

Sewage Management

1. Objectives

The objectives of these controls are to:

- assist in assessing land for on-site disposal of effluent.
- implement the provisions of the Local Government Act 1993 and Regulations.
- protect surface and ground water quality within the Shire.
- incorporate sewage management considerations in the early stages of development and environmental assessment as required under the *Environmental Planning and Assessment Act 1979*

2. Sewage Management

Sewage Management involves “any activity carried out for the purpose of holding or processing, or reusing or otherwise disposing of, sewage or by-products of sewage.” Sewage Management Facilities are the method by which sewage management is carried out.

These controls form part of an On-site Sewage Management Strategy that Council is required to prepare under the *Local Government Act 1993*.

This is referred to as *Code 53 On Site Sewage Management Plan*. This Management Plan draws upon the principles, technical data and overall advice contained in the publication “*Environment and Health Protection Guidelines - On Site Sewage Management for Single Household*” prepared by the N.S.W. Department of Local Government. This publication is available at Temora Shire Council office or by contacting the N.S.W. Department of Local Government.

Effective management of domestic sewage and wastewater is an important consideration for the health of Temora Shire Council residents and the environment. It requires the active involvement of both the Council and landholders.

3. Approval requirements

Approval from Council under Section 68 of the Local Government Act 1993 is required for all new on-site sewage management systems.

Council will check the specifications of various on-site systems upon applications being lodged with Council.

Council will determine the inspection regime of installed systems. Low risk sites are exempt from regular inspection, Medium risk, regular inspections to occur every 5 years to be determined at the time of assessment and High risk, regular inspection to occur every two years.

Aerated Wastewater Treatment Systems (AWTS), inspection to occur according to the assessed risk determined by Council at the time of assessment. The AWTS must be inspected and serviced according to the manufacturer's instructions by a service technician approved by the manufacturer, at cost to the owner and the resultant certificate provided to Council for registration. Failure to submit the certificate will result in Council inspecting the AWTS at cost to the owner.

4. Sewage Management Approvals

There are two (2) types of development that require different site evaluation for on-site effluent disposal.

These are -

- Subdivisions in unsewered areas
- Single sites in unsewered areas

5. Subdivisions in unsewered areas

These developments require a full site and soil assessment consistent with the criteria contained in these development controls.

6. Single sites in unsewered areas

Council has identified the following criteria apply to single sites in unsewered areas:

- Allotments 2ha or less in area will require an AWTS facility to be installed
- Allotments between 2ha and 40ha in area will require a site assessment, land capability assessment or the installation of an AWTS
- Allotments greater than 40ha will require the installation of a conventional septic tank with absorption trench or transpiration bed.

All single sites are required to comply with the site assessment, buffer distances, and septic tank and absorption trench requirements in these development controls.

7. Site Assessment

The following summary explains the various components of a site assessment for the location of a land application system.

- **Climate:** Climate influences the use of hydraulic load of the wastewater for all types of land application systems. Areas with high evaporation compared with rainfall allow for greater use of hydraulic load. A water balance based on the historical rainfall and evaporation data for the locality is to be completed where irrigation is proposed to assist in system design. Average maximum daytime temperatures below 15 C decrease the performance of wastewater treatment processes that rely on biological activity (AWTS and composting toilets).

- **Flooding:** All components including electrical, venting and inspection openings of on-site systems must be located above the 1 in 100 year probability flood contour. Where land application areas are proposed a 1 in 20-year flood probability contour may be used.
- **Exposure:** Evaporation may be reduced up to two thirds in some locations by a poor aspect, overshadowing, sheltering of disposal areas by the topography, buildings or vegetation. Sun and wind exposure is to be maximised on all disposal areas to encourage evaporation.
- **Slope:** The recommended maximum slope will depend on the type of land application system used, the site and soil characteristics. Excessive slope may pose problems for installing systems and the even distribution of wastewater, which may result in runoff particularly from surface land application systems.
- **Run-on and uphill seepage:** Run-on of rainfall onto the land application area is to be avoided. Run-on is to be diverted around any land application area by using earthworks or a drainage system. Upslope seepage can be partly controlled by installing groundwater cut-off trenches where the lowest level of the trench is above the level where effluent can enter the land application area.
- **Erosion:** On-site systems are not to be located in areas of where there is evidence of erosion, mass movement or slope failure.
- **Site drainage:** On-site systems are not to be installed on damp sites. Seepage springs and soaks are evidence of poor site drainage. The type of vegetation growing on the site also evidences surface dampness and poor drainage.
- **Fill:** Fill often has highly variable properties such as permeability and can be prone to subsidence. Fill may have material that is not suitable for the construction of land application systems. Fill that is less than 300mm deep may be suitable for land application systems depending on the nature of the material and the suitability of the underlying soil.
- **Land area:** Sufficient land area must be available within the boundary of the site for the following:
 - ✓ the sewage management system, including treatment system, dedicated land application areas and reserve areas
 - ✓ buffer distances
 - ✓ house and associated structures
 - ✓ social and recreational uses
 - ✓ vehicular access areas
- **Rock and rock outcrops:** The presence of rock outcrops may indicate highly variable bedrock depths. The presence of rocks can limit evaporation and interfere with drainage. Rocks may collapse into installations and cause problems with even effluent distribution.

8. Buffer Distances

Buffer distances are required between land application systems and sensitive environments on and off site to ensure protection of community health and the environment.

When determining buffer distances consideration is to be given to:

- the type of land application system to be used
- surface and subsurface drainage pathways
- site factors - soil permeability, geology and vegetation buffering
- sensitive environments (e.g. national parks, wetlands)
- the density of the development

The following are the recommended minimum buffer distances based on ideal soil and site conditions for various land application systems :-

All land application systems

- 100 metres to permanent surface waters (e.g. river and streams)
- 250 metres horizontal distance to a domestic groundwater well
- 40 metres to other permanent and temporary water bodies (e.g. dams, drainage channels)

Surface spray irrigation

- 6 metres if area up-gradient and 3 metres if areas down gradient of driveways and property boundaries
- 15 metres to dwellings
- 3 metres to paths and walkways
- 6 metres to swimming pools

Surface drip and trickle irrigation/Subsurface irrigation

- 6 metres if area up-gradient and 3 metres if area down gradient of swimming pools, property boundaries, driveways and buildings.

Absorption system

- 12 metres if area up-gradient and 6 metres if area down gradient of the property boundary
- 6 metres if area up-gradient and 3 metres if area down gradient of swimming pools, driveways and buildings

Note: Notwithstanding risk category, all buffer distances must be maintained or achieved. If the distances cannot be achieved, then any variation will not be considered unless accompanied by a report prepared by a hydrologist certifying that ground conditions exist in the subject area that will ensure that contamination of water bodies (rivers, streams, dams, bores, lakes or the like) will not occur.

9. Soil testing

Soil is a complex arrangement of mineral and organic particles that vary horizontally and vertically. Understanding soil features will assist in the choice of a sewage management system.

A qualified soil scientist should undertake assessment of soil features. Soil feature assessment is to include:-

- Depth of soil
- Depth to episodic/seasonal watertable
- Soil permeability

The following procedure is to be followed for soil testing:-

Assess three soil profiles (pits or cores) to a depth of 1.7 metres for each proposed land application area.

If soil absorption systems are chosen as the preferred system (i.e. septic tank and trenches) and information about the depth of groundwater at the site is not available then investigations are to be undertaken to a depth of 1 metre below the base of the proposed system.

The number of soil profiles required will depend on soil variability and site sensitivity.

Suggested soil profile locations are -

- One pit /core at the centre of the proposed land application area
- One adjacent to the proposed treated wastewater entry point
- One at the opposite end of the land application area from which the treated wastewater is entering.

Samples for analysis are to be taken for each major soil horizon and be forwarded to a recognised testing laboratory. For high-risk areas it is recommended that a suitably qualified person take soil samples.

The testing laboratory will be able to advise you of the quantity of soil needed for analysis. Information from the laboratory data should be described using the NSW Soil Data System.

All relevant soil features tested are to show only minor limitations to on-site sewage management for all pits and cores.

The following table indicates the number and type of tests required for high risk and minimal risk areas.

Table 1: Soil Assessment of On-site Systems

Soil Assessment	High Risk (Testing required)	Minimal Risk
Depth to bedrock (m)	Yes	No
Depth to High soil or Watertable (m)	Yes	No
Soil Permeability	Yes	No
Course Fragments (%)	Yes	No
Bulk Density (g/cm ³)	Yes	No
PH CaC12	Yes	Yes
Electrical Conductivity	Yes	Yes
Sodicity	Yes	No
Caton Exchange Capacity	Yes	No
Phosphorous Sorption	Yes	<i>If problem suspected</i>
Modified Emerson Aggregate	Yes	Yes

10. Septic Tanks and Absorption Trenches

The following standards apply for the sizing of septic tanks and soakage trenches:

- Minimum size septic tank where only a WC, hand basin and shower are installed = *2500 litres*
- Dwelling accommodating up to 4 persons = *3000 litres*
- Dwelling accommodating more than 4 persons = *3000 litres + 150 litres per person in excess of 4 persons*
- Minimum absorption trench length = *40 metres*
- Additional soakage trench for increased dwelling size = *10 metres per bedroom*

11. Relevant Section C - Development Controls

The following other parts of *Section C – Development Controls* relevant to Sewage Management include:

- *Bed and Breakfast Accommodation*
- *Commercial Development*
- *Contaminated Land*
- *Development Applications*
- *Engineering Standards*
- *Environmentally Sensitive Areas*
- *Erosion and Sediment Control*
- *Flood Prone Land*
- *Industrial Development*
- *Large Lot Residential*
- *Rural Development*
- *Subdivision*
- *Temporary Occupation of Land*
- *Village Development*