ON-SITE SEWAGE MANAGEMENT REPORT

50 JIPARU DRIVE
MURRUMBATEMAN NSW 2582

7 January 2025

FRANKLIN CONSULTING AUSTRALIA PTY LTD
GPO Box 837 Canberra ACT 2601
www.soilandwater.net.au

Franklin Consulting Australia Pty Limited, trading as Soil and Water, offers expert advice and services to the agriculture, development and environmental conservation sectors. We provide soil and water management advice, undertake land capability and soil assessment, erosion and sediment control, and soil conservation, catchment and property management planning. We have extensive experience in both government and private sectors in senior management and consulting roles.

We provide our services to individual land holders, sub-division developers, surveyors, commercial business owners, and land development and regulatory agencies.

Principal Consultant John Franklin M App Sc, BSc, EIANZ

John Franklin has over 30 years' experience in natural resource management in the ACT, the Upper Murrumbidgee region in New South Wales and the tropical farming regions in North Queensland. This experience includes providing extensive soil and water management advice to land holders, businesses, State and Local Governments and the urban / rural residential development sector across the region.

Contact details: GPO Box 837
Canberra ACT 2601
P 02 6179 3491
M 0490 393 234
soil.land.water@gmail.com

Limitations

This report is based on the information provided by the client prior to this report, and from site investigation as undertaken. Franklin Consulting Australia does not take responsibility for subsequent development design changes by the client or third parties, or for the installation or operation of effluent management systems. This document may only be used for the purpose for which it was commissioned. Franklin Consulting Australia Pty Ltd accepts no liability or responsibility for or in respect of any use of or reliance upon this report and its supporting material by any party. Information provided is not intended to be a substitute for site specific assessment or legal advice in relation to any matter. Unauthorised use of this report in any form is prohibited.

.

Contents

SUMMARY RECOMMENDATIONS

This site and soil assessment informs the appropriate on-site management of domestic effluent associated with the construction of an 8 potential bedroom dwelling on

50 Jiparu Drive
Murrumbateman NSW

Expected wastewater load/day

Daily effluent load is based on an 8-bedroom dwelling (10 persons) which generates **1,200 L/day**.

Recommended Treatment System

Secondary Treatment consisting of a NSW Health Accredited Aerated Wastewater Treatment System with disinfection.

[The make and model of treatment system will be selected from NSW Health Accredited secondary treatment systems in consultation between the installer and landholders]

Recommended Dispersal System

There is an adequate area northwest of the proposed dwelling which is suitable for fixed surface spray, to a minimum area of **750m^2**, in accordance with the prescriptions contained in this report. There is also a reserve irrigation area of equal size available.

Constraints

The main constraints include large effluent load and medium to low permeability of subsoil.

TECHNICAL REFERENCES

- *On-site Sewage Management for Single Households* (The Silver Book) NSW Govt, 1998.
- *ANZ Standard 1547:2012 On-site Domestic Wastewater Management*
- *Soil Landscapes of the Canberra 1:100,000 Sheet*. Jenkins B.R. (2000) Department of Land and Water Conservation, New South Wales
- *Yass Valley Local Environment Plan 2013*

REPORT SCOPE

The report assesses land in the vicinity of the proposed dwelling to identify land suited to effluent application. This involves excluding land with major physical constraints, such as rock outcrop and poor drainage, and areas within buffer distances of proposed buildings.

Information required by council is contained in the report, including management prescriptions, site plan and photographs, with supporting information in this report including nutrient balance, water balance and limitation tables.

SITE LOCATION

Figure 1: 50 Jiparu Drive, Murrumbateman

LANDSCAPE

Undulating rises, fans, valley flats and depressions on Silurian Volcanics of the Canberra Lowlands. Slopes generally between 5-7%. Local relief is between 5-50m with elevations ranging 550-650m. Drainage form is convergent.

Extensively cleared woodland vegetation communities with modified pasture grazing the dominant land use.

The local landscape is dominated by small rural-residential properties.

SOILS

Soils in this landscape include Deep Red and Brown Chromosol on crests and side slopes with poorer drained Yellow Chromosols in drainage depressions.

The soils in the areas mapped as suitable for effluent dispersal are Brown Chromosols formed in situ from Duoro Volcanics parent material.

They comprise a weakly structured sandy loam upper layer overlying a bleached massive sandy loam which overlays a moderately structured silty clay subsoil. Total depth is typically greater than 150cm.

Extrapolating from the soil survey of the Canberra 1:100,000 sheet (Jenkins 2000), the soils on the gently sloping side slopes fit the Williamsdale soil landscape. The representative analytical data in the survey report shows a moderate phosphorous sorption level, non-saline subsoils and low exchangeable sodium. As such the soils are free of any significant chemical limitations to effluent dispersal.

SITE INFORMATION

Local Government Area	Yass Valley Council
Address/locality	Lot 104 DP 270586, Jiparu Drive, Murrumbateman.
Owner / Developer	C/-Sunny Homes
Block configuration:	
plans attached	
photo attached	

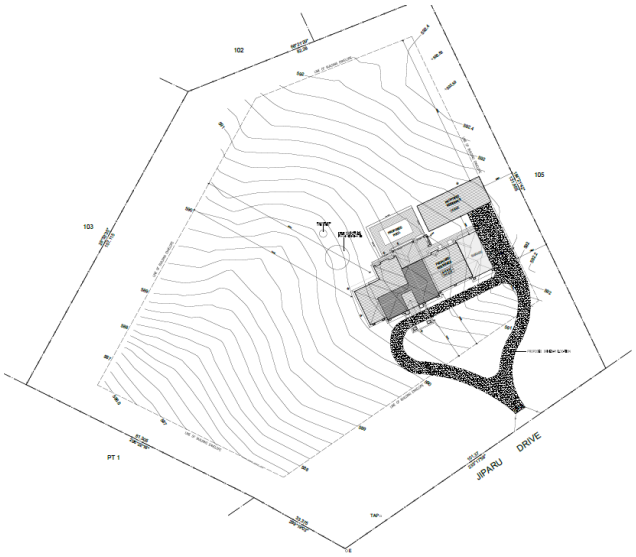


Figure 2: Lot layout (Extract from client plans)

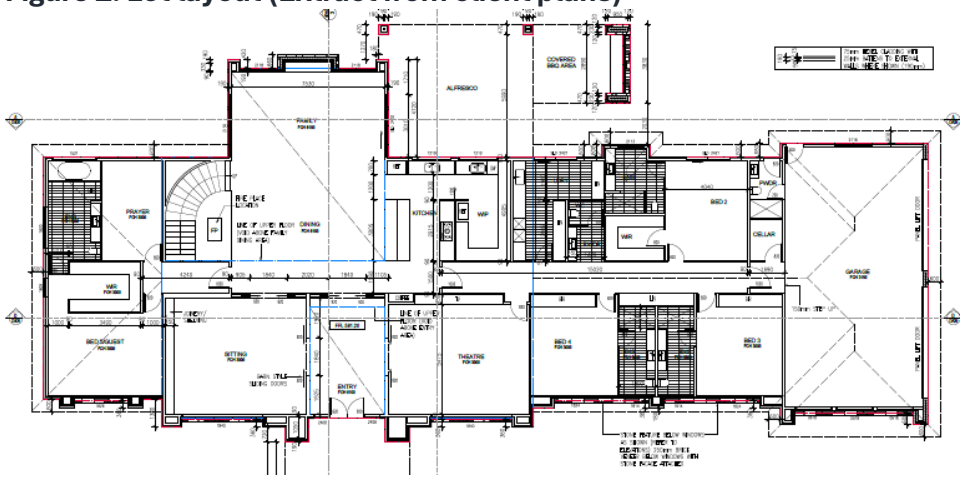


Figure 3: Ground Floor plan (extract from client plans)

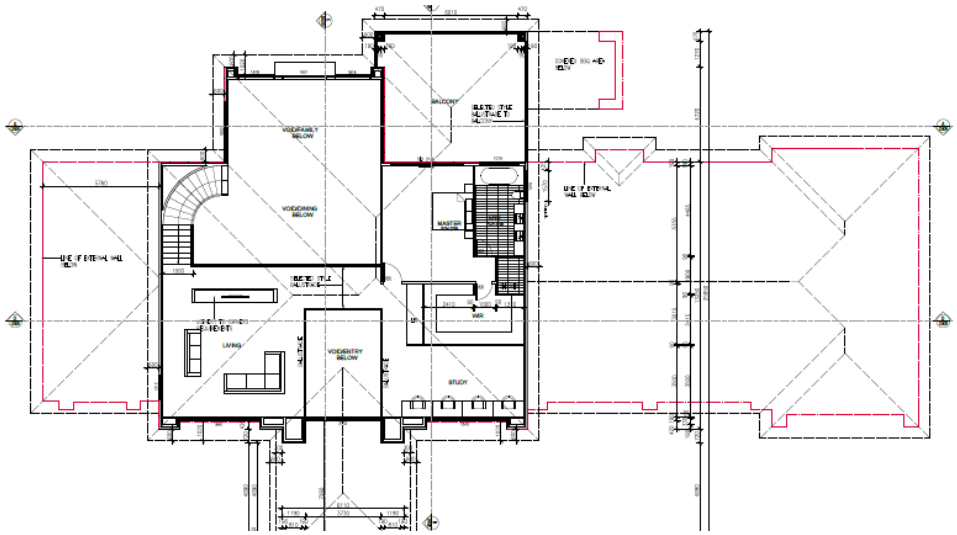


Figure 4: First Floor plan (extract from client plans)

Intended water supply	Potable water to be supplied by roof catchment with tank storage.
Daily wastewater load (litres/day) (*AS 1547:2012*)	8 potential bedroom dwelling on non-reticulated potable water supply Design Wastewater Load is **1,200 L/day.** **(Based on 10 potential occupants @120L/pp/day).**
Local experience	Most secondary treatment and surface irrigation systems work adequately in the area provided they are on appropriate soil and site conditions. Systems commonly malfunction due to lack of ongoing maintenance. System to be maintained regularly, in accordance with council regulations and prescriptions in this report.

Figure 5: Looking west across the proposed effluent area.

Figure 6: Looking south across the proposed effluent area.

Figure 7: Looking east across the proposed effluent area.

Figure 8: Looking north across the proposed effluent area.

SITE ASSESSMENT

Climate

The climate is typically a cool and moderately dry climate. Average rainfall for the area is 600 – 800 mm.

Median annual rainfall is 620mm, annual pan evaporation is 1200mm. Warm summers have a large evaporative deficit (evaporation exceeds precipitation), whereas cool winters have a slight evaporative deficit. Median summer monthly rainfall for Canberra airport 49 mm; median monthly winter rainfall 38 mm; mean monthly summer evaporation is 177 mm, mean monthly winter evaporation is 60 mm.

The local climate is therefore well suited to the dispersal of secondary treated, disinfected effluent by surface irrigation.

Rainfall water balance attached	Yes
Land application area calculated	Yes
Wet weather storage calculation attached	NA

Flood potential

land application area above 1:20 year flood:	Yes
land application area above 1:100 year flood:	Yes
electrical components above 1:100 year flood:	Yes

Exposure

Cleared grazing grassland with ***adequate exposure for surface irrigation.***

Slope

Proposed effluent disposal area is located on a gently southwest sloping sites of <5 degrees ***unconstrained for surface irrigation***.

Landform

Slope form of the irrigation area is divergent with section of downslope convergent site not suited to effluent disposal.

Run-on

Run-on water is limited due to top of crest location.

Seepage

No evidence of seepage was observed at the proposed effluent disposal site during the site inspection.

Erosion potential

Limited due to low slope and excellent ground cover.

The effluent irrigation areas will be protected from erosion by the maintenance of good levels of vegetative groundcover.

Site drainage

Drainage on the lot is through overland flow. There is a minor drainage depression and dam located downslope of the property.

The proposed irrigation areas are located outside the buffer required from dam and drainage depressions.

Fill

There was ***no imported fill*** on-site at the date of inspection.

Groundwater

Horizontal distance to groundwater well used for domestic supply:

No domestic groundwater wells are known in the vicinity.

Groundwater vulnerability map category:

The area is mapped as moderate vulnerability on NSW Groundwater Vulnerability Map.

Bores in area and purpose:

Figure 9: NSW Water Bore data

There are three bores registered on the NSW Bore Database within 500m of the proposed effluent area, see above image. The closest registered bore is approximately 340m south east of the proposed effluent area. Bore GW 625500 has a depth of 46m, with water bearing zones at 21.3m and 42.7m.

The effluent management practices recommended in this report will not impact surrounding bores of the groundwater aquifer due to:

- ***spatial separation (buffer distance) of >300m,***
- ***depth to water bearing zone of >20m,***

- ***low transmissivity of fractured rock aquifers***
- ***depth of low permeability clay subsoil,***
- ***low application rate of secondary treated effluent to surface.***

Buffer distance from treatment system to	
Perennial rivers and creeks:	NA
Drainage depressions:	40m
Other sensitive environments:	250m (bore)
Boundary of premises:	6m
Swimming pools:	15m
Buildings:	15m (from dwellings – for surface spray irrigation)
[Buffers distances as per Silver Book and AS 1547:2012]	
Is there sufficient land area for	
Application system including buffers:	Yes
Reserve application system:	Yes An irrigation area of 750m^2 is required for surface irrigation system, refer **Figure 10.**
Surface rock and outcrop	***None***

SOIL ASSESSMENT

Depth to bedrock or hardpan	>1 m
Depth to high soil water table	>1.5 m

Hydraulic loading rate

Soil texture:	Sandy loam topsoil over clay loam subsoil
Soil structure:	Moderate
Surface Irrigation	
Permeability *(from table M1 of AS1547:2012)*:	1.5-3.0
Recommended design irrigation rate for disposal system (mm/day): *(from table M1 of AS1547:2012)*	3.5mm

Coarse fragments	None
Bulk density (g/cm^3)	1.6 topsoil, 1.5 subsoil
pH field (1)	5.4 topsoil, 6.0 subsoil
Electrical conductivity Ds/M (1)	0.10 topsoil, 0.11 subsoil
Exchangeable sodium %(1)	0.10 topsoil, 4.2 subsoil
Cation exchange capacity (mequiv/100g) (1)	5.5 topsoil, 11.4 subsoil
Phosphorous sorption capacity mg/kg (1)	122 (1,952kg/ha) topsoil, 447 subsoil (6,705kg/ha)
Geological feature	
Discontinuities:	None
Fractured rock:	None
Soil landscape reference (1)	Canberra 1:100,000 (2000), Williamsdale Units
Dispersiveness EAT class (1):	3(2) topsoil, 2(1) subsoil

1 extrapolated from Jenkins (2000) Soil Landscapes of the Canberra 1:100,000 Sheet. DLWC

SYSTEM SELECTION

Consideration of connection to centralized sewerage system

Distance:	>5 kilometres
Potential for future connection:	None
Potential for reticulated water:	None

Type of land application system best suited	Surface spray irrigation to semi-improved pasture/grass &/or landscaped areas.
Justification:	Suited to site and soil conditions. Enables beneficial reuse of effluent in a water constrained environment.

Type of treatment system best suited	NSW Health accredited secondary treatment system. Reliable system with high quality disinfected effluent then available for beneficial reuse.
Justification:	

EFFLUENT MANAGEMENT PRESCRIPTIONS

Effluent treatment

Effluent will be treated by a NSW Health accredited system capable of achieving secondary standard treatment, see below link:
http://www.health.nsw.gov.au/environment/domesticwastewater/Pages/default.aspx

The following specific recommendations are made in respect of the AWTS:

1. The model of AWTS should be selected by consultation between the installer and client and considering which model best suits the expected loading and usage patterns and the specific conditions.
2. The final location for the AWTS units should be chosen by the installer, in consultation with the client, and provide a minimum 3 m buffer from the dwelling or other buildings, an indicative location is shown in **Figure 10.**
3. The tank(s) should be installed so that the lid remains at least 100 mm above final ground level to avoid stormwater entering the tank.
4. AWTS tanks should be installed in compliance with the manufacturer's recommendations, 'AS/NZS 3500.2:2003 Plumbing and Drainage Part 2 Sanitary Plumbing and Drainage' and Council requirements.

Effluent dispersal

An area of minimum **750 m²** will be designated as the effluent irrigation area. Areas suitable for effluent irrigation are identified in **Figure 10**.

A reserve effluent irrigation area of equivalent size (**750 m²**) is also identified in **Figure 10**.

Within the designated irrigation area effluent can be dispersed by surface spray. Surface sprays are effective for dispersing effluent on grassed areas as currently exist.

The following specific recommendations are made in respect of effluent dispersal:

Surface Spray Irrigation

1. The effluent irrigation area of **450 m²** should be managed in two sections, one half should be used in the warmer months, October to April, when plants can fully utilise the applied effluent. During the period May to September, both halves should be used as plants cannot fully utilise the moisture.
2. Effluent irrigation may be delivered via a moveable sprinkler line of 50-60m length to deliver effluent to the entire nominated area of **750 m²**

3. The moveable sprinkler line should be dedicated effluent distribution line (i.e. purple) and fitted with 5 heavy droplet non-aerosol sprinklers with 2m throw radius and fitted at 5m centres.
4. All components are to be installed according to 'PCA 2004 Plumbing Code of Australia' and the conditions of consent.
5. Treated effluent must be applied to growing vegetation and not bare ground.
6. Effluent needs to be applied to perennial vegetative groundcover within the area identified in **Figure 10.**
7. Suitable grass/pasture cover will need to be maintained across the **750m²** area identified for effluent dispersal.
8. Grass/pasture should be slashed when it is >10 cm long.
9. Alternatively, the effluent may also be applied to either a landscaped area or a shelter belt of trees and shrubs developed specifically for effluent application.
10. Species suitable for landscaping and effluent irrigation include Callistemon pallidus, C. palludosis, Kunzea ericoides, K. parvifolia, K. phyllicoides (burgen), Leptospermum continentale (prickly ti tree), L. multicaule, L. flavescens, L. squarrosum, Melaleuca armillaris (honey myrtle), M. decussata, M. squamea, M. thymifolia, M. ericifolia, M. hypericifolia, M. linariifolia.
11. Effluent is not suitable for vegetables or lawns regularly used for play and foot traffic.
12. Adequate signage should be installed to indicate that the area is being irrigated with treated effluent.
13. Where vehicles, animals or children could access the effluent irrigation area, the effluent irrigation area should be protected by fencing or by planting suitable shrubs around the outside boundary.
14. The aerated wastewater treatment system must be serviced regularly to provide adequate treatment and ensure that the irrigation system does not become clogged with suspended solids or organic material.

Special Conditions

1. The effluent irrigation area needs to be fenced off or otherwise separated from the remaining area of the house yard and surrounding paddocks to prevent access by people and domestic animals.

General

1. Stock and vehicular access must be excluded from the irrigation area as they compact the soil, thereby reducing the infiltration rate and water holding capacity.
2. Water conservation measures should be adopted to the greatest extent possible in the house, particularly in relation to the high water use activities of showering, clothes washing and toilet flushing. AAA+ plumbing appliances and fittings should be used. Measures including

use of front-loading washing machines, low volume shower roses and dual flush toilets reduce water usage by 30 to 40%.

3. Detergents low in phosphorous and sodium should be used as much as possible (see details in appendix) in order to protect the soil's capacity to absorb water.

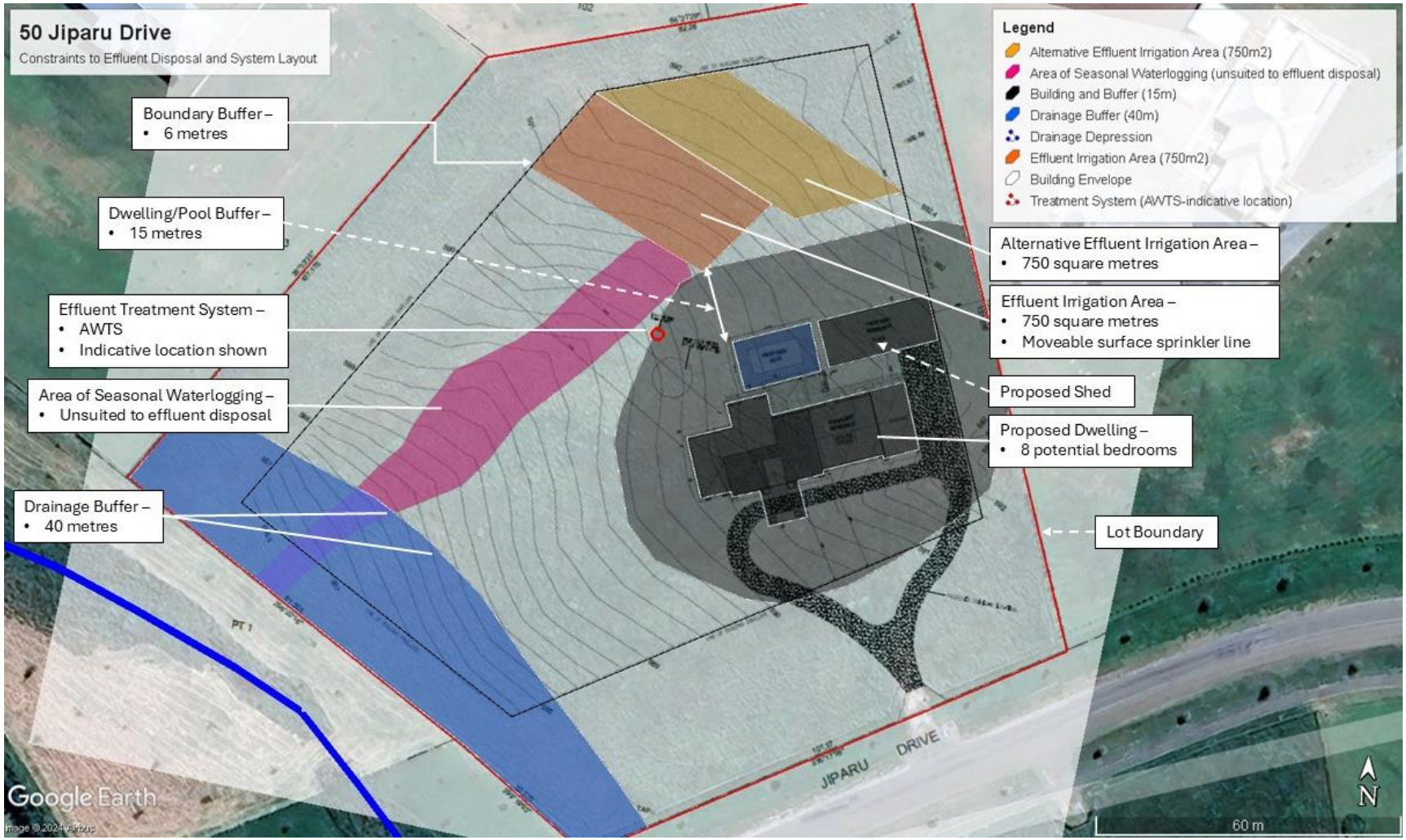


Figure 10: Constraints and System Layout

SIZING EFFLUENT DISPOSAL AREA

Water balance

Using the DIR for irrigation on clay loam soils of 3.5 mm/day and adopting the design loading of **1200 L/day**, the following land application areas are required to manage additional hydraulic loading, nitrogen and phosphorous generated:

- **Sizing based on hydraulic loading:**

A = Q (l/day)/DIR (mm/day)
where A = area; Q = 1200 l/day; DIR = 3.5 mm/day
A = 1200/3.5 = 342.86 m^2
Area required = 350 m^2

Nitrogen balance

- **Sizing based on nitrogen balance:**

A = Q(l/day) X TN (mg/l)/L_n (critical loading of TN, mg/m^2/day)
where A = area; Q = 1200 l/day; TN = 25mg/l (from Silver Book)
Assume 20% loss by denitrification; 25mg/l – (25 X .2) = 20mg/l
L_n = 15,000mg/m^2/yr (ie 150kg/ha/yr, for semi-improved pasture species)
A = 1200 X 20 X 365/15,000 = 584m^2
Area required = 600 m^2

Phosphorous balance

- **Sizing based on phosphorous balance**

A = P_{gen}/(P_{uptake} + P_{sorb}) [P sorption capacity in upper 50cm & 50 year design period]
P_{gen} = 10mg/l X 1200 X 365 X 50 = 219kg
P_{uptake} = 4.4mg/m^2/day X 365 X 50 = .080kg/m^2
P_{sorb} = 2,164kg/ha = .216kg/m^2
A = 219/(.08+ .216) = 739 m^2
Area required = 750 m^2

Design effluent disposal area

Therefore, a land application area of **750 m^2** will account for phosphorous, nitrogen and water applied based on estimated connections and usage patterns associated with the construction of a 8 potential bedroom house.

An allowance of a reserve land application area will double this area to **1500m^2**.

SITE AND SOIL LIMITATION ASSESSMENT

The following two limitation tables are a standardised guide to the site and soil characteristics which may limit the suitability of the site for effluent disposal and which would require attention through specific management practices. The tables have been reproduced from *On-site Sewage Management for Single Households* (tables 4 and 6, Anon, 1998). The highlighted categories represent site and soil conditions of the land covered in this report. The tables show that the land designated for effluent application has slight to moderate limitations, but no severe limitations.

Site limitation assessment

Site feature	Relevant system	Minor limitation	Moderate limitation	Major limitation	Restrictive feature
Flood potential	All land application systems	> 1 in 20 yrs.		Frequent, below 1 in 20 yrs	Transport in wastewater off site
	All treatment systems	components above 1 in 100 yrs.		Components below 1 in 100 yrs.	Transport in wastewater off site, system failure
Exposure	All land application systems	High sun and wind exposure		Low sun and wind exposure	Poor evapo-transpiration
Slope %	Surface irrigation	0-6	6-12	>12	Runoff, erosion potential
	Sub-surface irrigation	0-10	10-20	>20	Runoff, erosion potential
	Absorption	0-10	10-20	>20	Runoff, erosion potential
Landform	All systems	Hillcrests, convex side slopes and plains	Concave side slopes and foot slopes	Drainage plains and incised channels	Groundwater pollution hazard,

Site feature	Relevant system	Minor limitation	Moderate limitation	Major limitation	Restrictive feature
					resurfacing hazard
Run-on and seepage	All land application systems	None-low	Moderate	High, diversion not practical	Transport of wastewater off site
Erosion potential	All land application systems	No sign of erosion potential		Indications of erosion e.g. rills, mass failure	Soil degradation and off-site impact
Site drainage	All land application systems	No visible signs of surface dampness		Visible signs of surface dampness	Groundwater pollution hazard, resurfacing hazard
Fill (effluent dispersal area)	All systems	No fill	Fill present		Subsidence
Land area	All systems	Area available		Area not available	Health and pollution risk
Rock and rock outcrop	All land application systems	<10%-in effluent dispersal area	10-20%	>20%	Limits system performance
Geology	All land application systems	None		Major geological discontinuities, fractured or highly porous regolith	Groundwater pollution hazard

Soil limitation assessment

Soil feature	Relevant system	Minor limitation	Moderate limitation	Major limitation	Restrictive feature
Depth to bedrock	Surface and sub surface irrigation	> 1.0	.5-1.0	< 0.5	Restricts plant growth
or hardpan (m)	Absorption	> 1.5	1.0-1.5	< 1.0	Groundwater pollution hazard
Depth to seasonal water table (m)	Surface and sub surface irrigation	> 1.0	0.5-1.0	< 0.5	Groundwater pollution hazard
	Absorption	> 1.5	1.0-1.5	< 1.0	Groundwater pollution hazard
Permeability	Surface and sub surface irrigation	2b, 3 and 4	2a, 5	1 and 6	Excessive runoff and waterlogging
Class	Absorption	3, 4		1, 2, 5, 6	Percolation
Coarse fragments %	All systems	0-20	20-45	>40	Restricts plant growth, affects trench installation
Bulk density (g/cc) **SL** **L, CL** **C**	All land application systems	 < 1.8 < 1.6 < 1.4		 > 1.8 > 1.6 >1.4	restricts plant growth, indicator of permeability
pH	All land application systems	> 6.0	4.5-6.0	-	Reduces plant growth
Electrical conductivity (dS/m)	All land application systems	<4	4-8	>8	Restricts plant growth

Soil feature	Relevant system	Minor limitation	Moderate limitation	Major limitation	Restrictive feature
Sodicity (ESP)	Irrigation 0-40cm; absorption 0-1.2mtr	0-5	5-10	> 10	Potential for structural degradation
CEC mequiv/100g	Irrigation systems	> 15	5-15	< 5	Nutrient leaching
P sorption kg/ha	All land application systems	> 6000	2000-6000	< 2000	Capacity to immobilise P
Aggregate stability	All land application systems	Classes 3-8	class 2	class1	Erosion hazard

APPENDIX 1: SOIL PROFILE DESCRIPTIONS

Soil Profile 1 – Effluent Disposal Area

Soil classification	Depth (cm)	Properties
CHROMOSOL	0-15 15-45 45->90	A1 Light brown sandy loam, dry and friable, massive to weak structure, no coarse fragments, grades to A2 Bleached grey sandy loam, dry and friable, massive to weak structure, no coarse fragments, B Red/orange/grey sandy clay loam, moderate structure, <5% coarse fragments,

Figure 11: Soil Profile 1: Within the effluent disposal area.

APPENDIX 2: SUPPORTING INFORMATION

Phone Office/Lab (02) 6775 1157
Fax (02) 6775 1043
ABN: 72 212 385 096
email: lanfax.labs@science.com.au
Website: http://www.lanfaxlabs.com.au
493 Old Inverell Road
(P.O. Box W90) Armidale NSW 2350
Director: Dr Robert Patterson CPSS, CPAg, FIEAust
Soil Scientists and Environmental Engineers

Lanfax Laboratories

Proficiency tested with Aust. Soil & Plant Analysis Council

LAUNDRY PRODUCTS RESEARCH

The data, from which the graph on the reverse of this page was produced, were from research financed and undertaken by Lanfax Laboratories in July 1999, independent of any other organisation.

A range of laundry products was purchased from the local supermarkets comprising 20 liquid and 40 powder products. The selection covered the major brands, as determined from previous research, but included some lesser known brands, and five dishwashing detergents.

For each of the detergents, the mass of a 40 mL freshly poured sample was determined. Using the manufacturers' recommended loading rates for an average wash in a top loading automatic washing machine, an equivalent weight of each product was mixed with water from a rainwater system to represent the recommended dose of product with the full water load, that is, 160 litres of wash, rinse, deep rinse and spin cycle.

The samples were shaken for 1 hour at room temperature and the concentration of each of the elements of interest determined at the University of New England using an Inductively Coupled Plasma (ICP). Other chemical properties were measured by Lanfax Labs.

Only the sodium and phosphorus results are reported here. Other information from the research is available at our web site:

www.lanfaxlabs.com.au/publications.html

PATTERSON, R.A. (2000). *Water Quality Relationships with Reuse Options*. in 3rd International Symposium on Waste Water Reclamation, Recycling and Reuse. 3-5 July 2000. Paris France. International Water Association .Preprint Book 8, pp 205-212.

and

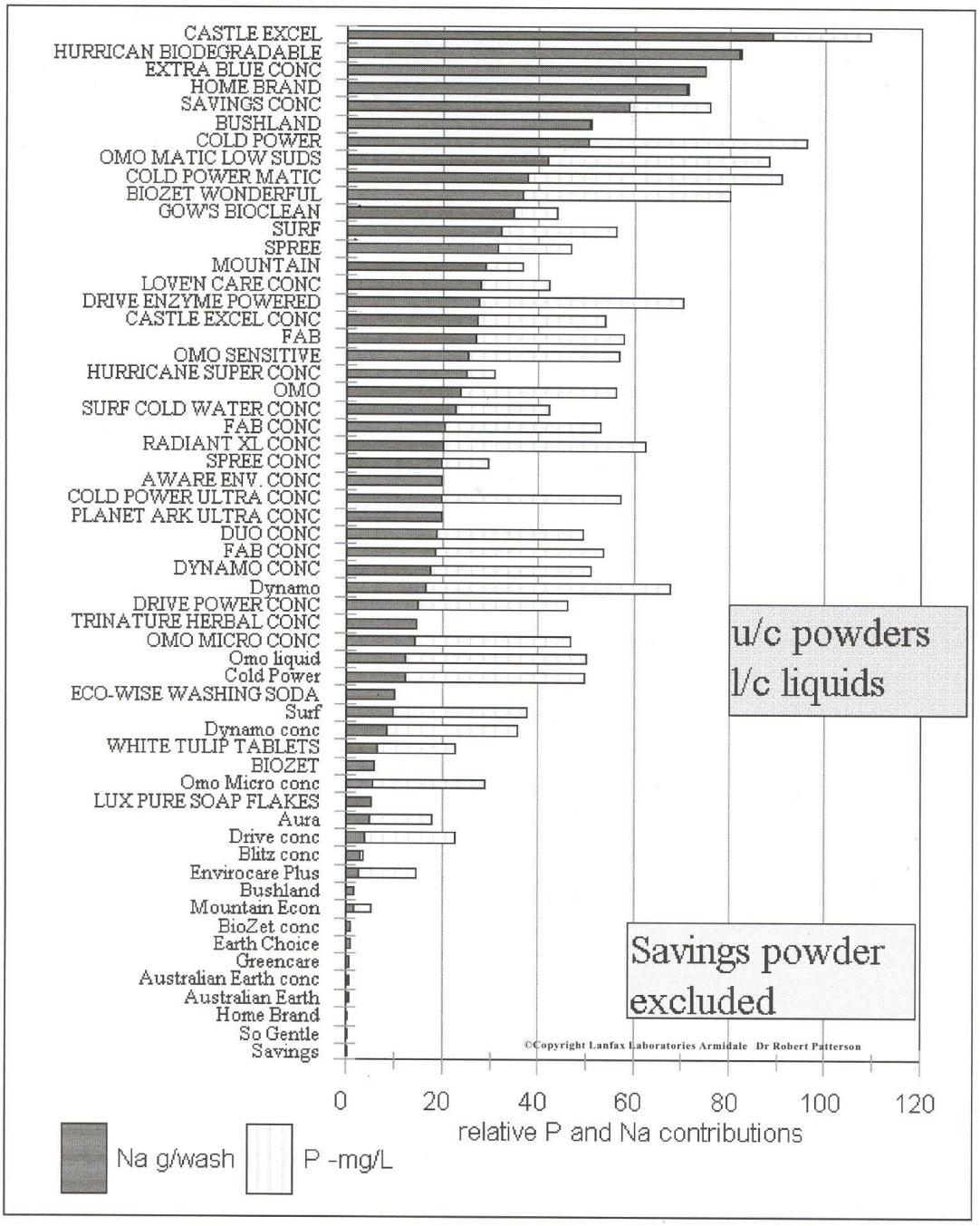
PATTERSON, R.A. (1999) *Reuse Initiatives Start in the Supermarket.* NSW Country Convention. Institution of Engineers Australia. 6-8 August 1999. Northern Group, Institution of Engineers Australia, Armidale.

How to read this graph:
For all on-site systems that apply the effluent by surface or subsurface application, the levels of sodium are critical. Choose the product with the lowest sodium. Levels over 20 g/wash are likely to be detrimental to plants and the soil.

The levels of phosphorus will depend upon the soil type and the use of the effluent. In some soils, phosphorus is not a real concern because it is immobile. In other soils it is likely to build up to high levels. It is preferable to choose the lower phosphorus values as well as the low sodium.

The detergents with long sodium bars (greater than 20 g/wash) should not be thrown out on your favourite garden as the sodium may be detrimental to the plants. High pH is also detrimental to plants and soils.

Figure 1. Ranking of laundry products according to sodium concentration with phosphorus concentration shown as tail. Ideal choice for on-site systems is one with a low sodium and a low phosphorus concentration.



DO

- ✓ Learn how your sewage management system works and its operational and maintenance requirements.
- ✓ Learn the location and layout of your sewage management system.
- ✓ Have your AWTS (if installed) inspected and serviced four times per year by an approved contractor. Other systems should be inspected at least once every year. Assessment should be applicable to the system design.
- ✓ Keep a record of desludgings, inspections, and other maintenance.
- ✓ Have your septic tank or AWTS desludged every three years to prevent sludge build up, which may 'clog' the pipes.
- ✓ Conserve water. Conservative water use around the house will reduce the amount of wastewater which is produced and needs to be treated.
- ✓ Discuss with your local council the adequacy of your existing sewage management system if you are considering house extensions for increased occupancy.

DON'T

- ✗ Don't let children or pets play on land application areas.
- ✗ Don't water fruit and vegetables with effluent.
- ✗ Don't extract untreated groundwater for cooking and drinking.
- ✗ Don't put large quantities of bleaches, disinfectants, whiteners, nappy soakers and spot removers into your system via the sink, washing machine or toilet.
- ✗ Don't allow any foreign materials such as nappies, sanitary napkins, condoms and other hygiene products to enter the system.
- ✗ Don't put fats and oils down the drain and keep food waste out of your system.
- ✗ Don't install or use a garbage grinder or spa bath if your system is not designed for it.

Reducing water usage

Reducing water usage will lessen the likelihood of problems such as overloading with your septic system. Overloading may result in wastewater backing up into your house, contamination of your yard with improperly treated effluent, and effluent from your system contaminating groundwater or a nearby waterway.

Your sewage management system is also unable to cope with large volumes of water such as several showers or loads of washing over a short period of time. You should try to avoid these 'shock loads' by ensuring water use is spread more evenly throughout the day and week.

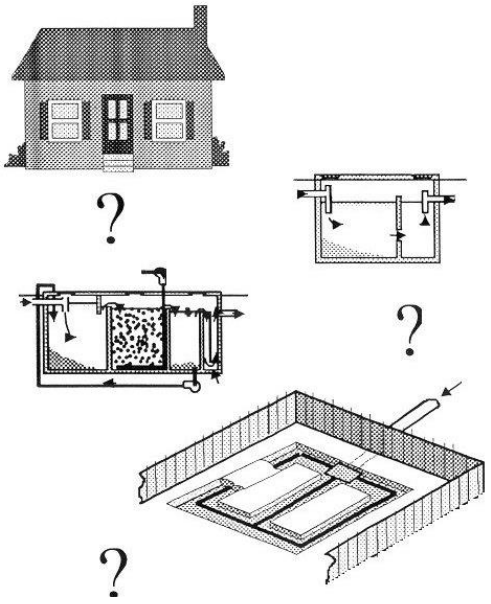
HELP PROTECT YOUR HEALTH AND THE ENVIRONMENT

Poorly maintained sewage management systems are a serious source of water pollution and may present health risks, cause odours and attract vermin and insects.

By looking after your management system you can do your part in helping to protect the environment and the health of you and your community.

For more information please contact:

Managing Wastewater In Your Backyard



SOILANDWATER

www.soilandwater.net.au