OWTS with non-conforming absorption rates that exceed 5.12 gallons per square foot are required to provide additional treatment (supplemental treatment component) of the sewage effluent prior to discharging the effluent into receiving environment below ground surface (refer to Chapter 11 "Non-Conventional Onsite Wastewater Treatment Systems).**

Considerations for Gravel Packed Pits

The following requirements pertain only to pits that are gravel packed after successful presoak and percolation tests have been accomplished while test holes were empty.

1. All other requirements established for percolation testing of seepage pits shall apply.

2. The percolation testing shall be conducted in a 2 feet diameter test hole to establish the feasibility prior to filling the pit with gravel.

3. The perforated pipe schedule 40 quality or equivalent with 8 to 12 inches in diameter shall be installed symmetrically within the pit prior to gravel packing the pit.

If it is not possible to test a seepage pit without first adding gravel due to structural instability or other reason, the QP/applicant shall obtain approval from the Department prior to gravel packing the pit.

See **Appendix G** for procedures on conducting a percolation test of a gravel packed pit.

CHAPTER 12. NON-CONVENTIONAL ONSITE WASTEWATER TREATMENT SYSTEMS (NOWTS)

A. When NOWTS Are Required

Non-conventional Onsite Wastewater Systems (NOWTS) perform additional treatment of effluent to reduce its impact on the environment. This usually includes the effluent being pumped in small amounts to a specialized filter media where the effluent is processed mechanically, chemically, and biologically. These processes include treatment by aerobic bacteria to reduce the Biological Oxygen Demand (BOD) and convert ammonia to nitrate as well as mechanical filtration of suspended solids. When a reduction in total nitrogen is required, the effluent is returned to the septic tank where the nitrate is processed anaerobically into nitrogen gas.

NOWTS are required to be installed when one or more of the following conditions exist at a proposed site:

- The percolation rate is faster than 5.12 gallons per square feet per day for a seepage pit.
- The percolation rate for a leach field or leach bed system is faster than 5 MPI for a new or replacement OWTS.
- The percolation rate for a leach field or leach bed system is slower than 60 MPI for a new or replacement OWTS.
- There is less than three (3) feet of continuous, natural, undisturbed soil beneath a conventional dispersal system.
- A replacement OWTS is unable to meet setback requirements for groundwater, surface water, a well or other public water source intake.
- The property of the proposed system is within 600 feet of an impaired water body that is listed for pathogens or nitrate and no TMDL is present.
- The property of the proposed system is within 2,000 feet of an impaired water body that has a TMDL for pathogens or any form of nitrogen.

(Note: The last two bullets are new items that went into effect with the adoption of the State OWTS Policy in 2012 and are not subject not approval of the LAMP.)

See **Appendix H** for a list of impaired water bodies per current 303(d) listing and active TMDLs.

NOTE: The bottom of a seepage pit is never permitted to extend within 10 feet of groundwater, regardless of the presence of a NOWTS.

NOTE: A new OWTS or NOWTS is never permitted to be installed where it would not meet setback requirements for surface water, groundwater, a water well, or public water source surface intake regardless of the presence of a NOWTS.

B. Types of NOWTS and the Conditions Where They Are Used

NOWTS are divided into two categories, Enhanced Systems and Alternative Systems.

1. Enhanced System - a NOWTS that utilizes a supplemental treatment component to provide further treatment of the sewage effluent prior to discharging into a conventional dispersal system (e.g. leach line, leach field, seepage pit or a combination seepage pit/leach system).

2. Alternative System - a NOWTS that utilizes a supplemental treatment component to provide further treatment of the sewage effluent prior to discharging into the dispersal system that utilizes pressurized drip tubing or other approved, sub-surface, non-conventional means for dispersal of wastewater effluent.

An enhanced system is required where the percolation rate exceeds the accepted rate for a seepage pit (exceeding 5.12 gallons per square foot of dispersal area per 24 hours).

Either an alternative system or enhanced treatment system is may be used where the percolation rate exceeds accepted rate for a leach line or leach bed (faster than 5 minutes for the drop of the 5th to 6th inch).

An enhanced system is required when there is less than three (3) feet but at least two (2) feet of continuous, natural, undisturbed soil the proposed dispersal system. The dispersal field may not overlie groundwater protected for drinking water supplies.

Soil replacement in conjunction with an alternative system is required where the percolation rate is slower that accepted (slower than 60 minutes for the drop of the 5th to 6th inch for a leach line or leach bed system) or when there is less than two (2) feet of continuous, natural, undisturbed soil below the

proposed dispersal system. The dispersal field may not overlie groundwater protected for drinking water supplies.

An alternative system is required where groundwater or surface water setbacks cannot be met, if space permits. In every case the NOWTS system shall include an additional disinfection component.

Either an enhanced or an alternative system is required near an impaired water body. If the water body is impaired for pathogens, an additional disinfection component is required.

NOTE: When space is not available for a leach bed or leach line and percolation test results for a seepage pit are slower than 0.83 gallons per square foot of dispersal area per 24 hours, the property is not suitable for construction using either an OWTS or an NOWTS.

C. Requirements for Use of NOWTS

1. NOWTS shall be certified to meet NSF 245 unless the NOWTS is proposed to be installed within the restricted area of a water body impaired for pathogens and all setback and percolation tests are within acceptable ranges for an OWTS. In this case the NOWTS must be certified as at least NSF 40 and provide additional disinfection components. NOWTS manufacturers whose systems are not NSF certified may apply for a demonstration test to receive approval to install their systems in the County of Los Angeles. See Demonstration Test Requirements in **Section F.** below.

   (Note: the acceptance of NSF 245 approved systems without a Demonstration Phase is a policy change from the 2013 version that was not dependent on the adoption of the LAMP to implement.)

   The septic tank of the NOWTS must be IAPMO certified or the applicant shall obtain proof of Uniform Plumbing Code (UPC) equivalency as determined by the local building department. The NSF approval may be accepted as UPC equivalency if the tank and its components are intended to function as a supplemental treatment system bearing the markings of NSF <u>and</u> if accompanied by documentation from NSF indicating that the system being installed is listed as NSF approved. The documentation shall reflect that the tank and all individual components are identified as part of the listed system and shall be presented for each individual installation.

   The UPC determination of equivalency made by the local building department administrative authority shall be expressed in writing and shall be presented for each individual project during the review process. The tank and its components, and the written confirmation from the local building department shall be easily cross-referenced.

2. The installation of a NOWTS requires recordation of a Covenant and Agreement document through the County Recorder's Office **(See Appendix I, Sample Covenant).**

3. The owner, prior to approval of the NOWTS, shall enter and maintain in effect at all times throughout the operational life of the system, a contract signed by both the property owner and a Service provider certified by the components' manufacturer. The contract shall include all routine maintenance recommended by the manufacturer, collection of influent and effluent samples at least once per calendar year, and testing of the influent and effluent samples by a certified laboratory. The lab report shall clearly specify the location/address where sample was collected, the name of the technician and the date and time of the collection. The laboratory analysis must include Total Nitrogen of the influent entering the septic tank, and Biological Oxygen Demand (BOD), Total Nitrogen (TN) (which consists of ammonia, organic nitrogen, nitrate, etc.), Total Suspended Solids (TSS), and pH of the effluent as it enters the dispersal system. Bacteriological analysis is also required when the system is equipped with a disinfection device. The homeowner shall be responsible for ensuring that all maintenance records and lab reports are forwarded to this Department on a quarterly basis or more frequently as deemed necessary by the Department.

4. All supplemental treatment systems and components shall be installed and operated in accordance with their respective manufacturers' recommendations. The NOWTS shall be operated and maintained to produce effluent concentration levels that meet or surpass the following requirements:

   - BOD – 30 mg/L or CBOD5 – 25 mg/L
   - TSS – 30 mg/L
   - Total Nitrogen – At least a 50% average of influent TKN (Total Kjeldahl Nitrogen)
   - pH – 6.0 to 9.0 SU

5. The NOWTS shall be equipped with a visual or audible alarm as well as a telemetric alarm that notifies the owner and the service provider of the NOWTS in the event of system malfunction. The homeowner is responsible for ensuring that the telemetric monitoring system is powered on and operative and shall contact their contracted service provider in the event of a failure.

6. The Department may exercise the option of requiring samples to be taken while the departmental representative is present and/or by an independent party authorized by the Department.

7. The use of a NOWTS may be subject to future ordinances that require the owner to obtain a Public Health Operating Permit and to make the system available for inspection upon reasonable notice by the Department**.**

D. Required Soil Depths

Dispersal systems of all NOWTS utilizing supplemental treatment components shall have at all times during operation at least two (2) feet of continuous, natural, undisturbed soil, excluding non-porous materials, below the bottom of the dispersal field or seepage pit. Where these conditions cannot be met, the supplemental treatment components in conjunction with disinfection shall be used to disperse the effluent. A minimum of 10 feet of separation to groundwater from the bottom of the dispersal field or 10 feet from the bottom of a seepage pit shall be maintained.

E. Soil Replacement Conditions

When there is less than two (2) feet of continuous, natural, undisturbed soil between the bottom of a proposed dispersal system and bedrock, fractured bedrock, or an impervious layer; the soil has an absorption rate slower than 60 MPI; or there is inadequate soil depth to groundwater, manufactured/engineered soil with similar composition characteristics of loamy sand may be added to or replace the existing native soil so that the site conditions meet or exceed the specific depth and absorption rate requirements. The compaction characteristics of the manufactured soil shall correspond as close as possible to the native soil of the surrounding area.

An alternative system is required where engineered soil is used to improve percolation rates, comply with the two (2) foot minimum soil requirement, or meet the requirements for minimum vertical setback to groundwater. The total absorption surface area required for the pressurized distribution system is determined in the manner as typical leach field. Additional effluent treatment including disinfection shall be required where the possibility of groundwater contamination exists.

Engineered soil shall compensate for the lack of in-place soil or the replacement of poorly drained soil at a ratio of 1.5 to 1; so that 1.5' of engineered soil material is required for a 1' deficiency in the soil column. In no case shall engineered soil compensate for more than 2' of the minimum native soil

depth requirements and ground may be built up by engineering/manufactured soil to a maximum of 3' in depth.

The manufactured/engineered soil shall be re-composed and re-graded uniformly to provide homogenized absorption capability, equivalent to soil category of loamy sand. The manufactured/engineered soil must be certified by a California Registered Professional Soil/Geotechnical Engineer who shall prove through sieve analysis and other quantifying tests that the desirable composition and compaction has been achieved.

Adequate number of percolation test shall be conducted in the area where manufactured soil has been provided to confirm that the percolation rates are in correlation with loamy sand soil category. The results of the percolation tests conducted in the area shall affirm uniformity in soil composition and compaction.

When deemed necessary, the Department may require supplemental treatment systems and/or disinfection component for any existing or new NOWTS to ensure the protection of the underlying groundwater quality and public health.

F. Demonstration Testing for NOWTS Manufacturers

Any manufacturer of a NOWTS system which is not NSF approved may apply with the Department for approval to install their system within the County of Los Angeles. Acceptance of non-NSF supplemental treatment systems by the Department is contingent upon a demonstration through extensive field and test data confirming that the supplemental treatment system will produce continuous and long-range results. This acceptance is subject to revocation when the supplemental treatment system is deemed inadequate by this Department.

There are three phases of the demonstration test:

1. **Submission and review of the system's performance in other jurisdictions**. The manufacturer must submit information on five systems installed in areas with similar geology and climate to Los Angeles. This information shall include the location where the system was installed, the maintenance records for the systems, and the lab results of the influent and effluent testing for one year. The contact information for the jurisdictions responsible for regulating each system shall also be provided.

2. **Installation of Demonstration Systems**. After adequate performance in other jurisdictions has been demonstrated, the manufacturer may begin a demonstration phase in LA County. This demonstration phase consists of the installation of the proposed system at three locations in the County. Each of the proposed locations must meet all requirements for a conventional system in order to prevent the contamination of groundwater or surface water in the event that the system fails to meet the performance requirements.

   Please contact the Chief of the Land Use Program to coordinate the installation of the demonstration systems. Normal plan review and permitting procedures apply for demonstration systems, however coordination of the permitting and installation through the Chief will help prevent unnecessary delays.

3. **System Testing**. System testing commences after the installation of NOWTS has been completed and the system is ready to be utilized by the occupant(s) of the house, a Certificate of Occupancy has been issued, and extends to at least three months after the dwelling has been occupied for normal occupancy.

During the system testing period, a minimum of 3 consecutive monthly reports of all service calls and maintenance/repairs performed for the system shall be forwarded to Land Use Program. At or immediately after 3 months of system use, samples of wastewater shall be taken (influent and effluent) by a certified representative of the manufacturer at the point where wastewater enters the supplemental treatment system (influent) and at the point of discharge in subsurface dispersal area (effluent).

The samples shall be taken to an approved laboratory by a certified lab technician in a manner to assure the integrity of the "Chain of Custody" procedures. The samples shall be analyzed for the levels of BOD or CBOD, TSS, Total Nitrogen, and pH. The result of the analysis shall be forwarded to Land Use Program for review and further assessment of the systems' capability. For the purposes of successful completion of the demonstration phase, it shall be demonstrated to the satisfaction of the Department that the supplemental treatment system is capable of achieving or surpassing the effluent concentration levels specified in **D (5)** above. If the NOWTS also includes a disinfection component, the effluent shall be tested for E. coli with an acceptable concentration of 2.2 MPN/100mL.

If any of the systems are unable to meet the effluent requirements or show signs of failure, the manufacturer shall submit a report indicating the geological, climatic, or waste strength conditions that resulted in the failure and how future installations will be limited to avoid similar conditions. After three systems successfully complete the demonstration phase, the manufacturer is approved to install the systems in areas with similar geological and climatic conditions and where the waste stream is of similar strength.

CHAPTER 13. NOWTS START UP AND LEAK TEST

All NOWTS septic tanks and partially buried components must successfully pass a Leak Test and a Final/Start-up inspection to obtain approval from the Department. Components, such as pods, that require above ground installation are exempt from leak testing when the entire component, including the bottom is completely exposed and visible for inspection at all times.

If the location or the orientation of the septic tank differs from the original approval, an "As Built" plot plan shall be submitted and all setbacks shall be verified. "As built" plot plans shall be stamped, signed, and dated by the designer of the system.

A. Verification of IAPMO / NSF Tank Certification Requirements:

1. The IAPMO certification will be verified by the inspector through an identifying stamp on the body of the tank (model or serial number corresponding to the specifications sheet provided by the tank manufacturer) and a letter from the manufacturer attesting that the tank was manufactured in accordance with the IAPMO requirements. IAPMO certified tanks may be inspected when the exterior walls are backfilled up to a level below the lid.

2. If NSF approval is being accepted as UPC equivalency, the inspector will verify that the tank and its components bear the markings of NSF <u>and</u> documentation from NSF indicates tank and all individual components are identified as part of the listed system. The documentation shall be presented for each individual installation.

3. For tanks lacking IAPMO certification and NSF approval as a system, the applicant shall obtain proof of Uniform Plumbing Code (UPC) equivalency in writing as determined by the local building department. The UPC equivalency determination shall be presented for each individual project during the review process. The tank and its components, and the written confirmation from

the local building department shall be easily cross-referenced.

B. Leak Test Guidelines

The installer shall prepare for the leak test by completing the following prior to the arrival of the inspector:

- Obtain approval from the local building department for the location of the NOWTS.

- Thoroughly coat all interior surfaces of concrete tanks with appropriate waterproofing materials. All joints shall be sealed with sealing materials approved by the American Society of Testing and Materials (ASTM) or equivalent to ensure the tank is completely water-tight prior to requesting a leak test inspection.

- Ensure that all exterior walls of the tank are exposed to the greatest extent practical and the entire surrounding area/soil is free from moisture and dampness. All seams and joints, except for the bottom of the tank, shall be left exposed. It is permissible to backfill around the tank's exterior walls when justifiable, expressed in writing and recommended by the tank manufacturer.

- The tank and any other primary components that are required to be leak tested, such as, lids, risers, etc. shall be sealed. The tank to be leak tested shall stand alone, detached from any plumbing fixtures, pipes or hoses connected to a water source. Both inlet and outlet openings to the tank/unit that is being leak tested shall be plugged/capped completely watertight. If due to safe construction practices a plumbing line is attached to the tank, the plumbing line shall remain exposed during the leak test. The plumbing line shall be placed in a manner that its termination end is visible and the representative of the Department can verify that the plumbing line is not connected to a water source.

During the inspection the Inspector shall:

- Observe the tanks filled with water up to the inlet or outlet pipes (whichever is lowest) and let stand for a minimum of one hour. Although not required, it is recommended that the tank be filled into the risers, 2" above the highest joint to ensure the tank remains watertight during an extreme rain event.

- Witness the marking of the level of water immediately after the tank is filled to facilitate the determination that the tank is watertight. To minimize possible water loss due to evaporation, the top of the risers may be temporarily covered by an easily removable cover prior to inspection.

- Observe the tank and its surroundings for a minimum of one hour verify that there are no visible water leaks and that the entire tank and its components have remained watertight. It shall be confirmed that there has been NO loss of water from the tank. If any dampness on the tank's exterior walls is noticed, field staff will determine whether the dampness is due to condensation or leaks.

- If the tank passes the leak test inspection Department field staff will document the back side of the local building department card (usually yellow) verifying that no leaks were detected and inform the applicant/contractor to contact the Building Inspector for permission to backfill the tank. If the tank does not pass the leak test, follow the leak test failure procedures below.

C. Leak Test Failure: Follow-Up Procedures

A follow-up inspection will be conducted if any leak is detected or dampness in surrounding soil has been observed or any of the above instructions have not been strictly followed. All follow- up inspections are chargeable, based on the prevailing hourly rate. Additional fees, if any, must be collected prior to the release of the departmental sign-off/approval.

- When the detected leak is deemed to be the result of structural failure, the tank shall be emptied to a level below where the leak has originated from and the area allowed to air dry before the failure is properly repaired, sealed and tested prior to requesting for a follow up leak test inspection. All repairs of structural failures shall be made from the inside of the tank on the interior surfaces. Additionally, the exterior surfaces, where the leak is located, can be sealed as well, if needed. All repair work shall be performed in a professional manner. Patchwork performed only on the exterior of the tank in order to stop leakage does not constitute satisfactory repair work. A tank that is deemed structurally deficient due to repeated and/or significant leakage which cannot be easily repaired at the project site shall be replaced with a new tank.

- After completion of the repairs and testing of the tank the inspector should be contacted for an appointment. The same testing procedure shall be completed for the re-test.
- Prior to backfilling the tank, authorization shall be obtained from the local building department.

- Once the leak test inspection has been successfully completed, Department field staff will document the back side of the local building department card (usually yellow) verifying that no leaks were detected and inform the applicant/contractor to contact the Building Inspector for permission to backfill the tank.

D. Final/Start-Up Inspection Guidelines

During the final phase of construction, the local building department will request that the Department conduct a final start-up inspection prior to issuing a Certificate of Occupancy. The following tasks must be completed prior to the arrival of the inspector.

- Arrange for a representative from the manufacturer or a Service Provider certified by the manufacturer to be present during the start-up inspection.

- Verify that both the electricity and telephone service will be available during the inspection. Applicants planning to utilize solar power as the source for electricity shall provide a verification of approval from the local building department that the source is reliable and capable of providing electricity 24 hours/day on a permanent basis. Applicant proposing an alternative phone connection, other than a land line, shall demonstrate that the telephone system is interconnected to the telemetry system and is programmed to receive necessary calls from the telemetry system.

- Provide a complete copy of the supplemental treatment system's operations manual for reference during the inspection.

- Perform a pre-inspection test to ensure all components are operable and make final adjustments if necessary.

E. Final/Start-up Inspection Procedures

During the final start-up inspection, the inspector will verify that the manufacturer's representative or the certified service provider performs a series of tests as prescribed by the manufacturer of the supplemental treatment unit. The tests performed shall demonstrate the operational competency of the system as declared by the manufacturer and to the satisfaction of the Department. The tests will consist of the following:

- It shall be clearly demonstrated how wastewater from the primary treatment compartment will be circulated to the secondary treatment compartment and introduced over the area/material where the media for the additional treatment will be located. It shall be demonstrated that the method employed to circulate wastewater to other components of the system such as, pumps, agitators, spray valves, nozzles, etc. are functioning properly.

- The functionality of a "high water alarm", both auditory and visual (light), shall be demonstrated. There shall be a dial tone at the control box. The control box shall be mounted on a permanent structure in a location where the alarm can be heard and the light can be seen by the occupants of the house.

  The effectiveness of the apparatus that is intended to trigger the "high water alarm" shall be examined and demonstrated while the apparatus is mounted in its intended place within the tank, simulating the actual operation. When the "high water alarm" cannot be demonstrated while the apparatus is mounted in the tank, alternate testing methods that simulate a water environment may be considered by the Department.

- Operation of the air compressor, pump, blower, etc. shall be demonstrated to ensure that the alarm attached to the air supplying device is operable. It shall be demonstrated that the alarm will be automatically activated after the electrical source has been turned off for a few moments. Systems that employ pump(s) shall be equipped with "pump failure alarm" that will warn the service provider and the property owner in the event of pump failure. A single alarm system may be utilized to detect both high water level and pump failure, depending on the design and operation of the supplemental treatment tank and the alarm system.

- The housings for additional equipment, such as, the filter, disinfection unit, UV light tubes, ozone generator, chlorinator and de-chlorinator shall be clearly identified. It shall be demonstrated how each component will be connected in order to work in conjunction with the supplemental treatment system.

Once the final start-up inspection has been successfully completed, the Department inspector will sign in the space provided for the Department of Public Health on the front side of the local building department inspection card or issue a notice to the local building department attesting that the final inspection has been completed.

Appendices

Appendix A – Application Forms

ENVIRONMENTAL HEALTH
LAND USE PROGRAM
5050 Commerce Drive, Baldwin Park, CA 91706
Telephone: (626) 430-5380 • Website: *www.publichealth.lacounty.gov/eh*

PLAN SUBMITTAL CHECKLIST

Required Items	Yes	No
Application: Service Request (from website)		
Feasibility Report		
Fee $_____ Make check payable to Los Angeles County Department Public Health		
Floor Plan		
Grading Plan		
Plot Plan		
Cross Sectional View		
Report of Evaluation by a qualified contractor (Existing systems only)		
Source of Potable Water (Well Completion Report or Will Serve letter from water company)		

Plans will not be accepted until all required documents are received by the Land Use Program. Plans will not be reviewed until the fee is received.

Please call ahead for office hours when submitting plans at any of the following locations:

Environmental Health Headquarters
Land Use Program
5050 Commerce Drive
Baldwin Park, CA 91706
(626) 430-5380

Calabasas Office
Land Use Program
26600 Agoura Road, Suite 110
Calabasas, CA 91302
(818) 880-3410

Santa Clarita Office
Land Use Program
26415 Carl Boyer Drive, Suite 145
Santa Clarita, CA 91350
(661) 287-7018

Antelope Valley Office
Land Use Program
335-A East Avenue K-6
Lancaster, CA 93535
(661) 723-4549

ENVIRONMENTAL HEALTH

LAND USE PROGRAM
5050 Commerce Drive, Baldwin Park, CA 91706
Telephone: (626) 430-5380 • Website: *http://www.publichealth.lacounty.gov/eh*

SERVICE REQUEST APPLICATION

Please check the appropriate box for the type of service, provide the necessary information at the bottom of the form and include the required fee for the service being requested. **Please make the money order or check payable to Los Angeles County Department of Public Health**. Please do not mail cash with the application. The application and the fee paid are non-transferable.

FEE REQUIRED		TYPE OF SERVICE
$1,329.00	☐	PROJECT REVIEW (ONSITE WASTEWATER TREATMENT SYSTEM – NEW OR REPLACEMENT)
$1,727.00	☐	PROJECT REVIEW (NON-CONVENTIONAL ONSITE WASTEWATER TREATMENT SYSTEM – NEW OR REPLACEMENT)
$389.00	☐	ONSITE WASTEWATER TREATMENT SYSTEM EVALUATION – WITH VERIFICATION OF PRIOR SYSTEM APPROVAL
$454.00	☐	ONSITE WASTEWATER TREATMENT SYSTEM EVALUATION – WITH NO VERIFICATION OF PRIOR SYSTEM APPROVAL
$1,329.00	☐	PRE-COASTAL COMMISSION APPROVAL (ONSITE WASTEWATER TREATMENT SYSTEM)
$1,727.00	☐	PRE-COASTAL COMMISSION APPROVAL (NON-CONVENTIONAL ONSITE WASTEWATER TREATMENT SYSTEM)
$392.00	☐	POST COASTAL COMMISSION APPROVAL (ONSITE WASTEWATER TREATMENT SYSTEM OR NON-CONVENTIONAL ONSITE WASTEWATER TREATMENT SYSTEM)
$129.00	__	HOURS EHS III/EHS IV HOURLY RATE CHARGE FOR ADDITIONAL REVIEWS OR INSPECTIONS

Job Address City Zip Assessor Parcel Number (APN/AIN)

Property Owner's Name Address City Zip Phone Number E-mail Address

Contractor's Name Address City Zip Phone Number E-mail Address

Qualified Professional's Name Address City Zip Phone Number E-mail Address

Return completed application and payment to Land Use Program, 5050 Commerce Drive Baldwin Park, CA 91706-1423
Please contact the inspector listed below for questions regarding the application process.

INSPECTOR ASSIGNED:	FOR DEPARTMENT USE ONLY
PHONE #:	DATE RECEIVED:
E-MAIL ADDRESS:	SR# ASSIGNED:

Appendix B – Requirements for Easements

1. The installation of septic systems in public road easements requires written authorization from the Road and Grading Section of the Building and Safety Division.

2. No part of a septic system shall be installed in an ingress/egress easement on a private road intended to provide access to more than one property without a variance from this Department and written authorization from the Fire Department. When determined by the Department that through adequate tests conducted by QP throughout the property that no favorable area for installation of an OWTS is available on the property, the Department may authorize the installation of OWTS or part thereof in the easement.

3. The Department will accept an easement that is completely dedicated for the purpose of installing OWTS when it has been recorded through Assessor's Office reflecting such use. An OWTS or any part of the system may be installed within a utility easement, once it's demonstrated to the Department that there is no other area on the property that may be feasible for the installation of the OWTS. However, there shall not be any overhead obstructions, such as, electrical lines and all horizontal and vertical setbacks from other utilities are maintained at all times, as required.

4. The installation of OWTS within flood plain/hazard area shall be avoided. Where suitable sites outside of flood hazard areas are not available, wastewater dispersal systems may be located in flood hazard areas on sites where the effects of inundation, under conditions of the design, are minimized. Applicants are advised to contact the local Building and Safety office to inquire whether additional requirements apply.

Appendix C –Setback Required by Plumbing Code

MINIMUM HORIZONTAL DISTANCE IN CLEAR REQUIRED FROM	SEPTIC TANK	DISPOSAL FIELD	SEEPAGE PIT
Building or structures[1]	5 feet	8 feet	8 feet
Property line adjoining private property	Clear	5 feet	8 feet
Private water supply wells or monitoring well[4]	50 feet	100 feet	150 feet
Public water supply well	50 feet	100 feet	150 feet
Streams, springs, and rivers[4, 5]	100 feet	100 feet[3]	150 feet
Vernal pools, wetlands, lakes, ponds, reservoirs, and ocean[5]	50 feet	150 feet	150 feet
Trees[6]	10 feet	NA	10 feet
Seepage pits[3]	5 feet	5 feet	12 feet
Disposal field[3]	5 feet	4 feet[2]	5 feet
On-site domestic water service line	5 feet	5 feet	5 feet
Distribution box	5 feet	5 feet	5 feet
Pressure public water main	10 feet	10 feet	10 feet
Unstable land mass	NA	NA	NA

1. Including porches and steps, whether covered or uncovered, breezeways, roofed porte cocheres, roofed patios, carports, covered walks, covered driveways, and similar structures or appurtenances.

2. Plus 2 feet (610 mm) for each additional 1 foot (305 mm) of depth in excess of 1 foot (305 mm) below the bottom of the drain line. (See Section H 6.0)
3. Where disposal fields, seepage pits, or both are installed in sloping ground, the minimum horizontal distance between any part of the leaching system and ground surface shall be 15 feet (4572 mm).
4. Where special hazards are involved, the distance required shall be increased as may be directed by the Authority Having Jurisdiction.
5. 400 feet from the high water mark if within 1,200 feet of a of a public water system's surface water catchment. 200 feet from the high water mark if within >1,200 but <2,500 feet of a public surface water intake. For flowing bodies of water, the surface water intake shall be upstream or the setback distance.
6. For oak trees the distance shall be 15 feet from the trunk or 5 feet beyond the estimated mature drip line of the branches.

Setback clearance for dispersal fields/pits shall be measured from the closest edge of the floodway as determined by the Grading and Drainage Section of the Building and Safety Division of the Los Angeles County Department of Public Works or the Public Works Department/Division for the effected City.

Due to site constraints of a property, located within a flood hazard area, the applicant shall be required to demonstrate that the proposed OWTS is designed with additional protective measures to prevent contamination of surface water or runoffs and minimize other risks associated with flooding, such as, infiltration into the dispersal system when the area is inundated by flood water or the potential of scour over and into the dispersal system that could adversely impact the absorption capability of the dispersal system and the overall function of the OWTS.

The Department may waive the setback requirements in consideration of a hydrogeological assessment prepared and certified by a registered Geologist, Hydro-geologist or Engineering Geologist confirming that neither the proposed dispersal system nor the subject drainage course will ever generate sufficient lateral infiltration that could negatively impact each other, declaring the location for the proposed dispersal area suitable. The assessment shall be based on the wetted perimeter within the drainage course, and the zone of influence from the dispersal system when they are active at their full potential.

The hydrogeological assessment shall be site specific and prepared for the specific dispersal system that is being proposed. The assessment shall be based on a study of the interrelationship between the geologic conditions and surface and subsurface waters, conducted in at least one excavation located directly between the dispersal system and the subject drainage course to a depth not less than 10 feet below the anticipated bottom of the dispersal system.

The hydrogeological assessment shall describe the determining factors and examine the hydrogeological properties that provided a basis for the conclusion. The assessment shall identify the existence of any hydrogeological elements that could support the possibility of lateral infiltration, such as, high hydraulic gradients, high hydraulic conductivity of soil, slow-permeable or impermeable layers, saturated zones, presence of perched water, elevation differential between the dispersal system and the drainage course, potential inflow of surface and subsurface water and wastewater, possibility of groundwater recharge, presence of vegetative growth, seasonal variations and climatic factors, etc.

In situations where hydraulic gradient suggests the possibility of effluent migration toward the drainage course, even though the hydrogeological assessment has concluded that OWTS will not have any impact on the drainage course, the Department may require supplemental treatment and disinfection components.

Appendix D - Septic Tank Capacity

Los Angeles County Plumbing Code Table H 2.1 CAPACITY OF SEPTIC TANKS

SINGLE-FAMILY DWELLINGS NUMBER OF BEDROOMS	MULTIPLE DWELLING UNITS OR APARTMENTS- ONE BEDROOM EACH	OTHER USES: MAXIMIM FIXTURE UNITS	MINIMUM SEPTIC TANK CAPACITY (GALLONS)
1 OR 2	-	15	750
3	-	20	1000
4	2 UNITS	25	1200
5 OR 6	3	33	1500
-	4	45	2000
-	5	55	2250
-	6	60	2500
-	7	70	2750
-	8	80	3000
-	9	90	3250
-	10	100	3500

Extra Bedroom, 150 gallons each
Extra dwelling units over 10: 250 gallons each
Extra fixture units over 100: 25 gallons per fixture unit
Septic tank sizes in this table include sludge storage capacity and the connection of domestic food waste disposal units without volume increase.
Single-family dwelling capacity requirements also apply to mobile homes not installed in a mobile home park.

Appendix E – Dispersal Methods for Conventional OWTS

1. Deep trenches will provide effective wastewater dispersal, but not necessarily effective treatment of the wastewater, as there will be limited biological activities due to lack of oxygenation to support degradation of particles at greater depth.

   Where due to day-lighting concerns on steep slopes or other extreme circumstances that may exist on a property, or when it necessitates due to poor soil conditions or an impervious layer that restricts the downward movement of the wastewater, the total depth for trench or bed may be allowed to be greater than 5 feet. The QP shall address the need for greater depth. When the total depth of fill and the depth from ground to the bottom of trenches are allowed to be greater than 5 feet, the entire column of the trench shall be back filled with gravel to the height where the earthen cover starts (12 to 18 inches below the ground level). Except for hillside properties where slope is 30% or steeper, the trench spaces above leach lines installed deeper than 5 feet will not be required to be backfilled with gravel.

2. Elements critical to treatment of effluent include oxygen transfer, biological treatment, and evaporation and uptake of nutrients by vegetation (evapotranspiration).

3. In situations where due to insufficient land or other extenuating circumstances, after it has been demonstrated to the satisfaction of the Department that there are no other alternative, the dispersal system may be allowed to be paved or driven over. However, the dispersal system shall be comprised of IAPMO approved traffic rated infiltrative chambers leaching system equipped with either a

supplemental treatment component, or air vents with a minimum of 2 inches in diameter, one on each end, that are erected at the same proximity of each end.

The vent openings shall be designed and installed in a manner to prevent moisture intrusion into infiltrative chambers. The vents stacks shall extend to a height required by Building and Safety Division and secured to a permanently installed structure(s) to remain upright at all times and be protected from accidental damage or being covered. The Department may require carbon filters and blowers in conjunction with the air vents to enhance aeration.

The applicants are required to demonstrate, by means of adequate tests or otherwise, that the placement of the leach field in the driveway is the only viable and practical alternative. The location of the leach field in a driveway will be reviewed and approved on a case by case basis

4. If extreme circumstances exist on a property or if the property's configuration precludes the installation of leach lines equal in length, the QP shall design the dispersal system (set the distribution box) in a manner to ensure that the anticipated volume of wastewater received by each leach line is proportionate to the length of each leach line. The designing QP shall provide information describing the design configuration to include a statement attesting that the design will not create inundation.

5. If due to extenuating circumstances installation of a straight leach line is not possible, the leach line may be allowed to be bent in an angle not exceeding 45 degrees. The entire length of the bend may not be perforated. The non-perforated segment shall connect to the leach line with watertight joints and shall extend to a length that provides sufficient separation between the start of each dispersal area on both sides of the bend.

   The length of the non-perforated segment shall be proportional to the depth of the gravel underneath the pipe. For example, if 3 feet of gravel underneath the pipe is used, the separation distance between the closest points on the dispersal areas where the perforated pipe ends and restarts shall not be less than 8 feet.

   The length of the non-perorated segment of the leach line shall be excluded when determining the required length of the leach line.

Appendix F. Future Expansion Area

1. When the original approval includes the previous percolation test results for 100% future expansion area and the percolations rates are within the acceptable range of 0.83 to 5.12 gallons per sq. ft. per day for seepage pits and 5 to 60 minutes per inch for leach fields, no additional percolation tests will be required as long as the future dispersal fields/pits are installed as originally approved.

2. For the purposes of the 10% exemption, the current footprint is considered the area occupied by all existing habitable structures that were permitted at the time when OWTS was initially approved, i.e., the main house including garage as a one story building. This does not include roof overhangs, balconies, patios, decks, driveways, carports, swimming pools/spas, storage structures, landscaping and areas confined by the design of the permitted structures. Any existing detached structure, habitable or otherwise (e.g., studio, workshop, barn, etc.), that was approved by Environmental Health (i.e., No Impact approval).

3. The determination made by the professional geologist may be based on evaluations that were previously conducted by a professional geologist within the area or upon reliable source provided that the evaluations were conducted consistent with the current departmental guidelines. The statement made by the professional geologist shall be supported by practical principles and fundamentals of geology that are based on geological circumstances that exist at the site.

Appendix G - Gravel-packed Pit Requirements and Considerations

When due to safety concerns, instability of the land or other geological circumstances, QP determines that the test holes must be gravel packed prior to presoak and/or percolation tests in order to maintain the structural integrity of the hole, the QP/applicant shall obtain authorization from the Department prior to gravel packing and performing the percolation test.

The gravel placed within the gravel packed test hole occupies 62.5% of the space within the test hole. Therefore, the required 10 feet of drop during presoak and percolation tests, the length of time that is required to achieve the required drop and the dispersal of water shall be calculated based on 3/8 ratio (37.5%) (i.e., for each foot of water drop, a credit of 0.375 feet of vertical drop will be given).

As an alternative technique to achieve the required water drop and the volume dispersed, the length of time that is required to achieve the required drop and the dispersal of water shall be reduced based on a 3/8 ratio. (i.e., the 10 feet drop during the presoak shall be achieved in a total of 9 hours instead of typical 24 hours and the required 10 feet drop after the percolation testing shall be achieved in 6 hours instead of typical 16 hours). The time allowed for the total required volume of water to be dispersed (a volume equal to or greater than 5 times the required tank capacity) may remain 8 hours.

The following requirements shall apply when presoak and percolation tests are performed in gravel-packed pits:

1. A successful presoak test has been achieved once water equal to the nominal volume of the hole has been metered in. To establish that the required 10 feet of drop has been achieved, the measurement for the drop shall be taken immediately after 9 hours that a successful presoak has been achieved.

2. After a successful presoak test, a percolation test is considered successful and complete once at least water equal to 5 times the required tank capacity has been metered in, as further prescribes for seepage pit dispersal systems earlier in this appendix. <u>The required 10 feet drop shall be measured after 6 hours from the end of the percolation test.</u>

3. A perforated pipe with a minimum of 4 inches in diameter shall be installed vertically within the gravel-packed pit to facilitate the measurement of the water level during the percolation testing.

4. Gravel packing the test holes prior to the percolation testing shall be pre-authorized by this Department.

5. All other requirements established for percolation testing of seepage pits shall apply.

Appendix H - List of Impaired Water Bodies and Current TMDLs

Water Bodies Impaired for Pathogens

All OWTS proposed with 600 feet are required to install a NOWTS with Disinfection:

- Coyote Creek
- Malibu Creek (includes Las Virgenes Creek and Malibu Lagoon
- San Gabriel River Reach 1 (Estuary to Firestone)
- San Gabriel River Reach 2 (Firestone to Whittier Narrows Dam)
- San Gabriel River Reach 3 (Whittier Narrows to Ramona)
- San Jose Creek Reach 1 (San Gabriel Confluence to Temple)
- San Jose Creek Reach 2 (Temple Street to Interstate – 10 at White Ave.)
- Sawpit Creek
- Walnut Creek Wash (Drains from Puddingstone Reservoir)

Water Bodies Impaired for Nitrogen

All OWTS proposed with 600 feet are required to install a NOWTS which meets NSF Standard 245.

- Malibu Creek (Includes Las Virgenes Creek and Malibu Lagoon)
- Westlake Lake
- Mint Canyon Creek
- Santa Clara River Lakes (Lake Hughes, Munz Lake, Elizabeth Lake)

At this time none of the impaired water bodies have a TMDL which identifies residential OWTS as a contributing factor and places a load limit on OWTS. The Santa Clara River Lakes are in the beginning phases of a TMDL which would apply a load allocation to OWTS.

Appendix I - Sample Covenant Non-Conventional Onsite Wastewater Treatment Systems

Recorded at the request: _____
and mailed to: **Applicants Name**

Los Angeles County Environmental Health
Land Use Program
5050 Commerce Drive
Baldwin Park, Ca 91706

SPACE ABOVE THIS LINE FOR RECORDERS USE

COVENANT AND AGREEMENT
REGARDING NON-CONVENTIONAL ONSITE WASTEWATER TREATMENT SYSTEM
AND THE USE AND TRANSFER OF OWNERSHIP OF PROPERTY
SUBJECT TO THIS COVENANT AND AGREEMENT

WHEREAS_____ the undersigned property owner(s) (hereinafter referred to as **OWNER)** owns that certain real property described below (hereinafter referred to as **PROPERTY**), which is served, or shall be served, by an Non-Conventional Onsite Wastewater Treatment System constructed and installed pursuant to the County of Los Angeles Uniform Plumbing Code and Health and Safety Code; and

WHEREAS, OWNER represents that they are the sole owners of the **PROPERTY,** being situated in the County of Los Angeles, State of California, and described as follows:

Legal Description of PROPERTY:

_____

(if lengthy, include as EXHIBIT "A")

Street location/Location of PROPERTY:

_____

NOW THEREFORE, the undersigned **OWNER**, in consideration for constructing the Non-Conventional Onsite Wastewater Treatment System and/or occupying dwelling(s) on **PROPERTY**, does hereby promise, covenant and agree to comply with at all times all applicable federal, state, and local laws and requirements regarding the construction, operation, repair and maintenance of a Non-Conventional Onsite Wastewater Treatment System approved by the County for the PROPERTY, and that the **OWNER** shall at all times maintain in force a legally valid and binding maintenance and monitoring agreement with an approved servicing company covering such system, and shall provide upon request all maintenance and monitoring information to the County of Los Angeles Department of Public Health or its successor agency (County Health). Said agreement shall include computer monitoring and annual testing required by County Health of the efficiency and effectiveness of the system, including effluent testing as may be applicable. Said testing shall be to ensure the continued ability of the system to meet applicable federal, state, and local laws and requirements, including secondary waste discharge standards. Should the system not be in compliance with said laws and requirements, OWNER shall ensure that maintenance and/or repair is performed on the system, and the system shall be subject to re-testing. If following maintenance and repair, the system is still unable to meet applicable laws and requirements, the system shall be replaced with a new Non-Conventional Onsite Wastewater Treatment System upon approval by County Health. A copy of the maintenance and monitoring agreement shall be filed with County Health. Upon a material change in the maintenance agreement or a change of the approved servicing company, OWNER shall file the new or replacement maintenance and monitoring agreement with County Health within 30 days of said change.

The County is hereby granted easement rights to inspect the Non-Conventional Onsite Wastewater Treatment System, with reasonable notice to OWNER absent an emergency, to insure compliance with the Covenant and Agreement.

Upon approval of the Non-Conventional Onsite Wastewater Treatment System for the PROPERTY, OWNER shall have this document recorded with the Los Angeles County Recorder's Office against the title of the PROPERTY.

This **COVENANT AND AGREEMENT**, as well as the appurtenant easement for access as set forth above, shall run with the land and shall be binding upon all future owner, heirs, successors, and assigns of the PROPERTY.

This **COVENANT AND AGREEMENT** shall only be terminated by a **RELEASE OF COVENANT AND AGREEMENT** duly executed by an authorized agent of the County of Los Angeles, Division of Environmental Health, or its successor agency; said **RELEASE** shall not be effective until recorded in the County of Los Angeles Recorder's Office.

Dated this_____ day of_____[month], _____ [year]

_____	_____
Print Name	Signature
_____	_____
Print Name	Signature
_____	_____
Print Name	Signature
_____	_____
Print Name	Signature