EXHIBIT A

On-Site Sewage Manual

PLACER COUNTY DIVISION OF ENVIRONMENTAL HEALTH

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Appendix I – Resolution of the Board of Supervisors – Adoption of Updated Manual

Chapter 1 - Introduction and Organization of Manual

This Manual establishes technical and procedural requirements for on-site subsurface sewage disposal in accordance with the On-site Sewage Ordinance. The Placer County Division of Environmental Health (hereafter, "Division") is the agency responsible for the application of this Manual.

The California Regional Water Quality Control Boards (the Central Valley Region for the west slope of the Sierra Placer and the Lahontan Region for the east slope of the Sierra Placer) are the state agencies responsible for the protection of ground and surface water quality. While the Division administers this Manual, the Regional Boards retain the authority to issue permits for any discharge of waste that may affect water quality, including discharges from individual systems. The Regional Boards adopt "Basin Plans" to define beneficial uses of water, adopt water quality objectives, and provide guidelines to protect water quality.

This Manual is authorized by Article 8.24 and adopted by Placer County Board of Supervisors by resolution. This Manual will be updated as necessary by this Division, with input from the Placer County Wastewater Advisory Committee, and as adopted by resolution by the Board of Supervisors.

Every effort has been made to make this Manual user-friendly by the use of cross-references throughout the document. As changes are made to the Manual, cross references throughout the Manual are also subject to change. Failure of a cross-reference to indicate the appropriate Chapter of requirements due to these changes does not void the applicability of the requirements.

Chapter 2 - Connection to Public Sewer

A. Connection to public sewer shall be required for all proposed lots, parcels, new construction of buildings with plumbing and additions or remodels that would exceed the capacity of an existing system or require the issuance of any system permit, provided that public sewer is both legally and physically available, as described below, and complies with Placer County Code Section 13.12.040 and 13.12.050:
   1. Physical Availability
      a. Public sewer shall be deemed physically available if its nearest connection point, from any boundary of the property to be served is:
         i. for existing parcels, within three hundred (300) feet,
         ii. for minor subdivisions, within six hundred (600) feet,
         iii. for major subdivisions and commercial projects, a greater distance may be required and shall be determined by the Division on a case-by-case basis.
      b. The distance to the nearest connection shall be measured along the shortest route in the road right-of-way and easements to the closest boundary of the property to be served, consistent with planning and sewer extension practices of the sewer utility.
   2. Legally Available
      a. Public sewer shall be deemed legally available if the sewer district or service area permits such connection to its sewer, and provided further, that such property is within the district or service area or can annex to the district or service area.
      b. When any parcel is connecting to public sewer, all structures must connect to public sewer and all systems must be properly abandoned. This requirement also applies to all parcels undergoing a major or minor subdivision.

Chapter 3 - Site Evaluation

A. A site evaluation shall be conducted as set forth in Section 8.24.060 of the On-Site Sewage Ordinance. All aspects of the site evaluation shall be performed by a consultant. The site evaluation shall consist of specific soils testing, which includes soil profile testing and determination of percolation rate. Site evaluation and system sizing for seepage pits shall comply with the requirements of the Onsite Sewage Manual Chapter 21, Seepage Pit Requirements. The purpose of the site evaluation is to determine if a parcel can accommodate a system and replacement area, and if so, to determine system type, location and sizing.

B. Retesting of a parcel is prohibited, except under the following conditions:
   1. There are areas on the parcel that meet setbacks which were not previously tested.
   2. Soils testing was previously conducted and the soils testing has been determined by the Division to be inconsistent with current site evaluation testing requirements.
   3. The Division has determined that soils testing needs to be completed during Seasonal Wet Weather Testing.

C. Application and Fee Requirements:
   1. A complete Environmental Health Site Evaluation application must be submitted to the Division with the required fee.
   2. The application shall include the following minimum information:
      a. An accurate location map with directions to the property.
      b. A legible copy of the Assessor's plat.
      c. A scaled site plan of the subject property. The site plan must show the parcel configuration. The scale of the site plan must be in whole multiples of 1"=10', 1"=20', 1"=30', 1"=40', 1'=50' or 1"=60' and be of practical use for the size of the property shown. This site plan must be submitted to the Division by the consultant at the beginning of the soil profile testing appointment.
      d. Additional information may be required, such as a copy of the survey map (if available), location of wells, streams, ponds, drainage ways, proposed house site, existing buildings, rock outcrops, easements, proposed driveways, and so forth.

D. Soil Profile Testing:
   1. The consultant shall schedule an appointment with the Division to meet at the property to witness the soil profile tests.
   2. A minimum of three (3) acceptable soil profile excavations shall be made with a backhoe in an area proposed for placing a system. In some cases, more soil profile excavations will be needed to find a suitable area for the system.
   3. The Division may require clearing of vegetation that obscures the ability to assess conditions on a site. It is the applicant's responsibility to remove vegetation in accordance with any laws or regulations governing such activity.
   4. All excavations must be protected to prevent people and animals from falling in. For greatest safety, the excavation shall be backfilled upon completion of the soil evaluation.
   5. The consultant shall work with the Division representative to evaluate the soil profiles and to determine and document the soil characteristics within each excavation. The characterization of each soil horizon shall be described as indicated in the Consultant's Report Requirements.

E. Percolation Tests Required

1. General requirements
   a. When required by these standards to demonstrate adequate infiltrative capacity, percolation testing shall be completed and results submitted as part of the consultant's site evaluation report.
   b. Percolation tests are required as part of the site evaluation process for the creation of new lots and parcels.
2. Test hole preparation requirements
   a. There shall be a minimum of three (3) percolations test holes when the disposal area and replacement area are contiguous. Six (6) or more percolation test holes may be required when the areas are separate. Determination of contiguous areas shall be made by the Division.
   b. The depth of the test hole shall be deeper than the proposed disposal trench or subsurface drip system placement. Prior to performing percolation tests, the consultant shall obtain verbal approval from the Division regarding depth of percolation testing. A posthole digger or manual auger shall be used to dig the test section (deepest 8 inches) of the test hole.
   c. The diameter of the test hole shall be from six (6) to eight (8) inches.
   d. The test hole sidewall in the test section should be roughened to remove any smearing or compaction caused by the hole excavation process. All loose soil shall be removed and two (2) inches of pea gravel or other material approved by the Division shall be placed in the bottom of the hole. In order to prevent silting of the bottom of the hole and sidewall cave-in, a sidewall gravel pack is to be used in accordance with the chart in this Chapter. Two methods for retaining the sidewall gravel pack are:
      i. One eighth (1/8) inch mesh galvanized hardware cloth rolled into a cylinder at least twelve (12) inches long.
      ii. Perforated plastic pipe in twelve (12) inch (or longer) sections.
3. Presoak requirement
   The hole shall be filled with clean water to a minimum depth of twelve (12) inches above the base of the hole. The presoak shall be maintained for a minimum of twelve (12) hours.
4. Test measurement requirements
   a. Percolation tests shall be measured to the nearest 1/16th inch from a fixed point.
   b. The percolation test shall begin within four (4) hours following completion of the presoak. Adjust the water level to six (6) inches over the pea gravel bottom and begin the test. This may require adding or removing water to adjust the level.
   c. Readings shall be taken at thirty (30) minute intervals. Refill as necessary to maintain five (5) to six (6) inches of water over the pea gravel bottom at each interval. Readings shall be taken until two (2) consecutive readings do not vary by more than ten percent per reading, with a minimum of three (3) readings. The last thirty (30) minute interval is used to compute the percolation rate. If four (4) inches or more of water seeps from the hole during the thirty (30) minute interval, readings may be taken at ten (10) minute intervals. Readings shall be taken until two (2) consecutive readings do not vary by more than ten percent per reading with a minimum of three (3) readings. The last ten (10) minute interval in used to compute the percolation rate.
5. Test rate determination
   The following chart provides a correction factor to determine the corrected perolation rate:

Hole Diameter	Gravel Thickness	Correction Factor
6"	1"	1.59

6”	1/2”	1.27
8”	1”	1.14
7”	1/2”	1.04

Calculation:
Standard percolation value (minutes per inch) =
Test percolation value (minutes per inch) X (correction factor)
Example: A six (6) inch hole is used with a one (1) inch gravel pack. The test percolation value is 25 mpi.

25 mpi (1.59) = 40 mpi
40 mpi is the standard percolation value for that test hole and will be used in combination with other test hole results when designing the system. The mean percolation rate calculated from all test hole results accepted by the Division shall be the final percolation rate (design percolation rate) assigned for sizing the system.

F. Consultant’s Site Evaluation Report Submittal
Regardless of the outcome of the site evaluation, the consultant for the site must submit a complete report to the Division. This consultant’s report must include a scaled site plan identifying the location and results of all soils testing performed. The soils test results provided must show the minimum information required by the Division. For sites where a sewage disposal area is identified, the proposed system area and layout must also be shown.

1. Consultant’s Report Requirements
The consultant must submit a report including the following information to the Division in order for the Division to prepare a site evaluation report. Soil properties must be described using the classes defined in this Manual, or using standard USDA-Natural Resources Conservation Service terminology as defined in “Soil Survey Manual, Agricultural Handbook No. 18, 1993”. The consultant’s report must include the following information:
   a. A scaled site plan, wet stamped and signed by the consultant, depicting the following:
      i. existing property boundaries and proposed boundaries if a subdivision is proposed
      ii. location of all soil profile excavations and percolation tests
      iii. boundaries of the defined sewage disposal area – either minimum usable sewage disposal area or initial and 100% repair with trench layout as necessary
      iv. percent slope and direction of slope in the area tested
      v. water lines
      vi. location of wells
      vii. roadways
      viii. location of structures
      ix. drainage and waterways
      x. easements
      xi. north arrow
      xii. scale
      xiii. any pertinent surface features (i.e., rock outcroppings, tree locations, cutbanks,etc.)
      xiv. any other site features which affect the location of a system
   b. The scale of the site plan must be whole multiples of 1”=10’, 1”=20’, 1”=30’, 1”=40’, 1”=50’, or 1”=60’ and must be of practical use for the size of the property shown. Site plans for subdivisions must include a minimum 1”=50’ scale site plan of each proposed lot/parcel and also a scaled site plan of the existing property in its entirety showing development plans.

c. The soil characterization for each soil horizon (layer) within the soil profile of each excavation must be described, even if the test shows unsuitable soil or is located in an area that will not be used. Each description must include the following information:
   i. Slope-percent and direction.
   ii. Effective soil depth.
   iii. Depth to groundwater (if observed).
   iv. Descriptions of each soil horizon described, which shall include the following characterization, using the terminology indicated (where provided):
      (1) Depth of horizon
      (2) Soil texture-sand, loamy sand, sandy loam, sandy clay, sandy clay loam, loam, clay, clay loam, silty clay, silty clay loam, silt loam, silt
      (3) Soil rock fragment content in percent by volume
      (4) Soil color (moist) using the Munsell Soil Color Chart or other Division approved color chart
      (5) Redoxymorphic features (if present)-otherwise known as mottling
      (6) Soil structure-granular, platy, or blocky, fine, medium, or coarse, structureless-single grain, or massive
      (7) Soil pores (if significant)-few, common, or many, fine, medium, or coarse
      (8) Soil consistence-loose, very friable, friable, firm , very firm ,extremely firm, or solid
      (9) Soil plasticity-non-plastic, slightly-plastic, plastic, or very-plastic
      (10) Soil stickiness-non-sticky, slightly-sticky, sticky, or very-sticky
      (11) Soil roots-none, few, common, or many, very fine, fine, medium, or coarse
      (12) Soil horizon boundary-smooth, wavy, irregular, or broken; abrupt, clear, gradual, or distinct
      (13) Soil moisture-dry, damp, moist, saturated, or seepage
d. The percolation data sheet(s), depth of percolation test holes, correction factor calculation, and average percolation rate. Or, the soil type(s) utilized for determining the sizing if percolation tests were not used for sizing.
e. The proposed type of system (e.g., Standard, Capping Fill, Pressurized Distribution, etc.) and location with respect to specific soil profile test locations.
f. Maximum daily flow as determined by Criteria for System Sizing, below, with either a calculation of lineal feet of disposal trench and proposed disposal trench dimensions, or number, depth and diameter of seepage pits, or square footage of subsurface drip area, lineal feet of subsurface drip line, depth of subsurface drip line and spacing of subsurface drip line.
g. The business name, address and telephone number of the consultant.
h. The date that the testing was conducted.
i. Other information as required by the Division.
j. The report shall be wet stamped and signed by the consultant.

G. Soil Stability Report

The Division may require a geo-technical report by an engineering geologist or geo-technical engineer where there are indications of soil instability. The report shall discuss soil stability within the proposed disposal area and replacement area of the system and on the soil's stability with respect to the building foundation, surrounding terrain and adjacent properties. The report shall include, at a minimum:

1. A site plan drawn to scale, showing topography, locations of the proposed house, driveway or other structures;
2. Soil profile information as it relates to soil stability;

3. Discussion of the presence of groundwater, it's seasonal variation (if any) and influence on the soil stability after disposal field construction;
4. Statement concerning the stability of the soil and bedrock that may specifically include an evaluation of soil creep and landslide potential at the disposal area and replacement area location and surrounding terrain due to the hydraulic load imposed by the system;
5. Recommendation for interceptor drains (if needed) that may render soil stable and prevent flooding of the disposal area and replacement area;
6. Recommendation of the best structure-driveway-disposal field location relationship as it relates to soil stability, and;
7. Recommendation of installation methods and procedures.

H. Completed Environmental Health Services Site Evaluation Report:
If a suitable site is identified at the site evaluation, and the Division receives an acceptable consultant's report, this will be confirmed in the Division's site evaluation report. However, if the site evaluation does not identify a suitable area, the completed Environmental Health Services site evaluation report will not support the issuance of a system permit.

1. An approved Environmental Health Services site evaluation report must be prepared by the Division before a system permit application can be accepted. The Environmental Health Services site evaluation report is not a permit to install a system.
2. The Environmental Health Services site evaluation report will specify the type(s) of system(s), if any, that can be approved for a specific site. It will also note any specific limitations or conditions that may be part of an approval for a system. If an off-site easement is required for a system, this easement must be recorded and a copy of the recorded document, with all exhibits, must be provided to the Division prior to the issuance of a permit.
3. An Environmental Health Services site evaluation report is transferable and runs with the land.
4. An area approved for a system in an Environmental Health Services site evaluation report will be considered the same as an already installed system, for purposes of determining on-site or off-site setbacks. An owner may revoke an approved site evaluation report by written request to the Division.
5. Future changes in laws governing systems may require a modification to the Environmental Health Services site evaluation report.
6. The Environmental Health Services site evaluation report and approval for a sewage disposal area are based upon property conditions at the date of the report. Changes made to the property may render that area unacceptable. Examples of types of changes include: grading, cuts and fills, new buildings, wells, ponds, etc. Owners must take care not to encumber or alter the approved area in a manner that effects the future system.

I. Criteria for System Sizing

1. Single-family dwellings. Systems serving single-family dwellings shall be sized at minimum three hundred (300) gallons per day (gpd) projected daily sewage flow. Projected daily sewage flow for each single family dwelling shall be calculated as follows:
   a. For a single-family dwelling constructed in 1994 or later, the system shall be sized at one hundred and fifty (150) gallons per day per each bedroom for the first three (3) bedrooms and seventy-five (75) gallons per day for each additional bedroom.
   b. For single-family dwellings constructed prior to 1994, and completely retrofitted with U.S. Energy Policy Act (EPACT) efficient plumbing fixtures, sizing criteria as described in paragraph I (1) (a) above, shall apply. Written certification from the Building Department having jurisdiction that the single-family dwelling has been completely retrofitted with EPACT-efficient plumbing fixtures must be submitted to the Division at the time of application.

c. For a single-family dwelling constructed prior to 1994, the system shall be sized at one hundred and fifty (150) gallons per day per bedroom.

2. Commercial facilities. Projected daily sewage flows for commercial facilities shall be determined using Chapter 39 Table 2: Design Flows. The Division may approve, on a case-by-case basis, metered water use data, or other supporting data in lieu of the estimated flows set forth in Table 2.
3. Disposal trench and subsurface dripline sizing for single-family dwellings and commercial facilities. The effective absorption area required, shall be based upon the projected daily sewage flow and one of the following determined by the Division to be appropriate:
   a. Effective absorption area required, when given the design percolation rate, shall be calculated using the following formulas:
      i. For gravity-fed trenches: $3.5/\sqrt{t}$
      ii. For pressure-distribution trenches: $5/\sqrt{t}$
      Where "t" is the percolation rate in minutes per inch. Percolation rates of 1-5 minutes per inch (mpi) and greater than sixty (60) mpi are unsuitable for a standard system and shall utilize pressure distribution. When a pressure-distribution disposal trench is utilized, the system is an alternative system, as described in Chapter 11, Alternative System Requirements.
      iii. For subsurface drip systems, the following chart shall be used: Unless otherwise approved by the Division, sizing shall be based upon percolation rate rather than soil type.

Soil Type	Est. Soil Perc. Rate Minutes/in	Design Hydraulic Loading Rate Gal/sq. ft. per day	Total Area Required Sq. ft./100 gallons per day
*	1-4	1.400	71.5
*	5-10	1.200	83.3
Sandy Loam	10-20	1.000	100.0
Loam	20-30	0.700	143.0
Clay Loam	30-45	0.600	167.0
Silt-Clay Loam	45-60	0.400	250.0
Clay Non-Swell	60-90	0.200	500.0
Clay-Swell	90-120	0.100	1000.0
Poor Clay	>120	0.075	1334.0

* Sizing shall be based upon percolation rate, and not on soil type.
Source: Geofolw, Inc. Subsurface Drip Dispersal and Reuse Design, Installation and Maintenance Guidelines October 2007 Table 1 with modifications.

b. When allowed by the Division, for pressure distribution disposal trenches following supplemental treatment, the rate of sewage application may be based on soil type as shown in the chart below.

Soil Type	Rate of Sewage Application
B – loamy sand	0.8 gpd/ft ^{2}
C – sandy loam	0.6 gpd/ft ^{2}
D – sandy clay loam, porous silt loam, clay loam, Non-expansive clay	0.45 gpd/ft ^{2}
E – sandy clay, silty clay, silty clay loam	0.2 gpd/ft ^{2}

4. When sizing by soil type and more than one soil type is encountered within a soil profile, disposal trench or subsurface drip system sizing shall be based on the soil characteristics of the most restrictive soil type encountered within the effective soil depth.
5. When sizing by percolation rate and more than one soil group is encountered within a soil profile, disposal trench or subsurface drip system sizing shall consider the soil characteristics within the effective soil depth, and may require percolation tests in deeper soil layers.
6. For calculating the required lineal feet of the disposal field, only the trench bottom area shall be considered, unless otherwise specified in Chapter 14, Deep Trench System Requirements.

Chapter 4 - System Permit Requirements

A. Permit Required
A system permit (hereafter "permit") is required as provided in Article 8.24.085. A permit is valid for two (2) years from the date it is issued. It may be renewed under procedures described in Chapter 5, The Issued Permit.

B. An Approved Environmental Health Services Site Evaluation Report Is Required
An approved Environmental Health Services site evaluation report must be on file at the Division before a permit application for a new installation can be submitted.

C. System Permit Application and Fee Requirements
The permit application must be complete, and an approved Environmental Health Services site evaluation report must be in the Division's file. A permit application fee must be submitted with the permit application. The permit fee varies with the type of permit, and the Placer County Board of Supervisors determines that amount. A complete application includes:
1. A location map with clear instructions on how to find the property (conditions may have changed since the site evaluation).
2. Two (2) copies of a site development plan drawn to scale. The scale of the site plan must be whole multiples of 1"=10', 1"=20', 1"=30', 1"=40', 1"=50', or 1"=60' and must be of practical use for the size of the property shown. An example of a site development plan is available from the Division. The plan must be drawn so that it is clear and readable. The following information shall be included on the plans:

a. Street address and Assessor's Parcel Number;
b. Property boundaries, dimensions and a North arrow;
c. All existing and proposed structures/improvements (e.g. houses, barns, wells, driveways, water lines, etc.);
d. Any physical features, including rock outcrops, creeks, ponds, drainage courses, cuts, fill areas, springs and similar;
e. Any easements, including, but not limited to, roads, water lines, canals, power;
f. Accurate location of all soils testing done on the property, with numbering to correspond with the site approval report;
g. Exact location and layout of the proposed system, including any septic tank, pump tank, distribution system, disposal field, and 100% replacement area;

3. If it is an alternative system, the following must be included with the permit application:
   a. Two (2) copies of a complete system construction design, prepared wet stamped and signed by a qualified consultant, which must include the consultant's system sizing calculations, hydraulic calculations, operational components, materials specifications, diagrams, settings and construction notes that guide the installer on construction and installation of the system.
   b. Two (2) copies of a site development plan with the consultant's wet stamp (original) and signature.
   c. Depending upon the type of system application, additional information may be required by the Division.

D. Permit to be Acted Upon

The Division will issue, conditionally approve, or deny the permit application within twenty (20) working days after receipt of the completed application.

Every effort is made to ensure that the permit application is reviewed in a timely manner. However, certain situations may result in delays of permit processing. These include but are not limited to:

1. The application is incomplete or contains incorrect information.
2. The proposed system is significantly different from what was approved in the Environmental Health Services site evaluation report.
3. The proposed system location has been modified or encumbered.

E. Construction Permit Denial Criteria

Upon receipt of a completed application for any type of system construction permit, the Division shall deny the construction permit if:

1. The application contains false information; or
2. The application was wrongfully received by the Division; or
3. The proposed system would not comply with On-Site Ordinance or Manual,; or
4. The proposed system location has been encumbered or has been modified; or
5. The approved Environmental Health Services site evaluation report is found to be voided due to nonconformance with the site evaluation report conditions (e.g. conditions on the subject or adjacent properties have been altered by being graded, cut, filled, encumbered by structures, or encroached horizontal separation setbacks, etc. in any manner which would violate the conditions upon which the site evaluation approval was based.)
6. Public sewer which can serve the proposed project is both legally and physically available, as described in Chapter 2, Connection to Public Sewer.

Chapter 5 - The Issued Permit

The permit will be issued with certain conditions. These are tailored to the specific parcel conditions and type of system. The conditions on the permit are designed to ensure that the system is installed properly. In order to facilitate this:

A. The system must be installed as required by this Manual and according to the permit conditions. Specific conditions of operation and maintenance issued for the system permit will remain in effect for the life of the system, unless otherwise specified in the permit.

B. Any changes to the permit or plans must first be approved by the Division and the consultant (if any).

C. The person who works on the system must be a licensed contractor or the owner. However, an owner may only perform work on a standard system. The person working on the system must have a copy of the approved permit, plans and design (if applicable).

D. A copy of the approved permit, plans and design (if applicable) must be at the job site once the work begins and until the final inspection and approval of the work.

E. Any changes to the permit or plans must first be approved by the Division and the consultant.

F. The permit is valid for two (2) years from the date it is issued. It may be renewed or transferred by following these procedures:
   1. Permit Renewal
      a. The permit may be renewed for a maximum of two (2) additional years, one (1) year at a time. Application for renewal must be made prior to expiration of the permit. If the permit has expired, a new application and fee are required.
      b. In order to renew the permit, the owner must make a written request to the Division.
      c. A permit considered for renewal will require review to ensure that public sewer is not legally and physical available or that there have not been significant changes in technology or knowledge that affect the design of the system. In some cases, the consultant may be required to review his/her design.
      d. A permit renewal is valid for a period of one (1) year from the date of permit renewal. A permit may not be renewed more than two (2) times. Any further review requires a new permit application and fee to be paid.
   2. Re-evaluation of Expired Permits
      An expired permit is no longer valid. In order to obtain a new permit, a new fee and application are required. A permit issued in this circumstance is considered a new permit.
      When the Division performs an evaluation of an expired permit, consideration is given, but not limited to the following:
      a. A recent history of system failures in the area.
      b. The proposed type of system has a history of problems, and/or is no longer approved for use.
      c. There is new information about soils in the area.
      d. Availability of public sewer.
   3. Permit Transfer
      A new owner must make a written request for transfer of the permit upon the change of ownership. A letter from the owner listed on the permit authorizing the permit transfer must be submitted to the Division. Expired permits are non-transferable.

G. If the applicant proposes a change which affects the septic permit (e.g., adding bedrooms, different type of system, new system location, etc.), additional fees, new permit conditions and a new permit may be required.

H. At times it may be necessary to revise a system design. Either the consultant or the Division may require this due to changes in technology or new information about a particular type of system. This may require the Division to revise the existing permit requirement and/or conditions.

Chapter 6 - Construction Inspections

All permit conditions and requirements must be followed. If the approved permit design requires the consultant to inspect the system, the construction inspections shall be coordinated with both the consultant and the Division. Clear communication with the system installer and consultant is vital.

A. Inspections of the system are required. Unless waived by the Division, an on-site preconstruction meeting is required. The Division may waive any required inspection with sufficient justification.

B. A request for an inspection must be made to the Division prior to 7:00 AM on the date the inspection is requested. Inspections shall be performed on County business days only. The inspection request must be made by using the Division's 24-hour septic inspection phone line. The number can be found at the top of the septic permit application. Incorrect or incomplete inspection request information may delay the inspection.

C. The system must be ready for the type of inspection that is requested. All necessary components must be installed and functioning. If extra inspections are needed, an additional inspection fee will be charged.

D. Following the inspection, the Division will provide the system installer with a written record of inspection(s) made of the system. The record will indicate if any further work or action is required. The system may only be backfilled (covered) with written approval from the Division. For work that is not approved, a correction notice with written instruction will be provided that specifies the changes to be made.

E. An accurate as-built or record drawing of the complete installed system must be submitted to the Division at the time of system final inspection.
   1. The as-built must accurately depict the following:
      a. Installer's name, address and signature
      b. Assessor' Parcel Number
      c. Driveway
      d. Well(s)
      e. House footprint
      f. Triangulated measurements from two house corners to both lids of the septic tank and the first distribution box or disposal field valve box, if present. Include triangulated measurements to a pump dosing tank, sand filter or ATU, if present.
      g. Accurate measurement of the disposal line lengths and the distance between lines, measured at the distribution boxes, if present.

h. Effluent transport piping, control panel and any other major component of the system.
i. Parcel boundaries.
j. Septic tank volume.
k. Pump tank/dosing tank volume.
l. North arrow.

F. When a consultant's inspection is required, the consultant must provide the Division with a written certification. The certification must indicate that the system has been installed in accordance with the approved design. This certification is required prior to issuance of a Certificate of Satisfactory Completion for the system.

G. Systems must be backfilled within five (5) calendar days of written approval for backfill from the Division and the consultant (if required), or as specified by the approved design. In any case, the system must be protected from damage caused by weather, earth-moving, or other causes, and must not pose a public health and safety hazard. Adequate erosion control measures must be in place in accordance with applicable requirements of other county regulations.

H. The Division will issue a Certificate of Satisfactory Completion for the system upon satisfactory completion of the requirements of the permit and this Manual.

I. The system must be completely installed and receive a Certificate of Satisfactory Completion prior to the expiration of the system permit.

Chapter 7 - System Repairs, Modifications, or Expansions

A. Permit is Required
A system permit is required in order to modify, repair, or increase the sewage flow to an existing system, in accordance with Article 8.24.085. A construction permit is not required for servicing or replacing an approved system's components with mechanical or electrical parts of the same type, size or capacity, pumping of septage, repair/replacing a distribution box, or repairing/replacing sewer pipe from the septic tank to the distribution box.

B. Site Evaluation Requirements
For certain types of changes or repairs to a system, a site evaluation may be required, as described in Chapter 3, Site Evaluation. Examples of situations that may require a site evaluation include: a failing system, adding a bedroom, and relocating a system.

C. Special Considerations for System Repairs
A failing system creates a public health hazard and/or can pollute water.
1. A failing system:
   a. A failing system must be immediately repaired or its use immediately discontinued. The Division will require temporary measures to eliminate a public health hazard.
   b. If an immediate repair cannot be accomplished, the Division may allow a delay in making the repair. In this case, a Notice of Violation will be issued and the Division will specify temporary measures required to eliminate the immediate public health hazard or pollution of protected waters.

2. Replacing the system
    a. If the site does not meet the requirements for a standard system, the Division may approve a permit for an alternative system so long as those requirements can be met.
    b. If the site does not meet the requirements for a standard or alternative system, the Division may approve a permit for an experimental system or other repair in order to eliminate a health hazard.
    c. When a failing system is replaced, the failing system must be abandoned as described in Chapter 17, System Abandonment Requirements.

Chapter 8 - Authorization Notice

A. General Statement
An authorization notice is the administrative approval which allows a substitution of one structure for another or a change in use for an existing, previously approved system.

B. Exceptions:
An authorization notice is not required for placing into service a previously unused system for which a Certificate of Satisfactory Completion has been issued within two (2) years of the date such system is placed into service, providing the projected daily sewage flow does not exceed the design capacity.

C. Application Requirements
A complete application includes:
1. Two (2) copies of a complete, detailed, scaled plot plan of the property showing at least the following:
    a. The lot boundary locations and dimensions with a north arrow.
    b. Existing and proposed structures, existing and proposed driveways, system(s), water wells, 100% replacement area of the disposal field, ponds, swales, etc.
2. A complete application for an authorization notice and payment of applicable fees.
3. A septic tank pumper's report, prepared by a licensed septic tank pumper, which verifies that a septic tank which has been in use has been pumped within three (3) years of the application date, and the septic tank capacity, the physical condition of the components of the tank, the presence and material of risers, the integrity of the tank and material of the tank and its components.
4. If an adequate as-built drawing of the system is not on file at the Division, then a complete system tracing with as-built quality drawing may be required to determine the location of the system.
5. For pressurized distribution systems and supplemental treatment systems, a system evaluation/maintenance report, prepared by a qualified system service provider is required. The evaluation/maintenance report shall be performed and dated not more than one (1) year prior to the authorization notice application date.

D. Criteria for Approval
In order for an authorization notice to be approved, each site must meet the applicable requirements of the Ordinance and Manual and all of the following:
1. The existing system was installed with a permit and received final approval from the Division.
2. The existing system is shown not to be failing; The Division may require inspection of the system to identify the location of the existing system and determine to what extent the existing system is being utilized.

3. All setbacks can be maintained.
4. Sufficient area exists so that a complete replacement area meeting all requirements of the On-Site Ordinance and Manual is available on site for the projected daily sewage flow and in the opinion of the Division, the proposed use would not create a public health hazard on the ground surface or in public waters, and the system meets current effective soil depth requirements.
5. The existing system shall comply with operation, maintenance and monitoring (OM and M) requirements and shall be subject to current OM and M requirements after approval of an authorization notice.
6. The Division reserves the right to require any soils testing deemed necessary in order to make the finding that the system is functioning adequately and/or that there is available suitable soils for a replacement system.
7. Public sewer connection is not legally and physically available per Chapter 2, Connection to Public Sewer.

An approved authorization notice shall be valid for two (2) years from the date of issuance and shall not be eligible for renewal.

Chapter 9 - Standard System Requirements

A. General Statement

A standard system is a system consisting of a septic tank, distribution unit and gravity-flow disposal field constructed with a minimum of six (6) inches of filter material below a minimum three (3) inch diameter distribution pipe, and maintaining not less than four (4) feet of effective soil depth below the bottom of the trench.

B. Criteria for Approval

In order to be approved for a Standard System, each site must meet the applicable requirements of the Ordinance and Manual and all of the following:

1. Effective soil depth shall extend a minimum of six (6) feet in the disposal area and shall extend a minimum of four (4) feet below proposed disposal trench bottoms;
2. Groundwater or any other limiting layer is not present for at least four (4) feet below the proposed disposal trench bottoms;
3. Soil in the proposed disposal area shall have a design percolation rate between six (6) to sixty (60) minutes per inch;
4. The slope shall not exceed thirty (30) percent within the disposal area;
5. A minimum one hundred (100) percent replacement area shall be available;
6. The site has not been filled or the soil has not been modified in a way that would adversely affect functioning of the system;
7. The site shall not be on an unstable landform, where operation of the system may be adversely affected;
8. The site of the disposal area shall not be covered by asphalt or concrete, or subject to activities associated with vehicular traffic, corrals, pens, arenas or other concentrations of livestock, or other activity which would adversely affect the soil or integrity of the system;
9. The site of the disposal area shall not be subjected to excessive saturation due to, but not limited to, artificial drainage, driveways, road and roof drains;
10. Setback criteria in Table 1 of Chapter 39 can be met;
11. At a minimum, sizing criteria specified in Chapter 3, Site Evaluation shall be utilized.
12. Unless otherwise approved by the Division, each disposal trench within a disposal field shall be a minimum length of fifty (50) feet.

13. An artificial drain may be required to intercept and/or drain water from a disposal area, however, it may be required to demonstrate that the site can be de-watered prior to issuing a permit. Where required, artificial drains are an integral part of the system,. But do not need to meet setback requirements to property lines, streams, lakes, ponds or other surface water bodies. However, artificial drains shall meet the setback requirements to systems as specified in Table 1 of Chapter 39. Artificial drains shall be designed by a consultant and meet the other requirements of Chapter 38, Artificial Drain Design, Materials and Construction.

C. Replacement Area
The 100 % replacement area shall meet the requirements for a standard system or an alternative system.

D. Commercial facilities that prepare foods, (e.g., kitchens, restaurants) shall install a grease trap or interceptor in compliance with the Uniform Plumbing Code and the local building department having jurisdiction. Any necessary permitting and inspection of grease traps or interceptors shall be performed by the Building Department.

E. Building Sewer Design, Materials, and Construction Requirements
The building sewer shall be constructed with materials in conformance to building sewer standards identified in the Uniform Plumbing Code. Permitting and inspections regarding building sewer connection to septic tank shall be performed by the local Building Department having jurisdiction.

F. Septic Tank Design, Materials, and Construction Requirements
1. Materials and construction shall be in accordance with Chapter 29, Septic Tank Materials and Construction.
2. The minimum liquid capacity of any septic tank installed shall be twelve hundred (1200) gallons.
3. Single family dwellings. Septic tanks to serve single-family dwellings shall be sized on the number of bedrooms in the dwelling, as follows:
   1 to 4 Bedrooms ----------1200 gallons
   5 Bedrooms ----------1500 gallons
   For each additional bedroom over 5, add two hundred (200) gallons
   Each single-family dwelling shall have a separate septic tank. This requirement also applies to a secondary dwelling or guest house.

G. Commercial facilities.
1. For projected daily sewage flows up to fifteen hundred (1500) gallons the septic tank shall have a liquid capacity equal to at least one and one-half (1-1/2) days sewage flow, or twelve hundred (1200) gallons, whichever is greater.
2. For projected daily sewage flows greater than fifteen hundred (1500) gallons, the septic tank shall have a liquid capacity equal to eleven hundred twenty-five (1,125) gallons plus seventy-five (75) percent of the projected daily sewage flow.
3. Additional volume may be required by the Division for special circumstances.
4. The quantity of daily sewage flow shall be estimated in gallons per day in accordance with Chapter 3, Site Evaluation.

H. Effluent Sewer Design, Materials and Requirements
The effluent sewer (pipe) shall extend at least five (5) feet beyond the septic tank before connecting to the distribution unit. It shall be installed with a minimum fall of four (4) inches per one hundred (100) feet, but in no instance shall there be less than two (2) inches of fall from one end of the pipe

to the other. For installations where more than one (1) disposal trench is utilized with serial distribution, there shall be a minimum of four (4) inches elevation drop from the invert of the septic tank outlet to the invert of the disposal field distribution unit. When connecting a three (3) inch pipe to a four (4) inch pipe, they shall be joined by a fitting that provides a water-tight seal. The effluent sewer pipe materials and construction shall be in conformance with Chapter 33, Pipe Materials and Construction.

I. Distribution Box and Diversion Valve Design, Materials, and Construction Requirements
Distribution box and diversion valve design, materials, and construction shall meet the minimum standards set forth in Chapter 30, Distribution Box Materials and Construction and Chapter 31, Diversion Valve Materials and Construction.

J. Header Pipe Design, Materials, and Construction Requirements
1. Unless otherwise approved, header pipe materials and construction shall at minimum, meet the standards set forth in Chapter 35, Pipe Materials and Construction.
2. The pipe shall be watertight, have a minimum diameter of three (3) inches, and be bedded on undisturbed earth.

K. Disposal Trench Design, Materials, and Construction Requirements
1. Disposal trenches shall be constructed in accordance with the following standards:
   a. Length maximum 100 feet
      Length minimum 50 feet
   b. Bottom width minimum 24 inches
      Bottom width maximum 36 inches
   c. Depth minimum 24 inches
      Depth maximum 30 inches
   d. Minimum distance of undisturbed soil between disposal trenches (sidewall-to-sidewall) shall be six (6) feet.
2. Disposal trench sizing methods and calculations shall be in accordance with the On-Site Manual.
3. Filter material shall extend the full width and length of the disposal trench to a depth of not less than twelve (12) inches. There shall be at least six (6) inches of filter material under the distribution pipe and at least two (2) inches over the distribution pipe.
4. A soil barrier shall be placed on top of the filter material to exclude fines from the filter material. The barrier shall consist of suitable filter fabric.
5. There shall be a minimum of twelve (12) inches and a maximum of eighteen (18) inches of backfill over the filter material.
6. Gravelless trench construction may be utilized instead of drain rock/filter material in disposal trenches according to the following requirements:
   a. The design, manufacturing and materials used shall be durable and the specific gravelless trench has been approved for use by the Division.
   b. Sizing requirements for gravelless trenches shall be the same as for disposal trenches which utilize drain rock/filter material, unless the following can be met:
      i. The approved sewage disposal area must be sized to accommodate an initial and 100% replacement area without a disposal trench reduction.
      ii. A maximum twenty percent disposal trench sizing reduction can be allowed only for a standard disposal trench with an approved gravelless chamber.
      iii. Written approval from a qualified sewage disposal consultant must be submitted to the Division which specifies a disposal trench reduction not to exceed twenty percent.
      iv. All manufacturers' requirements for proper installation shall be met.

L. Distribution Pipe Design, Materials, and Construction Requirements

1. Unless otherwise approved, distribution pipe materials and construction shall meet the minimum standards set forth in Chapter 35, Pipe Materials and Construction.
2. The distribution pipes shall have a minimum diameter of three (3) inches.
3. All perforated pipe shall be installed with centerline markings upward.

M. Installation Requirements

1. Septic tanks shall be installed on a level, stable base.
2. All septic tanks shall be installed with watertight risers extending above the ground surface. Construction and materials specifications for risers shall be in accordance with Chapter 29, Septic Tank Materials and Construction.
3. Septic tanks shall be installed in a location that provides access for servicing and pumping.
4. Systems shall not be installed when moist or wet conditions cause trench sidewall or bottom area degradation of soil structure and porosity (which frequently appears as smearing and compaction).
5. The bottom of the disposal trench shall be level to within a tolerance of two (2) inches in 100-feet.
6. Each disposal trench shall have distribution piping that is centered in the trench and laid level to within a tolerance of two (2) inches in 100-feet.
7. Disposal trenches shall be installed on contour.
8. Prior to backfilling the trench, the filter material shall be covered with filter fabric.
9. Prior to backfilling any portion of the septic system, detectable marking tape shall be placed on top of any pipe, as well as gravelless chambers. (Subsurface drip lines are excluded from this requirement.) The detectable marking tape shall utilize standard American Public Works Association colors, be able to be located with a non-ferrous metal detector and shall be buried flat for maximum detectability. Unless otherwise approved by the Division, the detectable marking tape shall be a minimum of three (3) inches in width.
10. Backfill shall be carefully placed to prevent damage to the system.
11. Backfill shall be native soil free of large stones, frozen clumps of earth, masonry, stumps, waste construction materials, or other materials that could damage the system.
12. All distribution boxes shall be bedded level on undisturbed soil, aggregate with a minimum of 90% compaction, or concrete.
13. Inspection risers, of a design approved by the Division, shall be installed at the end of each disposal trench.
14. The system shall be installed as specified in the approved permit.
15. Adequate erosion control measures shall be utilized at all times in conformance with applicable county regulations and per the consultant's design.

N. Required Inspections

All portions of the system are subject to inspection and verification prior to covering. The system shall be inspected for conformance with the permit requirements, including all applicable setbacks. The portions normally inspected include:

1. The septic tank, including access into any manhole covers.
2. The effluent sewer, distribution unit, and absorption facility.
   NOTE: The inspection of the building sewer entering the septic tank is performed by the local Building Department having jurisdiction.

Other portions of the system may be inspected as required by the permit or if deemed necessary by the Division to determine compliance with the Regulations. Additional inspection and Certificate of Satisfactory Completion requirements are specified in Chapter 6, System Inspections.

O. Large System Requirement
Systems with a projected daily sewage flow greater that two thousand five hundred (2,500) gallons shall be designed in accordance with the requirements set forth in Chapter 28, Large System Requirements.

Chapter 10 - Pump System Requirements

A. General Statement
A pump system is utilized to enable the installation of a disposal field upslope of the structure to be served. The effluent is not distributed to the disposal field under pressure, but by gravity flow following pumping to a higher elevation.

B. Criteria for Approval
The criteria for approval as outlined in Chapter 9, Standard System Requirements shall be met.

C. Criteria for System Sizing
System sizing shall meet the provisions of Chapter 3, Site Evaluation.

D. Pump Requirements
The pump shall meet the minimum design, materials, and construction specifications in Chapter 33, Effluent Pump, Control, and Alarm Materials and Construction. Additionally, pumps shall meet total head requirements of the site encompassing elevation head, friction head, and pressure head.

E. Pump Tank Requirements
1. The pump tank shall have capacity sufficient to deliver the prescribed dose, have a minimum additional storage capacity above the high level alarm of one day's design flow and have a minimum capacity of at least one-thousand (1,000) gallons. The liquid capacity shall be measured from the invert elevation of the inlet fitting to the bottom of the tank.
2. The high water alarm shall activate immediately when the remaining pump tank storage volume is equal to the daily design flow capacity.
3. Each tank shall be installed on a stable level base.
4. Construction of the tank shall comply with the standards in Chapter 32, Dosing/Pump Tank Materials and Construction.
5. Each pump tank shall be provided with a watertight riser extending to the ground surface or above, with a minimum inside horizontal measurement equal to or greater than the tank access manhole, and at least twenty-four (24) inches. Provision shall be made for securely fastening the pump tank riser lid.

F. Installation Requirements
Unless otherwise indicated on the permit, installation requirements shall be as specified in Chapter 32, Dosing/Pump Tank Materials and Construction (with application as a pump tank, not dosing tank), and Chapter 33, Effluent Pump, Control, and Alarm Materials and Construction.

G. Required Inspections
Inspection and issuance of the Certificate of Satisfactory Completion shall be in conformance with Chapter 6, System Inspections. Additionally, an inspection of the system components and pump function may be made.

H. Specialized Use of Pump with Pump Basin
   1. A pump and pump basin may be used to address the issue of plumbing elevation for a portion of a residence, or a remote bathroom for outbuildings, being too low in elevation relative to the septic tank to allow gravity flow to the septic tank.
   2. The pump for such applications must be capable of pumping two (2) inch solids and pump directly into the building sewer entering the septic tank.
   3. A pump basin with pump may be utilized under the following circumstances:
      a. The wastewater does not originate from a kitchen, and
      b. Any toilet being serviced, in the case of residential application, is not the sole toilet utilized by the residence, and
      c. The pump and pump basins are permitted and inspected by the local Building Department having jurisdiction.

I. Specialized Use of Septic Tank Second Compartment as a Dosing Tank
   1. When utilizing a remote bathroom, such as those in a barn or pool house, etc., the second compartment of a septic tank may be utilized as a pump tank under the following circumstances:
      a. A minimum one thousand five hundred (1,500) gallon septic tank will be used.
      b. The septic tank shall be internally plumbed such that the second compartment functions independently as a pump tank.
      c. An "n" shaped pipe to be cast in the baffle wall at a point two inches below the level of the invert of the inlet sanitary tee of the septic tank. Drill a one inch hole in the top of each elbow. Unless otherwise approved by the Division, the influent side of this pipe shall extend sixteen inches below the liquid level of the influent side of the septic tank, and the effluent side of this pipe shall extend within twelve inches of the bottom of the second compartment of the septic tank. The baffle shall be watertight below the liquid level. Piping and fittings shall be as specified in Chapter 35, Pipe Materials and Construction.
      d. The sanitary tee outlet (in the second compartment) shall be sealed.
      e. Effluent may be pumped directly into the uppermost distribution box of the existing disposal field or into the header pipe between the existing septic tank and the first distribution box. Effluent may not be pumped into the existing septic tank.
      f. The wastewater does not originate from a kitchen.
      g. Any toilet being serviced, in the case of residential application, is not the sole toilet utilized by the residence.
      h. The pump and septic tank are permitted and inspected by the Division as described in Chapter 4, System Permit Requirements and Chapter 6, System Inspections.

Chapter 11 - Alternative System Requirements

A. Definition of Alternative System
   An alternative system is any on-site sewage system consisting of treatment and/or disposal components other than a standard system for which the Division may determine meets the requirements of this On-Site Ordinance and Manual for a renewable operating permit. Alternative systems may include but are not limited to: pressure-distribution, deep trench systems, curtain drains, sand filters, mounds, large systems, capping fills, seepage pits or approved subsurface drip disposal systems.

B. Provisions

Unless otherwise indicated in specific alternative system sections or by the Division, all provisions pertaining to the site evaluation criteria; design (including sizing), installation, construction, and maintenance of standard systems, shall apply to alternative systems.

C. Criteria for System Sizing
The system sizing criteria shall be as specified in Chapter 3, Site Evaluation or Chapter 21, Seepage Pit Requirement, as applicable.

D. Alternative Systems in Lieu of Standard Systems
An area that meets the requirements for an alternative system shall not be used in lieu of an area that meets the requirements for a standard system. However, an alternative system which utilizes supplemental treatment may be used in an area that has been approved for a standard system.

EXCEPTION: Pressurized distribution may be used in any circumstance where this method of effluent distribution is desired. Deep trench systems may be used as provided in Chapter 14, Deep Trench System Requirements.

E. Consultant Inspections
Unless otherwise indicated in a specific section of this Manual, all alternative systems shall be designed and installed under the inspection and approval of a qualified consultant and the Division. A consultant shall submit written certification that the system has been installed in accordance with the approved construction/design plan and permit conditions. The Division shall not issue a Certificate of Satisfactory Completion for any system installation until certification of the installation is received from a consultant. The consultant shall provide the owner with a maintenance manual that outlines the operation of the system, including the owner's responsibilities for maintaining the system

F. Systems Approved for the Creation of Lots, Parcels, or Other Building Sites
Alternative systems approved for the creation of lots, parcels and additional building sites shall demonstrate a minimum usable sewage disposal area (MUSDA) in accordance with the On-site Sewage Ordinance.

G. Inspection Risers
Inspection risers shall be installed at the end of each disposal trench, unless a different location in the disposal trench is approved by the Division.

H. Septic System Components Which Are Located Below Grade But Which Must Remain Visible for Monitoring/Maintenance
Any septic system components which are located below grade but which must remain visible for monitoring/maintenance must be installed in an appropriately sized subsurface box with fitted lid, as approved by the Division. The bottom of the box shall be covered with gravel or other material approved by the Division in order to limit the accumulation of unwanted soil debris in the box. The inside dimension and orientation of the box shall be such that the interior components are easily accessible for monitoring/maintenance.

I. Permit Application and Construction/Design Plan Requirements
An application for a permit shall be made in accordance with the procedure and requirements of Chapter 4, System Permit Requirements and the design shall include a construction schedule, (including critical points during construction at which time inspections shall be made by the consultant).

Chapter 12 - Capping Fill System Requirements

A. General Statement

A capping fill system is an alternative system where the disposal trench is installed either a minimum of twelve (12) inches into native soil for a gravity trench or a minimum of nine (9) inches into native soil for a pressure dose trench, below a coil cap of specified depth and texture. The shallow construction of the system allows for installation where fractured bedrock, a limiting layer or groundwater is closer to ground surface. This Chapter describes the requirements for gravity-fed capping fill systems. Pressure-dosed capping fill systems shall also meet the requirements of Chapter 13, Pressurized Distribution System Requirements.

B. Criteria for Approval

In order to be approved for a capping fill system, each site must meet all of the following conditions:

1. The slope shall not exceed twenty (20) percent in the disposal area.
2. Unless otherwise approved by the Division, the effective soil depth shall extend a minimum of four (4) feet below the bottom of the disposal trench. Effective soil depth requirements may vary with supplemental treatment systems used in conjunction with a capping fill.

C. Design Criteria

Unless otherwise specified, the system shall be designed in accordance with the provisions of Chapter 9, Standard System Requirements. Pressure distribution systems shall be designed in accordance with the provisions of Chapter 11, Alternative System Requirements and Chapter 13, Pressurized Distribution System Requirements.

1. Standard disposal trenches:
   Depth: 12 inches minimum and 18 inches maximum
   Width: 24 inches minimum and 36 inches maximum
2. Pressure distribution disposal trenches:
   Depth: 9 inches minimum
   Width: 24 inches minimum and 36 inches maximum
3. Standard System Cap Depth:
   12 inches (after settling)
4. Pressure Distribution System Cap Depth:
   9 inches (after settling)

D. Installation Requirements

Unless otherwise required by the Division, the installation shall meet the installation and construction requirements of Chapter 9, Standard System Requirements and the following:

1. The soil to be used for the cap may be examined and shall be approved by the Division and consultant prior to placement.
2. The disposal area shall have the vegetation removed and shall be scarified, parallel to contours, no deeper than three (3) inches, unless otherwise approved by the Division.
3. Soil cap shall extend a minimum of five (5) feet beyond the exterior trench sidewall on the uphill side and ten (10) feet elsewhere.
4. The system shall be installed as specified in the approved construction/design plan and permit.
5. The site shall be stabilized for erosion control in accordance with the approved construction/design plan and permit requirements. Additionally, the site shall be protected from

the activity of vehicular traffic, corrals, horse arenas, stables, or other activities that could damage the system or the integrity of the soil.

E. Required Inspections
Inspection criteria and issuance of a Certificate of Satisfactory Completion shall be in conformance with Chapter 6, System Inspections, Chapter 9, Standard System Requirements and Chapter 13, Pressurized Distribution System Requirements as applicable. The following additional inspections are required for capping fill systems:
1. The disposal area and fill material shall be inspected for scarification, soil texture, and moisture content.
2. The final placement of the soil cap shall be inspected.

F. Criteria for System Sizing
System sizing shall meet the minimum requirements of Chapter 3, Site Evaluation.

Chapter 13 - Pressurized Distribution System Requirements

A. General Statement
Pressurized distribution refers to a method of distributing effluent evenly over the entire soil absorption area through a network of small diameter pipes under low pressure. This method may be an alternative for some sites to mitigate the limitations associated with soils with percolation rates of one to five minutes per inch or some percolation rates greater than sixty minutes per inch.

B. Criteria for Approval
1. Pressurized distribution systems may be permitted on any site that meets the requirements for standard systems. The pressurized distribution system shall meet all the applicable requirements for a system as stated in Chapter 9, Standard System Requirements unless otherwise specified.
2. The proposed disposal area and replacement area shall demonstrate a minimum of four (4) feet of effective soil depth beneath the disposal trench bottom.
3. For existing lots or parcels, pressure distribution systems may be installed in soil with percolations rates 1-240 minutes per inch. Percolation rate of 1-5 minutes per inch or sizing based on soil groups B, C, D, or E, as identified in Chapter 3, Site Evaluation, require supplemental treatment by an alternative system.
4. For creating lots and parcels, pressure distribution systems may be installed in percolation rates 1-120 minutes per inch. Percolation rates of 1-5 minutes per inch require supplemental treatment by an alternative system.
5. Pressurized distribution systems are subject to the operation, maintenance and monitoring requirements provided in Chapter 23, Operation, Maintenance and Monitoring.

C. Design, Materials and Construction Requirements
1. General
   a. All materials used in pressurized systems shall be structurally sound, durable, and capable of withstanding normal stresses incidental to installation and operation.
   b. Nothing in these rules shall be construed to set aside applicable building, electrical, or other codes. An electrical permit and inspection from the local Building Department having jurisdiction shall be obtained if required for pump wiring/control panel installation.
2. Criteria for system sizing

The disposal area and septic tank capacity shall meet the provisions of Chapter 3, Site Evaluation and Chapter 9, Standard System Requirements.

3. Pressurized distribution lateral requirements
   Piping, valves and fittings for pressurized systems shall meet the following minimum requirements:
   a. All pressure transport, manifold, distribution lateral piping and fittings shall meet or exceed the requirements for Schedule 40 PVC pressure pipe as identified in ASTM Specification D1785 or other material approved by the Division.
   b. All pressure distribution laterals and fittings shall be adequately sized for the design flow.
   c. Pressure transport piping shall be uniformly supported along the trench bottom, and at the discretion of the Division, it shall be bedded in sand or other material approved by the Division;
   d. The ends of lateral piping shall have blow-off risers that accommodate threaded plugs or caps.
   e. All joints in the pressure distribution system shall be solvent welded as per ASTM standards, using the appropriate solvent for the pipe material.
   f. A gate valve or ball valve shall be placed on the pressure transport pipe, in or near the dosing tank.
   g. A check valve shall be placed between the pump and the gate/ball valve when the disposal field is located upslope of the pump. A check valve is not required if the pump has an internal check valve. All check vales and gate/ball valves must be in an accessible and protected location for maintenance and repair.
   h. An anti-siphon valve shall be placed between the pump and disposal field when the disposal field is down slope of the pump.
   i. A disconnect union shall be placed between the pump and the gate/ball valve.
4. Pump
   The pump shall meet the minimum design, materials, and construction standards as outlined in Chapter 33, Effluent Pump, Control, and Alarm Materials and Construction.
5. Dosing tank design, materials and construction requirements
   a. Materials and construction for dosing tanks shall comply with the minimum standards in Chapter 32, Dosing/Pump Tank Materials and Construction.
   b. The capacity of the tank shall be sufficient to deliver the design dose and have an additional storage capacity of one day's design flow above the high level alarm. The liquid capacity shall be measured from the invert elevation of the inlet fitting to the bottom of the tank.
   c. Duplex alternating pumps may be required by the Division for some installations. (e.g., large systems approved for commercial facilities).
   d. The dose volume shall be calculated using the following minimum and maximum dosing range formulas:

      $V_{min} = V_s + 5V_1$

      $V_{max} = V_s + 10V_1$

      Where:

      V_{min} = Minimum volume of dose
      V_{max} = Maximum volume of dose
      V_s = Volume of supply line
      V_1 = Total volume of lateral lines
6. Disposal trench design, materials, and construction requirements
   a. Unless otherwise allowed by the Division disposal trenches shall be constructed using the specifications for the standard disposal trench (Chapter 9, Standard System Requirements), except for the following:

i. Pressure lateral piping shall have a minimum six (6) inches of filter material below, and not less than one inch of filter material above the piping, and

Depth:	Minimum 18 inches
	Maximum 30 inches
Bottom width:	Minimum 24 inches
	Maximum 36 inches
Length:	Minimum 50 feet
	Maximum 70 feet

b. The top of the filter material shall be covered with filter fabric.
c. A minimum of 9 inches of backfill is required over the filter fabric within the disposal trench.
d. Inspection and blow-off risers shall be placed at the end of the pressure distribution lateral within the disposal trench.
e. All orifices of pressure distribution laterals that face upward shall be covered with orifice shields to prevent soil washout.

D. Hydraulic Design Criteria
1. There shall be a minimum two (2) feet head at the orifice furthest from the manifold and no more than ten (10) percent head variation within a disposal trench.
2. Lateral piping shall have discharge orifices drilled upward with 2 orifices per lateral drilled downward for purposes of drainage, a minimum diameter of one-eight (1/8) inch and evenly spaced at a distance not greater than two (2) feet in coarse-textured soils or greater than six (6) feet in finer-textured soils.
3. The effect of back drainage of the total volume of effluent within the pressure distribution system shall be evaluated for its impact upon the dosing tank and system operation.

E. Installation Requirements
Installation standards of Chapter 9, Standard System Requirements, shall apply, and:
1. The pressure distribution lateral laid within the center of the trench above the gravel shall be level to within two (2) inches in one hundred (100) feet;
2. Small earth berms may be required at specific intervals on trench bottoms at the discretion of the Division and/or design consultant;
3. Each dosing tank shall be installed on a stable level base;
4. Each dosing tank shall be provided with a watertight riser extending to the ground surface or above, with a minimum inside horizontal measurement equal to or greater that the tank access manhole, and at least twenty-four (24) inches. The watertight riser shall meet the materials and construction provisions of Chapter 32, Dosing/Pump Tank Materials and Construction.

F. Sloping Site Requirements
1. Ball or gate valves or flow restrictors shall be installed on each pressure distribution lateral to facilitate regulation of flow within each lateral.
2. Where the disposal field is located down-slope from the pump, an anti-siphon valve on the supply line to the trenches shall be installed in the dosing tank, above the high liquid level.

G. Required Inspections
Required inspections and issuance of a Certificate of Satisfactory Completion shall be in conformance with Chapter 6, System Inspections, and include the following:
1. A pre-construction meeting between the Division, consultant, and installer.
2. Inspection of the dosing system components, e.g., the location of the pump, screen, switches, alarms, and valves, and

3. Inspection of the pressure distribution system and verification of hydraulic head over the pressure distribution laterals (AKA, "flow test"). Water and electricity must be available for this inspection. If this inspection is performed utilizing a temporary power supply (such as a generator), a final inspection shall be made after connection to the permanent power supply, to verify the design head over the distribution system.
4. As approved by both the Division and design consultant a "modified flow test" may be performed in order to allow the trench to be covered and to perform erosion control. This test will check discharge height at the distal end of the laterals with an orifice drilled cap on the lateral riser.

Chapter 14 - Deep Trench System Requirements

A. General Statement

A deep trench system is a system with disposal trenches greater than thirty (30) inches deep. Trench depth should be kept as shallow as possible to take advantage of those soil horizons that best provide oxygen and promote microbiological activity.

B. Criteria for Approval

A deep trench system will only be permitted under the following conditions:

1. A lot or parcel is inadequate to accommodate a standard or pressure dosed system for the development proposed, and
2. There are at least 48-inches of effective soil depth below the bottom of the proposed disposal trench in the disposal field and replacement area.

C. Design Criteria

1. Unless otherwise approved by the Division, the disposal trench shall have a minimum depth of thirty-one (31) inches, and a maximum width of thirty-six (36) inches. The maximum depth of the disposal trench shall be determined by the Division.
2. The deep trench system absorption area and septic tank liquid capacity required shall be calculated using the standard system criteria for system sizing in Chapter 3, Site Evaluation and Chapter 9, Standard System Requirements. For calculating lineal feet, the sidewall area (extending the entire gravel depth) shall be used except when using a thirty-six (36) inch wide trench, which shall be sized using the trench bottom.
3. The percolation rate for deep trench systems utilizing sidewall area shall not be less than six minutes per inch and not greater than sixty minutes per inch.
4. Pressure distribution shall not be used when sidewall area is used to calculate the deep trench absorption area. Pressure distribution may only be used in a deep trench when the deep trench absorption area is calculated using the trench bottom area. The pressure distribution deep trench system must also meet the requirements of sizing criteria for pressure distribution in Chapter 3, Site Evaluation and the requirements of Chapter 13, Pressurized Distribution System Requirements.
5. The minimum disposal trench spacing (sidewall-to-sidewall) within a disposal field shall be two (2) times the total depth of the filter material, but in no case shall be less than six feet as measured sidewall-to-sidewall.

D. Installation Requirements

Unless otherwise indicated on the permit, or elsewhere in this Chapter, installation requirements shall be the same as for a standard system (Chapter 9, Standard System Requirements).

E. Required Inspections
Inspections and issuance of a Certificate of Satisfactory Completion shall be in conformance with Chapter 6, System Inspections and Chapter 11, Alternative System Requirements.

Chapter 15 - Intermittent Sand Filter System Requirements

A. General Statement
An intermittent sand filter system consists of a septic tank, dosing tank, sand filter bed and a disposal field. Effluent from a structure is periodically dosed to a bed of sand media, bacteriologically and physically treated, and discharged into a disposal field via an underdrain or pump. This system may be an alternative for some sites to mitigate the limitations associated with shallow effective soil depth or soils with percolation rates of one to five minutes per inch.

B. Criteria for Approval
An intermittent sand filter system shall meet the following requirements:
1. Sand filter systems may be installed in Soil Groups B, C, D, and E (as identified in Chapter 3, Site Evaluation), or percolation rates of 1-240 minutes per inch for existing lots or parcels and 1-120 minutes per inch when creating lots or parcels.
2. If using standard gravity trenches, the proposed disposal area and replacement area shall demonstrate a minimum of eighteen (18) inches of effective soil depth beneath the trench bottom, if using pressure distribution or subsurface drip, the proposed disposal area and replacement area shall demonstrate a minimum of eighteen (18) inches of effective soil depth beneath the disposal trench bottom or subsurface drip tubing.
3. Unless otherwise approved, a sand filter system shall only be considered for use for a project which meets the definition of a residential project. A sand filter system utilizing a seepage pit disposal field shall be used only to serve a single-family residence.
4. System monitoring and maintenance requirements in conformance with Chapter 23, Operation, Maintenance and Monitoring.

C. Design, Materials and Construction Requirements
1. General
   a. Nothing in these rules shall be construed to set aside applicable building, electrical, or other codes. An electrical permit and inspection from the local Building Department having jurisdiction shall be obtained if required for pump wiring/control panel installation
   b. A complete design package shall include, but is not limited to the following:
      i. Sand Filter dimensions, sizing calculations, discharge head and hydraulic calculations.
      ii. Disposal area type, specifications, dimensions and sizing calculations.
      iii. Dose size
      iv. Material specifications sheet
      v. Diagrams
      vi. Operational components and their relationship to one another
      vii. Control panel settings
      viii. Construction notes that detail the construction and installation of the system.
      ix. Scaled plot plan depicting, lot boundaries, system layout including septic tank, dosing tank, sand filter and disposal area, location of soil mantles and percolation tests, location of existing and proposed structures, location of existing and proposed driveways and roadways, location of well, locations of drainage and waterways, north arrow, easements, pertinent surface features (i.e. rock outcroppings, tree locations, cutbanks, etc.)

2. Criteria for Sizing
   a. The disposal area and septic tank capacity shall at a minimum meet the provisions of Chapter 3, Site Evaluation and Chapter 9, Standard System Requirements.
   b. The surface area of the sand filter shall be sized using the application rate of 1.25 gpd/sq ft.
   c. The daily design sewage flow rate for the sand filter shall be the same as that for the disposal field. Minimum sewage design flow rate for dwelling units is 300 gal/day.
3. Design Guidelines
   a. Sand Filter Support Structure
      i. The support structure shall consist of reinforced half inch plywood walls.
      ii. A minimum of 2 inches of bedding sand is to be placed under the PVC liner and backfilled outside of the plywood frame.
   b. Liner
      i. The sand filter liner shall be watertight and constructed of a minimum 30mm polyvinyl chloride (PVC) membrane.
      ii. The liner shall be large enough to cover the bottom and extend up the sides of the support structure with enough excess to allow the liner to be firmly attached.
      iii. Factory fabricated boots shall be used where the pressure line and/or underdrain pipe pass throughout the liner. The boots are to extend into the box, but the clamps must be on the outside for access. All fittings are to extend into the liner and be watertight.
   c. Underdrain
      i. Shall be a minimum 4 inch diameter Class 125 PVC with three-sixteenths (3/16) inch slots, oriented upward or sideways and a minimum 3 inch on centers. Each end shall be capped.
      ii. Pea gravel used for the underdrain shall be one-quarter to one-half inch clean, washed, round, hard rock. The underdrain shall be bedded on pea gravel. Gravel, three quarter inch to one and one-half inch clean, washed, hard rock, shall be place immediately around the underdrain to prevent pea gravel from migrating into the underdrain. The underdrain shall be covered with a minimum depth of 2 inches of pea gravel.
   d. Filter Sand
      i. Unless otherwise approved by the Division, the filter sand shall meet the following criteria:
         (1) The sand shall meet the parameters specified in Tabel 1, Sand Gradation Range for Intermittent Sand Filter System (Loading Rate of $\leq$1.25 gpd/f^2 with an Effective diameter (D_{10}) of 0.3mm to 0.05mm, and an Uniformity Coefficient (Cu) of 1.0 to 4.0)

TABLE 1

Sand Gradation Range for Intermittent Sand Filter Systems*

Sieve Size	Percent Passing
3/8	100
4	95/100
8	80/100
16	45/85
30	15/60
50	3/10
100	0/2
200	0/1

*Orenco sand gradation graph 1998

         (2) Sand shall be hard, clean and mostly rounded.

(3) Care must be exercised during the placement of the sand so that segregation does not occur. The sand must be damp for good compaction.
(4) Prior to placement of the sand the septic installer shall provide a copy of the sand filter media sand sieve analysis to Environmental Health Services and receive written approval.

e. Piping
   i. All pressure transport, manifold and distribution lateral piping and fittings shall meet or exceed the requirements for Schedule 40 PVC pressure pipe as identified is ASTM Specifications D1785 or other material approved by the division.
   ii. Pipe size may vary depending on the size and hydraulics of the sand filter. All piping and fittings shall be adequately sized for the design flow.
   iii. The ends of the lateral piping shall have blow-off risers that accommodate threaded plugs or caps.
   iv. All joints in the pressure distribution manifold lateral piping and fittings shall be solvent welded using the appropriate solvent for the pipe material.
f. Orifices
   i. Orifices in the distribution lateral shall be at least one-eight (1/8th) inch diameter, facing up.
   ii. Orifice shields are required to prevent the orifices from being blocked.
g. Pumps
   i. The pump shall meet the minimum design, materials and construction standards as outlined in Chapter 32, Effluent Pump, Control, and Alarm Materials and Construction.
   ii. Design pressure head shall be a minimum of five (5) feet for the sand filter.
h. Inspection Risers
   i. Inspection Risers shall be located at the end of each lateral. These risers shall be large enough to allow for adequate access to the end of the lateral for inspection and maintenance.
i. Monitoring Risers
   i. A monitoring riser shall be installed in the sand filter and shall terminate at the upper pea gravel/sand interface.
j. Filter Fabric
   i. Filter fabric shall be placed between the top of the pea gravel covering the laterals and below the soil cover.
k. Soil Cover
   i. The soil cover on the sand filter bed shall be sandy loam or loamy sand.
   ii. The soil cover shall be approved by the Division and the consultant prior to placement on the sand filter.
   iii. Thickness shall be a minimum of six (6) inches and a maximum of fifteen (15) inches at any point across the filter bed and shall be crowned or sloped to provide drainage.
   iv. The cover shall be seeded and covered with straw to prevent erosion immediately after construction. Trees, deep-rooted plants and placement of sod are to be avoided.
l. Control Panel
   i. The control panel shall contain an audio and visual high liquid alarm and low liquid redundant off, a manual override switch to facilitate dosing control during inspections, a non-resettable dose counter and elapsed time meter for each pump and a programmable pump timer for the dosing tank pump.
   ii. The pump and alarm are to be connected to separate over-current protection devices (breakers) located in the pump controller panel.
m. Disposal Area

i. Unless otherwise approved by the Division the disposal field shall be designed, sized and constructed using the specifications and requirements of the applicable chapter of this manual.

D. Required Inspections

Inspections and issuance of a Certificate of Satisfactory Completion shall be in conformance with Chapter 6, System Inspections and Chapter 11, Alternative System Requirements, and shall include the following:

1. A pre-construction meeting between the Division, consultant, and installer
2. Inspection of the support structure, liner and underdrain.
3. Inspection of the septic tank and dosing tank and all related components.
4. Inspection of the dosing system components, e.g., the location of the pump, screen, switches, alarms, and valves, and
5. Inspection of the pressure distribution system and verification of hydraulic head over the pressure distribution laterals (AKA, "Flow test") in the sand filter bed. Water and electricity must be available for this inspection. If this inspection is performed utilizing a temporary power supply (such as a generator), a final inspection shall be made after connection to the permanent power supply, to verify the design head over the distribution system.
6. Inspection of the disposal field meeting all requirements of the applicable chapters in this ordinance.
7. Inspection of the soil cover placement seeded and covered with straw and proper drainage around the sand filter bed.

Chapter 16 - Subsurface Drip Disposal System

A. General Statement

A subsurface drip system (SDS) is a pressurized wastewater distribution system that can deliver small, precise doses of effluent to shallow subsurface disposal fields. SDS distribution piping (dripline) is small diameter, flexile polyethylene tubing with small in-line emitters (orifices that can discharge effluent at slow, controlled rates, usually specified in gallons per hour). Subsurface dripline can be trenched (by hand or with a trenching machine) into narrow, shallow trenches or plowed (with a vibratory plow or other insertion tool) directly into the soil and backfilled without gravel or geotextile.

B. Criteria for Approval

1. SDS can be used in lieu of pressure distribution disposal trenches following supplemental treatment of the effluent using a sand filter or other supplemental treatment device acceptable to the Division.
2. A minimum eighteen (18) inches of effective soil is required below the subsurface dripline.
3. Minimum depth of the subsurface dripline shall be 6 inches into native soil.
4. Installation of SDS shall be limited to slopes not to exceed thirty (30) percent.

C. Sizing Criteria

Sizing criteria shall be based on manufacturer's recommended hydraulic loading rates, as approved by the Division and as specified in Chapter 3, Site Evaluation.

D. Design Standards and Requirements

1. Unless otherwise noted, design standards for components of the SDS including septic tanks, dosing tanks, electrical components, controls and requirements pertaining to setbacks, flows, designer qualification, etc. are the same as outlined in the Placer County On-site Sewage Ordinance and Manual.
2. All SDS materials must be warranted by the manufacturer for use with wastewater and resistance to clogging from solids, bacterial slime and root intrusion, and must be approved for use by the Division.
3. Fittings used to join subsurface dripline to the distribution and flush manifolds must be in accordance with the manufacturer's recommendations.
4. All emitters in the drip tubing shall be pressure compensating unless slope is between 0-5 percent.
5. The SDS shall be designed in the configuration that would preclude the flowing of effluent to the lowest area of the field when the pump shuts off or when the flow depressurizes.
6. The minimum velocity for field flushing of the laterals shall be as specified by the manufacturer's recommendation.
7. All SDS shall be designed with a dosing controller with automatic field flushing, for zone alternating, for dose frequency, for dose volume, and for back flushing of filters.
8. Filter flushing can either be automatic or manual.
9. All SDS shall be designed with a bypass line to facilitate field flushing.
10. All SDS shall be designed with filters to remove particles 130 microns or larger, although the Division may require more or less restrictive filters.
11. All SDS shall be designed with air relief valves placed at the highest point or points along the supply and return manifolds.
12. SDS shall be designed to accept residential or residential-like flows that have received supplemental treatment.

E. Installation Requirements
All SDS shall be installed by qualified on-site sewage disposal system installers with specific training in the installation of SDS. Proof of the specified training by way of certification or a letter from an approved trainer is required. Installation of SDS shall be per manufacturer's instructions.

F. Performance Standards
SDS must be designed, installed and managed to provide even distribution and unsaturated subsurface flow.

Chapter 17 - Septic System Abandonment Requirements

A. A septic system must be abandoned under the following situations:
   1. If the parcel has connected to an approved public sewer system.
   2. If the septic system will no longer be used.
   3. If the Division has issued a notice or order to abandon the septic system (for reasons such as: the system has failed and cannot be repaired, an unpermitted system, etc.)

B. The Division will issue septic system abandonment permits and conduct septic system abandonment inspections except in the following situations:
   1. Connection to public sewer: for parcels connecting to an approved public sewer system, the septic system abandonment shall be completed with a permit and inspection from the Building Department having jurisdiction.

2. When a demolition permit is issued for the removal of a building, the Building Department having jurisdiction shall permit and inspect the abandonment of the septic system serving the building.
3. When the existing septic system will be located under a proposed structure/addition or when the septic system will not meet the required setback to the proposed structure/addition, the Building Department having jurisdiction will permit and inspect the septic system abandonment. (Note: If a new septic tank will be installed or modifications will be made to the disposal field, additional permit(s) shall be required by the Division.)

C. When the septic system abandonment is permitted and inspected by the Division, the septic system must be abandoned in the following manner:
   1. A permit must be obtained before abandonment of the septic system. The application for abandoning the system shall include:
      a. A scaled site plan showing the location of the existing septic tank and disposal field.
      b. A detailed description of how the system will be abandoned.
   2. The septic tank must be pumped by a licensed septic tank pumper to remove the contents. A septic tank pumper's receipt must be submitted to the Division.
   3. The septic tank must be abandoned as follows:
      a. If possible, the septic tank cover will be collapsed, and the tank will be filled with clean earth, sand, gravel or other material approved by the Division so that there is not a cave-in or other structural hazard, or,
      b. The septic tank may be removed to an approved location and, the excavation hole must be filled with clean earth, sand, gravel, or other material approved by the Division.
   4. The building wastewater plumbing system, if not connected to an approved septic system or public sewer system, must be permanently capped.
   5. Future construction in the abandoned system area may require special construction considerations.
   6. Additional permit requirements may be necessary in order to mitigate unique problems associated with the abandonment of the system.

D. Obtain A Certificate Of Satisfactory Completion
   Inspections and issuance of a Certificate of Satisfactory Completion shall be in conformance with Chapter 6, System Inspections. The Division will issue a Certificate of Satisfactory Completion for the system abandonment upon satisfactory completion of the requirements of the permit and this Manual.

Chapter 18 - Holding Tank Requirements

A. General Statement
   A holding tank is a watertight container designed to receive and store sewage for disposal at another location.

B. Criteria for Approval
   Under special circumstances and at the discretion of the Environmental Health Services Director, a permit may be approved for a holding tank on sites that meet all of the following conditions:
   1. The site cannot be approved for the installation of a standard system or alternative system;
   2. No area-wide public sewer system is legally and physically available;
   3. The holding tank is intended to serve only an industrial, commercial, or recreational facility;

4. The projected maximum daily sewage flow is not more than two hundred (200) gallons;
5. The setback requirements outlined in Table 1 of Chapter 39 for a septic tank can be met;
6. The owner of the property shall record a deed restriction agreeing to be served by public sewer system if at any time a connection becomes legally available within three hundred (300) feet of the property; and
7. The owner shall provide the Division with:
   a. A copy of a contract with a County licensed septage hauler that shows the tank shall be pumped at regular intervals or as needed to prevent use of greater than seventy-five (75) percent of the tank's capacity. The contents of the tank shall be disposed of at an approved septage receiving facility, in an approved manner and
   b. A record of pumping dates and amounts pumped shall be maintained by the property owner and made available to the Division upon request.

C. General Requirements
1. A holding tank does not have to be designed and installed under the inspection and approval of a consultant.
2. No building may be served by more than one (1) holding tank.
3. A single parcel or lot of record may be served by no more than one (1) holding tank.
4. Each tank shall have a minimum liquid capacity of fifteen hundred (1,500) gallons.
5. Holding tanks shall not be used as a method for sewage disposal for creating lots and parcels.

D. Installation, Construction and Monitoring Requirements
All installations shall meet the following:
1. Be located and designed to facilitate visual inspection and removal of contents by pumping;
2. Be equipped with both an audible and visual alarm, placed in a location acceptable to the Division, to indicate when the tank is seventy-five (75) percent full. The audible alarm only may be user cancelable.
3. Have no overflow vent at an elevation lower than the overflow level of the lowest fixture served.
4. The holding tank construction and installation shall comply with the requirements specified in Chapter 27, Septic Tank Materials and Construction.

E. Inspections Required
Each holding tank installed under this Chapter, shall be inspected by the Division annually. A fee shall be charged by the Division for this service.

Chapter 19 - Vault Privy Requirements

A. General Statement
A vault privy is a structure used for disposal of human waste without the aid of water. It consists of a shelter built above a subsurface vault into which human waste falls. The vault privy has no water connection.

B. Criteria for Approval
Vault privies may be allowed for temporary or limited use areas, where primitive type picnic grounds, campsites, camps and recreation areas are to be maintained, and when a septic tank and disposal field are not practicable as determined by the Division. The separation distances specified in Table 1 of Chapter 39 shall be met. Vault privies shall not be used for seasonal dwellings, commercial facilities, or single-family dwellings. As a condition of approval, monitoring to ensure

protection of water quality may be required. A construction permit shall be obtained for a vault privy as required by this chapter.

C. Materials and Construction Requirements
Vault privy (shelters and facilities) shall be constructed in accordance with the minimum requirements contained in Chapter 36, Vault Privy and Portable Toilet Materials and Construction.

D. Maintenance Requirement
Vault privies shall be maintained to prevent health hazards and pollution of public waters. The privy vault shall not be allowed to become filled with excreta to a point within two (2) feet of the ground surface. The excreta in the vault shall be pumped out by a licensed septage pumper as necessary to fulfill these requirements. The property owner or septage pumper shall submit the septage pumper's receipt to the Division within thirty (30) days of its pumping. The privy shall be maintained in a sanitary condition and in good repair. Vault privies shall be located in an area accessible for pumping by a licensed septage pumper.

E. General Requirement
No water-carried sewage shall be placed in vault privies. Contents of vault privies shall not be discharged into storm sewers, onto the surface of the ground or into public waters.

Chapter 20 - Portable Toilet Requirements

A. General Statement
A portable toilet is any self-contained chemical toilet facility that is housed within a portable toilet shelter. The portable toilet has no direct water connection.

B. Criteria for Approval
Portable toilets may be approved for temporary or limited use areas, such as construction sites (for use by on-site employees), recreation parks, campsites, and special events, provided that the separation distances in Table 1 of Chapter 39 (for septic tanks) can be met. Portable toilets shall not be allowed for seasonal dwellings, commercial facilities or single-family dwellings.

C. Materials and Construction Requirements
Portable toilet (shelters and facilities) shall be constructed in accordance with the minimum requirements contained in Chapter 36, Vault Privy and Portable Toilet Materials and Construction.

D. Maintenance Requirement
Portable toilets shall be maintained to prevent health hazards and pollution of protected waters. Portable toilets shall be maintained in a sanitary condition and in good repair. Contents of portable toilets shall be pumped by a licensed septage pumper. Portable toilets shall be located in an area accessible for pumping by a licensed septage pumper.

E. General Requirement
No water-carried sewage shall be placed in portable toilets. Contents of portable toilets shall not be discharged into storm sewers, on the surface of the ground or into protected waters.

Chapter 21 - Seepage Pit Requirements

A. General Statement

1. Seepage pit systems are systems designed to be used in areas of Placer County, predominately the southwest and west, where subsoils are clay, clay pan, fragipan, hard pan and do not offer opportunities to install typical leach trench disposal type of systems. It is generally acknowledged that the use of these systems addresses only disposal requirements as opposed to treatment and disposal.

B. Test Pit Requirements

At least one test boring to groundwater or ten (10) feet below the proposed design depth of the pits, whichever is shallower, shall be made in the lowest area of the proposed disposal area to evaluate soils. Additional test pits may be required at the discretion of the Division to determine the suitability of the site for on-site sewage disposal. All test borings shall be witnessed by the consultant and the Division.

C. Criteria for Use of Seepage Pit Systems

1. Seepage pits shall be used only to service a single-family residence and only when the site is not approvable for installation of a standard or other alternative system.
2. Seepage pits shall not be used to create lots and parcels that are less than seven (7) acres in size.

D. Criteria for Design and Installation

1. The seepage pit system shall meet the minimum setback requirements as specified in Table 1 in Chapter 39.
2. The proposed disposal and replacement areas shall demonstrate beneath the bottom of the pit a ten (10) vertical separation distance to groundwater.
3. The depth of the seepage pit shall be a minimum of fifteen (15) feet and a maximum of thirty-five (35) feet below the ground surface.
4. Effective soil type shall be limited to sand or loamy sand, with or without gravel.
5. An acceptable test boring shall have a minimum 3-foot column of effective soil and demonstrate a 10-foot vertical separation to groundwater from the design depth of the seepage pits.
6. Seepage pit sizing shall be based upon the area of the effective soil and an application rate of 2.24 gal/day/sq ft.

   $(5/\sqrt{t}) = 2.24$, where t = assumed percolation rate of 5 mpi

   $(2.24)\ dh\pi$ = gal/day/pit, where d= diameter of pit, and h= height of effective soil column
7. Seepage pit system sizing shall be based on the following table. The number of pits/bedroom shall be multiplied by the number of bedrooms, then rounded to the nearest whole number:

Feet of Effective Soil Sidewall In 3-Ft Diameter Pit	Number of Required Pits Per Bedroom
3	2.4
4	1.8
5	1.4
6	1.2
$\geq$7ft	1.0

8. Seepage pits shall be thirty-six (36) inches in diameter.
9. The seepage pit shall be filled up to the concrete collar with cobbles that are a minimum of three (3) inches in diameter in any dimension or with other filter material approved by the Division, The cobbles or filter material shall be washed clean so as to be free of debris and dirt.

10. A system with multiple pits shall be designed so each pit within the system receives equal quantities of sewage flow via distribution boxes.
11. Seepage pit header pipe inlet, risers, and collars shall be watertight.
12. A minimum distance equal to twelve (12) feet of undisturbed soil shall separate two or more seepage pits from each other.

E. Exception for Repair
In the interest of public health, the Division may approve a seepage pit septic system based upon a test boring with less than a 3-ft column of effective soil.

F. Land Divisions and Additional Building Sites
1. All requirements of the Ordinance/Manual and applicable Community Plan must be met.
2. In order to define a sewage disposal area, a site evaluation must be completed on each proposed parcel. Complete soils testing, consisting of soil profile test pits and percolation testing must be performed by a qualified sewage disposal consultant. Soil profile testing must be witnessed by a representative of the Division. If the results of the site evaluation indicate that Seasonal Wet Weather Testing is necessary, then Seasonal Wet Weather Testing must be conducted prior to continuing with the site evaluation for the project. If, after completion of soil profile and percolation testing, it has been shown that there is not an area located on each proposed parcel that is suitable for an approved onsite sewage disposal system with leachtrench disposal, then a seepage pit test drill may be conducted. The sewage disposal consultant and the Division must be present for the test drill. A minimum usable sewage disposal area must be defined for each proposed parcel. More than one test drill may be required for each proposed parcel in order to define the minimum usable sewage disposal area.
3. When using seepage pits, the size of the Minimum Usable Sewage Disposal Area shall be an area adequate for initial and 100% replacement area for a 5-bedroom residence.

Chapter 22 - Seasonal Wet Weather Testing

A. General Statement
Some locations of Placer County are subject to high seasonal ground water or perched groundwater that can have an adverse impact on the performance of on-site systems by eliminating or minimizing the zone of aeration in soils that is critical for optimal sewage treatment. In known or suspected areas of high seasonal groundwater or perched water the Division may require that soil profiling be performed during the wettest time of the year to evaluate conditions that could adversely impact system performance. Additional situations which may require performing seasonal wet weather testing include but are not limited to the testing of curtain drains and the need to differentiate historical mottling from that caused by saturated conditions.

B. Procedure
The Division will make a determination annually concerning the validity of seasonal wet weather testing data based on the amount of rainfall in a given year. Generally this period will be allowed between the date fifty (50) percent of the annual rainfall has occurred and the close of the rainy season.

Chapter 23 - Operation, Maintenance and Monitoring

A. Purpose
The Purpose of the Onsite Operation, Maintenance and Monitoring (OM&M) program is to assure all systems operate as designed, protect the environment, and provide economical, dependable, long-term service to their owners.

B. Applicability
1. The program applies to all system permits issued after January 1, 2005. Owners of existing systems are encouraged to voluntarily opt into the program. Existing systems not voluntarily opting into the program will be brought into the program if the existing system fails, if a repair, modification or expansion permit is issued, if a septic authorization notice is issued, or if septic tank or dosing/pump tank permit is issued.
2. OM&M requirements vary depending on the complexity of the system or environmental considerations. The following table summarizes OM&M requirements based on site and system variables:

Site or System Variable	Requirement
Septic tank to gravity drain field	Homeowner education (*see subsection D)*
Septic tank to pressure distribution disposal field	Homeowner education Homeowner's manual (*see subsection D)*
Supplemental treatment (i.e. septic tank to sand filter)	Homeowner education OM&M Database Tracking Homeowner's manual Renewable operating permits *(see subsection G)* Notice on property deed *(see subsection H)* Inspection by Certified OM&M Specialist *(see subsection I)*
Other Systems as required by the conditions of approval	Any combination of the above and as specified in the conditions of approval

C. Homeowner Responsibility
It is the responsibility of the homeowner to properly operate their system and assure that it is maintained in accordance with provisions stipulated at the time of permit issuance.

D. Homeowner Education:
1. The Division shall provide homeowner education material on system operation and maintenance on the County Webpages.
2. The system Designer shall provide a system owner's manual and maintenance schedule (Homeowner's Manual) to the owners of the systems that are more complex in nature than the standard septic tank to gravity distribution system. At a minimum, the manual will include the following elements:
   a. Diagrams of the major system components
   b. Explanation of general system function, operational expectations and owner responsibilities
   c. Routine maintenance schedule

d. Names and telephone numbers of the system designer, local health authority, supplier/installer, and/or the management entity to be contacted in the event of a failure
e. Information on "trouble-shooting" common operational problems that might occur. This information should be as detailed and complete as needed to assist the system owner to make accurate decisions about when and how to attempt corrections of operational problems, and when to call for professional assistance.

3. Proprietary System Authorized Agent shall:
   a. Instruct, or assure that instruction regarding proper operation and maintenance of the system/device is provided to the owner of the residence or facility, the designer, and the Division
   b. Provide instruction in sufficient detail for maintenance to be achieved through certified OM&M specialists

E. The Certified OM&M Specialist shall:
1. Meet and maintain the requirements for certification outlined in this program.
2. Provide all required maintenance and monitoring reports to the Division within 30 days of service.
3. Report system malfunctions that result in surfacing sewage or that require major system repair to the Division within 24-hours of knowledge of that condition.

F. Requirements of the Renewable Operating Permit
1. The system owner shall sign a maintenance agreement with a certified service provider.
2. OM&M Annual Report
   a. Annual inspection by a certified OM&M specialist is required. Proof of inspection shall be submitted in the form of an annual report, meeting the reporting requirements of this Chapter.
   b. Compliance with OM&M requirements and conditions of approval will be verified by the Division.
3. Operating Permit Renewal Frequency
   Operating permits are valid for one year, and must be renewed annually. The Division will renew the operating permit upon receipt of the appropriate fee and verification of compliance with OM&M requirements.
4. Change of Ownership
   a. Renewable operating permits are issued to the system owner and are non-transferable when ownership changes.
   b. As part of the review process associated with re-issuance of a Renewable Operating Permit, the Division or a designated representative may:
      i. Review file records to assure the system is in compliance with the OM&M program requirements.
      ii. Make an on-site inspection of the system
      iii. Provide information to the new system owner concerning the design, intended use, and performance history of the system

G. Notice on Property Deed
Owners of systems requiring Renewable Operating Permits will record appropriate notice of these requirements with the property deed for the benefit of future owners and successors.

H. Certified OM&M Specialist Inspections
1. Inspection by a certified OM&M Specialist is required for all systems more complex than the standard septic tank to gravity or pressure distribution disposal field system. Complexity of

inspection will be related to the complexity and maintenance requirements of the system components.

2. Inspection frequency required by the Division will vary in accordance with the maintenance needs of the system components, based on consideration of:
   a. Conditions of approval for the type of system or system components installed
   b. Recommendations of the manufacturer
   c. Industry standards of practice
3. Systems utilizing supplemental treatment, such as sand filter systems and aerobic treatment systems, must be inspected at least annually by an OM&M Specialist. Systems that produce effluent that do not meet the approved parameters shall be evaluated by the system's manufacturer or authorized agent, the necessary repairs conducted if required and follow up effluent sampling to ensure system is working properly.

I. Certification Requirements for OM&M Specialists
   1. The Division shall certify that each OM&M specialist meets the minimum qualifications as outlined below:
      a. Specialized License, Training and Examination
      b. OM&M Specialists must:
         i. Possess an active C-42 contractor's license in accordance with the provisions of the California Business and Professions Code.
         ii. Pass an examination approved by the Division to assure a basic minimal competence in on-site sewage treatment and operation, maintenance and monitoring through continuing education.
         iii. Continuing Education: OM&M Specialists shall stay current on issues related to on-site sewage treatment and system operation and maintenance through continuing education.

J. Revocation of Certification:
   1. The following will be grounds for revocation of the certification of the OM&M Specialist
      a. Failure to inform the Division of a failing system
      b. Failure to submit OM&M reports within the time period specified within the program
      c. Falsifying findings or data
      d. Misrepresenting OM&M requirements to the homeowner
   2. Action taken by the Division may include:
      a. Requirement for re-examination
      b. Suspension of certification
      c. Revocation of certification

Chapter 24 - New Supplemental Treatment Systems

A. Purpose

This Chapter provides the minimum criteria for new Supplemental Treatment Systems proposed for use in Placer County. Inability to meet the requirements of this Chapter shall result in denial of the use of the supplemental treatment system. Experimental Systems, as originally designed, reviewed and approved prior to the adoption of this Ordinance, shall be subject to their original conditions of approval. However modification to the originally approved design of the experimental system must meet the requirements of this Chapter.

B. Minimum Criteria for Supplemental Treatment Systems

1. Proposed Supplemental Treatment Systems must be approved by the Division prior to permit issuance, and shall meet the following requirements:
   a. Certification by NSF/ANSI as meeting NSF/ANSI Standard 40-1999
   b. Demonstration and verification of field performance that meets the definition of supplemental treatment as provided in the Onsite Sewage Ordinance. Demonstration and verification shall be shown by meeting one of the following criteria:
      i. Completing NSF/ANSI Standard 360 Field Performance Verification, or
      ii. Demonstration of the product performance through field testing using generally accepted scientific methods and conducted by a University or other third party institution which has published results in refereed journal articles which have a high degree of scientific rigor, and verification of actual product performance within **United States** or local jurisdictions. Verifications shall include regulatory datasets that may be primarily composed of compliance data samples. The data must include BOD, TSS, TN and FC. This long term data set shall be a minimum 12 months. Data sets must contain at least four samples each (sampled quarterly) at twenty sites or more.
   c. The treatment technology shall utilize a subsurface system of disposal trenches or subsurface drip line for effluent dispersal.
   d. All components shall be owned by the homeowner at the time the system is finaled and approved. No leasing of components is allowed.

C. Minimum Application Requirements
1. Applications shall be submitted with required forms and fees. All submittals shall be in hard copy form and shall be made in one complete packet. Emailed and other electronic submittals will not be accepted, unless specifically requested by the Division.
2. Completed New Supplemental Treatment System Application, which shall include:
   a. Manufacturer's name, mailing address, street address and phone number;
   b. Contact individual's name, mailing address, street address and phone number. The contact individual must be vested with the authority to represent the manufacturer in this capacity;
   c. Proprietary treatment product name, including specific brand;
   d. A description of the function of the product including any known limitation of the product, including expected life span of the system;
   e. Product description and technical information, including process flow drawings and schematics; materials and characteristics; component design specifications; design capacity; volumes and flow assumptions and calculations; components; dimensional drawings and photos;
   f. Siting and installation requirements;
   g. Detailed description, procedure and schedule of routine service and system maintenance events;
   h. Estimated operational costs for the first five years of the treatment component's life. This shall include both estimated annual electricity costs and routine maintenance costs, including replacement parts;
   i. Identification of information subject to protection from disclosure of trade secrets;
   j. Copies of product brochures and manuals: Sales and Promotional; Design Installation; Operation & Maintenance Requirements; and Homeowner Instructions;
   k. The most recently available product test protocol and results report;
   l. Verification of product performance as Part B above; and in the definition of supplemental treatment found in the Onsite Sewage Ordinance.
   m. Information showing the jurisdictions within the United States that have approved the use of this product. The conditions of approval, OM&M requirements and contact names, phone numbers, and email of each jurisdiction shall be provided; and

n. Application fee. The applicant will be assessed additional fees if the time spent by the Division in the review process exceeds the number of hours allotted in the initial application fee. Additional staff time will be billed at the current hourly rate. Review of the application may be suspended for lack of payment.
o. Proof of viable OM&M service providers in the local area.

3. The following information will not be considered part of the review packet:
   a. Vendor conducted datasets will not be considered adequate evidence of performance
   b. Anecdotal evidence, web site links, reference lists to other documents that must be researched further, commentaries, references to other supporting documents, etc. shall not be allowed, will not be reviewed and will not be considered part of the review packet, or
   c. Supplemental information received through email or other electronic form will not be considered part of the review packet.

D. Review Process
1. Upon receipt of the application and required fee, staff will verify the application is complete. Further review will not continue until the application has been found to be complete. Incomplete packets may be refused and balance of fees returned.
2. Staff will review the application to ensure all proposed system requirements have been met, in addition to compatibility with the interests of public health and protection of waters.

E. Quality Assurance
1. A supplemental treatment system may be considered to "fail" when the Division determines it cannot reliably perform the conveyance, treatment, and/or disposal function for which it was designed and approved. Causative problems with the treatment system may include mechanical malfunction, structural problems, reliability issues, maintenance deficiencies, or non-compliance with the effluent specifications contained in the conditions of approval. If an individual treatment system "fails", as described above, the Division will consider the homeowner to be the responsible party for system repair or replacement. However, nothing herein prevents the homeowner from seeking recourse through service agreements and warrantees with the manufacturer, distributor, designer, or contractor. (The following applies to a system in failure until it can be demonstrated to be operating as designed and performing to the standards defined in section 8.24.030 – definitions.)
   a. Continued evaluation by the system manufacturer or their agents and follow up sampling will be done until the system performs in the manner for which it was designed and approved.
   b. Noncompliance with the conditions of approval, or system failures including testing results not within the specified parameters are grounds for reevaluation of the treatment system for continued use in Place County.
   c. Environmental Health may deny the issuance of future permits for a particular supplemental treatment system if it finds that this system does not comply with the quality assurance standards as described above.
   d. Environmental Health may deny the issuance of future permits for a particular treatment system if it finds that the qualified service provider is not properly maintaining the existing systems as agreed upon between the County and system proponent.

Chapter 25 - Proprietary Systems

A. Purpose

This Chapter provides the minimum criteria for proprietary systems that are allowed for use in Placer County. Failure to meet these criteria shall result in the reevaluation of the proprietary system for continued use in Placer County.

B. Scope of Approval
For systems that have undergone the experimental system program, the conditions of approval developed for the status change from experimental to alternative shall serve as the conditions of approval for said system. For systems that qualify for use in Placer County under Chapter 24 (New Supplemental Treatment Systems), Placer County shall develop specific conditions of approval.

C. Operation, Monitoring and Maintenance
Chapter 23 and the conditions of approval for the specific system shall provide the requirements for the operation, monitoring and maintenance of the proprietary system.

D. Quality Assurance
1. A supplemental treatment system may be considered to "fail" when the Division determines it cannot reliably perform the conveyance, treatment, and/or disposal function for which it was designed and approved. Causative problems with the treatment system may include mechanical malfunction, structural problems, reliability issues, maintenance deficiencies, or non-compliance with the effluent specifications contained in the conditions of approval. If an individual treatment system "fails", as described above, the Division will consider the homeowner to be the responsible party for system repair or replacement. However, nothing herein prevents the homeowner from seeking recourse through service agreements and warrantees with the manufacturer, distributor, designer, or contractor.
2. Noncompliance with the conditions of approval, or system failures are grounds for reevaluation of the treatment system for continued use in Placer County. The Division may also use information from other jurisdictions and sources regarding system performance to reevaluate continued approval of the treatment system in Placer County.
3. No leasing of components are allowed. The entire treatment system and dispersal field shall be the property of the homeowner.

Chapter 26 - New Component Review Process

A. Minimum application requirements
This section shall apply to components that affect the treatment process or performance of the treatment unit. For new components of on-site sewage treatment systems being proposed for use in Placer County, the applicant shall present at least two of the following:
1. Demonstration of the product performance through field testing using generally accepted scientific methods and conducted by a university or third party institution which has published results in refereed journal articles which have a high degree of scientific rigor.
2. Applicant shall provide information showing the jurisdictions within the United States that have approved the use of this product. The conditions of approval, operation and maintenance requirements and contact names of each jurisdiction shall be provided.
3. Certification of the component for its intended use by an accredited agency such as IAPMO or NSF. Provide the standard number and the standard description.

B. Review Process

1. Components that are proposed for use in Placer County shall be reviewed by staff and if the application meets the above criteria, then staff shall prepare a report to the Director of Environmental Health recommending approval or denial of the product. The Director shall make the final decision on approval or denial of the use of the product in Placer County.
2. The Director may require the product to be reviewed by the Wastewater Advisory Committee. The Committee shall then make a recommendation of approval or denial to the Director. The Director shall make the final decision of approval or denial of use of the product in Placer County.
3. Staff shall inform the applicant of the approval or denial of the product for use in the County.

Chapter 27 - Off-Site Sewage Easements

A. General Statement

When a system cannot be located on the lot or parcel to be served, an exclusive off-site sewage disposal easement may be considered.

1. Off-site sewage disposal easements may not be utilized when creating new lots or parcels. EXCEPTION: Easements in common or open spaces may be considered in Planned Developments as defined in Placer County Zoning Ordinance.
2. Whenever a system crosses a property line separating properties under different ownership, a recorded easement and covenant against conflicting uses shall be provided. For properties under common ownership a recorded deed restriction shall be provided.
3. Exhibits and legal descriptions of easements and deed restrictions shall be prepared by a licensed land surveyor. Unless otherwise indicated by the Division, the applicant shall flag or otherwise delineate the easement area for field inspection.
4. Prior to issuance of a system permit involving the use of either a sewage disposal easement or deed restriction, a copy of an acceptable legally recorded easement or deed restriction must be submitted to the Division.

Chapter 28 - Large System Requirements

A. General Statement

A large system is a system with a projected daily sewage flow greater than two thousand five hundred (2,500) gallons from one residential or commercial facility.

B. Permit Application Procedures

Application shall be made to the Division on forms provided by the Division. Each application must be completed in full, signed by the applicant, and accompanied by the following:

1. The appropriate filing fee;
2. A narrative describing the details of the proposed project;
3. A site approval report;
4. A site development plan prepared by a consultant. Requirements of Chapter 4, System Permit Requirements, shall apply to large system plans; and
5. A written assessment of the impact of the proposed system upon the quality of public waters and public health, (e.g. a groundwater mounding analysis and/or a nitrate study, etc.)

C. Alternative Design Requirements
Unless otherwise authorized by the Division, designs for large systems shall at a minimum meet all of the following:
1. Large systems shall be designed utilizing a pressurized distribution system in accordance with Chapter 13, Pressurized Distribution System Requirements;
2. The disposal fields shall be divided into relatively small, approximately equal sized units, which are dosed alternately;
3. The system shall have at least two (2) alternating pumps;
4. Unless otherwise specified, septic tank design, materials, and construction shall conform to the provisions of Chapter 27, Septic Tank Materials and Construction. The Division shall review proposed tank designs and may impose certain standards to carry out the purposes of this Manual;
5. The project shall comply with all other Division requirements; and
6. The Division may require review by the Regional Water Quality Control Board.

D. Installation Requirements
Construction shall be in conformance with the permit and the Manual.

E. Inspection Requirements
Unless otherwise indicated, inspections and issuance of a Certificate of Satisfactory Completion shall be in conformance with Chapter 6, System Inspections and Chapter 11, Alternative System Requirements

Chapter 29 - Septic Tank Materials and Construction

A. General Statement
The requirements of this Chapter shall apply to all septic tanks manufactured for use in Placer County unless otherwise indicated in this Manual.

B. Materials
Septic tanks shall be precast reinforced concrete or other material approved by the Division. Wood, metal, and cast-in-place septic tanks are prohibited. Use of polyethylene and fiberglass septic tanks which meet the International Association of Plumbing and Mechanical Officials (IAPMO) Z-1000 certification may be considered by the Division on a case-by-case basis.

C. Tank Construction/Design Specifications
1. Precast concrete tanks shall have a minimum wall, compartment and bottom thickness of two and one-half (2-1/2) inches, and shall be adequately reinforced. The top shall be at least four (4) inches thick.
2. Precast concrete septic tanks shall be protected from corrosion by coating with an approved bituminous coating or other material approved by the Division.
3. Septic tanks shall have a minimum of two compartments. Installation of multiple single compartment tanks in a series is not acceptable, unless approved by the Division prior to installation. The first compartment shall have a liquid capacity of two-thirds (2/3) of the total required liquid capacity, as measured from the invert of the outlet fitting.
4. Each compartment shall have access provided by a manhole having not less than eighteen (18) inches across its shortest dimension unless otherwise approved by the Division.

5. Each compartment shall be provided with a watertight riser, approved by the Division, extending to the ground surface or above, with a minimum inside horizontal measurement equal to or greater than the access manhole, but in no case less than twenty-four (24) inches. All joints shall be properly sealed with a sealant and/or an interlocking mechanism approved by the Division. Cement grout sealing alone is not an acceptable method of sealing joints. Surface water shall be diverted away from the riser cover by creating a sloping surface away from the riser, or extending the riser three (3) inches above ground surface. The riser cover shall be securely fastened with stainless steel or other corrosion resistant fasteners to make the riser vandal, tamper, and child resistant. No riser cover shall exceed seventy-five (75) pounds.
6. No riser shall have an inside horizontal dimension of less than twenty-four (24) inches. The liquid depth of any compartment shall be at least thirty (30) inches. Liquid depths greater than seventy-two (72) inches shall not be considered in determining the working liquid capacity. Septic tanks shall be watertight. They shall be built such that any construction joints will be above the effluent level. Each septic tank shall satisfactorily complete an in-situ watertight test or a Division approved in-situ vacuum test. A satisfactory vacuum test shall hold three (3) inches of mercury constant for three (3) minutes without loss in pressure. The watertight test shall consist of one of the following as determined by the Division:
   a. The septic tank shall be filled with water to a point one (1) inch above the inlet fitting and the water level shall be measured after twelve (12) hours without drop in the water level inside the tank and/or leakage; or
   b. The septic tank shall be filled with water 1 inch into the riser and the water level shall be measured after twelve (12) hours without drop in the water level inside the tank and/or leakage. This method shall be required in areas of high groundwater, if a septic tank fails the watertight method as specified in (a) above, or at the discretion of the Division.
7. Septic tanks shall be capable of supporting an earth load of at least three hundred (300) pounds per square foot when the maximum coverage does not exceed three (3) feet. Tanks installed with more than three (3) feet of cover shall be reinforced to support the additional load. Tanks, risers, and riser covers installed beneath paved surfaces subject to vehicular traffic (e.g., driveways and vehicle turnarounds) shall be engineered to support the additional load.
8. Septic tanks shall be provided with a minimum soil cover of six (6) inches, unless otherwise approved by the Division. In no case shall any portion of the septic tank be exposed.
9. At least ten (10) percent of the inside volume of the tank shall be above liquid level to provide scum storage.

D. Size
   1. Septic tank size shall be determined in accordance with Chapter 9, Standard System Requirements.
   2. The liquid depth of any compartment shall be at least thirty (30) inches. Liquid depths greater than seventy-two (72) inches shall not be considered in determining the working liquid capacity.

E. Fittings
   1. The inlet and outlet fittings shall be of Schedule 40 PVC, Schedule 40 ABS, or other materials approved by the Division, with a minimum diameter of three (3) inches.
   2. The distance between the inlet and outlet fittings shall be equal to, or greater than, the liquid depth of the tank.
   3. All fittings shall be secured with a sealant approved by the Division and shall be constructed so as to be watertight. Tank fitting locations shall be properly engineered to ensure the structural integrity of the tank.

4. The inlet fitting shall be a “sanitary tee” with minimum pipe diameter no less than the connecting building sewer nor less than three (3) inches. It shall extend at least four (4) inches above and twelve (12) inches below the liquid level.
5. The outlet fitting shall be a “sanitary tee” with minimum pipe diameter no less than the connecting effluent sewer pipe nor less than four (4) inches in order to accommodate an effluent filter. The outlet fitting shall extend at least four (4) inches above liquid level and below liquid level a distance approximately equal to the flow level through the baffle. The diameter of the vertical leg extending below the liquid level shall not be less in size than the building sewer nor less than four (4) inches.
6. The invert of the inlet fitting shall not be less than one (1) inch and preferably three (3) inches above the invert of the outlet fitting.
7. Sanitary tees shall be accessible through the manhole access riser.

F. Baffles

A minimum three (3) inch diameter “tee” fitting or baffle slot (with the same opening area as the fitting) shall be placed in the common compartment (baffle) wall, using the same materials specifications as required for the outlet fitting. The invert of the “tee” fitting or baffle slot shall be located approximately at fifty (50) percent of the liquid depth. There shall be a minimum two-inch vent opening in the baffle above the liquid level. The baffle shall be constructed of the same material as the tank and extend a minimum of four (4) inches above the liquid level.

G. Markings

1. All septic tanks shall be permanently and legibly marked with the following:
   a. Manufacturer’s name or trademark, or both;
   b. Model number;
   c. Capacity;
   d. Month and year of manufacture;
   e. Inlet and outlet;
2. Markings shall be legible and permanently attached, molded, cast, stamped or wet set onto the tank, located either on the left hand side of the inlet or on top of the tank near the inlet. Permanent markings shall be adequately protected from corrosion so as to remain legible over the life of the tank.

H. Tank Documentation

For septic tanks proposed for use in Placer County, or when a revised tank design is proposed the commercial manufacturer of the septic tank shall provide the Division with written documentation that the septic tank design, materials and construction comply with all requirements of this Manual. The manufacturer shall provide a set of plans and specifications prepared by a California registered professional engineer, for each tank design and a set reflecting any subsequent revisions. For precast concrete septic tanks that meet the IAPMO Z-1000 certification, this certification may be accepted in lieu of the plan submittal specified above. Plans shall include at a minimum: dimensions, reinforcing, structural calculations, materials specifications and the appropriate fee. The Division may conduct periodic manufacturer’s facility inspection to verify compliance with this Manual.

Chapter 30 - Distribution Box Materials and Construction

A. Distribution boxes shall be constructed of concrete or other materials acceptable to the Division.

B. Distribution boxes shall be watertight and designed to accommodate the necessary distribution laterals and expected flows. The top, walls, and bottom of concrete distribution boxes shall be at least one and one-half (1-1/2) inches thick.

C. For level sites, the distribution boxes shall be installed for parallel distribution to the disposal trenches. For sloping sites, the distribution boxes shall be installed so that the uppermost disposal trench receives effluent prior to the effluent being discharged to the subsequent lower disposal trenches.

D. Each distribution box shall be provided with a sump extending at least two (2) inches below the invert of the outlets.

E. For initial use of a manufacturer's distribution box design proposed for use in Placer County or when a revised box design is proposed for same, the commercial manufacturer of the prefabricated box shall provide the Division with written documentation that the box design, materials and construction comply with all requirements of this Manual, and the appropriate fee.

F. All distribution boxes shall be bedded level on undisturbed soil, aggregate with a minimum of 90% compaction, or on concrete. All distribution boxes must receive approval by the Division prior to installation in Placer County.

Chapter 31 - Diversion Valve Materials and Construction

A. Diversion valves shall be constructed of durable material and be of a design approved by the Division. They shall be corrosion-resistant, watertight, and designed to accommodate the inlet and outlet pipes.

B. Each diversion valve shall have a positive stop.

Chapter 32 - Dosing/Pump Tank Materials and Construction

A. The requirements of the Chapter shall apply to all dosing/pump tanks manufactured for use in Placer County unless otherwise indicated in this Manual. Dosing/pump tanks shall be constructed in accordance with the minimum standards of Chapter 29, Septic Tank Materials and Construction, with the exception that the access manhole for the dosing/pump tank shall be a minimum twenty (20) inches in diameter.

B. Materials
Dosing/pump tanks shall be precast reinforced concrete. Wood, metal and cast-in-place concrete dosing/pump tanks are prohibited. Use of an IAPMO approved polyethylene or fiberglass dosing/pump tank may be approved by the Division on a case-by-case-basis.

C. Dosing-pump Tank Construction/Design Specifications

1. Precast concrete tanks shall have a minimum wall, compartment and bottom thickness of two and one-half (2-1/2) inches, and shall be adequately reinforced. The top shall be at least four (4) inches thick.
2. Dosing/pimp tanks shall have one compartment, which shall have an access manhole which shall be a minimum twenty (20) inches in diameter.
3. The access manhole located over the pump shall be provided with a watertight riser, approved by the Division, extending to the ground surface or above, with a minimum inside horizontal measurement equal or greater than the access manhole. If the dosing/pump tank has more than one access manhole, the influent manhole shall be sealed so as to be watertight or be fitted with a riser. All joints shall be properly sealed with a sealant and/or an interlocking mechanism approved by the Division. Cement grout sealing alone is not an acceptable method of sealing joints. Surface water shall be diverted away from the riser cover by creating a sloping surface away from the riser, or extending the riser three (3) inches above ground surface. The riser cover shall be securely fastened with stainless steel or other corrosion resistant fasteners to make the riser vandal, tamper, and child resistant. No riser cover shall exceed seventy-five (75) pounds.
4. No riser shall have an inside horizontal dimension of less than twenty-four (24) inches. The liquid depth of any compartment shall be at least thirty (30) inches. Liquid depths greater that seventy-two (72) inches shall not be considered in determining working capacity.
5. Dosing/pump tanks shall be watertight. They shall be built such that any construction joints will be above the effluent level. Each dosing/pump tank shall satisfactorily complete an in-situ watertight test or a Division approved in-situ vacuum test. A satisfactory vacuum test shall hold three (3) inches of mercury constant for three (3) minutes without loss in pressure. The watertight test shall consist of one of the following as determined by the Division:
   a. The dosing/pump tank shall be filled with water to a point one (1) inch above the inlet fitting and the water level shall be measured after twelve (12) hours without drop in the water level inside the tank and/or leakage, or:
   b. The dosing/pump tank shall be filled with water one (1) inch into the riser and the water level shall be measured after twelve (12) hours without drop in the water level inside the tank and/or leakage. This method shall be required in areas of high groundwater, if a dosing/pump tank fails the watertight method as specified in (a) above, or at the discretion of the Division.
6. Dosing/pump tanks shall be capable of supporting an earth load of at least three hundred (300) pounds per square foot when the maximum coverage does not exceed three (3) feet. Tanks installed with more than three (3) feet of cover shall be reinforced to support the additional load. Tanks, risers, and riser covers installed beneath paved surfaces subject to vehicular traffic (e.g., driveways and vehicle turnarounds) shall be engineered to support the additional load.
7. Dosing/pump tanks shall be provided with a minimum soil cover of six (6) inches, unless otherwise approved by Division. In no case shall any portion of the dosing/pump tank be exposed.
8. Each dosing/pump tank employing one (1) or more pumps shall have capacity sufficient to deliver the design dose, have a minimum additional storage capacity above the high level alarm of one day's design flow and have a minimum capacity of at least one-thousand (1,000) gallons. The liquid capacity shall be measured from the invert elevation of the inlet fitting to the bottom of the tank.
9. The high water alarm shall activate immediately when the remaining pump tank storage volume is equal to the daily design flow capacity.

D. Dosing tank/pump tanks shall meet the same setback requirements as septic tanks as shown in Chapter 39 Table 1.

E. Markings
   1. All dosing/pump tanks shall be permanently and legibly marked with the following:
      a. Manufacturer's name or trademark, or both;
      b. Model number;
      c. Capacity;
      d. Month and year of manufacture;
      e. Inlet.
   2. Markings shall be legible and permanently attached, molded, cast, stamped or wet set onto the tank, located either on the left hand side of the inlet or on top of the tank near the inlet. Permanent markings shall be adequately protected from corrosion so as to remain legible over the life of the tank.

F. For dosing/pump tanks proposed for use in Placer County, or when a revised tank design is proposed, the commercial manufacturer of the tank shall provide the Division with written documentation that the tank design, materials and construction comply with all requirements of this Manual. The manufacturer shall provide a set of plans and specifications prepared by a registered California professional engineer for each tank design and a set reflecting any subsequent revisions. The appropriate fee shall accompany plans. The Division may conduct periodic manufacturer's facility inspection to verify compliance with this Manual. All dosing/pump tanks must receive Division approval prior to installation in Placer County.

Chapter 33 - Effluent Pump, Control, and Alarm Materials and Construction

A. General Statement
   Unless otherwise specified, effluent pump control box, and alarm materials and construction shall at minimum be in conformance with this Chapter.

B. Pumps, Controls, and Alarms
   Electrical components used in systems shall comply with the Uniform Electrical Code, and the following provision:
   1. Motors shall be continuous-duty, with overload protection.
   2. Pumps shall have durable impellers of bronze, cast iron, or other materials approved by the Division.
   3. Submersible pumps shall be provided with an easy, readily accessible means of electrical and plumbing disconnect, and a non-corrosive lifting device as a means of removal for servicing.
   4. For pressure distribution systems, a corrosion-resistant screen or other filter device shall protect the pump. The screen shall have at least twelve (12) square feet of surface area, with one-eighth (1/8) inch openings. The use of a screen is not required if the pump does not discharge into a pressurized distribution system and the pump has a non-clog impeller capable of passing a ¾ inch diameter solid sphere.
   5. Pumps shall be automatically controlled by mechanical float switches.
   6. Pumps shall have automatically resetting audible and visual high water level alarm with manual silence switch that is located in or near the building served by the pump. Pumps located in dosing/pump tanks must also have an automatically resetting audible and visual low level alarm with redundant pump off control. The audible alarm only may be user cancelable. The electrical box for the pump and alarm system shall not be located in an environment that may damage the components.

7. Wiring must be of proper construction and gauge and permanently fixed to a supporting structure under permit from the local Building Department having jurisdiction.
8. The pump and alarm must be connected to separate circuits.
9. There shall be a non-resettable digital pump cycle counter in the control panel.
10. There shall be a manual override switch in the control panel to facilitate dosing control during inspections.
11. For standard pump to gravity systems, an approved effluent filter is required in the outlet sanitary tee of the septic tank.

Chapter 34 - Off-Grid Power Supply

A. General Statement

A power source is required for the operation of some components of on-site sewage disposal systems. Usually power is supplied by a public utility company. In some cases, a public utility is not available, such as in remote locations. In these cases, power must be generated and supplied by onsite means. This type of power supply is referred to as an Off Grid Power Supply.

B. Criteria for Approval

The requirements of this Chapter shall apply to off-grid power supply systems for septic systems which utilize a pump/alarm control panel. Unless otherwise stated on a building permit, it is understood that the proposed power supply will be provided by the approved on-grid electrical power purveyor (e.g., PG&E).

Unless otherwise approved by the Division, at the discretion of the Environmental Health Services Director, a sewage disposal area that requires a system which utilizes a pump/alarm control panel shall not be approved for parcel creation with an off-grid power supply as the sole power source. The off-grid power supply must provide a continuous source of power to properly operate the system, which may include a photovoltaic system with battery and generator backup with automatic transfer switching; or other method acceptable to the Division. A hydrocarbon fuel generator shall not be used as the primary source for an off-grid power supply.

C. Permit Requirements

Prior to issuance of a septic permit whose design includes a pump/alarm control panel, the following must be completed:

1. The applicant shall obtain a separate electrical permit from the Placer County Building Department for the off-grid power supply to serve the septic system.
   a. This electrical permit must also receive approval from this Division.
   b. The project description for this electrical permit must state that the permit is for a photovoltaic system with battery and generator backup with automatic transfer switching, or other method acceptable to the Division, that will provide continuous and adequate power to properly operate the septic pump/alarm control panel.
   c. The Division will provide the pump and control panel specifications from the approved septic design to the Placer County Building Department, as needed, for their review of the adequacy of the off-grid power supply.
   d. The Division will approve the electrical permit with the condition that the power supply shall provide continuous and adequate power to properly operate the septic system pump/alarm control panel. The septic permit will also be conditioned to cross reference the electrical permit.

D. The final septic construction inspection must include a satisfactory modified flow test after the off-grid power supply installation is complete and operational.

Chapter 35 - Pipe Materials and Construction

A. General Statements
Unless otherwise specified, piping shall consist of materials and be constructed in conformance with the standards of this Chapter. All piping shall be free of defects or damage. All connection of pipes of different diameters shall be made with the proper fittings.

B. Building Sewer Pipe
The building sewer pipe is within the jurisdiction of the Building Department and shall be constructed with materials in conformance to building sewer standards, as identified in the Uniform Plumbing Code by the Building Department.

C. Effluent Sewer Pipe, Header Pipe, and Fittings
Header pipe shall extend a minimum of five (5) feet out of the distribution box. Effluent sewer, header pipe and fittings shall be a minimum three (3) inch diameter, watertight and one of the following:

1. Schedule 40 PVC that meets the most current ASTM D-1785 for three (3) inch pipe and D-2672 for minimum four (4) inch pipe.
2. Schedule 40 Acrylonitrile-Butadiene-Styrene (ABS) that meets the most current ASTM Specification D-2468.
3. ASTM SDR 35 with solvent-welded or rubber-gasketed joints.
4. Other material approved by the Division.
   NOTE: the first ten-feet of effluent sewer pipe extending from the septic tank outlet shall only be either "(1)" or "(2)". When the first distribution box is less than ten feet (10) from the septic tank, the entire effluent sewer pipe shall be either "(1)" or "(2)".
   All pipe and fittings shall be capable of passing a deflection test withstanding three hundred-fifty (350) pounds per foot without cracking or collapsing by using the method described in ASTM 2412. Markings shall meet requirements established in ASTM Specification D-2719, subsections 9.1.1, 9.1.2 and 9.1.4. The manufacturer of polyvinyl chloride pipe may be required to certify in writing to the Division, that pipe and fittings provided for use in absorption facilities within the County comply with all requirements of this Chapter.

D. Distribution Piping
Distribution piping for gravity flow systems shall be a minimum three (3) inches diameter Polyethylene (PE) pipe that meets the most current ASTM Specifications F-810, or other material approved by the Division. The pipe described above shall have two (2) rows of holes spaced one hundred-twenty (120) degrees apart and sixty (60) degrees on either side of a centerline. For distribution pipe, a line of contrasting color shall be provided on the outside of the pipe along the line furthest away and parallel to the two (2) rows of perforations. Markings, consisting of durable ink, shall cover at least fifty (50) percent of the length of the pipe. Markings may consist of a solid line, letters or a combination of the two. Intervals between markings shall not exceed twelve (12) inches. The holes of each row shall not be more than five (5) inches on center and shall have a minimum diameter of one-half (1/2) inch.

E. Pressure Transport Pipe, Pressure Distribution Manifolds, and Pressure Distribution Laterals.

Pressure transport pipe, pressure distribution manifolds, and pressure distribution lateral (piping and fittings), shall meet the most current requirements for schedule 40 PVC pressure pipe as identified in ASTM Specifications D-1785, or other material approved by the Division. All pressure distribution laterals and all pressure transport and manifold piping shall be adequately sized for the design flow.

Chapter 36 - Vault Privy and Portable Toilet Materials and Construction

A. General Requirements for Vault Privy and Portable Toilet Shelters
   1. Structures shall be free of hazardous surface features, such as exposed nail points, splinters, sharp edges, and rough or broken boards, and shall provide privacy and protection from the elements.
   2. Building ventilation shall be equally divided between the bottom and top halves of the room. All vents shall be screened with sixteen (16) mesh screen of durable material.
   3. Buildings shall be fly and rodent proof, and shall have self-closing doors with an inside latch.
   4. Vaults shall be vented to the outside atmosphere by a flue or vent stack having a minimum inside diameter of four (4) inches.
   5. Interior floors, walls, ceilings, partitions, and doors shall be finished with readily cleanable impervious material resistant to wastes, cleansers and chemicals. Floors and risers shall be constructed of impervious material and in a manner that shall prevent entry of vermin.
   6. The seat opening shall be covered with attached, open-front toilet seats with lids, both of which can be raised to allow use as a urinal
   7. A toilet tissue holder shall be provided for each seat.

B. Additional Provisions for Vault Privy shelters
   Vault privies shall also be provided with:
   1. Vents equal in area to a minimum of three (3) square feet; and
   2. A minimum clear space of twenty-four (24) inches between multiple-unit installations and a clear space of twelve (12) inches from the seat opening to the side building wall in single and multiple units.

C. Additional Provisions for Portable Toilet Shelters
   Portable shelters may be prefabricated, skid mounted, or mobile. Portable toilet shelters shall:
   1. Provide screened ventilation to the outside atmosphere having a minimum area of one (1) square foot per seat; and
   2. Provide a minimum floor space outside of the riser of nine (9) square feet per seat; and
   3. Provide separate compartments with doors and partitions or walls of sufficient height to ensure privacy in multiple-unit shelters except that separate compartments are not required for urinals.

D. General Requirements for Vault Privy and Portable Toilet Facilities
   1. They shall have watertight chambers constructed of reinforced concrete, plastic, fiberglass, metal or other material of acceptable durability and corrosion resistance, approved by the Division, and designed to facilitate the removal of the wastes.
   2. Blackwater shall be stored in an appropriate chamber until proper removal for final disposal elsewhere. Wastes shall be removed from the chamber as necessary to prevent overflow.
   3. All surfaces subject to soiling shall be impervious, easily cleanable, and readily accessible.

E. Additional Provisions for Vault Privy Facilities
   Vault privy facilities shall also meet the following:

1. The capacity of vaults shall be adequately sized to accommodate the proposed use.
2. A deodorant shall be added routinely to vault chambers to control odors.

F. Additional Provisions for Portable Toilet Facilities
Portable toilets shall also meet the following:
1. Have toilet bowls constructed of stainless steel, plastic, fiberglass, or ceramic or of other material approved by the Division;
2. Waste passages shall have smooth surfaces and be free of obstructions, recesses or cross braces which would restrict or interfere with flow of blackwater;
3. Biocides and oxidants shall be added to waste detention chambers at rates and intervals recommended by the manufacturer;
4. Chambers and receptacles shall provide a minimum storage capacity of fifty (50) gallons per seat; and
5. Portable shelters housing chemical toilets shall display the business name of the licensed sewage disposal service that is responsible for servicing them.

Chapter 37 - Reconstruction of Residential Structures Damaged by Fire or Natural Disaster

A. The requirements of the Chapter shall apply to the reconstruction of a residential structure damaged by fire or natural disaster.
1. For reconstruction of a residential structure damaged by fire or natural disaster and with no increase in the number of bedrooms;
   a. In order to continue use of the existing septic system, an approved Septic Authorization Notice must be obtained from the Division, as described in Chapter 8, Authorization Notice, within twenty-four (24) months from the date of occurrence of the fire or natural disaster.
   b. If a Septic Authorization Notice cannot be obtained from the Division, and
      i. If the parcel is within three hundred (300) feet of public sewer, then the parcel must connect to public sewer and any/all septic system(s) on the parcel shall be properly abandoned.
      ii. If public sewer is over three hundred (300) feet from the parcel, then a Site Evaluation must be completed as described in Chapter 3, Site Evaluation, a septic construction permit must be obtained, and a new septic system must be installed with a permit from this Division.
2. Reconstruction of a residential structure damaged by a fire or natural disaster for which an increase in the number of bedrooms is proposed shall meet the same requirements as an existing residence with a proposed increase in the number of bedrooms.

Chapter 38 - Artificial Drain Design, Materials and Construction

A. General Statement
For the purposes of this Manual, an artificial drain means a curtain drain or vertical drain that drains or diverts groundwater away from the disposal field.

B. General Criteria for Approval of an Artificial Drain

Unless otherwise approved, an artificial drain shall meet the minimum requirements as follows:

1. All artificial drains shall be designed by a consultant and generally conform to the requirements of Chapter 11, Alternative System Requirements.
2. Artificial drains shall meet the minimum setback requirements to disposal area and replacement area and septic tank as indicated in Table 1 of Chapter 39. The discharge pipe and drainage trench pipe are integral parts of the system, but do not need to meet setback requirements to property lines, streams, lakes, ponds or other surface water bodies.
3. All other requirements for system approval, except depth to groundwater, can be met. However, after the drain is installed, the groundwater levels shall conform to the requirements for vertical separation to groundwater for the proposed system.
4. For a curtain drain, the site will allow discharge to the ground surface.
5. The Division has the discretion of requiring demonstration that a proposed artificial drain is effective prior to issuing a permit.

C. Design, Construction, and Materials Requirements for Artificial Drains

1. The artificial drain shall be filled with filter material, or artificial aggregate material as approved by the Division. Prior to backfilling the trench, the filter material shall be covered with filter fabric. A minimum of six (6) inches of soil cover shall be placed over the trench.
2. A four (4) inch minimum diameter Polyvinyl Chloride (PVC) or Polyethylene (PE) perforated pipe shall be laid the entire length of the drain with two (2) inches of gravel underneath the pipe. EXCEPTION: This provision is not applicable to a vertical drain that penetrates a limiting layer and discharges into an underlying permeable soil.
3. The trench shall be situated so that captured water drains by gravity-flow out of outlet pipes. Trench bottoms shall maintain a minimum of one (1) percent slope throughout the drainage trench. In areas where the outlet pipe will be subject to damage, the pipe shall be adequately protected. EXCEPTION: This provision is not required for a vertical drain that penetrates a limiting layer and discharges into an underlying permeable soil.
4. The trench shall be a minimum of twelve (12) inches wide. For a curtain drain, it shall extend from ground surface at least 6 inches into a limiting layer. For a vertical drain, the trench shall penetrate through the limiting layer into a permeable soil.
5. The trench shall be installed upslope of the disposal area to be protected.

D. Discharge Outflow

1. In the event that the discharge outflow from a curtain drain will impact a neighboring property, the trench outlet from a curtain drain shall only discharge into a drainage channel or other conveyance designed for the transport of water, unless otherwise approved by the Division.
2. The curtain drain discharge outlet shall be fitted with an acceptable screen to prohibit entry by small animals.
3. The curtain drain discharge outlet shall be at least fifty (50) feet downgrade from a septic tank, dosing/pump tank, sand filter and disposal field. The outlet shall also discharge downslope of the 100% replacement area.

Chapter 39 - Tables

Table One: Features Requiring Setback:

Minimum Horizontal Separation Distance in Feet *

Distance Required From:	From Disposal Field Initial, Replacement MUSDA	From Septic Tank, Dosing/ Pump Tank, Sand Filter	From Seepage Pit
Wells ➢ Public well ➢ Private well ➢ Other wells, excluding monitoring wells	100' 100' 100'	100' 50' 50'	150' 150' 150'
Surface waters[1] ➢ Reservoirs, lakes, or perennial streams ➢ Springs or Ponds upgradient ➢ Springs or Ponds downgradient ➢ Intermittent streams, drainage swales [2]	100' 50' 100' 50'	50' 50' 50' 50'	150' 100' 100' 50'
Artificial drains--Vertical/Curtain drains [3] ➢ Upgradient of system ➢ Downgradient of system	15' 50'	15' 25'	NA NA
Water canals [4] ➢ Flat area Sloping area ➢ Upgradient of system ➢ Downgradient of system	50' Clear ROW 100'	50' Clear ROW [5] 50'	100' 100' 100'
Cuts manmade in excess of 2.5 feet (top of downslope cut) or escarpments	4 X height [6] of the bank, to a maximum of 50'.	20'	4 X height [6] of the bank, to a maximum of 50'.
Property lines ➢ Adjacent property with public water ➢ Adjacent property with private water	10' 10' [7] or 50'	5' 10'	10 10' [7] or 75'
Foundation lines of any structure including garages, out-buildings,** paved areas	8'	5' [8]	8'
Swimming pools ➢ In-ground ➢ Above-ground	20' 5'	20' 5'	20' 5'
All Water lines	10' [9]	5' [9]	10'
Easements [10]	Clear	Clear	Clear
Septic tank, Dosing/pump tank	8'		8'

A. FOOTNOTES:

*If a setback is not specified in this Table, the most recently Board of Supervisors adopted Uniform Plumbing Code setback will be applied.

** Septic tank and dosing/pump tank shall be clear of a paved surface unless the tank is traffic-rated with traffic-rated risers.

*** Unless a different setback is specified in the ordinance/manual, all septic system components shall be free of structure and in a location readily accessible for maintenance.

1. Setbacks from streams and creeks shall be measured from bank drop-off or mean yearly high water mark.
2. Filling or culverting of intermittent streams/natural drainage swales is not allowed to reduce these setback requirements.

3. Curtain drain discharge outlet shall be at least fifty (50) feet downgrade from a septic tank, dosing/pump tank, supplemental treatment unit and disposal field, The outlet shall discharge downslope of the 100% replacement area.
4. Unless otherwise indicated in this table, in the case of flat ground surface and when a different distance is given for upgradient and downgradient, the greater setback distance shall apply
5. "ROW" = Right of Way
6. The height (in feet) of the cut or escarpment as measured from the toe of the cut or escarpment vertically to the projection of the natural ground slope.
7. The ten (10) feet separation applies where adjacent parcels have been developed with a dwelling and approved water supply. The 50-feet separation shall be used when adjacent parcels have not been so developed. For subdivisions, disposal fields may be ten (10) feet from interior property lines in private well areas if a well has been drilled on the affected parcel and meets Division standards for an approved domestic water supply. The greater setback shown above shall apply to parcels adjacent to the subdivision.
8. The Division encourages the placement of septic tanks and other treatment units as close as feasible to the minimum separation from the building foundation in order to minimize possible clogging of the building sewer.
9. Unless otherwise approved by the Division, crossing of water lines and effluent sewer lines is prohibited.
10. A system may be installed underneath overhead power lines or cross other utilities (e.g., canals) providing all of the following conditions are met:
    a. Written authorization is received from the utility company operating and maintaining the utility affected or for which the easement or restriction was granted;
    b. The Division determines that the encroachment is necessary and there is no other viable area in which to install the system, and
    c. All construction modifications required by the Division and the affected utility company(ies) are instituted to carry out the purposes of this Manual.
    d. If an easement can be used for installation of a water line (e.g., a water line or MPE easement), then the water line setback shall be applied as measured from the edge of the easement.
    e. The setback from a road easement shall be the same as the setback from a paved area.

Table Two: Design Flows

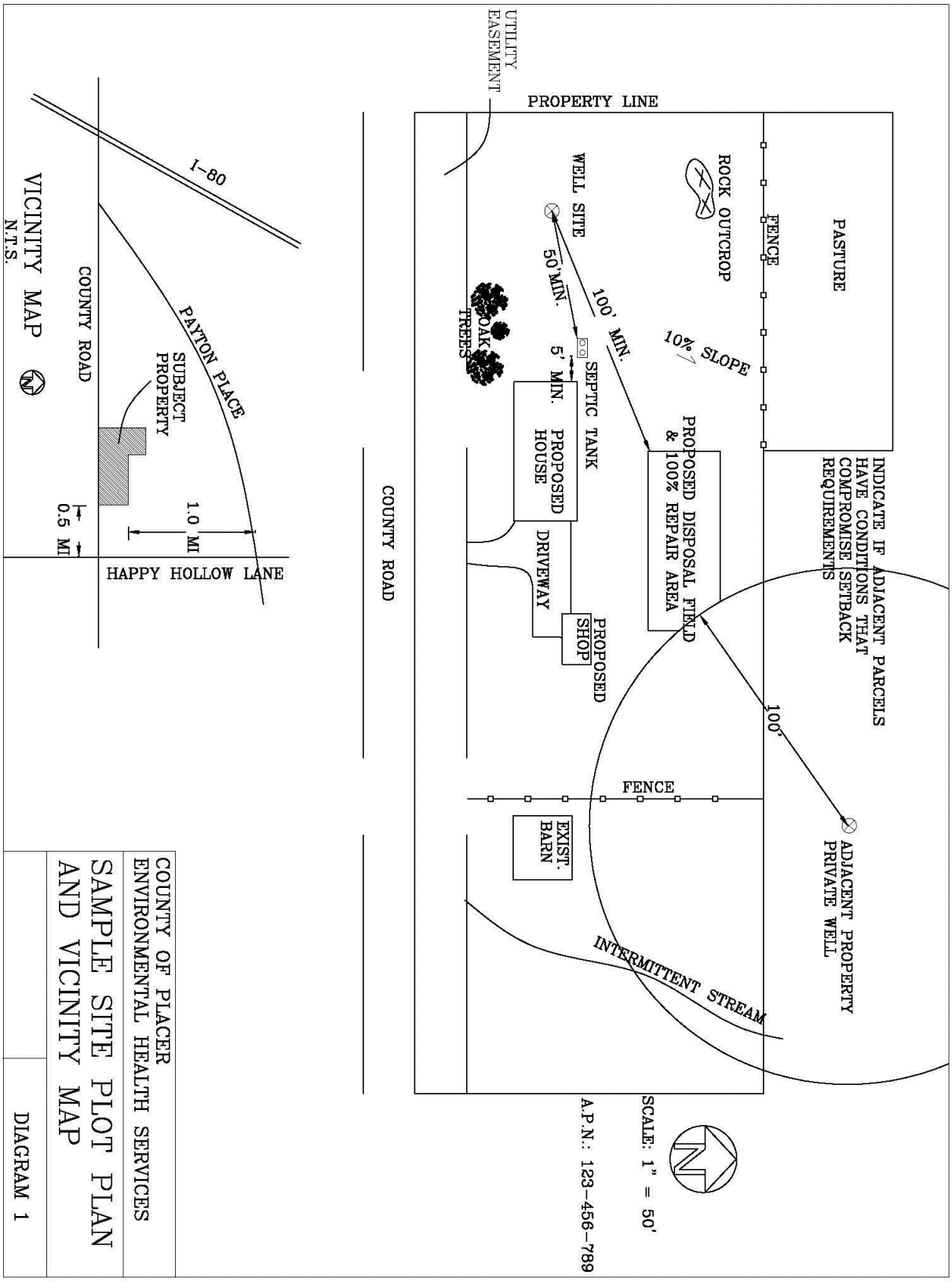
Type of Business or Facility	Minimum Flow(Gallons per Day)
Airports, bus terminals, train stations	8 (per employee)
Camps (4 persons per campsite, where applicable)	
with central comfort stations	35 (per person)
with flush toilets, no showers	25 (per person)
construction camps (semi-permanent)	50 (per person)
day camps (no meals served)	15 (per person)
resort camps (night and day) with limited plumbing	50 (per person)
luxury camps	100 (per person)
Churches	
with kitchen	15 (per seat)
without kitchen	5 (per seat)
Country clubs	
per resident member	100
add per nonresident member present	25
per employee	20 (per 8 hour shift)
Dentist office	
per wet chair	200
add per non-wet chair	50
Dwellings	
boarding houses	150 (per bedroom)
additional for non-residential boarders	10 (per person)
rooming houses	80 (per person)
condominiums, apartments and other dwellings except for single-family dwellings	150 per bedroom or 300 minimum, whichever is greater
single family dwelling (i.e., main residence, secondary dwelling or guest house) constructed in 1994 or later or completely retrofitted with EPACT-efficient fixtures:	
with 1-2 bedrooms	300
with 3 bedrooms	450
with more than 3 bedrooms	75 each additional bedroom
Single-family dwelling (i.e., main residence, secondary dwelling or guest house) constructed prior to 1994	150 per bedroom or 300 minimum, whichever is greater
Factories	
with shower facilities, no food service or industrial wastes	35 (per person, per shift)
without shower facilities, no food, service or industrial wastes	15 (per person, per shift)
kennels	10 gal/day/dog
Hospitals	250 (per bed space)
Hotels or motels	
with private baths	120 (per room)
without private baths	100 (per room)
Institutions other than hospitals	125 (per bed)
laundries, self-service washing machines	500 (per machine)
Mobile home parks	250 (per space)
Type of Business or Facility	**Minimum Flow(Gallons per Day)**

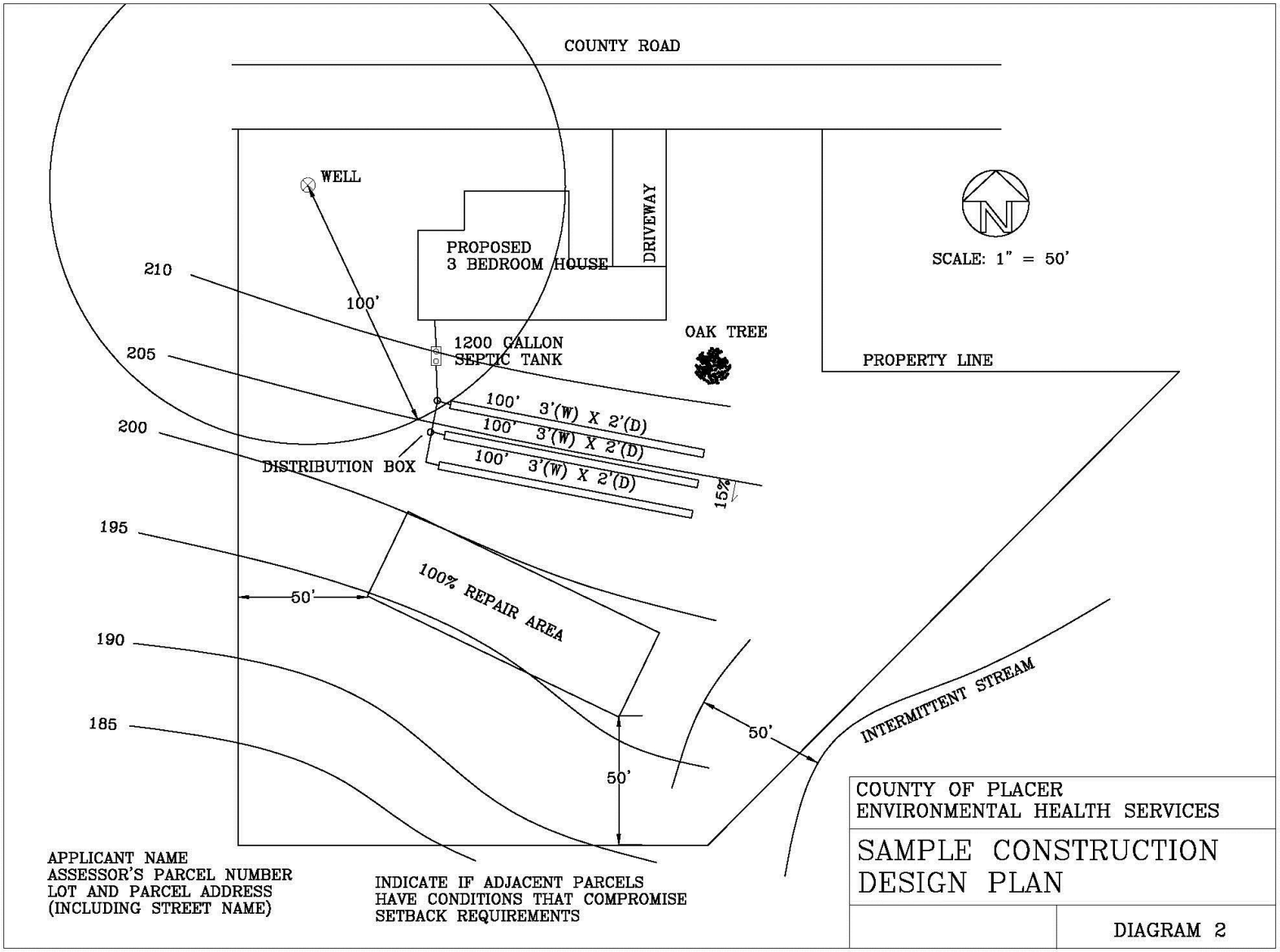
Parks	
public picnic areas with toilet wastes only	5 (per person)
with bathhouses, showers and flush toilets	10 (per person)
Restaurants	
with multi-use utensils	50 (per seat)
with single service utensils	25 (per seat)
with bars and/or cocktail lounges	50 (per seat)
drive-in restaurant	50 (per car space)
Retail stores	
for customer	650 (per toilet)
add for each employee	15 (per shift)
(add 100 gallons/day for each utility sink)	650 (per toilet)
Schools	
boarding	100 (per person)
day (without gyms, cafeterias or showers)	15 (per person)
day (with gyms, cafeterias and showers)	25 (per person)
day (with cafeteria, no gym or showers)	20 (per person)
Service stations	
	10 (per vehicle served)
Swimming pools and bathhouses	
	10 (per person)
Theaters	
movie	5 (per seat)
drive-in	20 (per car space)
Recreational vehicle parks	
without individual water and sewer hookups	50 (per space)
with individual water sewer hookups	100 (per space)
Workers	
construction (temporary camps)	50 (per person)
day, at schools and offices	15 (per shift)

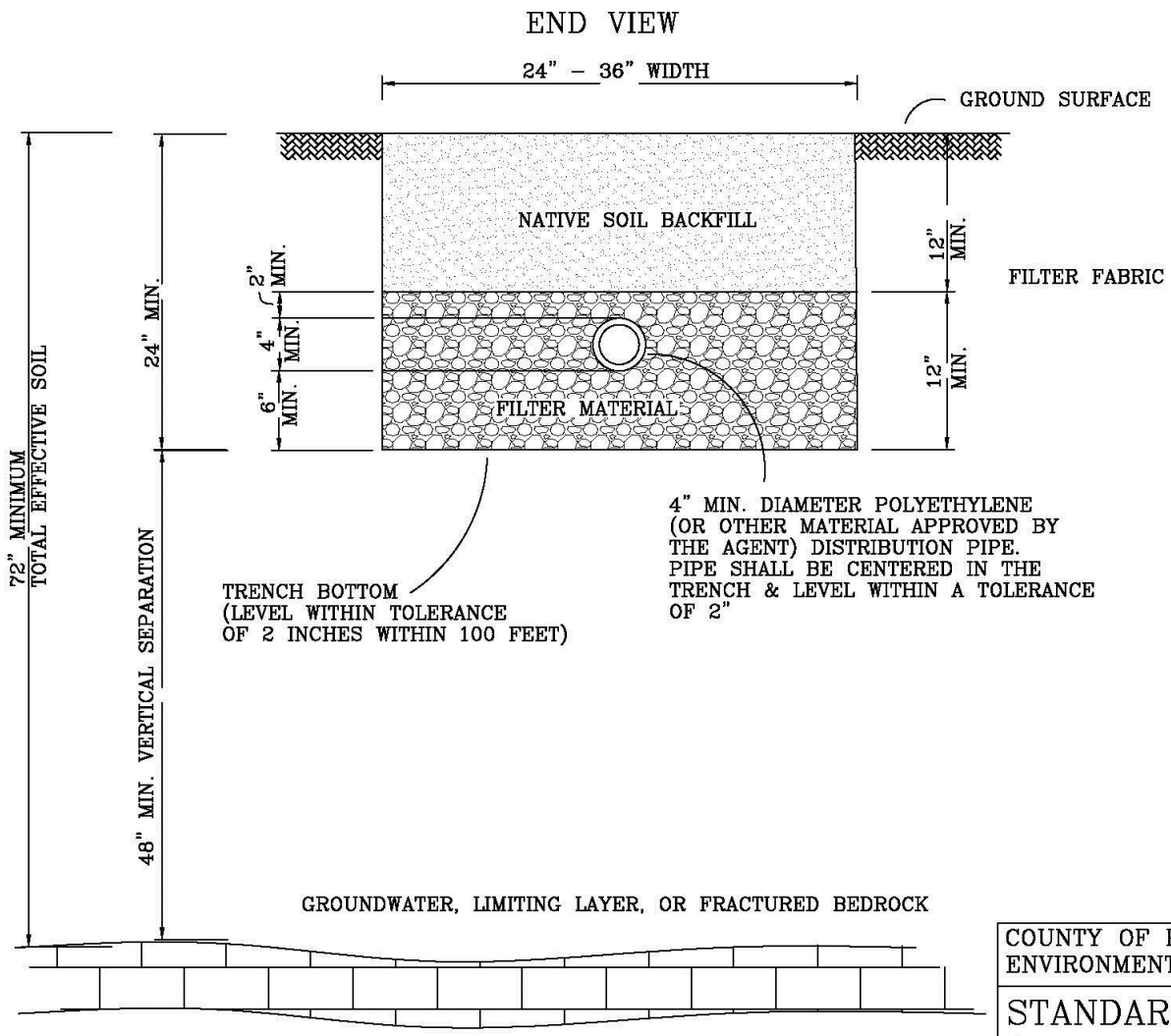
Chapter 40 - Fees

The Placer County Department of Health and Human Services, Environmental Health Division, may charge and collect fees for permits and services performed. Fees are set by Resolution of the Board of Supervisors. Refer to County Code § 2.116.100.
Fees are collected at the time of application. Application fees shall be applied to the subject application and are non-transferrable to another application or applicant.

Chapter 41 - Diagrams



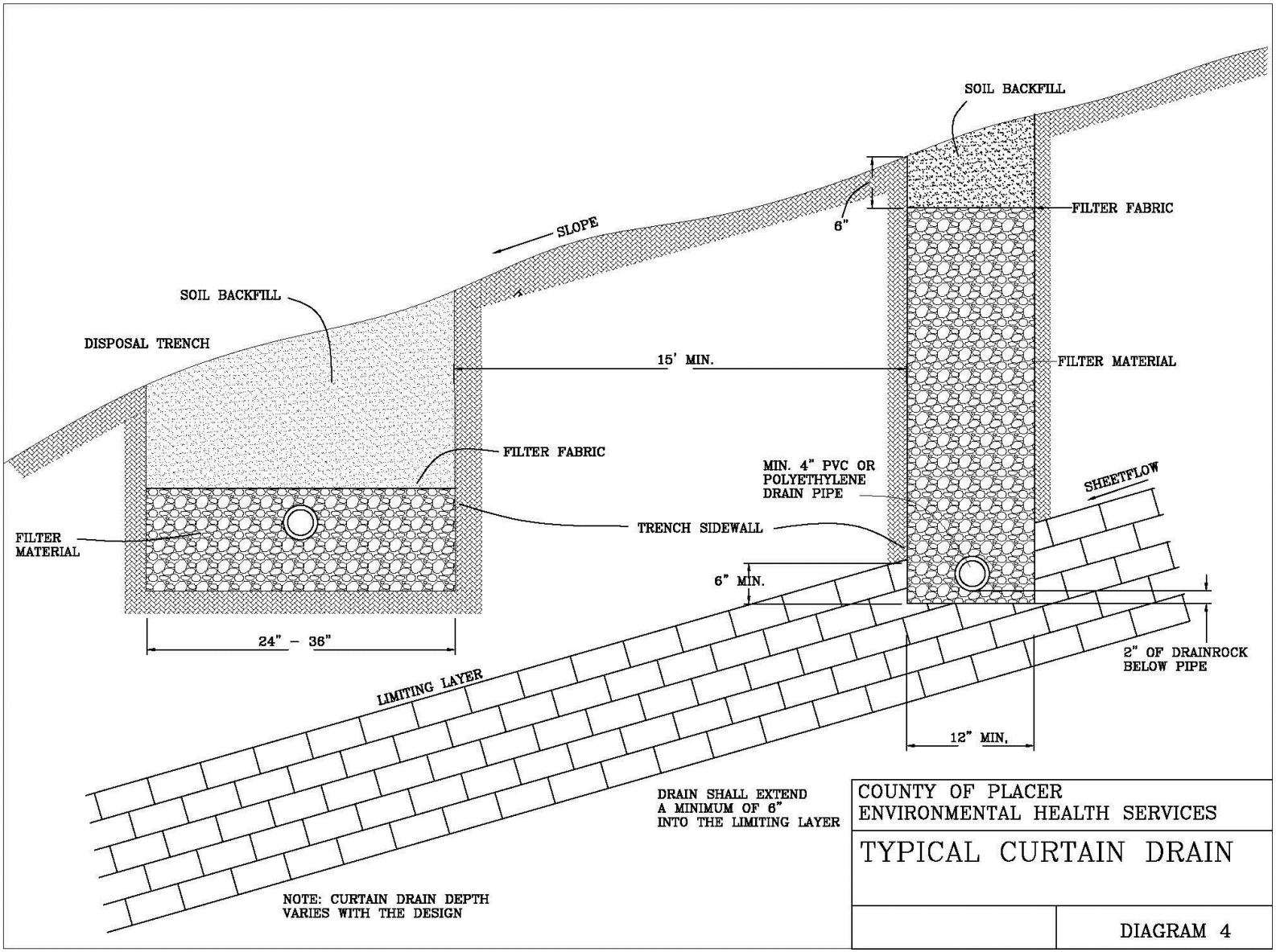

COUNTY ROAD
WELL
PROPOSED
3 BEDROOM HOUSE
DRIVEWAY
SCALE: 1" = 50'
210
100'
1200 GALLON
SEPTIC TANK
OAK TREE
PROPERTY LINE
205
100' 3'(W) X 2'(D)
100' 3'(W) X 2'(D)
100' 3'(W) X 2'(D)
200
DISTRIBUTION BOX
15%
195
100% REPAIR AREA
50'
190
185
50'
50'
INTERMITTENT STREAM
APPLICANT NAME
ASSESSOR'S PARCEL NUMBER
LOT AND PARCEL ADDRESS
(INCLUDING STREET NAME)
INDICATE IF ADJACENT PARCELS
HAVE CONDITIONS THAT COMPROMISE
SETBACK REQUIREMENTS
COUNTY OF PLACER
ENVIRONMENTAL HEALTH SERVICES
SAMPLE CONSTRUCTION
DESIGN PLAN
DIAGRAM 2



COUNTY OF PLACER
ENVIRONMENTAL HEALTH SERVICES

STANDARD SYSTEM
(GRAVITY DISTRIBUTION)

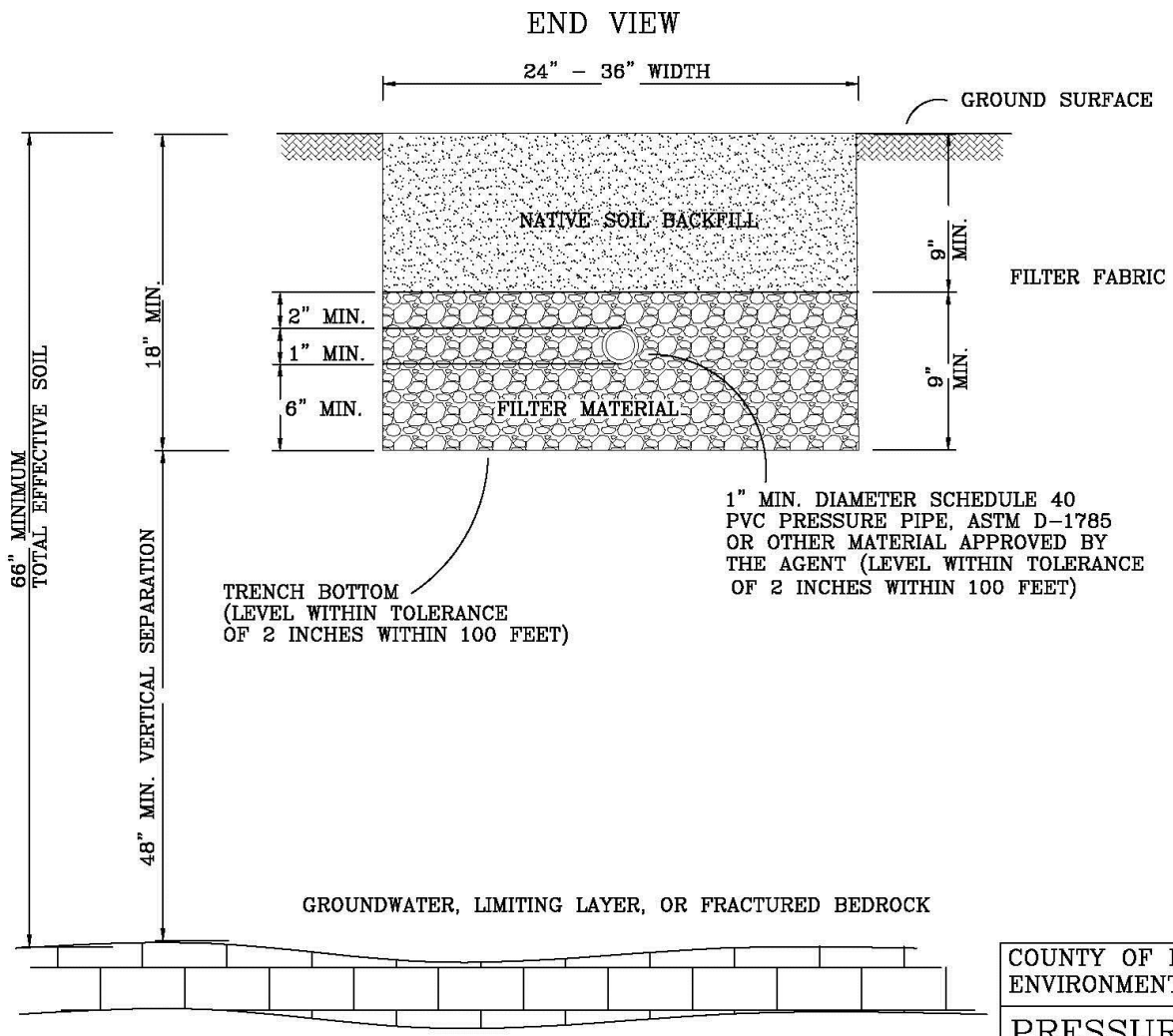
DIAGRAM 3



COUNTY OF PLACER
ENVIRONMENTAL HEALTH SERVICES

TYPICAL CURTAIN DRAIN

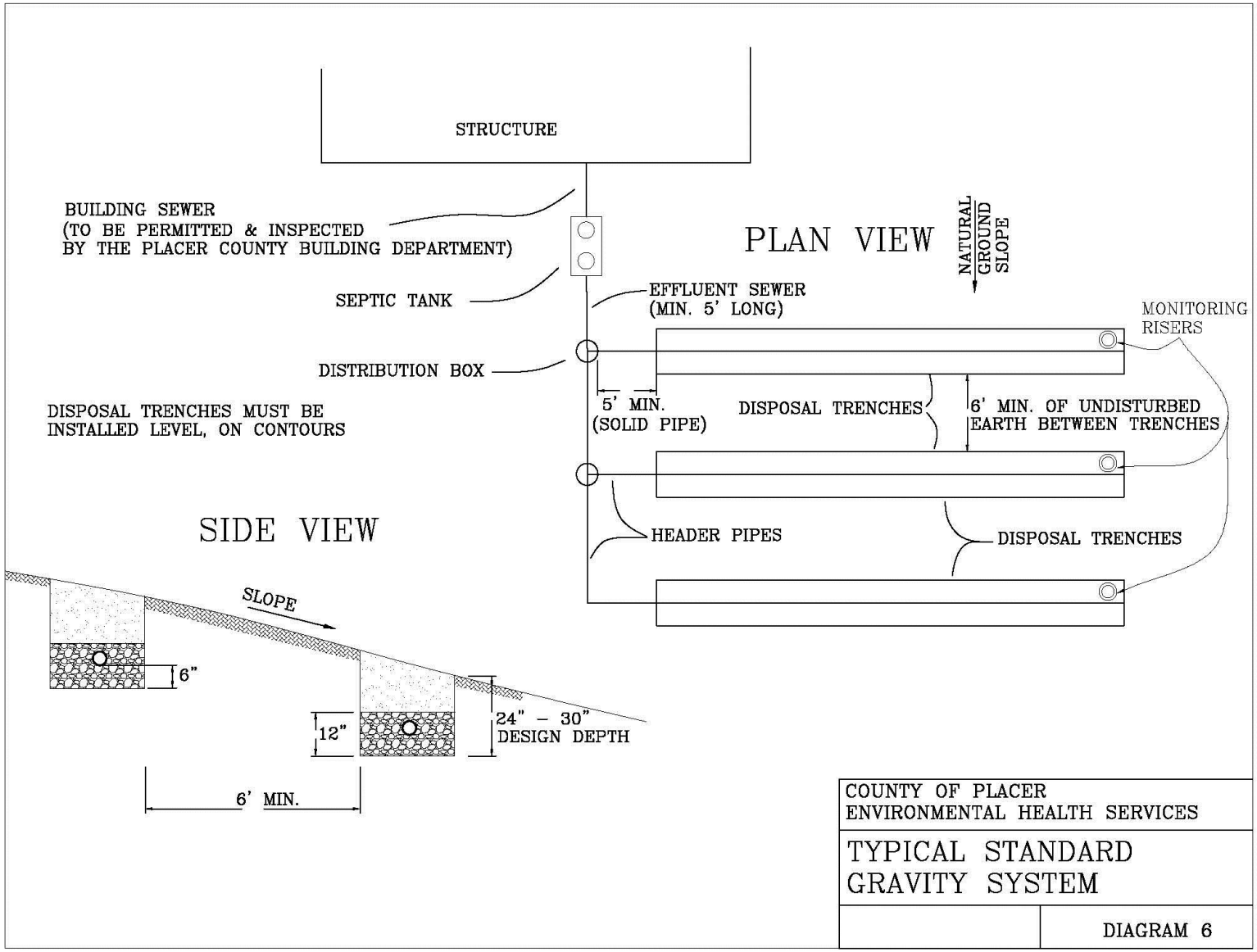
DIAGRAM 4

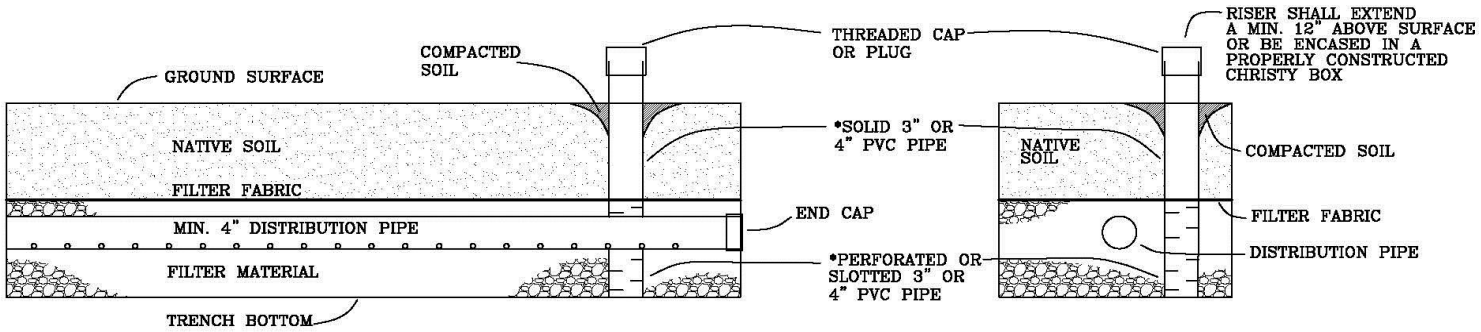


COUNTY OF PLACER
ENVIRONMENTAL HEALTH SERVICES

PRESSURIZED DISTRIBUTION SYSTEM

DIAGRAM 5

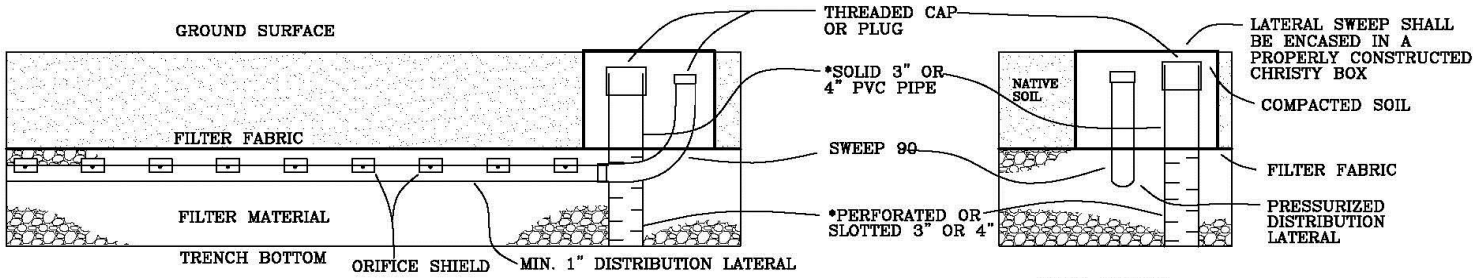

STRUCTURE
BUILDING SEWER
(TO BE PERMITTED & INSPECTED
BY THE PLACER COUNTY BUILDING DEPARTMENT)
SEPTIC TANK
EFFLUENT SEWER
(MIN. 5' LONG)
PLAN VIEW
NATURAL GROUND SLOPE
MONITORING RISERS
DISTRIBUTION BOX
5' MIN.
(SOLID PIPE)
DISPOSAL TRENCHES
6' MIN. OF UNDISTURBED
EARTH BETWEEN TRENCHES
DISPOSAL TRENCHES MUST BE
INSTALLED LEVEL, ON CONTOURS
HEADER PIPES
DISPOSAL TRENCHES
SIDE VIEW
SLOPE
6"
12"
24" – 30"
DESIGN DEPTH
6' MIN.
COUNTY OF PLACER
ENVIRONMENTAL HEALTH SERVICES
TYPICAL STANDARD
GRAVITY SYSTEM
DIAGRAM 6



SIDE VIEW

END VIEW

STANDARD TRENCH (GRAVITY-FLOW DISTRIBUTION) WITH AN INSPECTION RISER



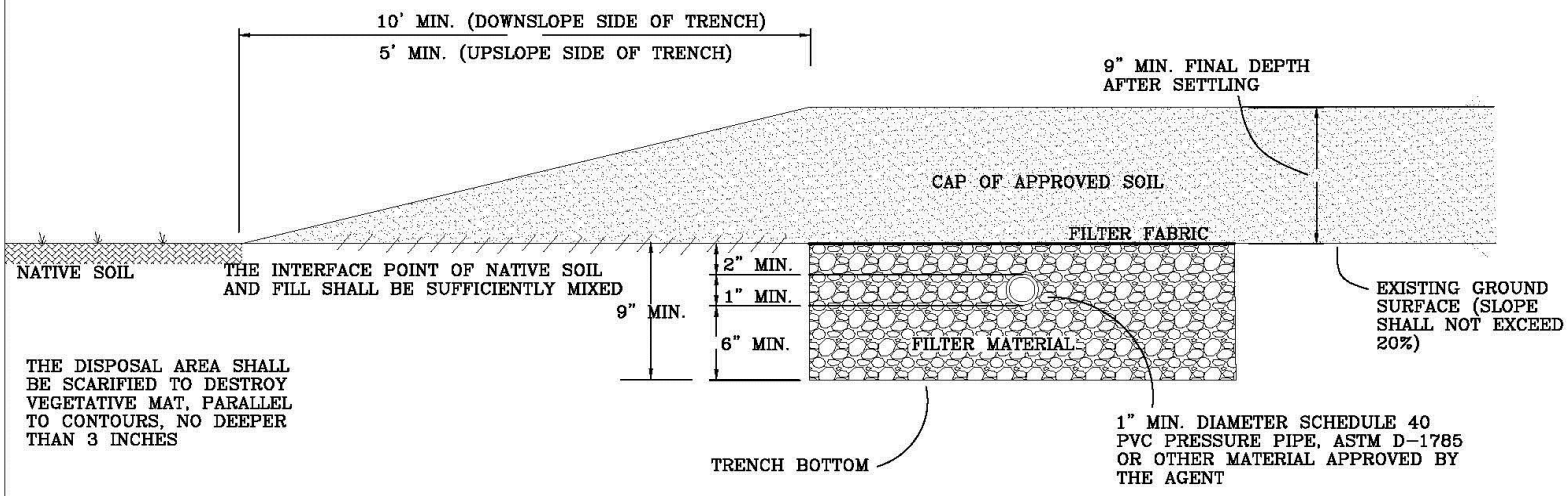
SIDE VIEW

END VIEW

PRESSURIZED DISTRIBUTION WITH AN INSPECTION & BLOW-OFF RISER

*THE SOLID & PERFORATED PVC RISER SHALL BE A NON-JOINTED CONTINUOUS PIPE

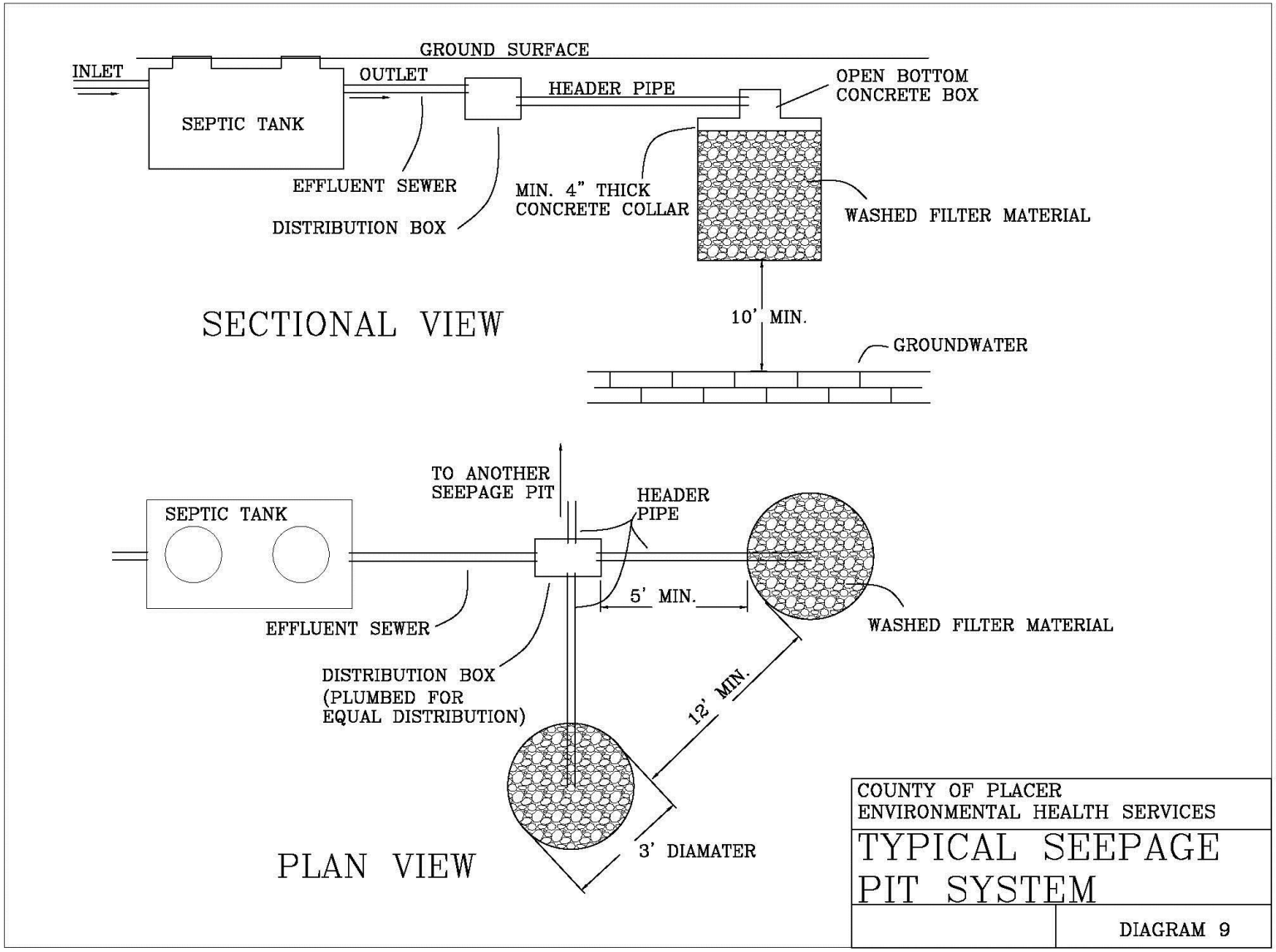
COUNTY OF PLACER ENVIRONMENTAL HEALTH SERVICES	
DISPOSAL TRENCH WITH INSPECTION & BLOW-OFF RISERS	
	DIAGRAM 7

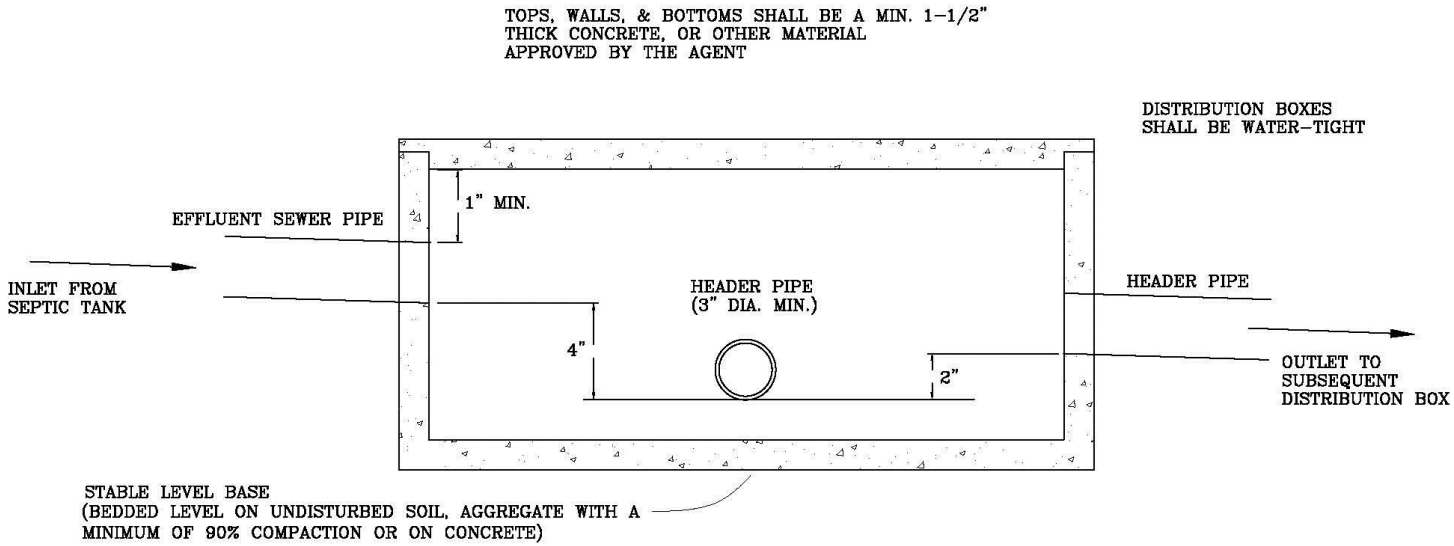


COUNTY OF PLACER
ENVIRONMENTAL HEALTH SERVICES

PRESSURE DISTRIBUTION
CAPPING FILL SYSTEM

DIAGRAM 8

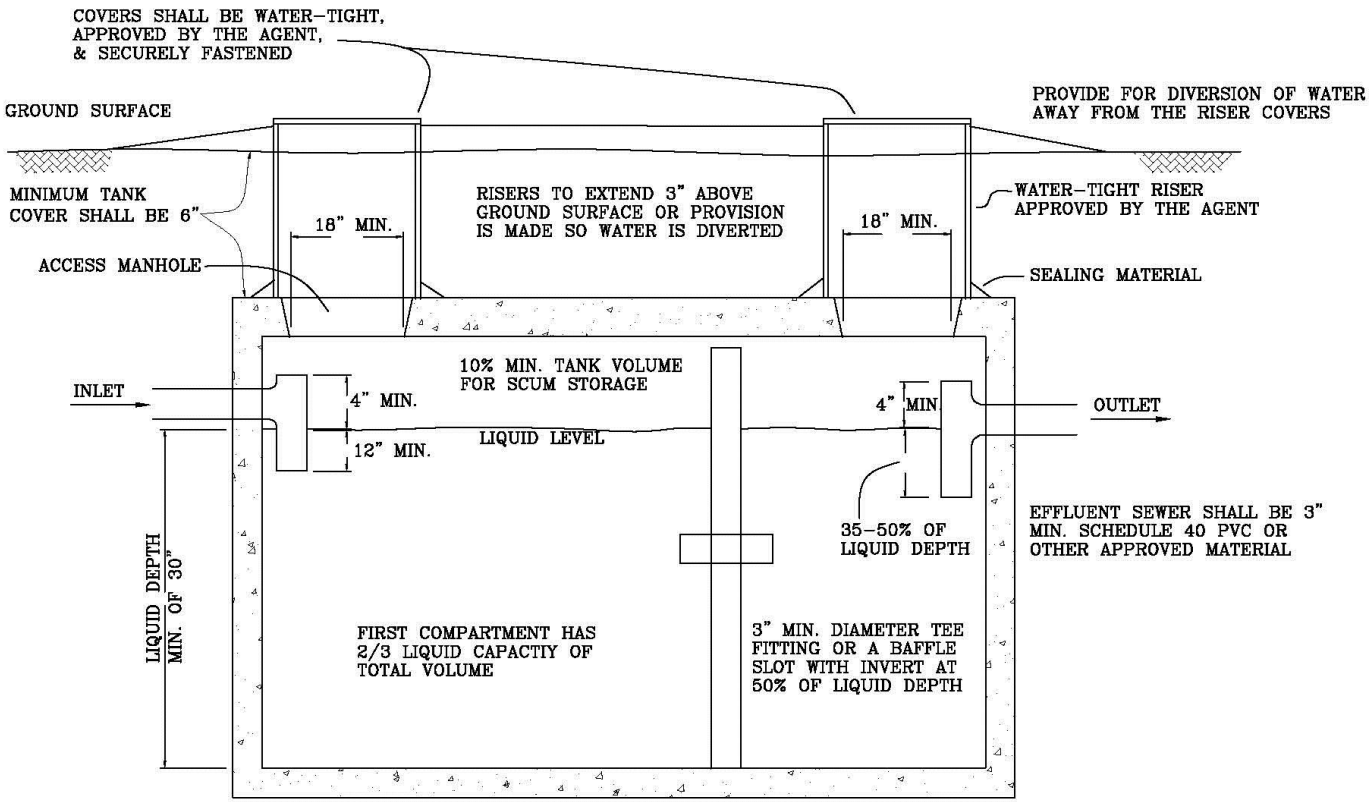

GROUND SURFACE
INLET
OUTLET
HEADER PIPE
OPEN BOTTOM
CONCRETE BOX
SEPTIC TANK
EFFLUENT SEWER
DISTRIBUTION BOX
MIN. 4" THICK
CONCRETE COLLAR
WASHED FILTER MATERIAL
SECTIONAL VIEW
10' MIN.
GROUNDWATER
TO ANOTHER
SEEPAGE PIT
HEADER
PIPE
SEPTIC TANK
5' MIN.
EFFLUENT SEWER
WASHED FILTER MATERIAL
DISTRIBUTION BOX
(PLUMBED FOR
EQUAL DISTRIBUTION)
12' MIN.
3' DIAMATER
PLAN VIEW
COUNTY OF PLACER
ENVIRONMENTAL HEALTH SERVICES
TYPICAL SEEPAGE
PIT SYSTEM
DIAGRAM 9



NOTES:

1. EFFLUENT SEWER PIPE SHALL BE A MIN. 3" DIAMETER & BE CONSTRUCTED OF PVC ASTM SPEC. D-2729, D-2241, D-3034, SCHEDULE 40 PVC D-1785 FOR 3" PIPE, ABS D-2468, D-2672, ASTM SDR 35 FOR 4" PIPE OR OTHER MATERIAL APPROVED BY AGENT. EFFLUENT SEWER PIPE WITHIN 10' OF SEPTIC TANK SHALL BE SCHEDULE 40 PVC OR ABS.
2. HEADER PIPE SHALL EXTEND A MIN. 5' FROM THE DISTRIBUTION BOX TO THE DISTRIBUTION PIPE, BE A MIN. 3" IN DIAMETER & BE CONSTRUCTED OF ONE OF THE SAME MATERIALS APPROVED FOR THE EFFLUENT SEWER.
3. DISTRIBUTION BOX SHALL BE A MIN. 5' FROM SEPTIC TANK.

COUNTY OF PLACER ENVIRONMENTAL HEALTH SERVICES	
TYPICAL PRE-CAST DISTRIBUTION BOX	
	DIAGRAM 10



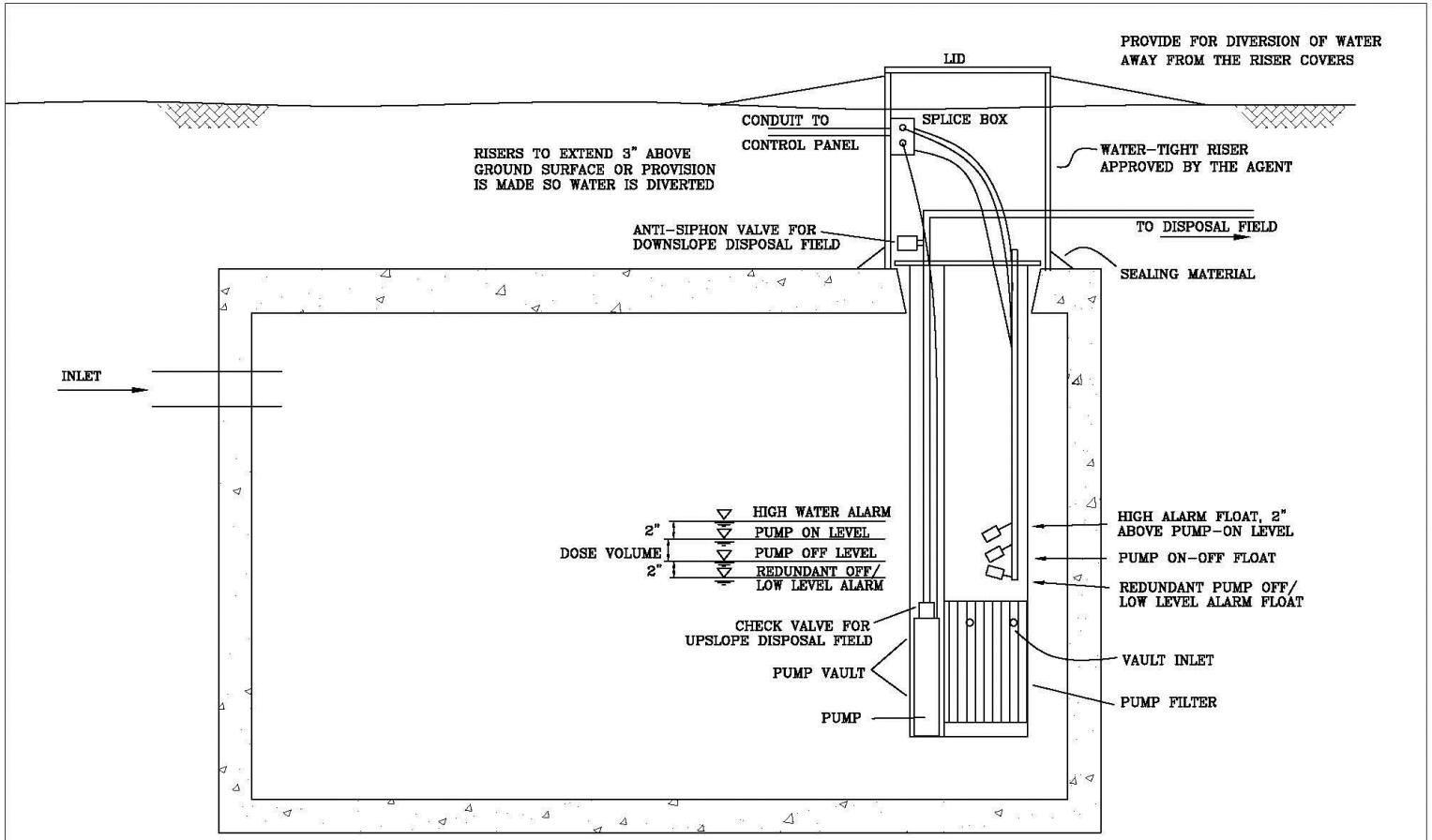
TANK WALLS & BOTTOMS SHALL BE ADEQUATELY REINFORCED CONCRETE OR OTHER MATERIAL APPROVED BY THE AGENT. PRECAST CONCRETE WALLS & BOTTOMS SHALL HAVE A MIN. THICKNESS OF 2-1/2". TOPS SHALL BE A MIN. 4" THICKNESS. SEPTIC TANKS SHALL BE WATER-TIGHT.

NOTE: CONCRETE SEPTIC TANKS SHALL BE PROTECTED FROM CORROSION BY COATING WITH AN APPROVED BITUMINOUS COATING OR OTHER MATERIAL APPROVED BY THE AGENT.

COUNTY OF PLACER
ENVIRONMENTAL HEALTH SERVICES

SEPTIC TANK DETAIL

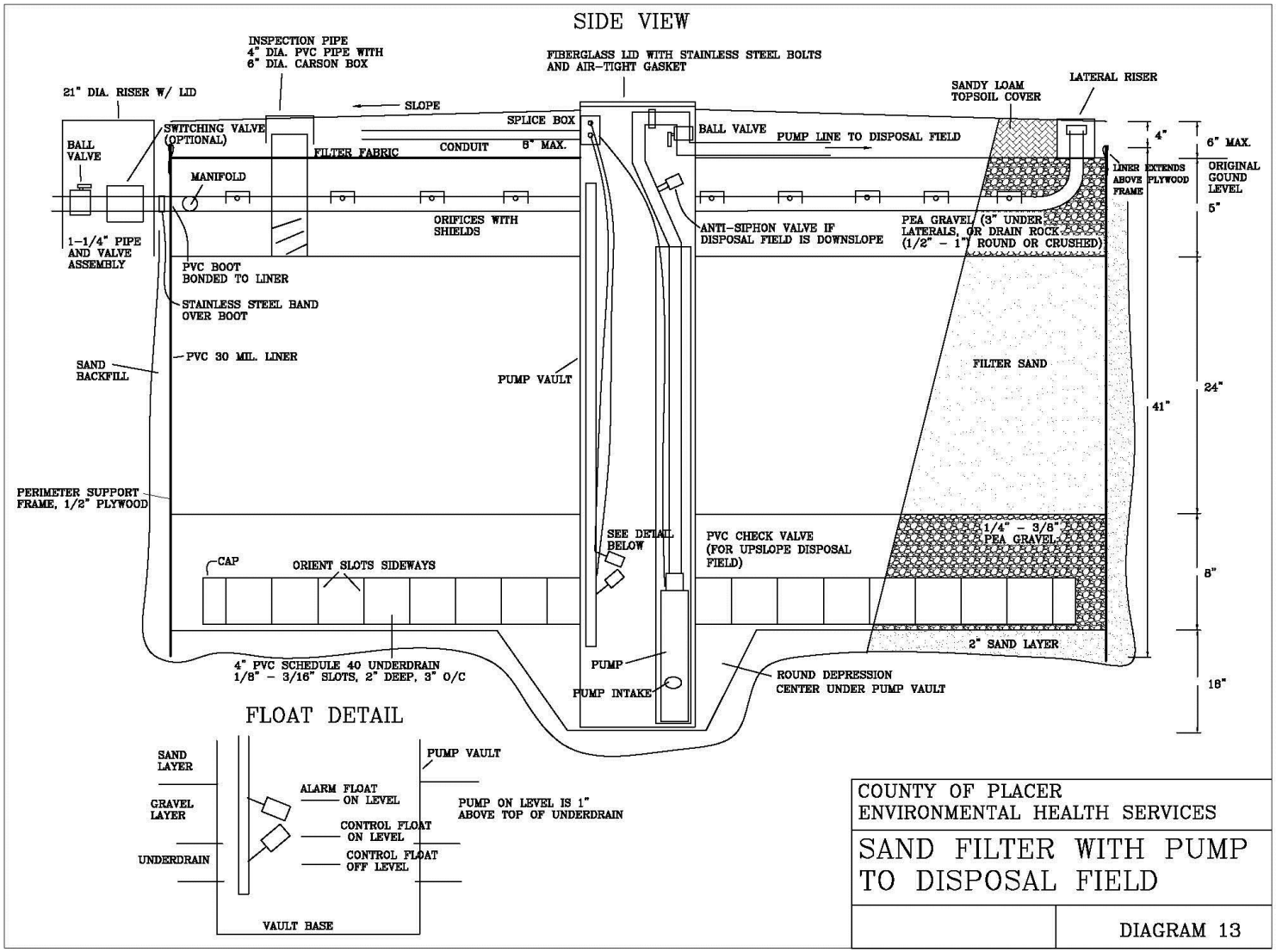
DIAGRAM 11



COUNTY OF PLACER
ENVIRONMENTAL HEALTH SERVICES

TYPICAL PUMP TANK
DOSING TANK

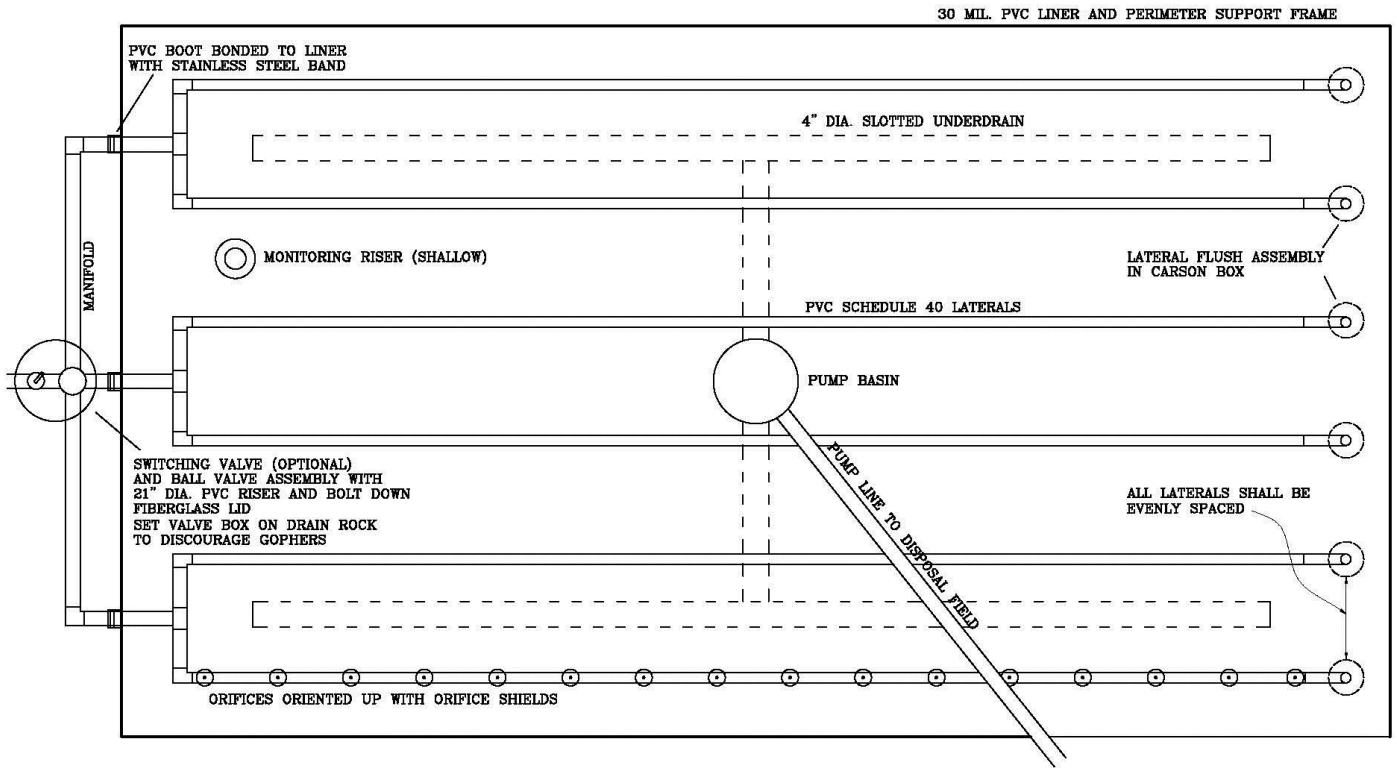
DIAGRAM 12



COUNTY OF PLACER
ENVIRONMENTAL HEALTH SERVICES

SAND FILTER WITH PUMP
TO DISPOSAL FIELD

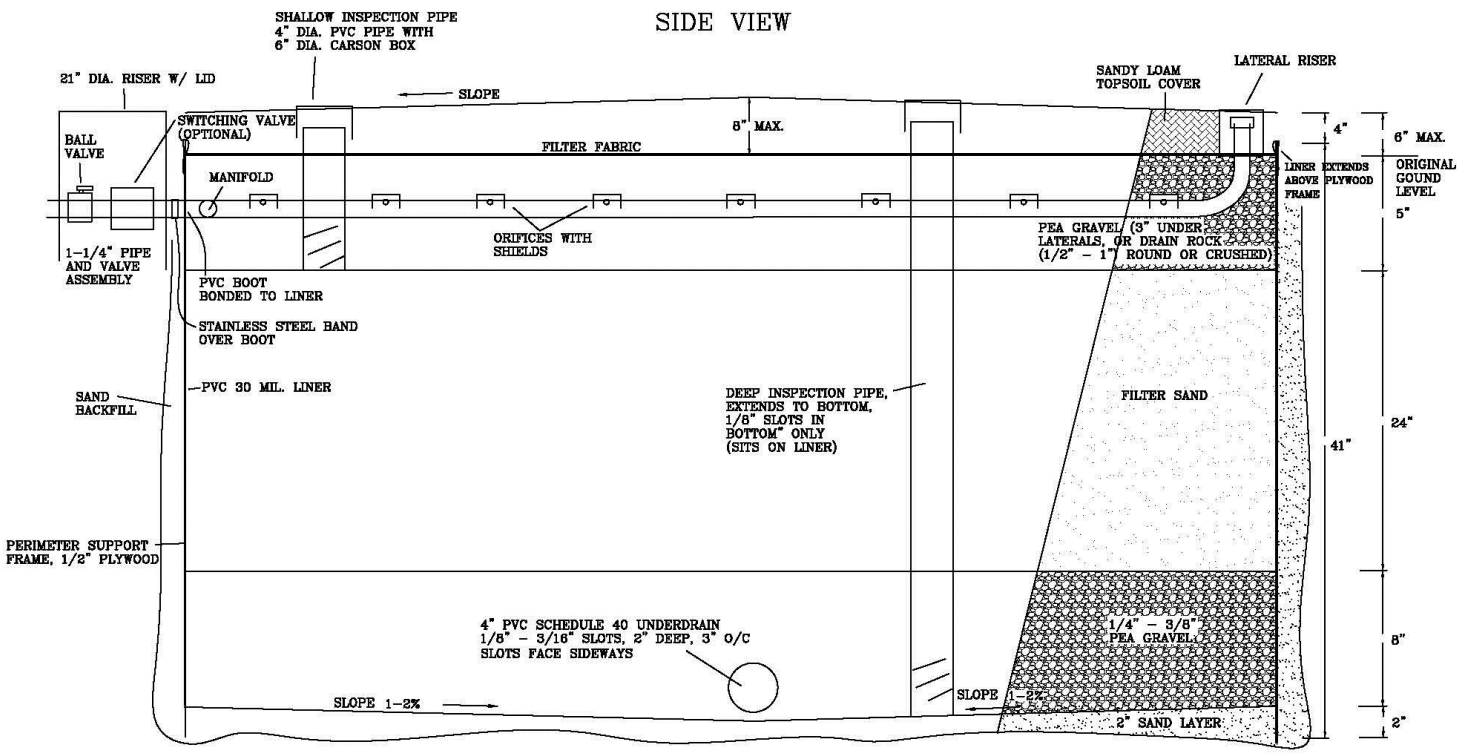
DIAGRAM 13



COUNTY OF PLACER
ENVIRONMENTAL HEALTH SERVICES

SAND FILTER WITH PUMP
TO DISPOSAL FIELD

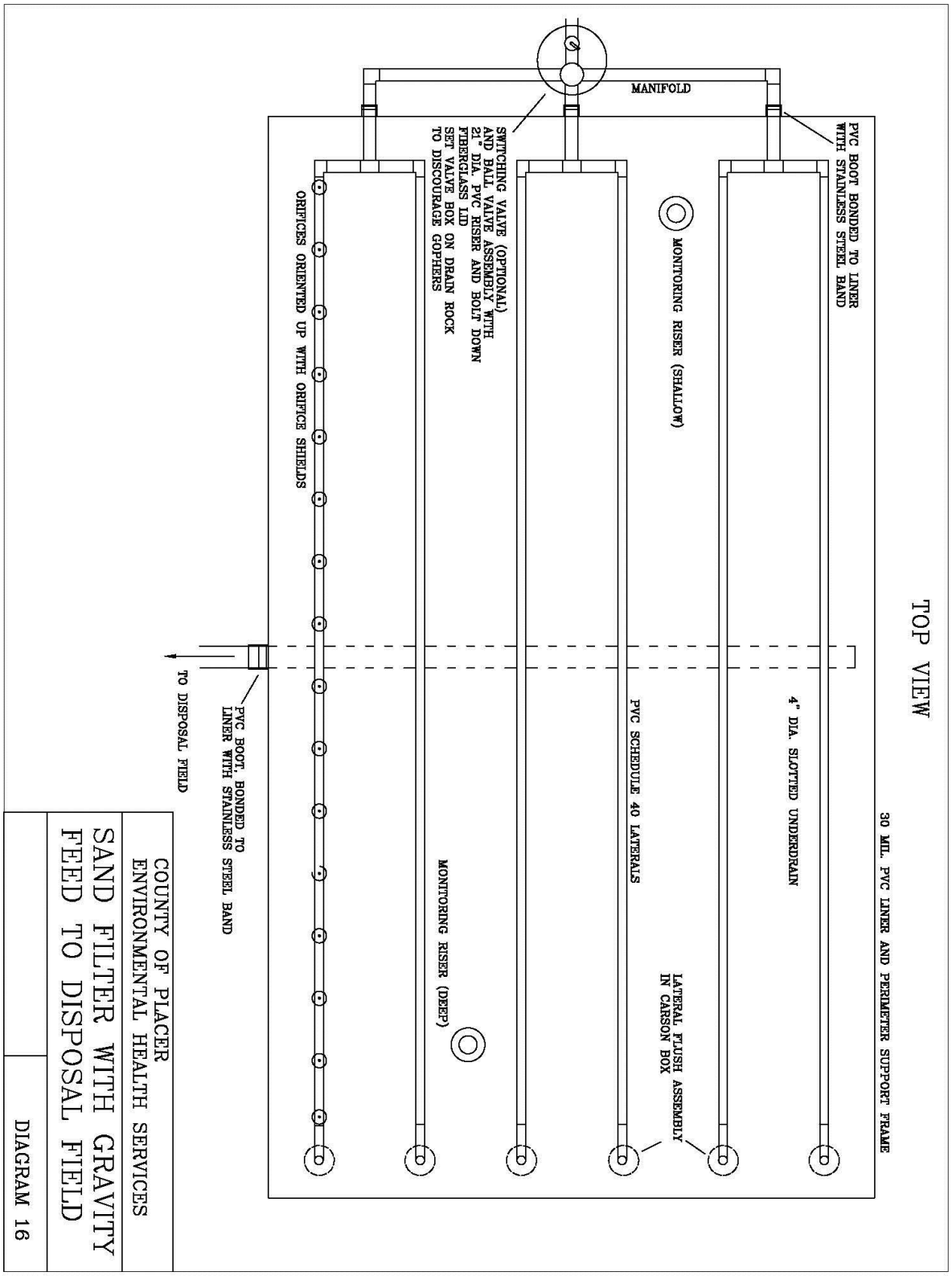
DIAGRAM 14



COUNTY OF PLACER
ENVIRONMENTAL HEALTH SERVICES

SAND FILTER WITH GRAVITY FEED TO DISPOSAL FIELD

DIAGRAM 15



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Chapter 42 - Definitions

The following words and terms, when used in this Manual, shall have the following meanings, unless the context clearly indicates otherwise. Terms expressed in the singular shall be construed to incorporate the plural, and vice versa, unless the context otherwise requires.

"Absorption Facility" means a system of perforated piping, distribution units, or other absorption systems for receiving the flow from septic tanks or other treatment facilities and designed to distribute effluent for absorption by the soil.

"Alteration" means expansion and/or modification of an existing system, or any part thereof.

"Alternative System" means any on-site sewage system consisting of treatment and/or disposal components other than a standard or experimental system for which the Division may determine meets the requirements of this Article for a renewable operating permit as specified in the On-Site Sewage Manual.

"Appeal" means the administrative process that allows a person to request a reconsideration of a Division determination or decision regarding a provision or requirement of the On-Site Sewage Manual.

"Applicant" means a property owner or the property owner's Authorized Representative.

"Artificial Drain" means a curtain drain or vertical drain

"Authorization Notice" means a written document issued by the Division which establishes that an existing on-site sewage disposal system appears adequate to serve the purpose for which a particular application is made.

"Authorized Representative" means a person or persons legally authorized by the real property owner to act on the real property owner's behalf on matters pertaining to application for permits and services for the real property.

"Bedrock" means unweathered solid rock that is impermeable or has very slight porosity. If present, fractures are tight, dry, and cemented. Cannot be dug using hand tools.

"Bedroom" means any room designated as such by the County's Chief Building Official having jurisdiction.

"Blackwaste" means human body wastes including feces, urine, other extraneous substances of body origin and toilet paper.

"Blackwater" - See "Sewage".

"Building Sewer" means piping conduit which conveys sewage into a septic tank or other treatment facility.

Building Site- See “Site”.

“Certificate Of Satisfactory Completion” means the document, issued by the Division that indicates the system was installed in compliance with this Article and the conditions of approval on the system permit.

“Certified OM & M Specialist” means a contractor with an active C-42 contractor’s license in accordance with the provisions of the California Business and Professions Code who also meets the requirements of the Manual to perform operation, maintenance and monitoring of systems.

“Chemical Toilet Facility” means a non-flushing, non-recirculating toilet facility wherein blackwastes are deposited directly into a chamber containing a solution of water and chemicals.

“Clay” means a soil separate consisting of particles less than 0.002 mm in equivalent diameter. See “Soil Texture.”

“Claypan” means a dense, compact layer in the subsoil having a much higher clay content than the overlying material, from which it is separated by a sharply defined boundary. Claypans are usually hard when dry, and plastic and sticky when wet. Also, they usually impede the movement of water and air, and the growth of plant roots.

“Commercial Facility” any structure or building, or any portion thereof, other than a single-family residence.

“Commercial project” means any project other than those defined as residential.

“Conditions Associated With Saturation” means:

- reddish brown or brown oxidized soil horizons with dull gray zones of redox depletions (chromas of 2 or less[1]), and red or yellowish red zones of redox concentrations; or
- reduced, or iron-depleted, horizons of gray, blue, or olive colors (chromas of 2 or less[1]) with dull red, yellowish red, or brown zones of redox concentrations; or
- organic soils and dark-colored soils very high in organic matter.

(Reference: Kollmorgen Instruments Corporation, Munsell[R] Soil Color Chart, 1990, and amendments)

“Consultant” means one of the following persons (exclusive of Division personnel) retained to provide services under this Article:

1. California Certified Engineering Geologist
2. California Certified Professional Soil Scientist,
3. California Registered Civil Engineer,
4. California Registered Environmental Health Specialist, or
5. California Registered Geologist

“Contractor” means a person who possesses an active General Engineering A, Specialty C-42, or Specialty C-36 contractor’s license in accordance with the provisions of the California Business and Professions Code.

“Curtain Drain” means an artificial drain installed upslope from a disposal field to intercept and divert ground water away from the absorption facility.

“Cut” means a land surface resulting from mechanical land shaping operations.

“Deep Trench System” means a system with disposal trenches greater than thirty (30) inches deep.

“Design Capacity” means the maximum quantity of daily sewage flow that a system is designed to accept.

“Director” means the Director of the Placer County Division of Environmental Health Services, or his/her designee.

“Disposal Area” means the entire area used for underground dispersion of the liquid portion of sewage.

“Disposal Field” means a system of disposal trenches, subsurface drip tubing or seepage pits.

“Disposal Trench” means a ditch or trench with vertical sides and substantially level bottom designed to receive sewage effluent.

“Distribution Box” means a structure that receives septic tank or other treatment facility effluent and distributes it to the disposal area.

“Distribution Pipe or Lateral Pipe” means a perforated pipe used in the dispersion of septic tank or other treatment facility effluent into disposal trenches.

“Distribution Unit” means a distribution box, dosing tank, diversion valve or box, header pipe, effluent lift pump or other means of transmitting septic tank or other treatment unit effluent from the effluent sewer to the distribution pipes.

“Division” means the Placer County Department of Health and Human Services, Division of Environmental Health Services, its Director and designated employees.

“Dosing Tank” means a watertight receptacle placed after a septic tank or other treatment facility equipped with a pump designed to periodically discharge treated effluent.

“Drainage Swale” means any observable drainage course where water flows at some period during the year, but not necessarily in direct response to precipitation.

“Drain Rock” - see “Filter Material.”

“Dwelling” means any structure or building or any portion thereof which is used, intended, or designed to be occupied for human living purposes.

“Effective Absorption Area” means the bottom area of a disposal trench, except for deep trench or seepage pit systems which are designed to utilize the sidewall area.

“Effective Soil” means permeable, unsaturated, undisturbed native soil providing sufficient aeration and retention for optimal treatment of sewage effluent. Effective soil excludes soil layers that meet the criteria for “Conditions Associated with Saturation”;“Limiting Layers”; soils containing more than 50% rock fragments greater than 2 mm in diameter; soils with stones, cobbles, gravel, and rock fragments

with too little soil material to fill interstices larger than one (1) mm in diameter; or soil texture classes of sand, unless otherwise specified in Chapter 21 Seepage Pit Requirements of the Manual.

"Effective Soil Depth" means the depth of effective soil from ground surface that effectively provides filtration and treatment of effluent.

"Effluent Lift Pump" means a pump used to lift effluent to a higher elevation or for pressure distribution.

"Effluent Sewer" means that part of the system of drainage piping that conveys sewage effluent from a septic tank or other treatment facility into a distribution unit or an absorption facility.

"Escarpment" means any naturally occurring slope which extends nearly vertical, and which is characterized by a long cliff or steep slope which separates two (2) or more comparatively level or gently sloping surfaces, and may intercept one (1) or more layers that limit effective soil depth.

"Existing Lot or Parcel" means a lot or parcel legally created prior to the effective date of this Ordinance.

"Existing System" any installed system constructed in conformance with the rules, laws and local ordinances in effect at the time of construction.

"Expansive Clay Soil" means mineral soil that swells and shears when wet, and shrinks and develops cracks when dry, forming slickened sides and wedge-shaped structure. Expansive clay soil is very hard or extremely hard when dry, very firm when moist, and very sticky and very plastic when wet. When wet, expansive clay soil is massive, and cracks and structure may not be evident.

"Failing On-Site System" means any system which discharges untreated or inadequately treated sewage or septic tank effluent directly or indirectly onto the ground surface, into protected waters, or into a dwelling. Also, any system not operated in compliance with permit conditions including, but not limited to, operation, maintenance and monitoring requirements, use of unapproved components, unapproved modifications to the originally permitted design, or an alternative system with monitoring sample results which do not meet parameters as required by this Article and the On-Site Sewage Manual.

"Filter Material" means clean, washed gravel or crushed rock ranging in size from three quarters (3/4) to one and one-half (1-1/2) inches, with the percent by weight passing the U>S> No. 200 sieve no greater than 0.5%. The material shall be comprised of non-reactive materials, (e.g., limestone would be considered reactive), also commonly referred to as drain rock.

"Fractured Bedrock" means moderately to slightly weathered bedrock that usually is hard and fractured, but not impermeable to water; it cannot be dug with hand tools.

"Fragipan" means a natural subsurface horizon with high bulk density and/or high mechanical strength relative to the horizons above, seemingly cemented when dry, but when moist showing a moderate to weak brittleness. Fragipans are low in organic matter, mottled, slowly or very slowly permeable to water, considered to be root restricting, and usually show occasional or frequent bleached cracks forming polygons.

"Graywater" – See "Sewage".

“Graywater Disposal System” means an on-site sewage disposal system designed for the collection, treatment and disposal of graywater only.

“Groundwater” means a layer or lens of soil or fractured bedrock in which all open spaces are filled with water. The thickness and extent of groundwater may vary seasonally or periodically in response to changes in the rate or amount of groundwater recharge or discharge.

“Hardpan” means a relatively hard, impervious, and often clayey layer of soil lying below the surface, produced as result of cementation of soil particles by precipitation of relatively insoluble materials such as silica, iron oxide, calcium carbonate, and organic matter. Its hardness does not change appreciably with changes in moisture content, and it does not slake or become plastic when mixed with water.

“Header Pipe” means the tight-jointed part of the sewage drainage conduit which receives septic tank effluent from the distribution box, or effluent sewer and conveys it to and within the disposal area.

“Holding Tank” means a watertight receptacle designed to receive and store sewage to facilitate disposal at another location.

“Horizon” - see “Soil Horizon”

“Industrial Waste” means any liquid, gaseous, radioactive, or solid waste substance or a combination thereof resulting from any process of industry, manufacturing, trade, or business, or from the development or recovery of any natural resources.

“Installer” - see “Contractor”.

“Intermittent Stream” means any surface water or groundwater interceptor that continuously flows water for a period greater than two months in any one year, but not continuously for that year.

“Invert” means the lowest portion of the internal cross-section of a pipe or fitting.

“Land Use Project” means any entitlement or application process, initiated through the County pursuant to Chapters 16 and 17 including but not limited to, a General Plan amendment, rezoning, use permit, variance, zoning clearance, design review, tentative map, parcel map, certificate of compliance, and minor boundary adjustment. “Minimum Useable Sewage Disposal Area (MUSDA)” means the amount of ground surface expressed in square feet, that is required for sewage disposal when creating new lots or parcels in the tentative or parcel map process. The amount of land area is based on the percolation rate and the type of leach field distribution method.

“Limiting Layer” means a layer that impedes the movement of water, air, or the growth of plant roots. For example: hardpan, claypan, fragipan, bedrock, and expansive clay soil.

“Minimum Useable Sewage Disposal Area (MUSDA)” means the amount of ground surface expressed in square feet, that is required for sewage disposal when creating new lots or parcels in the tentative or parcel map process. The amount of land area is based on the percolation rate and the type of leachfield distribution method.

“Monitoring Well” means any artificial excavation by any method for the purpose of monitoring fluctuations in ground water levels, quality of underground water, or the concentration of contaminants in underground water.

“Multi-Family Dwellings” means a building or a portion of a building used and/or designed as residences for two or more families living independently of each other.

“Native soil” means in situ, weathered in place undisturbed soil.

“Non-Expansive Clay” means clay soil that does not demonstrate expansion when wetted. Properties of plasticity, cohesion, shrinkage, and swelling are negligible.

“Occupant” means the person occupying or otherwise in real or apparent charge and control of the dwelling and/or real property.

“Operation, Maintenance and Monitoring (OM&M) Program” means a program developed by the Division, as delineated in the On-Site Sewage Manual to insure the long-term viability of all on-site sewage systems. Depending upon the complexity of the system and/or the environmental sensitivity of the area of system placement, the program may range from educational support to performance review and preventative maintenance by certified specialists.

“On-Site Sewage Manual” or “Manual” means the document containing implementing standards and requirements of this Article, including specific detail on acceptable on-site sewage treatment and disposal systems and processes, developed by the Division and the Wastewater Advisory Committee and adopted by resolution of the Board of Supervisors.

“On-Site Sewage System” – See “System”.

“Owner” means the person or persons, trust, firm, corporation, limited liability company or partnership that is the owner of record of the real property, or premises or facility as identified on the last County equalized assessment roll.

“Parent Rock” means the type of geologic material the soil has developed in. In soil descriptions parent rock is noted as volcanic, granitic, metasedimentary, alluvium, or other.

“Percolation Test” means a measurement of the ability of soil to transmit liquid.

“Perennial Stream” means a natural stream where water is present nine (9) months or more of the year, including all open, unlined public water conveyances.

“Permit” means the written document, issued and signed by the Division, which authorizes specific system work.

“Person” means any individual (owner or authorized representative), corporation, association, firm, organization, partnership, or company.

“Portable Toilet Shelter” means any easily moved structure built to house a toilet facility.

“Pressure Distribution Lateral” means piping and fittings in pressure distribution systems which distribute septic tank or other treatment unit effluent to filter material through small diameter orifices.

“Pressure Distribution Manifold” means piping and fittings in a pressure distribution system which supply effluent from pressure transport piping to pressure distribution laterals.

“Pressure Distribution System” means any system designed to uniformly distribute septic tank or other treatment unit effluent under pressure in an absorption facility or other treatment/disposal unit.

“Pressure Transport Piping” means piping which conveys septic tank or other treatment unit effluent to a pressure distribution manifold by use of a pump.

“Projected Daily Sewage Flow” means the maximum quantity of sewage predicted to be generated on a daily basis for a building or structure.

“Protected Waters” means lakes, bays, ponds, impounding reservoirs, springs, wells, rivers, streams, creeks, marshes, inlets, canals, and all other bodies of surface or underground waters, natural or artificial, public or private.

“Public Health Hazard” means a biological, chemical and/or radiological discharge or physical condition which is likely to cause human illness, disorders or injury.

“Public Sewer System” means any sewer system constructed, installed, maintained, operated and owned by or for a municipality or public entity established for sewage disposal purposes.

“Pump Tank” means a watertight receptacle, placed after a septic tank, equipped with a pump designed to periodically discharge effluent to a standard leachfield.

“Redoxymorphic Features” means features formed by the processes of reduction, translocation, and oxidation of Fe and Mn oxides in seasonally saturated soils. Redoxymorphic features are described in soil horizons by various types of redox concentrations, redox depletions, and reduced matrices.

“Renewable Operating Permit” means that administrative document issued by the Division authorizing the initial and/or continued use of certain Alternative systems, as specified in the On-Site Sewage Manual.

“Repair” means installation, replacement and or connection of the portion(s) of a system necessary to eliminate a public health hazard or pollution of public waters created by a failing system.

“Repair Area” - See “Replacement Area”.

“Replacement Area” means a separate, designated area that is sized to accommodate one hundred (100) percent of the daily design flow of the project.

“Residential Project” means any project where individuals or groups live or reside in single or multi-family dwellings or, for the purposes of this ordinance/manual, any project whose wastewater is characterized as “residential-like” based on anticipated usage and the following influent waste strength parameters:

a. Daily disposal flow less than or equal to 825 gpd as determined by the ordinance/manual or by agreement between the designer and Environmental Health Services.
b. Total dissolved solids 345 to 550 ppm
c. Total suspended solids 155 to 330 ppm
d. Five-day biochemical oxygen demand 155 to 286 ppm
e. Total Nitrogen as Nitrogen 26 to 75 ppm
f. Total Phosphorous as Phosphorous less than or equal to 8 ppm
g. Grease less than 100 ppm

“Sand” means a soil particle between 0.05 mm and 2.0 mm in equivalent diameter. See “Soil Texture”.

“Sand Filter System” means a system combining a septic tank or other treatment unit, dosing system with effluent pump (s) and controls, piping and fittings, sand filter and absorption facility.

“Scum” means a mass of sewage solids floating on the surface of sewage which is buoyed up by entrained gas, grease, or other substances.

“Seasonal Dwelling” means a dwelling that is not used as a full time residence, e.g., a vacation home.

“Septic Tank” means a watertight receptacle which receives sewage from a building or structure, is designed to separate solids from liquids, retains and digests organic matter and discharges the resulting effluent to a second treatment unit or to a soil absorption facility.

“Septic Tank Effluent” means partially treated sewage which is discharged from a septic tank.

“Sewage” means wastewater that is designated as either “*blackwater*” and/or “*graywater*.” and/or blackwaste.

1. “Blackwater” means wastewater contaminated with human or kitchen wastes, generally originating from toilets and kitchen sinks. It includes, but is not limited to, wastewater discharges from kitchen sinks, garbage grinders, water closets, toilets, urinals or similar fixtures alone or in combination with other wastewater.

2. “Graywater” means wastewater, exclusive of blackwater or industrial waste, deposited into plumbing drain systems or exiting directly from wastewater generating appliances. It includes, but is not limited to, wastewater discharges from washing machines, bathtubs, showers, bathroom washbasins, and laundry tubs.

“Silt” means a soil particle between 0.05 and 0.002 mm in equivalent diameter. See “Soil Texture”.

“Single Family Dwelling” means a dwelling designed for and occupied exclusively by, one family.

“Site” means an area of a lot or parcel designated for a specific purpose including an approved area for sewage disposal, building, etc.

“Site Evaluation” means the first step in obtaining an on-site sewage system construction permit or for determining feasibility for a future system during the entitlement process. The evaluation consists of specific soils testing, including soil profile testing and percolation rate; or soil boring for seepage pit systems.

“Slope” means the rise or fall in feet per one hundred (100) feet of horizontal distance. Slope is expressed as a percent of grade. For example: a land surface at a 45 degree angle has a slope of 100%.

“Soil” means the unconsolidated mineral or organic matter on the surface of the earth that has been subjected to and influenced by geologic and environmental factors of: parent material, climate, macro- and micro-organisms, and topography, all acting over a period of time and producing a product—soil—that differs from the material from which it is derived in many physical, chemical, biological, and morphological properties and characteristics.

“Soil Color” means color of moist soil in terms of hue, value, and chroma–for example, 10YR 3/2–using a Munsell Soil Color Chart (Kollmorgen Instruments Corporation, 1990).

“Soil Consistence” means the attributes of soil material as expressed in its degree of cohesion and adhesion or in its resistance to deformation or rupture. Terms used for describing consistence are: *wet soil* - nonsticky, slightly sticky, sticky, and very sticky; *plasticity* - nonplastic, slightly plastic, plastic, and very plastic; *moist soil* - loose, very friable, friable, firm, very firm, and extremely firm; *dry soil* - loose, soft, slightly hard, hard, very hard, and extremely hard; *cementation* - weakly cemented, strongly cemented, and indurated.

“Soil Description” means a notation of soil properties observed at a soil profile test including slope, parent rock type, rock fracturing, effective soil depth, and depth to groundwater, if observed; and, for each horizon observed, a notation of depth, texture, rock fragment content, color, redoxymorphic features, structure, pores, clay films, consistence, plasticity, stickiness, roots, horizon boundary, and moisture content.

“Soil Horizon” means a layer of soil that is distinguishable from adjacent layers by characteristic physical properties such as structure, color, or texture, or by chemical composition, including content of organic matter or degree of acidity or alkalinity.

“Soil Horizon Boundary” means the topography and distinctness of the change between two soil horizons. In soil descriptions, the soil horizon boundary is noted as smooth, wavy, irregular, or broken. Distinctness of the change between horizons is noted as abrupt, clear, gradual, or diffuse.

“Soil Moisture” means the moisture content of the soil at the time the soil description was made. Described as dry, damp, moist, saturated, or seepage.

“Soil Plasticity” - See “Soil Consistence”.

“Soil Pores” means generally tubular voids in the soil material formed by roots, animals, and other agents. In soil descriptions pores are noted as few, common, or many in quantity, and as fine, medium, or coarse in size.

“Soil Rock Fragment” means rock or mineral particles in the soil greater than 2.0 mm in diameter. Includes gravel, cobbles, and stones. In soil descriptions noted as percent by volume.

“Soil Roots” means the abundance and size of roots in a soil horizon. In soil descriptions abundance is noted as none, few, common, or many. Where present, root size is noted as very fine, fine, medium, or coarse.

“Soil Separate” means the groups of mineral particles separated on the basis of a range in size. The principal separates are sand, silt, and clay.

“Soil Stickiness” - See “Soil Consistence”.

“Soil Structure” means the combination or aggregation of primary soil particles into aggregates or clusters (peds), which are separated from adjoining peds by surfaces of weakness. Soil structure is classified on the basis of size, shape, and distinctness into classes, types, and grades.

“Soil Profile” means an excavation of sufficient size and depth to allow thorough examination of the soil to evaluate its suitability for sewage disposal.

“Soil Texture” means the relative proportions of soil separates in a soil as described by the USDA twelve (12) classes of soil texture. The major textural classifications are defined as follows:

- Clay: Soil material that contains 40 percent or more clay, less than 45 percent sand, and less than 40 percent silt.
- Clay loam: Soil material that contains 27 to 40 percent clay and 20 to 45 percent sand.
- Loam: Soil material that contains 7 to 27 percent clay, 28 to 50 percent silt, and less than 52 percent sand.
- Loamy sand: Soil material that contains at the upper limit 85 to 90 percent sand, and the percentage of silt plus 1.5 times the percentage of clay is not less than 15; at the lower limit it contains not less than 70 to 85 percent sand, and the percentage of silt plus twice the percentage of clay does not exceed 30.
- Sand: Soil material that contains 85 percent or more of sand; percentage of silt, plus 1.5 times the percentage of clay shall not exceed 15.
- Sandy clay: Soil material that contains 35 percent or more clay and 45 percent or more sand.
- Sandy clay loam: Soil material that contains 20 to 35 percent clay, less than 28 percent silt, and 45 percent or more sand.
- Sandy loam: Soil material that contains either 20 percent clay or less, and the percentage of silt plus twice the percentage of clay exceeds 30, and 52 percent or more sand; or, less than 7 percent clay, less than 50 percent silt and between 43 and 52 percent sand.
- Silt: Soil material that contains 80 percent or more silt and less than 12 percent clay.
- Silt loam: Soil material that contains either at least 50 percent silt and 12 to 27 percent clay; or, 50 to 80 percent silt and less than 12 percent clay.
- Silty clay: Soil material that contains 40 percent or more clay and 40 percent or more silt.
- Silty clay loam: Soil material that contains 27 to 40 percent clay and less than 20 percent sand.

"Standard System" means an on-site sewage system, which meets the requirements of the On-Site Manual, and is comprised of a 2-compartment septic tank for primary treatment and gravel or chamber disposal trenches. Effluent will flow to the trenches by gravity, or may be pumped to the first distribution box of the trenches.

"Subsurface Drip System" means a pressurized wastewater distribution system utilizing small diameter, flexible polyethylene tubing that can deliver small, precise doses of effluent to shallow subsurface disposal fields.

"Subsurface Dripline" means small diameter, flexible polyethylene tubing with small in-line emitters (orifices that can discharge effluent at slow, controlled rates, usually specified in gallons per hour)

"Supplemental treatment" means any approved on-site sewage system or component of an on-site sewage system, except a septic tank, dosing tank or pump tank, that performs additional wastewater treatment so that the effluent meets the following criteria prior to discharge of effluent into the disposal field:

CBOD5	Shall not exceed 25 MG/L- 30-day average*
TSS	Shall not exceed 30 MG/L- 30-day average*

TN	37% Reduction – median**
Fecal Coliform	4 log reduction - median **

Sources:

* EPA secondary treatment guidelines for Class I effluent

** Sand Filter Evaluation In A Northern Climate, Matthew m. Converse and James C. Converse

"System" means an individual on-site sewage disposal facility, including replacement area, designed for the collection, treatment and disposal of sewage, or sewage storage only. The individual on-site sewage disposal facility shall serve only one source on the same lot or parcel, except for a primary and secondary dwelling which may share facilities on the same lot or parcel.

"System Repair" - See "Repair".

"Toilet Facility" means a fixture housed within a toilet room, bathroom or shelter for the purpose of receiving blackwater.

"Unstable Landforms" means areas that show evidence of down-slope mass movement such as landslides, earthflows, debris flows, or rockfalls. Unstable landforms may have hummocky relief and undrained depressions, and may show evidence of instability such as cracks, escarpments, landslide scars, tilted telephone poles and fence posts, or bent tree trunks.

"Variance" means the administrative process which allows deviation from the provision or requirement of the On-Site Sewage Manual for a specific case where strict interpretation and enforcement of a standard may result in excessive hardship or deprivation of property privileges enjoyed by other property in the vicinity, but where the protection of the public health can still be maintained.

"Variance" means the administrative process which allows deviation from the provision or requirement of the On-Site Sewage Manual for a specific case where strict interpretation and enforcement of a standard may result in excessive hardship or deprivation of property privileges enjoyed by other property in the vicinity, but where the protection of the public health can still be maintained.

"Vault Privy" means a structure for collection of human waste without the aid of water. It consists of a shelter built above a vault in the ground into which human waste falls. The vault privy has no direct water connection.

"Vertical Drain" means an artificial drain upslope from a disposal field to intercept and divert groundwater from the absorption facility by penetrating a limiting layer and draining into underlying permeable soils.

"Vertical Separation" means the depth of effective soil that exists beneath the bottom of a subsurface soil absorption system and some restrictive or limiting layer or feature such as a perched or seasonal water table, bedrock, hardpan, fractured or fissured rock, unacceptable fine textured soils, or excessively permeable material.

"Water Table" means that level of groundwater where the hydraulic pressure is zero.

APPENDIX I