



Mansfield Shire

Septic System Information Booklet and Application Form



Mansfield Shire Council
Private Bag 1000
33 Highett Street, Mansfield 3724

Telephone: (03) 5775 8555
Facsimile: (03) 5775 2677

Disclaimer:

This information provides an overview of the most popular systems only. For a full listing of systems and conditions, go to www.epa.vic.gov.au or contact Council's Environmental Health Officers

SEPTIC SYSTEMS

Specifications for the installation of a Septic Tank System are to be read in conjunction with the Environment Protection Act EPA -Certificates of Approval; and EPA Code of Practice - Septic Tanks - Sept 2008

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 - a) Sizing of effluent disposal system
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8. Typical layout plans - as an example
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NOTE:

Owners are encouraged to become involved in the design of their septic system. This will eliminate future conflict with the long-term plans for the property. Keep in mind that a “nightmare” system can be expensive to maintain, cause odours and because of its location inhibit the future development potential of your site. **A “dream” septic tank never gets in the way, is easy to maintain (and protect from damage) and gives many years of service.**

GOLDEN RULE:

Provide the designer with a plan showing your current and future plans - size of house, number of persons, planned uses (i.e. sheds, pools, dams, tree plantation, granny flat, tennis court, the location of underground services, etc.)

When approved by Council for installation, satisfy yourself that everything has been considered.

When installed, a subsequent ‘Permit to Use’ must also be obtained from Council.

1. OBJECTIVE

1. To provide an acceptable alternative where reticulated sewer is not available.
2. To influence at the earliest stage, the most appropriate system for the proposed development and location.
3. To ensure that the installation is completed to Council standards and in accordance with associated National and State legislation and Codes of Practice.

2. SEPTIC SYSTEM SELECTION AT A GLANCE

The following indicates the principle types of system defined as 'septic tank systems:

1. **Septic tank** with subsurface drains:
 - slotted PVC
 - dome drain (reln) - rarely installed these days
 - raised effluent drains (mound system) - infrequently installed
2. **Self-composting toilet system** with or without a separate system for the treatment and disposal of sullage water (grey water).
3. **Separate systems for WC/Kitchen and other sullage** –1800 litre septic to reduced trench length & if generated, a separate sullage to 1800 litre septic and a sub-surface effluent trench (double the length of the WC/kitchen drain).
4. **Packaged treatment plants** with
 - sub-surface disposal drains or mound system.
 - sub-surface irrigation drainsNB Above ground irrigation drains (drippers or sprays) no longer approved.
5. **Reed Beds** - refer to specific Certificates of Approval
6. **Advanced reuse systems** - refer to specific Certificates of Approval
Standards differ and are based on planned reuse intentions.

NB In the case of 1-3 above, **the sullage water may be able to be 'diverted'** for immediate reuse for garden or lawn watering in summer if you have sufficient gravity and fixtures appropriately grouped. System 4 allows for all wastewater to be reused on an ongoing basis.

The system that is used is primarily your choice if detailed selection criteria are followed. Talk with your consultant & plumbing / drainage contractor and select the system carefully - after all you will have to look after it.

All system designs will need to be supported by a 'Land Capability Assessment Report' (LCA) that provides the justification for the individual design - for your soil absorption type and size of house or other development.

Note: An LCA may have already been done for your site at the time of a subdivision.

The overall size, location and cost of the system will be dependent upon:-

1. Site constraints i.e. close proximity to a river, steep slope, etc.
2. Soil absorption characteristics. Well-drained soil is soil that will allow water to drain readily but not rapidly i.e. sandy loam but not heavy clay or gravel.
3. Size of development and expected long-term usage
4. Owner's preference and proposed use of site in close proximity to house.

All owners should involve themselves in the preliminary consideration of system selection & location. The Council Environmental Health Officer is available to assist and guide you.

3. IMPORTANT PRELIMINARY INFORMATION

It is strongly recommended that building, site excavations, or other preliminary work **does not occur** until the septic design and location is finalised - especially where:

- a) excavations are needed at the building site, or
- b) where sites are adjacent to drainage lines and water courses.

The septic permit may be subject to performance requirements detailed at the time of an earlier subdivision that created your allotment often detailed in a 'Section 173 Agreement' or the requirements may be established as part of a Planning Permit Approval process – often requiring referral to other Authorities such as Goulburn Murray Water (GMW)

Council and Private Building Practitioners are not permitted to issue or to finalise on completion building permits, which involve plumbing without the prior issue of an approval for the wastewater disposal system (septic system or water board sewerage system).

Where a building site is reasonably level, extreme care must be taken in the planning stage of the septic and house design so as to ensure sufficient fall will exist between the wastewater fixtures and septic tank, and the septic tank to the effluent disposal area.

Where the allotment is within or adjacent to a Water Authority district, a letter from that Authority advising Council of the nearest available sewer and the likely availability of works to service the property must be lodged with the application. Within its district, a Water Authority can prohibit the installation of septics. When sewerage is or becomes available the use of a septic must cease and the property must be connected to the sewer.

Permits to install are valid for a period of two years only unless an extension of time is sought and granted. The EPA legislation provides for on the spot fines of \$530 for contraventions (work without a permit, non-compliance with conditions, etc.).

All plumbers and drainers involved with the installation must lodge a Plumbing Industry Commission (PIC) statement of compliance upon completion. The statement of compliance certifies that the work is completed in accordance with the recognised Codes of Practice, Councils permit and any relevant legislation.

An “**Approval to Use**” certificate will be issued to the owner / applicant & plumber upon completion of works.

4. THE APPLICATION PROCESS

Where it is intended to **install or alter a Septic Tank System**, an application (see form attached) shall be completed in full by the owner or his authorised agent and returned to Council with the current fee. Where any part of the system, including plumbing, is being altered a lesser fee will apply.

A plan to scale (of 1:500) must be submitted with the application. The plan will be used to assess the proposal during an on-site inspection, and will form the basis of the approval to proceed. The plan must therefore be detailed and show the following specific information:

1. The location of the premises including the street number or lot number and the position of north.
2. The location and design of the proposed septic tank system.
3. The dimensions of boundaries and the locations of streets and laneways which abut the property.
4. The locations of buildings or proposed buildings, water tanks, swimming pools, excavations, driveways, storm water drains, water pipes, underground services and any existing septic system.
5. Easements on the property.
6. Dams or proposed dams, streams, watercourses etc

Note: The design of the system must be in accord with an LCA - a Land Capability Assessment Report, and be an endorsed system covered by a current EPA Certificate of Approval and comply with any conditions of that approval
The basis for the design of the system must be described and be supported by the Land Capability Assessment Report.

The plan must be diagrammatically correct.

On larger allotments it will be necessary to provide an overall site plan (i.e. 1:2,000 scale) and a separate plan of the area to be developed (1:500 scale).

The applicant/owner shall not permit the commencement of any work on the septic system prior to the lodging and approval of the application. Infringements will apply.

Your contractor must understand the septic system permit requirements before commencing.

The length and width of disposal trenches or other method of dispersal and the system location & setback distances shall be nominated on the application - and be based on the findings of the Land Capability Assessment Report which must assess:

- a) Site constraints including site features, local soil and climatic conditions; and
- b) the expected volume of wastewater i.e. based on the size and type of development proposed.

5. SPECIFICATIONS

All work upstream of the septic tank shall be carried out in accordance with the National Plumbing and Drainage Code, AS3500. All plumbing shall be installed by or under the supervision of a licensed plumber. The drainage shall be installed by a licensed drainer/plumber.

Upon completion, a Statement of Compliance covering all work must be lodged with Council. Surface or ground water and rainwater tank overflows shall be prevented from entering the effluent disposal areas by the use of 'cut off' trenches or drains.

MEANS OF TREATMENT AND DISPOSAL

a) Traditional Septic Tank System

All septic tanks shall conform to and be stamped in accordance with Aust. Standard 1546

For an All-Waste system the tank shall be a minimum capacity of 3,200 litres. This system combines the waste from the toilet (wc) and all sullage points.

For WC Waste Only systems (with or without the kitchen sink waste) the tank may be 1,800 litres. Sullage waste water must also receive pre-treatment in a septic system.

Provision shall be made for **separate** disposal of all septic and sullage water if not treated in a single tank. The sullage trench will be approximately double the length of the septic trench and should be located at a lower level than the septic trench.

Garbage disposal units are not recommended, however, they may be installed provided a further 1800 litre septic tank is installed following the first tank.

Spa baths with a capacity of greater than 1 person (200 litres) shall not be directed through the septic tank. A separate disposal system will be required unless the spa is of a type that does not require emptying after use.

b) Traditional Effluent Disposal Systems

Distribution pits are to be provided at the junction of the sealed pipe leading from the septic tank at the commencement of each effluent line. The pit shall be cement rendered internally and be approximately 250mm x 250mm.

Unless a pump is installed, the first distribution pit shall be located so that the top of the pit is below the inlet level of the septic tank and at ground level.

If required, a pump pit shall have an operational capacity of not less than 250 litres and be provided with a submersible pump and high level alarm connected to a labelled illuminated panel or warning light at an approved location within the dwelling, i.e. kitchen or laundry wall.

All trenches need to be laid level along the site contour lines and located no closer than 3m to another trench.

Individual trenches should have a length of between 8m and 30m and the drains must be located above the 1 in 20 year flood plain.

Effluent drains for a traditional septic system **must not be located closer than:-**

- 3m to a higher or level boundary or building, 6m to a lower boundary or building;
- 3m to any water supply pipe, underground power or telephone line, gas pipe;
- 6m to a storm water drain or other trench or a swimming or wading pool;
- 20m to any source of water supply (underground water tank or water bore);
- 20m to excavations or cutting from which effluent is likely to emerge;
- 60m to any drainage such as a dam, dam catchment or its' overflow;
NOTE: 30m to a minor drainage lines and 100 m to a designated waterway;
- 100m to a waterway - defined drainage line including those for stock or other supply;
- 300m setback applies for a water reservoir - potable supplies

The status of any drainage lines in the immediate area of your development site can be classified as been a 'waterway' by seeing if it is identified on 1:25,000 contour Mapping and to verify this mapping description, review whether its upstream catchment is more than 70 ha in area. This can be further verified by an approach to GMW.

Most identifiable waterways & drainage lines will require 100 metres as the setback as almost the entire Municipality is within a defined "Special Water Supply Catchment Area.

Once installed, trenches are to be fenced or otherwise protected to prevent damage by vehicles & stock and then need to be heavily planted / re-grassed as soon as practicable after the system is installed (prior to or at the time of occupancy).

Do not damage the system by driving over it with anything larger than a ride-on mower. Failure or reduced long-term performance is likely to result if trenches are neglected.

c) **Sewerage Treatment Units**

All wastewater is directed into these systems. A mechanical unit treats the septic inflow with the final effluent being at a higher quality suitable for recycling or reuse in the form of sub-surface irrigation - and qualifying for reduced setback distances to those nominated above for septic quality wastewater.

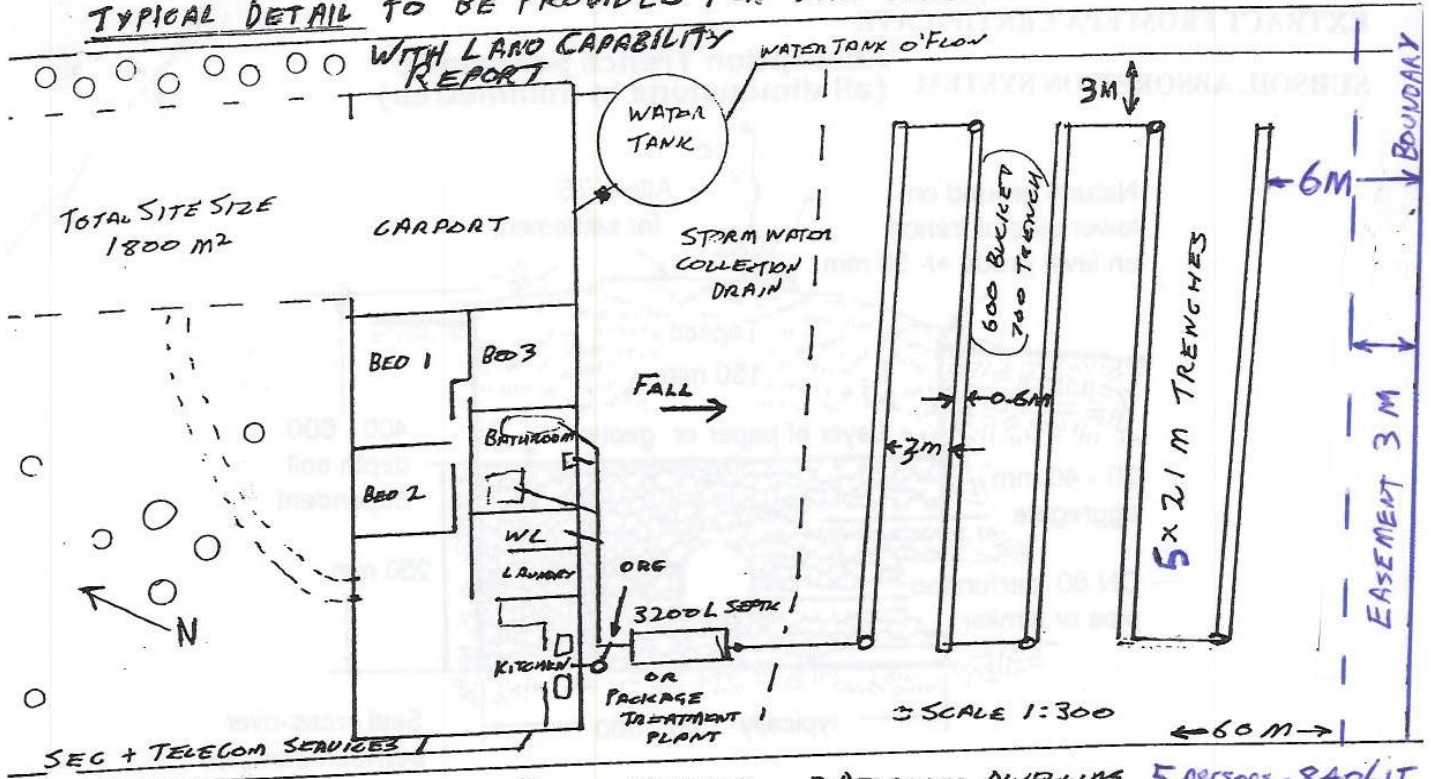
The installation and ongoing operation [maintenance contracts] of the various units available are subject to requirements of the EPA Certificate of Approval relating to each particular manufacturer. **Quarterly, 6 monthly or annual servicing will apply for the unit.**

Disposal of the treated waste water may be via the traditional disposal drain installation (also at a reduced length of 20--50%) or system can be designed **to reuse the water year round** to the benefit of your lawn or garden - below ground.

All packaged treatment plants require the routine servicing by a competently trained person or company so as to provide ongoing supervision and maintenance of the plant [suppliers should be able to advise of likely costs]. Permit conditions will require this maintenance service and the lodging of copies of service reports with Council.

As with other systems, the size of the waste water disposal or reuse area (subsurface drains irrigation drains) is directly related to the absorption characteristics of the site and style of development. The attached Table indicates these requirements.

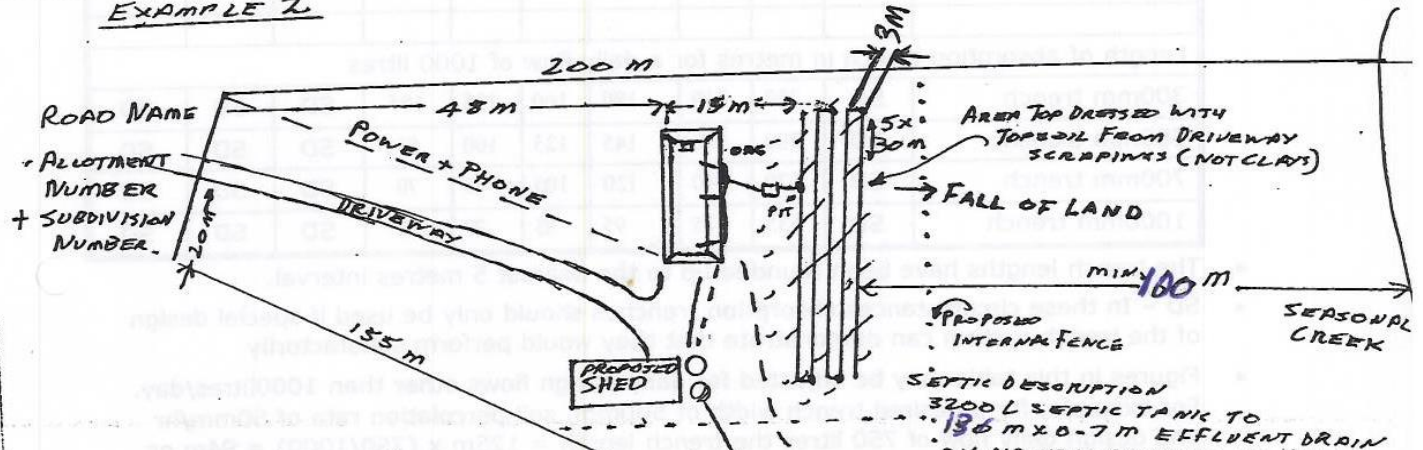
TYPICAL DETAIL TO BE PROVIDED FOR SITE ASSESSMENT BY COUNCIL.



SYSTEM DESIGN FOR NO 6 STREET SUBURB 3 BEDROOM DWELLING 5 persons - 840LIT
 TANK WATER SUPPLY **840LIT DPX WASTE WATER** (FROM GUIDE FOR 3 B-ROOM DWELLINGS)
 SOIL PERCOLATION RATE **30 MM/HR** - (FROM ON SITE SOIL ABSORPTION TEST)
 EFFLUENT DISPOSAL VIA SLOTTED PVC PIPES - TOTAL TRENCH LENGTH **100M** x 0.6M WIDE
 (FROM ATTACHED TABLE)

[IF PACKAGED TREATMENT PLANT WAS INSTALLED EFFLUENT DISPOSAL DRAINS COULD BE L
 NOTE: SITE TOO SMALL TO ALLOW FOR ABOVE GROUND SPRAY IRRIGATION
 - AREA NEEDED 320 M² (FROM TABLES) AND 15 M FROM DWELLINGS).

EXAMPLE 2



SYSTEM DESIGN FOR HOBBY FARM ON SMALL ACREAGE
 NOTE SETBACK REQUIRED FROM **CREEK**
 DESIGN SHOWN FOR 3 B-ROOM HOUSE → **800L/DAY**
136 M x 0.7 WIDE REQUIRED WHEN SOIL IS
 FOUND TO HAVE PERCOLATION RATE OF **15 MM/HR**.
 - I.E. SILTY CLAY

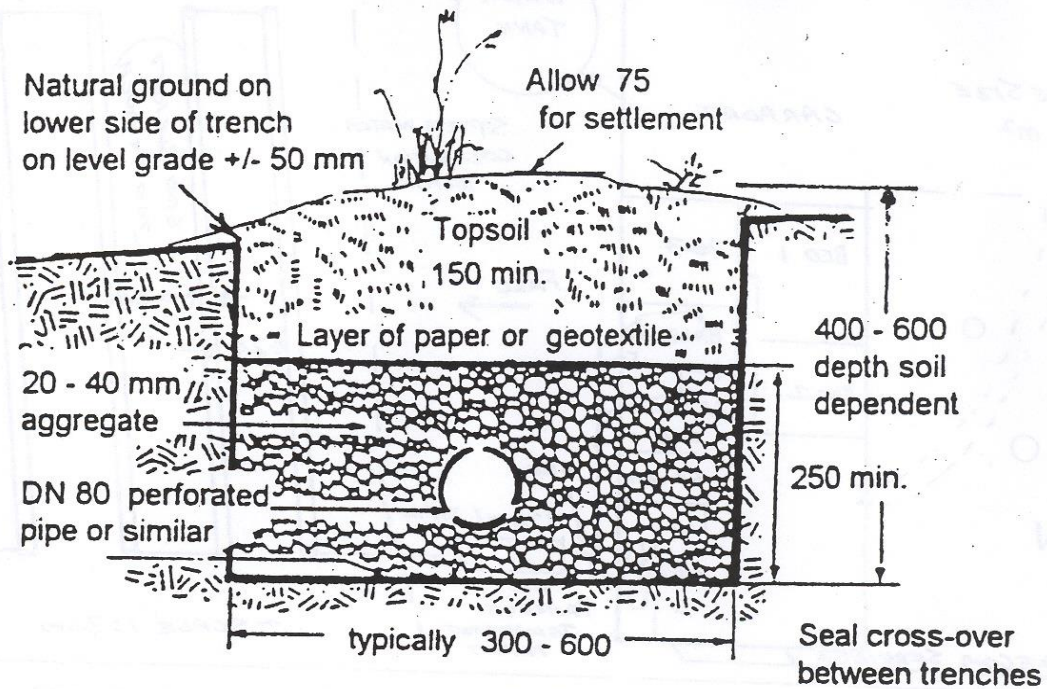
AREA TOP DRESSED WITH TOPSOIL FROM DRIVEWAY SCRAPINGS (NOT CLAY)
 FALL OF LAND
 MIN **100 M**
 PROPOSED INTERNAL FENCE
 SEPTIC DESCRIPTION
 3200 L SEPTIC TANK TO
136 M x 0.7 M EFFLUENT DRAIN
 ON NATURAL CONTOUR OF LAND
 STORM WATER DIVERSION + VENTILATION BARRIER.
 ALL PLUMBING TO COMPLY WITH
 AS-3500
 SCALE **1:800**
 PREFERABLY **1:500** MAX
 FOR SUBMITTED SKETCHES

- NOTE: PLANS SHOW**
- SITE BOUNDARIES - PHYSICAL FEATURES
 - DISTANCES TO DEVELOPMENT - MEASUREMENTS
 - FUTURE PLANNED DEVELOPMENTS
 - LOCATION OF UNDERGROUND SERVICES
 - POSITION OF WATER TANK, OVERFLOW AND STORM WATER DIVERSION
 - SCALE OF DRAWING
 - AND BASIS OF DESIGN - SIZE OF DEVELOPMENT

EXTRACT FROM EPA CERTIFICATE

SUBSOIL ABSORPTION SYSTEM

**Absorption Trench Schematic
(all dimensions in millimetres)**



9. Subsoil absorption trenches must be sized in accordance with the following table:

Minimum Length of Subsoil Absorption Trench for a Flow of 1000 litres/day, metres(m)

SOIL PERCOLATION RATE (mm/hr)	<15	15	20	30	50	75	150	500	750	>1500
Length of absorption trench in metres for a daily flow of 1000 litres										
300mm trench	SD	250	210	180	160	125	105	SD	SD	SD
500mm trench	SD	200	170	145	125	100	85	SD	SD	SD
700mm trench	SD	170	140	120	105	85	70	SD	SD	SD
1000mm trench	SD	135	115	95	85	70	60	SD	SD	SD

- The trench lengths have been rounded up to the nearest 5 metres interval.
- SD – In these circumstances absorption trenches should only be used if special design of the trench system can demonstrate that they would perform satisfactorily
- Figures in this table may be adjusted for daily design flows other than 1000litres/day. For example, for a desired trench width of 500mm, soil percolation rate of 50mm/hr and design daily flow of 750 litres the trench length = $125m \times (750/1000) = 94m$ or say 95m.
- Councils should err on the side of caution when approving wastewater disposal land area reductions.
- The trench sizing shown in the table assumes a level consistent site, with no other land constraints restricting wastewater management.

Note: Allowance of 140 Litres / person adopted provided water conservation devices are installed
E.g. → 3 Bedroom 4 person = 4×140 litres = 560 litres day daily flow rate for design

*Note: All previous approvals of this number are revoked or replaced by this document -
On site wastewater treatment system Page (3)*

EXTRACT FROM EPA CERTIFICATE OF APPROVAL

RE-USE OF WASTEWATER

3. Permits issued pursuant to Section 53M of the Act, must require a sample of the recycled water being irrigated to be collected at least once every year. The sample must be taken and analysed by a person or laboratory registered by the National Association of Testing Authorities.
4. The recycled water sample must be analysed for the indicators in the Table above. This is necessary to demonstrate that the recycled water is receiving adequate treatment and disinfection. Copies of all reports must be sent to the Council as specified in the permit.
5. Recycled water is not to be used for growing fruit or vegetables.

Irrigation System

6. The irrigation area must be operated so as to prevent any spray drift or runoff of recycled water from the premises.
7. All storm or surface water is to be diverted away from the irrigation area.
8. All irrigation pipework and fittings in the system must comply with AS 2698 – *Plastic pipes and fittings for irrigation and rural applications*. (Standard household hose taps and garden fittings must not be used.)
9. Sprinklers, which produce coarse droplets and not a fine mist, must be used to minimise the risk of aerosol dispersion by wind drift. The spray plume must have a throw of less than two metres and a height of not more than 600 mm.
10. The irrigation system must be a permanently fixed system with distribution pipelines buried at a minimum depth of 100 mm. Drippers and sprinklers are to be spaced so that recycled water is evenly distributed over the irrigation area.
11. The irrigation area must be sized on the sub-soil's percolation rate from the Table below:

Parameter	Unit	Design Rates per 1000 L/day				
		< 12	15	20	25	50
Soil Percolation	mm/h					
Irrigation rate	L/m ² d	2.3	2.5	2.8	3.3	5
Irrigation area	m ²	N.S	400	350	300	200

Note: N.S = Not suitable for surface irrigation

12. The irrigation area must be a permanent dedicated area within the premises.
13. The dedicated irrigation area must be cultivated to a depth of 100 mm, planted with grasses or salt tolerant plants and appropriately mulched.
14. A minimum of two (2) warning signs complying with AS 1319 and AS 1547 regarding the use of recycled water must be posted within each irrigation bed or area.
15. No sprays are to be located within 15 metres of any dwelling or source of water supply.
16. Before use of the irrigation system, the irrigation area must be landscaped to the satisfaction of the local Municipal Council.
17. The irrigation system is not to be altered or modified without approval.
18. This approval is valid until withdrawn by the Authority.

LAND CAPABILITY ASSESSMENT FOR ONSITE DOMESTIC WASTEWATER MANAGEMENT

EXAMPLE ONLY OF SUMMARY OF ASPECTS TO BE CONSIDERED

Example: LCA Assessment Table for Wastewater Management on Rural Residential Subdivisions.

Land features		Land Capability Class Rating				
		Very good (1)	Good (2)	Fair (3)	Poor (4)	Very poor (5)
General Characteristics						
Site drainage/runoff		Very slow	Slow	Moderate	Rapid	Very Rapid
Flood/inundation potential (yearly return exceedance)		Never		<1 in 100	<1 in 20	>1 in 20
Slope (%)		0 - 2	2 - 8	8 - 12	12 - 20	>20
Landslip					-	Present or past failure
Seasonal watertable depth (m) (incl perched watertables)		>5	5-2.5	2.5-2.0	2.0-1.5	<1.5
Rainfall (mm/yr)		<450	450-650	650-750	750-1000	>1000
Pan Evaporation (mm/yr)		>1500	1250- 1500	1000- 1250	-	<1000
Soil profile characteristics	Structure*	High	Moderate	Weak	Massive	Single Grained
	Profile depth	>2m	1.5m-2m	-	1.5m- 1.0m	<1m
	Sodicity* ESP%	<3	-	6-8	8-14	>14
	Percolation* <i>x see table next page.</i> (mm/hr)	50-75	20-50 75-150	15-20 150-300	- 300-500	<15 >500
	Stoniness (%)*	<10		10-20	-	>20
	Emerson test* (dispersion/slaking)	4,6,8	5	7	2,3	1
	Salinity* (dS/m)	<0.3	0.3-0.8	0.8-2	2-4	>4

* relevant to soil layer(s) associated with trench location.

Note: This table is an example only and does not include all relevant features that may relate to a specific site. Its use without site-specific information may result in rejection by the responsible authority.