

## INSTALLATION GUIDE FOR STANDARD SEPTIC SYSTEMS

A standard septic system is one that does not require a septic designer or engineered plans and can be installed by an Owner / Builder. It is determined by an [On-Site Soils Evaluation \(OSSE\)](#) through Nevada County Environmental Health Department (NCDEH) in conjunction with a [Septic Consultant](#). A Site Evaluation Report (SER), completed by the consultant and accepted by NCDEH, is required as part of the submittal for the [Standard System Septic Permit](#). Systems are sized based on the total number of [bedrooms](#) that the system serves, as well as the percolation rate of the soils. For additional information, please review the [Local Area Management Plan \(LAMP\)](#) or contact NCDEH at the information above.

*Please refer to the information contained in this document as a guide to installing a Standard Septic System.*

### Standard Septic System Permit Document Requirements

1. **Site Evaluation Report (SER) Soils Work** from Septic Consultant.
  - a. If soils work from SER is from before June 1<sup>st</sup>, 1998, SER is no longer valid and an additional OSSE must be conducted.
  - b. If soils work from SER is older than 3 years, it must be recertified by septic consultant.
2. **Site Plan** – must include the following: *See Figure 1*
  - a. North arrow and scale no greater than 1"=50'
  - b. Entire parcel with all structures, utilities (wells, water lines, power), grading, roads, easements, surface waters, etc.
  - c. Septic tank, transport lines, leach lines and 100% repair area. Must show lengths of each leach line.
  - d. Labeled Mantles and Perc locations.
  - e. *Please Note:* If a Building Permit is to be submitted along with the proposed new septic system, the Building Permit Site Plan must match the Septic Permit Site Plan, meaning that all of the above requirements must be shown on the Building Permit Site Plan for the proposed new septic system.
3. **Agreement to Pay** form.

### Standard Septic System Installation Requirements

1. **Septic Tank** (*Figure 2*)
  - a. Minimum 1000 gallons – may be more for additional bedrooms. See your Design for more info.
  - b. Watertight Risers that extend to ground surface or above. Ground surface must be sloped away from the top of the risers so that water does not flow towards them.
  - c. Effluent filter in outlet tee.
  - d. Minimum 5' from foundation of any structure, including deck footings.
  - e. Installed on a level, stable base.
  - f. Contact NCDEH for a list of approved septic tanks if you are unsure.

## 2. Sewer Pipe

- a. Minimum 5' from septic tank before connecting to residence.
- b. Minimum fall of at least 4" per 100'.
- c. Pipe Details
  - i. Minimum 3", though 4" is more commonly used.
  - ii. Schedule 40 PVC, SDR-35 or Schedule 40 ABS may be used.

## 3. Leach Field *(Figure 3)*

- a. Maximum length of each leach line is 100'.
- b. Trench dimensions: 36" wide by 24" deep.
- c. Must be level with no more than 2" rise or fall within 100'.
  - i. This is commonly accomplished using a Laser Level. NCDEH may require a laser level be set up to verify at time of inspection.
- d. Install trenches ON CONTOUR – the leach line(s) follow the elevation of the topography and are level throughout. *This sometimes means that the leach lines will not be straight and may require a curvature of leach lines.*
- e. Minimum distance of undisturbed soil between trenches (sidewall to sidewall) is 4'.
- f. Filter Material should be clean, washed, gravel or crushed rock ranging in size from ¾" to 1½".
- g. Distribution Pipe shall be centered in trench, with 6" of filter material below and 2" above.
  - i. Pipe shall be a perforated 3" or 4" Schedule 40 PVC, SDR-35, Schedule 40 ABS.
- h. Heavy duty filter fabric or 4" of straw to be placed on top of filter material.
- i. Minimum 12" of native soil, free of large rocks or obstructions, should be used to backfill the remainder of the trench and should be slightly mounded to allow for settling.

## 4. Observation Ports *(Figure 4)*

- a. Each leach line shall have an observation port installed at each end.
- b. Pipe shall be 3" or 4" Schedule 40 PVC, SDR-35, Schedule 40 ABS or other materials approved by EH.
- c. Bottom 12" of pipe perforated, top 12" solid, with removable cap on top.
- d. Pipe shall be installed in trench, with bottom of pipe open and flush with bottom of trench.
- e. Pipe shall be secured in place by either connecting it to the leach pipe with a T fitting, or by other means so that it cannot be pulled out of place.

## 5. Equal vs. Serial Distribution

- a. **Equal Distribution** *(Figure 5)* means all leach lines are being fed from the sewer in equal amounts at the same time. This is achieved through the use of a Distribution Box, or D-Box. A D-Box must meet the following requirements:
  - i. Shall be constructed of concrete, poly or fiberglass, watertight, and minimum 1 ½" thick walls.
  - ii. Elevation of the bottom of inlet pipe shall be same elevation or higher than the top of outlet pipe(s).
  - iii. Must be level on undisturbed soil or concrete.
- b. **Serial Distribution** *(Figure 6)* is when the effluent from the septic tank only flows into the first leach line until the first leach line is full, at which point it will then flow to the second leach line, and so on. This can be achieved by a series of D-Boxes or crossovers. See above for D-Box requirements. For crossovers, see the following:
  - i. Crossovers shall be firmly bedded so that there is not a gap beneath the pipe prior to backfilling.
  - ii. Crossover shall rise above the upper leach line so that the bottom of the crossover at its angle is higher than the top of the upper leach line, then slope down toward lower leach line.

## 6. Required Inspection(s): All portions of the system are subject to inspection and verification prior to backfilling. The system shall be inspected for permit requirements, including all applicable setbacks. Inspection(s) normally include:

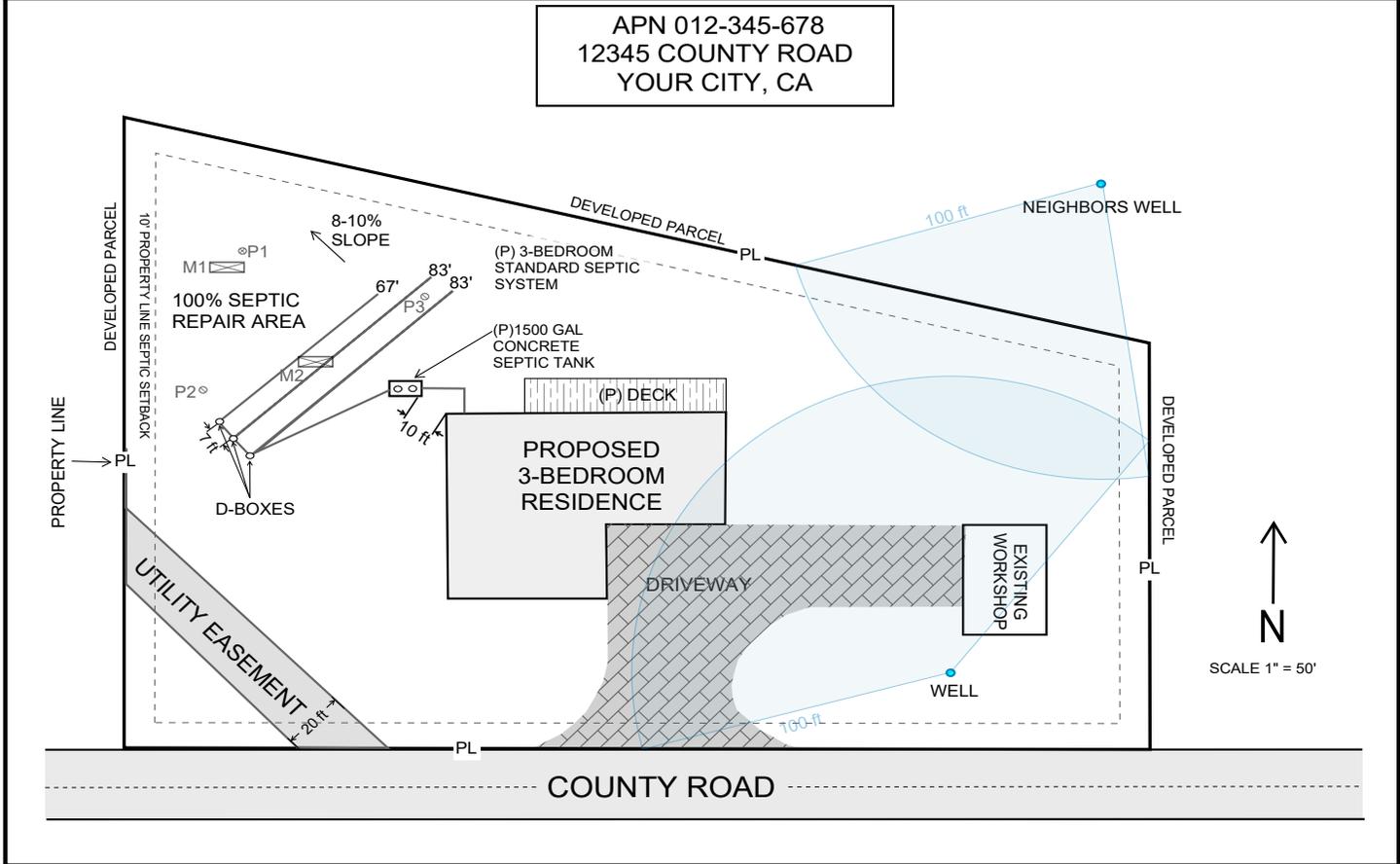
- a. A minimum of 5' of the building sewer entering the septic tank.

- b. The septic tank:
  - i. Verify risers are secured.
  - ii. Verify inlet and outlet tee of septic tank by removing manhole cover lids and concrete lids.
  - iii. Verify effluent filter in outlet tee.
- c. Sewer line from septic tank to leach field
- d. Leach Field – rock, pipe and filter fabric may be installed, do not backfill until after inspection.
  - i. Verify levelness, length and depth of leach lines (may require level or laser level on site)
  - ii. Verify trench depths through observation ports
  - iii. Verify crossovers or D-boxes
- e. *If all of these items are not able to be viewed at your first inspection, an additional inspection may be required.*

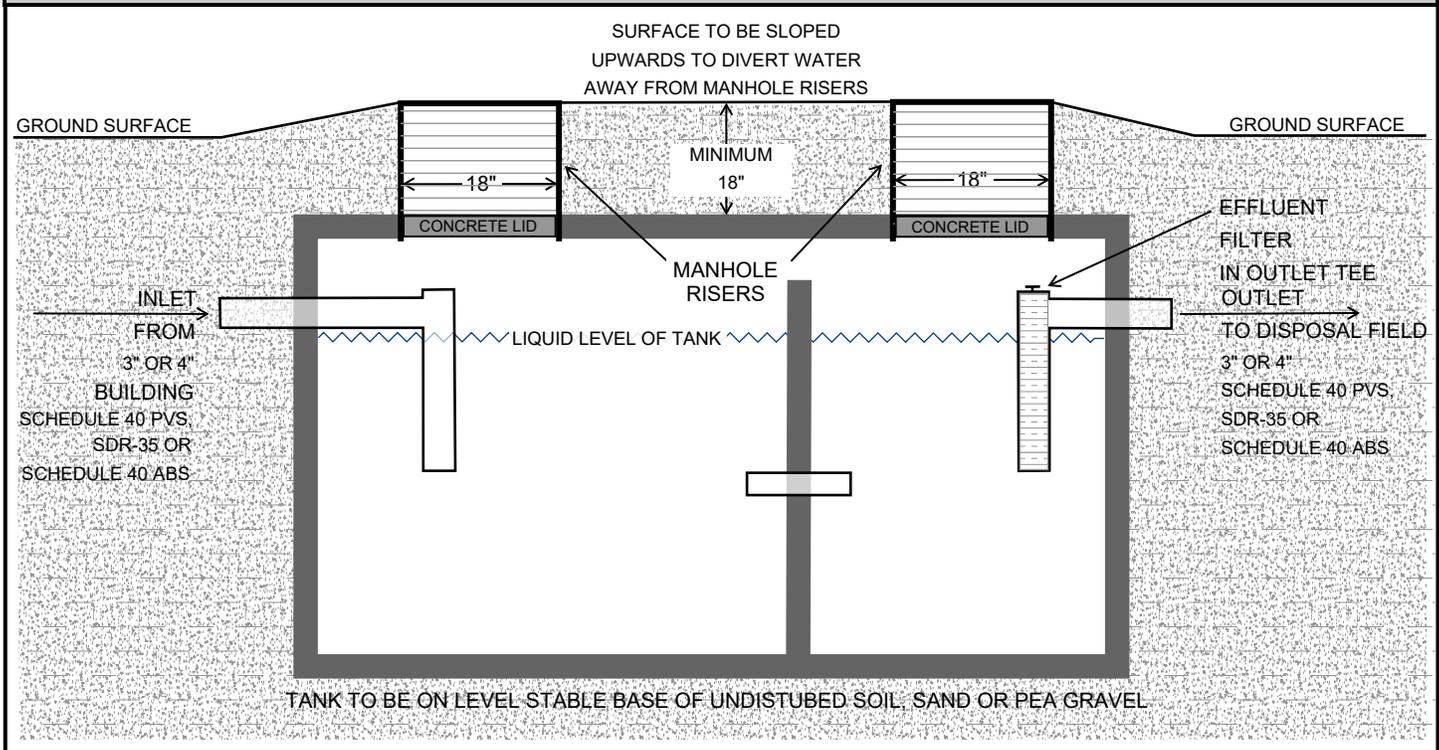
7. **A Septic As-Built is required to final your Septic Permit. (Figure 7)** An As-Built is an accurate drawing of the complete installed system that includes the following:

- a. Entire Parcel – if parcel is large and cannot fit on page, a general reference area should be shown with the area in question meeting the required scale
- b. Address and APN
- c. Permit Number
- d. Date of installation
- e. Installers Name, contact information and CA License number (if applicable)
- f. Location of septic tank, leach lines, observation ports that are triangulated to at least two (2) reference points and include lengths/dimensions.

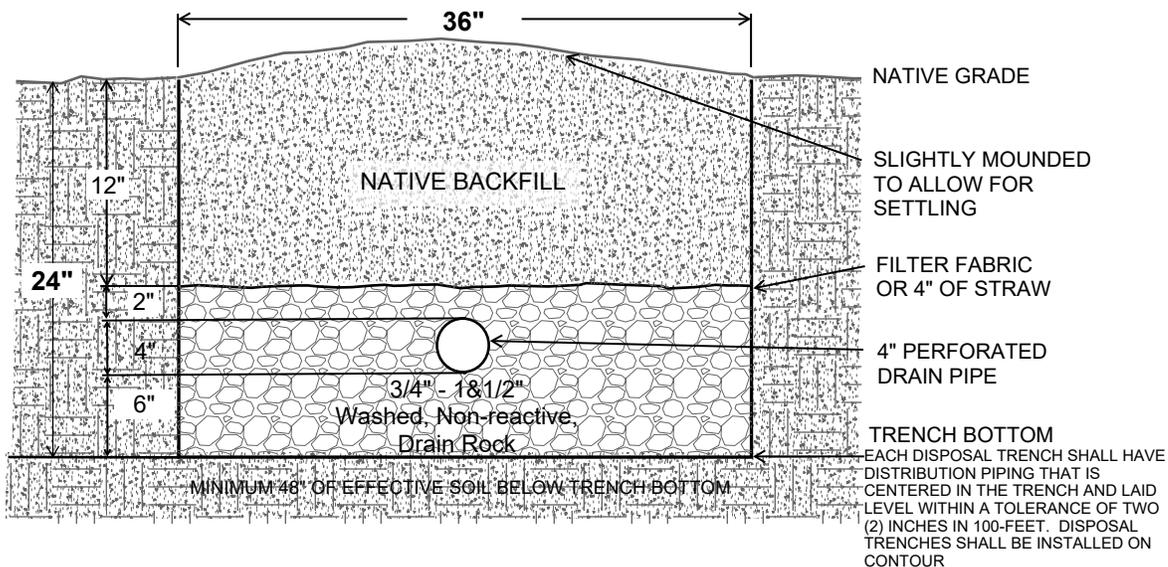
# FIGURE 1 - SAMPLE SITE PLAN



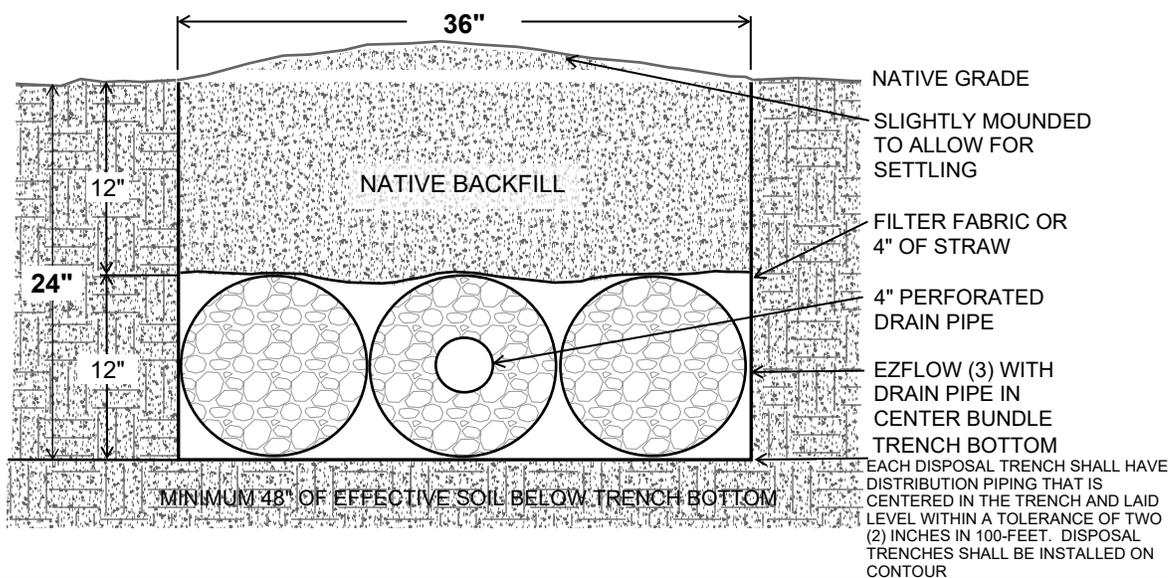
# FIGURE 2 - SEPTIC TANK DETAILS



## STANDARD TRENCH DETAILS

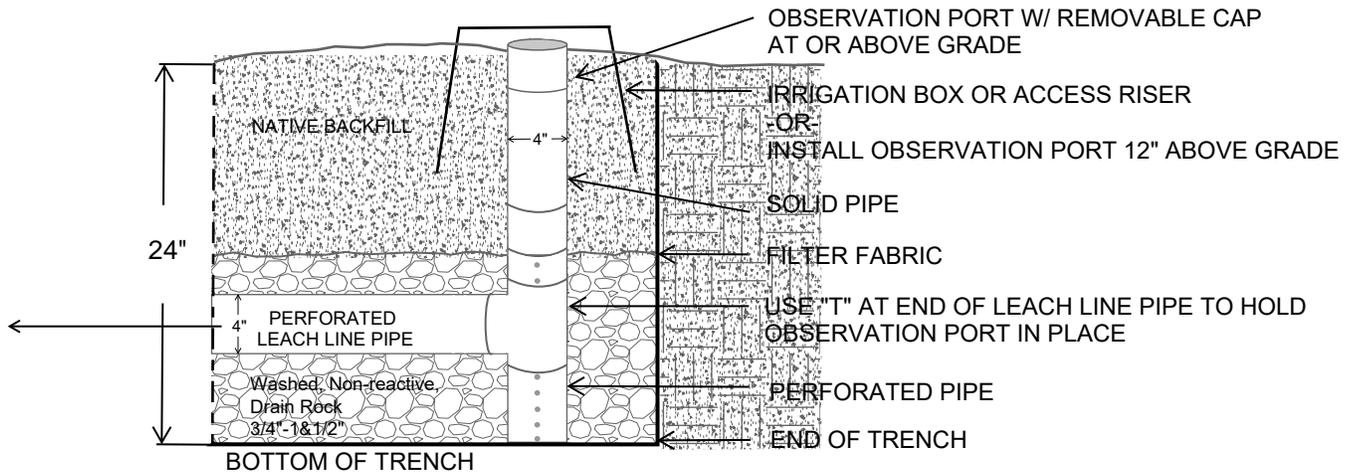


## STANDARD TRENCH DETAILS WITH EZFLOW

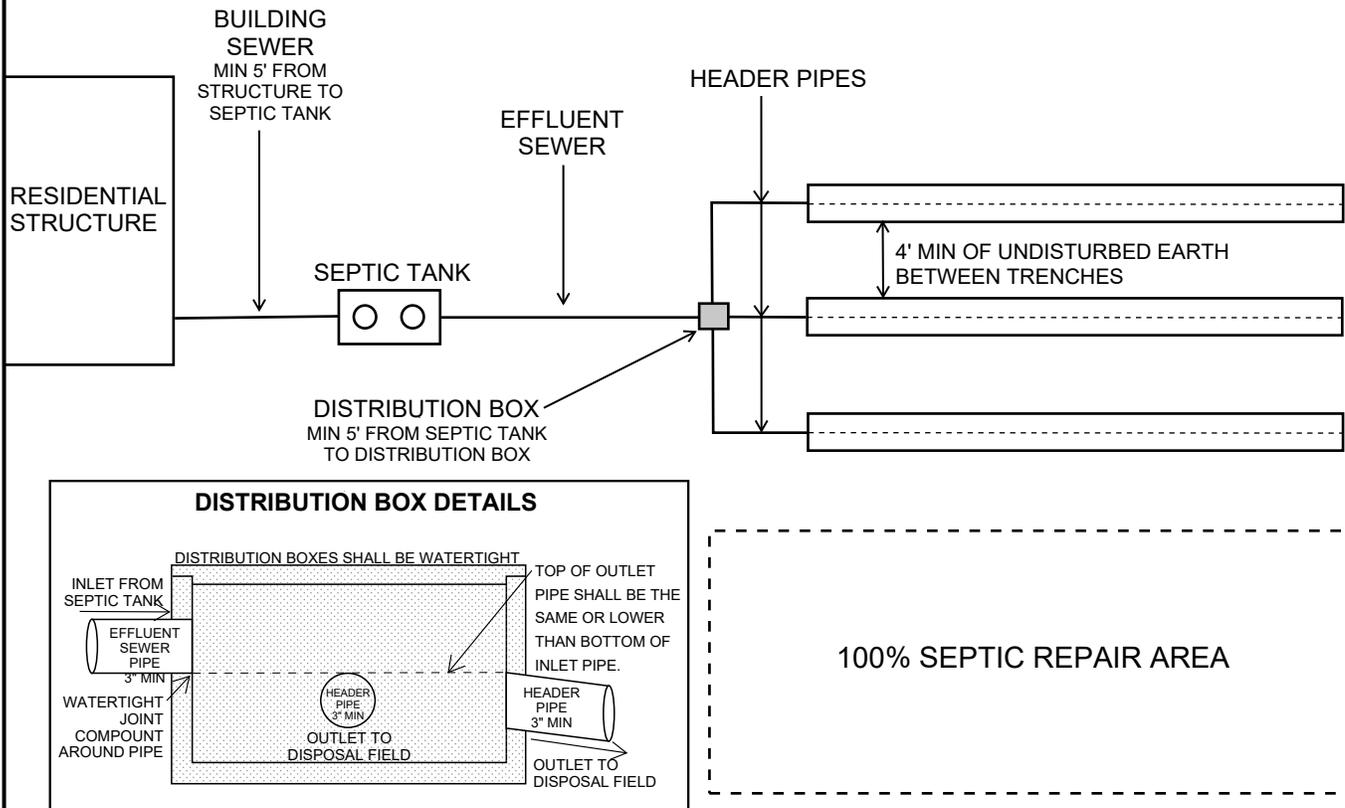


## FIGURE 4 - OBSERVATION PORT DETAILS

**TO BE INSTALLED AT BOTH ENDS OF EACH TRENCH**

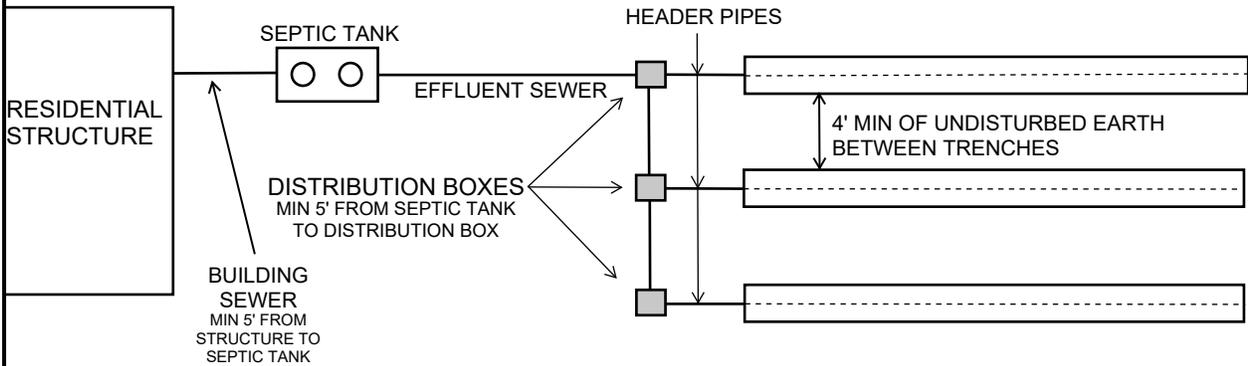


## FIGURE 5 - EQUAL DISTRIBUTION WITH D-BOX DETAILS

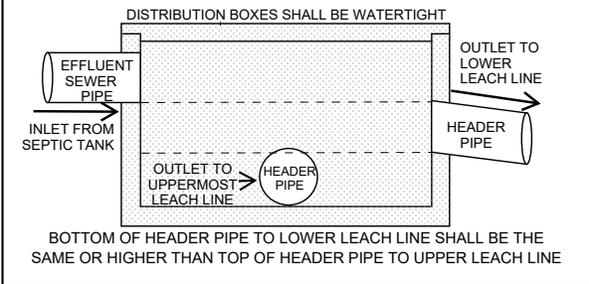


**FIGURE 6 - SERIAL DISTRIBUTION DETAILS**

**SERIAL DISTRIBUTION WITH D-BOXES**

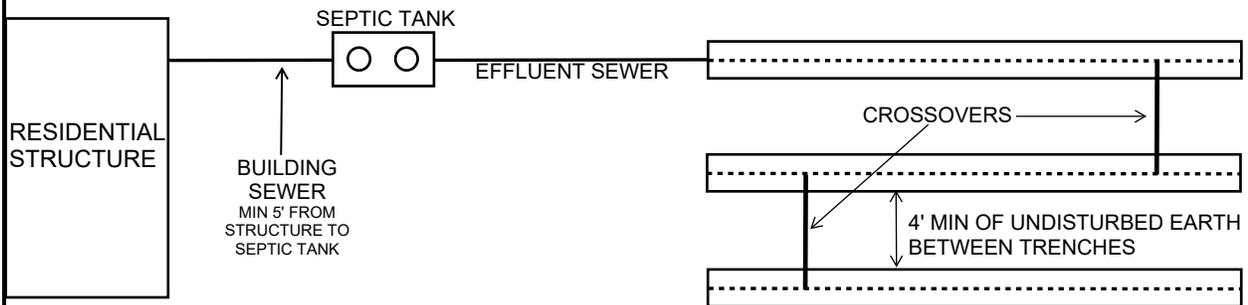


**SERIAL DISTRIBUTION D-BOX DETAILS**

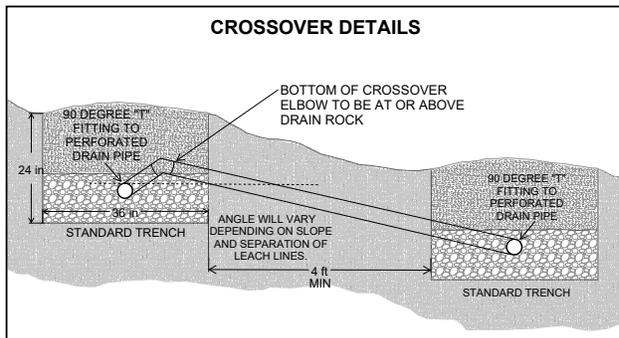


100% SEPTIC REPAIR AREA

**SERIAL DISTRIBUTION WITH CROSSOVERS**



**CROSSOVER DETAILS**



100% SEPTIC REPAIR AREA

# FIGURE 7 - SAMPLE SEPTIC AS-BUILTS

