



Your Septic Tank & Absorption Trench System

A Complete Guide for Property Owners

Bush Billabongs Pty Ltd | ABN 97 146 094 166
bushbillabongs.com.au | info@bushbillabongs.com.au

SUPPLY ONLY — WE DO NOT INSTALL

What Is an Onsite Wastewater System?

If your property is not connected to mains sewer — which is common for tiny homes, cabins, rural properties, and off-grid builds — you need an onsite wastewater management system (OWMS) to treat and dispose of household wastewater safely.

The most common and cost-effective OWMS for small dwellings is a septic tank paired with an absorption trench. Together, these two components treat all your household wastewater and return it safely to the environment.

The Two Main Components

1. Septic Tank

Receives all household wastewater.
Separates solids from liquid.
Bacteria begin breaking down waste.

2. Absorption Trench

Receives liquid effluent from tank.
Filters through gravel and soil.
Clean water returns to environment.

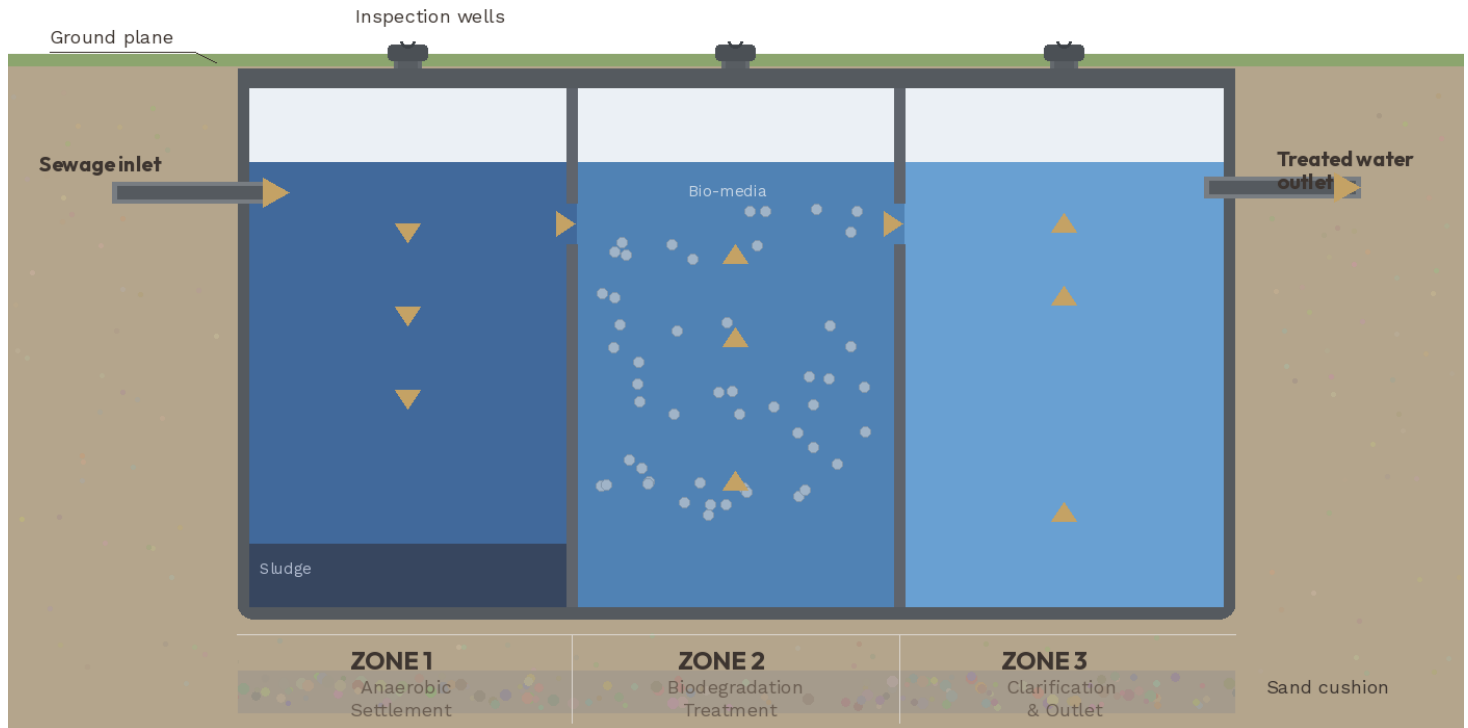
How They Work Together

The system works in sequence. Wastewater flows from your dwelling into the septic tank, where solids settle and bacteria begin treatment. The partially treated liquid (effluent) then flows from the tank into the absorption trench, where it filters through gravel and soil for final treatment before safely returning to the ground.

End-to-End Flow

1. Wastewater leaves your dwelling (toilets, showers, kitchen, laundry)
2. Enters the septic tank through the inlet pipe
3. Heavy solids sink to the bottom (sludge), grease floats to the top (scum)
4. Liquid effluent passes through internal baffles between three chambers
5. Partially treated effluent exits the tank through the outlet pipe
6. Effluent flows into the absorption trench via distribution pipe
7. Filters through gravel, then through natural soil layers
8. Cleaned water is absorbed into the ground, evaporated, or taken up by plants

How the Septic Tank Works



Three Layers Form Inside Each Chamber

When wastewater enters the tank, it naturally separates into three layers through gravity:

- **Top layer (Scum):** Oils, fats, and grease float to the surface.
- **Middle layer (Effluent):** Relatively clear liquid that flows between chambers.
- **Bottom layer (Sludge):** Heavy solids settle to the bottom and are broken down by anaerobic bacteria over time.

What Each Chamber Does

- **Chamber 1 — Primary Settlement:** Receives raw wastewater. Heavy solids settle, grease rises, and bacteria begin breaking down organic matter. This is where most solid separation occurs.
- **Chamber 2 — Biological Treatment:** Liquid flows through internal baffles into the second chamber. Further settling and bacterial digestion occurs, significantly reducing the biological load of the effluent.
- **Chamber 3 — Final Clarification:** Remaining fine particles settle out. The cleanest liquid exits through the outlet pipe as treated effluent, ready for the absorption trench.

Note: The septic tank provides primary treatment only. The absorption trench provides the final treatment stage.

The Absorption Trench

ABSORPTION TRENCH — CROSS SECTION



What Is an Absorption Trench?

An absorption trench (also called a leach drain or drain field) is a shallow trench dug into the ground, filled with gravel or crushed rock, and containing a perforated pipe. Effluent from the septic tank flows through the pipe, seeps into the gravel, and filters down through the natural soil for final treatment.

How the Trench Treats Water

Three natural processes clean the effluent as it passes through the trench:

- **Filtration:** Gravel removes larger remaining particles. Soil traps finer contaminants as water passes through.
- **Biological treatment:** Naturally occurring bacteria in the soil break down organic pollutants. Both aerobic (with oxygen) and anaerobic (without oxygen) digestion occurs at different soil depths.
- **Natural dispersal:** The treated water leaves the system through absorption into the surrounding soil, evaporation from the surface, and uptake by plants and grass growing over the trench (transpiration).

Typical Trench Dimensions

Absorption trench dimensions vary depending on soil type, wastewater volume, and local council requirements. However, typical Australian specifications are:

- **Width:** 600 mm to 1,200 mm (most common is 600 mm)
- **Depth:** 300 mm to 900 mm below ground
- **Length:** Up to 15–20 metres per individual trench
- **Spacing:** At least 1,000 mm between parallel trenches
- **Layout:** Laid level along land contours, with multiple trenches connected in sequence

Trench Construction Layers (Bottom to Top)

- **1. Natural soil base:** The excavated trench floor, levelled and free of rocks or debris.
- **2. Gravel bed:** 150–300 mm of clean, uncompacted gravel or crushed rock (typically 20–40 mm aggregate).
- **3. Perforated pipe:** Slotted or perforated PVC pipe (typically 100 mm diameter) laid on the gravel bed to distribute effluent along the full trench length.
- **4. Gravel backfill:** Gravel is filled around and over the pipe to the required depth.
- **5. Geotextile fabric:** A filter cloth laid over the gravel to prevent topsoil from migrating down into the gravel and blocking the trench.
- **6. Topsoil:** Replaced over the geotextile and planted with grass. The grass aids evapotranspiration and prevents erosion.

Why Soil Type Matters

The absorption trench only works if the surrounding soil can absorb water at the right rate. This is the most critical factor in system design:

- **Sandy soil:** Water drains too quickly. Effluent may not be adequately treated before reaching groundwater. Trenches may need to be longer.
- **Loam soil:** Ideal. Good balance of drainage and filtration. Most suitable for absorption trenches.
- **Clay soil:** Water drains too slowly. The trench can become waterlogged and fail. May require an alternative disposal method (e.g. mound system or evapotranspiration bed).

This is why a site and soil evaluation (percolation test) is required before installation. Your plumber or wastewater designer will assess the soil to determine the correct trench dimensions for your site.

Minimum Setback Distances

Both the septic tank and the absorption trench must be positioned away from buildings, boundaries, water sources, and other features. Exact distances vary by council, but typical minimums include:

Feature	Tank	Trench
Dwelling or building	3–5 m	6–10 m
Property boundary	1.5–3 m	3–6 m
Bore or well	50–100 m	50–100 m
Waterway or dam	50–100 m	50–100 m
Driveway	3 m	3–5 m
Swimming pool	5–10 m	10–15 m
Trees (large)	3 m	5–10 m

These are indicative distances only. Always check with your local council for specific requirements in your area.

Installation Must Be Done by a Licensed Plumber

In all Australian states, a licensed plumbing practitioner must carry out or supervise the installation of a septic tank and absorption trench system. The installation process typically involves:

- Obtaining an installation permit from your local council (A20 permit in Victoria, Approval to Install in NSW, plumbing compliance permit in Queensland)
- Conducting a site and soil evaluation (land capability assessment)
- Excavating the tank pit and trench area to the correct dimensions
- Laying a 100 mm sand cushion under the tank for even support
- Placing and levelling the tank, then connecting inlet and outlet pipes
- Constructing the absorption trench with gravel, perforated pipe, and geotextile
- Backfilling evenly around the tank while simultaneously filling with water to equalise pressure
- Conducting a final inspection and obtaining council sign-off

Keeping Your System Healthy

A well-maintained septic system will operate reliably for decades. Follow these guidelines:

- **Pump out the tank every 3–5 years.** A licensed waste removal contractor should pump accumulated sludge from all chambers. Frequency depends on household size and water usage.
- **Use septic-safe products.** Avoid bleach, antibacterial cleaners, chemical drain openers, and excessive detergent. These kill the beneficial bacteria inside the tank.
- **Watch what goes down the drain.** Never flush nappies, wet wipes, sanitary products, cotton buds, cooking oil, fat, paint, or medications.
- **Keep grass over the trench.** Grass aids evapotranspiration and prevents erosion. Mow regularly but don't scalp.
- **Divert stormwater away.** Surface water runoff must not flow into the trench area, as this overloads the system.
- **Inspect annually.** Check for odours, wet patches near the trench, and slow draining fixtures inside the dwelling.

Do NOT

- Drive vehicles or park over the tank or absorption trench
- Build structures, lay paving, or place heavy objects over the trench
- Plant trees or large shrubs near the trench — roots will infiltrate and block pipes
- Connect stormwater or roof drainage into the septic system
- Bury objects or excavate in the trench area

Warning Signs of System Failure

Contact a licensed plumber immediately if you notice any of the following:

- Slow draining sinks, showers, or toilets inside the dwelling
- Gurgling sounds in the plumbing when water is draining
- Sewage odours near the tank or trench area
- Wet or soggy patches on the ground above or near the trench
- Unusually green or lush grass growth directly over the trench (indicates surfacing effluent)
- Sewage backup inside the dwelling

Bush Billabongs is a supply-only business.

We supply septic tanks only. We do not provide installation, excavation, plumbing, council approval assistance, or wastewater system design services.

All installation must be carried out by a licensed plumber in accordance with your local council requirements. A council permit is required before installation in all Australian states.

This guide is for general information only and does not constitute professional plumbing, engineering, or regulatory advice.

Key Standards Referenced

- AS/NZS 1546.1:2008 — On-site domestic wastewater treatment units: Septic tanks
- AS/NZS 1547:2012 — On-site domestic wastewater management

State Regulatory Bodies

- **NSW:** Local Government Act 1993 — council Approval to Operate required
- **Victoria:** Environment Protection Act 2017 — EPA Code of Practice — A20 permit required from council
- **Queensland:** Plumbing and Drainage Act 2018 — Queensland Plumbing and Wastewater Code — plumbing compliance permit from council

Contact Us

Bush Billabongs Pty Ltd
Email: info@bushbillabongs.com.au
Web: bushbillabongs.com.au
ABN: 97 146 094 166