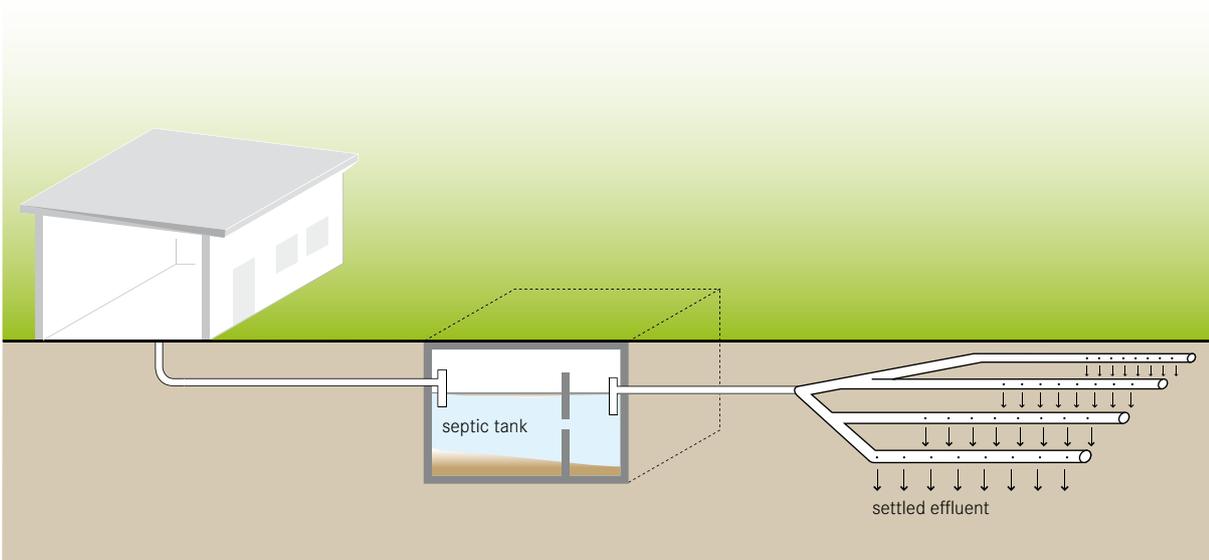


Application Level:	Management Level:	Inputs: <input type="checkbox"/> Effluent
<input checked="" type="checkbox"/> Household <input checked="" type="checkbox"/> Neighbourhood <input type="checkbox"/> City	<input checked="" type="checkbox"/> Household <input checked="" type="checkbox"/> Shared <input checked="" type="checkbox"/> Public	



A leach field, or drainage field, is a network of perforated pipes that are laid in underground gravel-filled trenches to dissipate the effluent from a water-based Collection and Storage/Treatment or (Semi-) Centralized Treatment technology.

Pre-settled effluent is fed into a piping system (distribution box and several parallel channels) that distributes the flow into the subsurface soil for absorption and subsequent treatment. A dosing or pressurized distribution system may be installed to ensure that the whole length of the leach field is utilized and that aerobic conditions are allowed to recover between dosings. Such a dosing system releases the pressurized effluent into the leach field with a timer (usually 3 to 4 times a day).

Design Considerations Each trench is 0.3 to 1.5 m deep and 0.3 to 1 m wide. The bottom of each trench is filled with about 15 cm of clean rock and a perforated distribution pipe is laid on top. More rock is placed to cover the pipe. A layer of geotextile fabric is placed on the rock layer to prevent small particles from plugging the pipe. A final layer of sand and/or topsoil covers the fabric and fills the trench to the ground level. The pipe

should be placed at least 15 cm beneath the surface to prevent effluent from surfacing. The trenches should be dug no longer than 20 m in length and at least 1 to 2 m apart. To prevent contamination, a leach field should be located at least 30 m away from any drinking water source. A leach field should be laid out such that it will not interfere with a future sewer connection. The collection technology which precedes the leach field (e.g., Septic Tank, S.9) should be equipped with a sewer connection so that if, or when, the leach field needs to be replaced, the changeover can be done with minimal disruption.

Appropriateness Leach fields require a large area and unsaturated soil with good absorptive capacity to effectively dissipate the effluent. Due to potential oversaturation of the soil, leach fields are not appropriate for dense urban areas. They can be used in almost every temperature, although there may be problems with pooling effluent in areas where the ground freezes. Homeowners who have a leach field must be aware of how it works and of their maintenance responsibilities. Trees and deep-rooted plants should be kept away from the leach field as they can crack and disturb the tile bed.

Health Aspects/Acceptance Since the technology is underground and requires little attention, users will rarely come in contact with the effluent and, therefore, it has no health risk. The leach field must be kept as far away as possible (at least 30 m) from any potential potable water source to avoid contamination.

Operation & Maintenance A leach field will become clogged over time, although this may take 20 or more years, if a well-maintained and well-functioning primary treatment technology is in place. Effectively, a leach field should require minimal maintenance; however, if the system stops working efficiently, the pipes should be cleaned and/or removed and replaced. To maintain the leach field, there should be no plants or trees on it. There should also be no heavy traffic above it because this could crush the pipes or compact the soil.

Pros & Cons

- + Can be used for the combined treatment and disposal of effluent
- + Has a long lifespan (depending on conditions)
- + Low maintenance requirements if operating without mechanical equipment
- + Relatively low capital costs; low operating costs
- Requires expert design and construction
- Not all parts and materials may be locally available
- Requires a large area
- Primary treatment is required to prevent clogging
- May negatively affect soil and groundwater properties

References & Further Reading

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