



Health

# **Certificate of Accreditation**

## **Sewage Management Facility**

### **Domestic Greywater Treatment System**

*This Certificate of Accreditation is issued by the Secretary of the NSW Ministry of Health pursuant to Clause 41(1) of the Local Government (General) Regulation 2005.*

*System:               Rootzone model G700 DGTS*

*Manufacturer:   Rootzone Australia Pty Ltd*

*Of:                   655 Menangle Road, Douglas Park, NSW, 2569*

*The Rootzone model G700 DGTS as described in Schedule 1, has been accredited as a sewage management facility for use in a single domestic premises in NSW. This accreditation is subject to the conditions of accreditation and permitted uses specified in Schedule 2.*

*Director, Environmental Health  
for Secretary (delegation PH335)*

***Issued: 22 December 2014***

***Certificate No: DGTS 010***

***Expires: 31 December 2019***

## **Schedule 1: Specification**

### **Rootzone model G-700 Greywater Treatment System**

#### **General Description**

The Rootzone model G-700 greywater treatment system is designed to treat the greywater waste stream from a residential dwelling occupied by a maximum of 8 persons. The Rootzone model G-700 greywater treatment system consists of the following components:

- For flat sites only, a pump well and a submersible pump needs to be provided at some point between the dwelling and the vertical bed. An emergency overflow pipe connects the pump well to the sewer.
- A vertical flow reed bed filter constructed in a Reln Slimline 2100 litres rainwater tank (above or below ground). The reed bed contains:
  - a) At the base gravel to a depth of 900 mm;
  - b) Rootzone filter media to a depth of 1000 mm on top of a shade cloth overlaying the gravel;
  - c) Advanced seedlings of "Baumea articulate" reed species;
  - a) An emergency outlet pipe at the top of the gravel section drains by gravity to sewer. On a flat site a pump well and pump may be necessary;
- An effluent storage chamber or tank with a pump (the pump size is dependant on the end use of the treated effluent i.e. internal re-use and/or irrigation).
- A UV light disinfection unit located on the outlet of the pump external to the reed bed filter in a weatherproof enclosure.
- An irrigation pump is located in the pump well within the vertical flow reed bed. The final effluent after disinfection is pumped to an effluent storage tank or direct to irrigation.
- An alarm system for the pump(s) and/or UV disinfection unit.

Note: Reeds can only be planted from October to the end of February as advanced seedlings. However the system will function satisfactorily without the reeds before planting.

Treatment process:

- Where the vertical distance between the greywater outlet pipe from the dwelling and the top of the reed bed filter is less than half a metre, the raw greywater is collected in a pump well and then pumped into the distribution pipe at the top of the vertical flow reed bed filter. On a sloping site raw greywater flows directly from the dwelling to the reed bed filter.
- Greywater trickles vertical through the Rootzone filter media into the gravel storage area below.
- At the base of the gravel the treated effluent flows into a pump well from where the effluent is pumped to an external UV disinfection unit and then to the dwelling for internal re-se and/or to a land application system for irrigation. Disinfection is not required for sub-surface irrigation.

## **Schedule 2: Conditions of Accreditation**

### **1. General**

- 1.1. For each installation the owner/occupier of the premises shall make an application to the Local Authority to install a Rootzone model G-700 greywater treatment system as a waste management facility in accordance with Section 68, Part C of the Local Government Act 1993 and Clause 28 of the Local Government (General) Regulation 2005.
- 1.2. The Rootzone model G-700 greywater treatment system shall be supplied, constructed and installed in accordance with the design as submitted and accredited by the NSW Ministry of Health.
- 1.3. Any modification or variations to the accredited design of the Rootzone model G-700 greywater treatment system shall be submitted for separate consideration and variation of the Certificate of Accreditation by the Secretary of the NSW Minister of Health.

- 1.4. Each Rootzone model G-700 greywater treatment system shall be permanently and legibly marked on a non- corrosive metal plaque or equivalent, attached to the lid with the following information:
  - The brand name of the system;
  - The manufacturer's name or registered trademark;
  - The month and year of manufacture.
- 1.5. The manufacturer shall supply the owner/occupier of the premises with an owner's manual, which sets out the care, operation, maintenance and on-going management requirements of the system.
- 1.6. The manufacturer shall provide the following information to each local authority where it is intended to install a greywater treatment system in their area once Ministry accreditation has been obtained:
  - Statement of warranty
  - Statement of service life
  - Quality Assurance Certification
  - Installation Manual
  - Service Manual
  - Owner's Manual
  - Service Report Form
  - Engineering Drawings on A3 format
  - Detailed Specifications
  - A4 Plans
  - Accreditation documentation from NSW Health.

## **2. Installation and Commissioning**

- 2.1 The Council should require that on completion of the installation of the Rootzone model G-700 greywater treatment system, the system is inspected and checked by the manufacturer or the manufacturer's agent. The manufacturer or the agent is to certify that the system has been installed and commissioned in accordance with its design, conditions of accreditation and any additional requirements of the Council.
- 2.2 The Council should require that all electrical work must be carried out by a licensed electrician and in accordance with the relevant provisions of AS/NZS 3000.

## **3. Maintenance**

- 3.1 The local authority shall require the owner/occupier of the premises to enter into an annual service contract with a representative of Rootzone Australia Pty Ltd or a service contractor registered with the local authority as an accredited person to carry out maintenance work.
- 3.2 The Rootzone model G-700 greywater treatment system shall be serviced at three monthly intervals in the first year after installation and then annually thereafter in accordance with the details set out in the owner's and service manual.
- 3.3 At each service a check shall be made of all mechanical, electrical and functioning parts of the system including:
  - The condition of the pump well and sump pump,
  - The operation of the alarm system and UV disinfection unit,
  - The growth of the reed species on the vertical reed bed,
  - The operation of the effluent storage tank and pump.
- 3.4 A service report sheet, in triplicate, shall be completed for each service. The original shall be given to the owner, the duplicate forwarded to the Council and the triplicate retained by the service contractor.



#### **4. On-going Management**

4.1 The owner's manual prepared by the manufacturer shall contain a plan for the on-going management of the Rootzone model G-700 greywater treatment system. The plan shall include details of:

- the treatment process,
- procedures to be followed in the event of a system failure,
- emergency contact numbers,
- maintenance requirements,
- inspection and sampling procedures to be followed as part of the on-going monitoring program developed by the local authority.

4.2 At each anniversary of the accreditation date the manufacturer shall submit to NSW Health a list of all Rootzone model G-700 greywater treatment system installed in NSW during the previous twelve months. NSW Health will randomly select up to 10% of the installed Rootzone model G-700 greywater treatment system from each year of installation. The manufacturer, at its own cost, shall arrange for the selected Rootzone model G-700 greywater treatment system to be inspected and sampled. Sampling is to be organised by an independent JAS/ANZ accredited agency. Samples for BOD<sub>5</sub>, TSS and Thermotolerant coliforms are to be determined by a NATA registered laboratory, and samples for disinfectant concentration, if applicable, are to be determined on site. The results are to be reported to NSW Health by:

- address of premises,
- date inspected and sampled,
- sample identification number,
- BOD<sub>5</sub>,
- SS,
- Thermotolerant coliforms,
- details of type and condition of UV disinfection unit, and
- service history (if available)

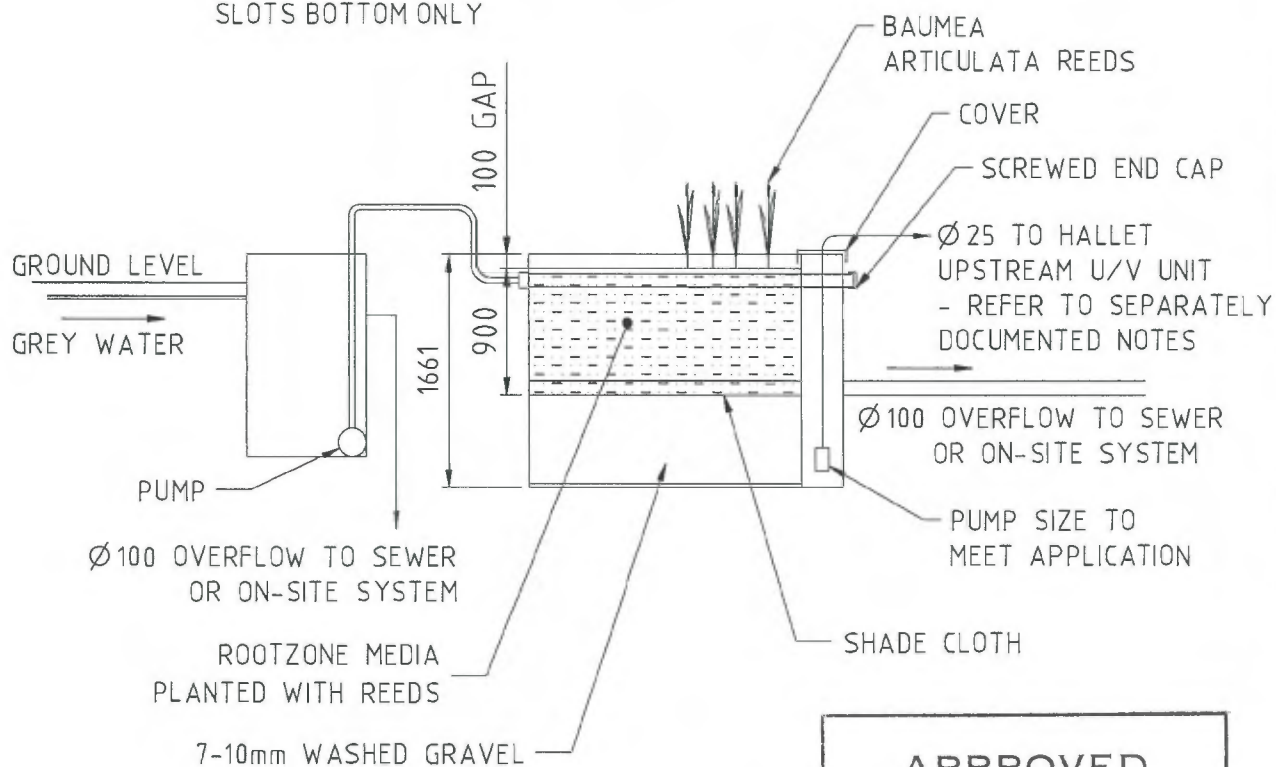
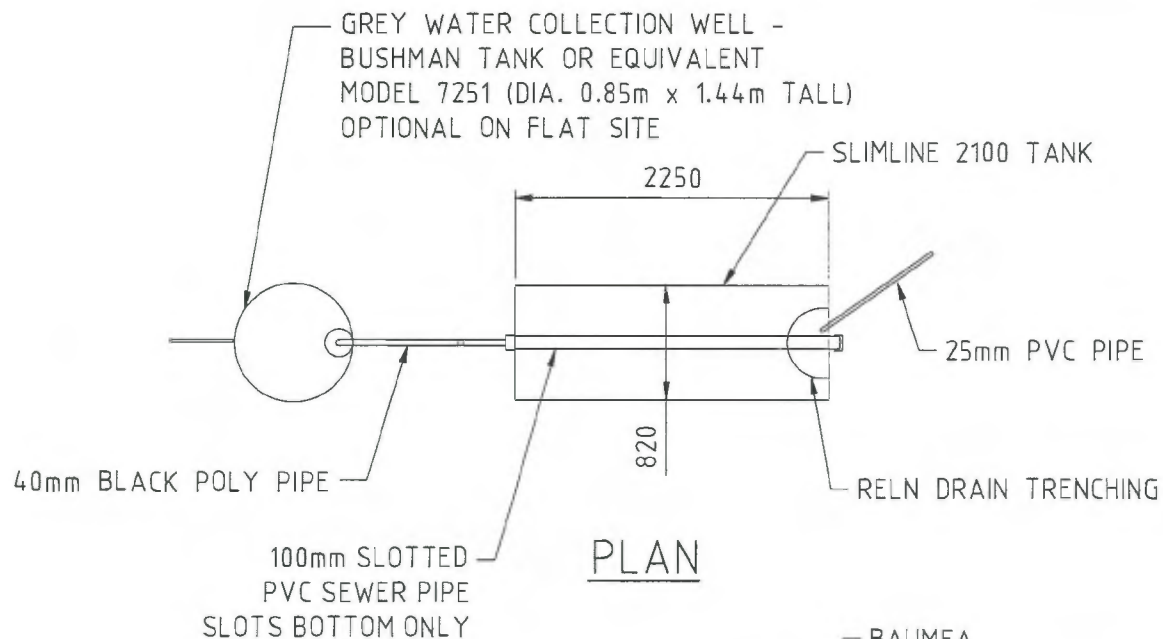
4.3 Effluent from the Rootzone model G-700 greywater treatment system taken in any random grab sample shall comply with the following standard:

- |                            |                         |
|----------------------------|-------------------------|
| • BOD <sub>5</sub>         | less than 20 mg/L       |
| • SS                       | less than 20 mg/L       |
| • Thermotolerant coliforms | less than 10 cfu/100 ml |

#### **5. Permitted uses**

5.1 The effluent from the Rootzone model G-700 greywater treatment system is suitable for re-use for the following purposes:

- toilet flushing;
- cold water supply to washing machine;
- garden purposes by irrigation of a type approved by the local Council.



**APPROVED**

**22 DEC 2014**

**NSW MINISTRY OF HEALTH**

AMENDMENTS	TITLE: ROOTZONE GREY WATER TREATMENT MODELS G700	SCALE: 1:50	DRAWN: I. CARDILLO
		DATE: 15.02.04	CHECKED:
		DRAWING No. <b>05023-01</b>	REV. <b>6</b>