



Certificate of Accreditation (Amended)

On-Site Waste Water Management System

This Certificate of Accreditation is hereby issued by the Minister for Building and Construction pursuant to Section 18(1) of the *Building Act 2016* (accreditation of products).

System: **Eljen – GEOTEXTILE Single Pass Sand Filter With Liner System (GSPSFWL)**

Manufacturer/Supplier **Eljen Corporation Hartford, CT, USA**
Eljen Pacific Inc
ACN 607351511

Of **16 The Lee Devonport, TAS 7310**

This is to certify that the **Eljen GEOTEXTILE Single Pass Sand Filter With Liner System (GSPSFWL)** Wastewater Treatment System product has been accredited for use as on-site waste water management system in single dwellings in Tasmania. This accreditation is subject to the conditions and permitted uses specified in Schedule 2, and the National Construction Code.

Peter John Graham
Director of Building Control
Delegate of the Minister for Building and Construction

Date of Issue: 20 November 2019

Certificate No: DOC/21/6316

This Certificate of Accreditation is valid until 20 November 2024, subject to conditions or unless withdrawn earlier by the Director of Building Control

Document development history

| Version | Certificate Number | Approved by | Amendment Notes |
|------------------|---------------------------|---|---------------------------|
| 20 November 2019 | DOC/19/86571 | Director of Building PJG | First issue |
| 29 January 2021 | DOC/21/6316 | Manager Plumbing Standards & Regulation RH | Schedule 2 details added. |

SCHEDULE 2: Conditions of Accreditation

Normative

1. Definitions

Where included in this Certificate of Accreditation and Schedules:

AS/NZS 1547 means the Joint Australian/New Zealand Standard ‘AS/NZS 1547:2012 On-site domestic-wastewater management’;

AS/NZS 1546.3 means the Joint Australian/New Zealand Standard ‘AS/NZS 1546.3:2008 On-site domestic wastewater treatment units, Part 3: Aerated wastewater treatment systems’;

AS/NZS 3000 means the Joint Australian/New Zealand Standard ‘AS/NZS 3000:2000 Wiring rules’

AS/NZS 5667 means the Joint Australian/New Zealand Standard ‘AS/NZS 5667.1:1998 Water quality – Sampling, Part 1: Guidance on the design of sampling programs, sampling techniques and preservation and handling of samples’;

BOD₅ means ‘5-day Biochemical Oxygen Demand unless otherwise stated’;

Council means ‘the Municipal Council having jurisdiction’;

Commissioned means ‘when any required test results from a NATA Certified Laboratory show that the water quality requirements for the system have been met or all pre-commissioning tests have been carried out in accordance with AS/NZS 1547 on all associated equipment including the land application area’;

Designer means ‘a person who is accredited under the *Building Act 2000* or a *Plumber* who has a specialty in the area of designing on-site waste water management system installations

Director means ‘the Director of Building Control’;

EC means electrical conductivity

E. coli means ‘*Escherichia coli* of the family Enterobacteriaceae which is a bacterium used in public health as an indicator of faecal pollution’;

FOG means Fat, Oil and Grease

g/m³ means grams per cubic metre, which is equivalent to milligrams per litre (mg/L)

Informative defines the application of Schedule 1, which is for information and guidance only.

Manufacturer means ‘**Eljen Corporation**’;

NATA means ‘National Association of Testing Authorities’;

Normative defines the application of Schedule 2, which is an integral part of the Certificate of Accreditation.

PCA means ‘Vol. 3 of the National Construction Code (Plumbing Code of Australia)’;

Permit means ‘a Permit issued by the *council* pursuant to section 82 of the *Building Act 2000*’;

Permit authority means ‘a person or body authorised for that purpose by the *council* of the municipal area in which the on-site waste water management system is installed’;

Plumber means a person who holds an appropriate class of licence under the *Occupational Licensing Act 2005* as a Plumber Practitioner (Certifier).

Supplier means ‘the party that is responsible for ensuring that products meet and, if applicable, continue to meet, the requirements on which the certification is based.’ The supplier for the **ELjen GSF is Eljen Pacific Inc.**

System means ‘**Eljen GSF System**’.

TN means ‘Total Nitrogen’;

TP means ‘Total Phosphorus’;

TPC means the ‘Tasmanian Plumbing Code’.

TSS means ‘Total Suspended Solids’.

2. General

- 2.1. The *system* must be supplied, constructed and installed in accordance with the design submitted and accredited by the *Director*.
- 2.2. *System* is designed to meet the secondary quality effluent as defined in AS/NZS 1547 using the GSF system and be designed by an accredited (in Tasmania) waste water designer. The supplier shall receive and maintain a record of the soil report from the designer for each design completed. System designs must be verified and signed by the *supplier* before being submitted to the *permit authority*.
- 2.3. The pipe work connecting the system to the septic tank and all air vent pipes must comply with AS/NZS 1260, PVC-U pipes and fittings for drain, waste and vent applications and be authorised.
- 2.4. The *system* must not be installed or used in a plumbing installation other than in accordance with the conditions of the permit issued by the *permit authority*.
- 2.5. The *supplier* must supply the owner and occupier of each installation with a user manual setting out the following:
 - (a) the treatment process;
 - (b) procedures to be followed in the event of a system failure;
 - (c) emergency contact number;
 - (d) care, operation, monitoring and maintenance requirements; and
 - (e) inspection procedures to be followed as part of the on-going monitoring and program required by the permit authority.
- 2.6. Any proposed modifications to the *system's* specified processes, equipment, materials, fittings or manuals must have prior authorisation in writing from the *Director* and may be subject to additional verification or testing.
- 2.7. Application to a *permit authority* for a permit to install a system must include the following information:
 - Statement of warranty
 - Statement of serviceable life
 - Quality Assurance Certification
 - Design and Installation Manual
 - Owner's and Operation Manual
 - Engineering Drawings on A3 format
 - Detailed system Specifications
 - Design calculations Report validated by the *supplier*
 - Copy of Certificate of Accreditation and Schedules.
- 2.8. This Certificate of Accreditation is valid for five (5) years from the date of issue or until withdrawn by the *Director* and is not transferable and replaces any previous Certificates issued for the system under the *TPC*. Any application for variation or renewal must be accompanied by Product Certification that has been issued by a JAS-ANZ accredited Conformity Assessment Body (CAB) and other required documentation in accordance with the latest Application for Accreditation Form.
- 2.9. At each anniversary of the accreditation date the *supplier* must submit to the *Director* a list of all *systems* installed in Tasmania during the previous 12 months. Where the *Director* is notified of any system failures the *Director* may randomly select a number of installed *systems* for audit. The *Director* will notify the supplier's nominated NATA accredited laboratory which *systems* are to audited for *BOD5* and *TSS*. The sampling and testing of the selected *systems*, if required, is to be done at the *supplier's* expense. The following results must be reported to the *Director*:
 - Address of premises;
 - Date inspected and sampled;

- Sample identification number;
- BOD_5 for influent and effluent; and
- TSS for influent and effluent.

2.10. When granting a *permit* the *permit authority* is to satisfy itself that the *designer's* choice of the system configuration is optimal for the proposed use and site conditions.

2.11. Prior to the granting of a *permit* to install a system the following reports (see AS/NZS 1547 Clause 7.4) must be submitted with an application to the *permit authority*:

2.11.1 Site and soil evaluation report

The site and soil evaluation report is to detail results of an assessment of the individual lot(s) for the public health, environmental, legal and economic factors which are likely to impinge on the location and design of a land-application system. (Refer to AS/NZS 1547 Clause 5.2.4 and Appendices B, C, D, E & G).

2.11.2 Design report

In addition to the GSF System Report a Design Report is to be provided and include the following:

- (a) Relevant aspects of the Site-and-soil Evaluation Report.
- (b) A report on the selection of the land-application system. (Refer to AS/NZS 1547, Clause 5.5.7).
- (c) A report on the selection of the wastewater-treatment unit. (Refer to AS/NZS 1547, Clause 5.5.4 Appendix H and J).
- (d) Sufficient information to show that the relevant performance requirements set out in the *PCA* have been met.
- (e) A loading certificate which sets out the design criteria and the limitations associated with use of the system and incorporates such matters as:
 - (i) System capacity (number of persons and daily flow);
 - (ii) Summary of design criteria;
 - (iii) The location of and use of reserve areas;
 - (iv) Use of water efficient fittings, fixtures, or appliances;
 - (v) Allowable variation from design flows (peak loading events);
 - (vi) Consequences of changes in loading (due to varying wastewater characteristics);
 - (vii) Consequences of overloading the system;
 - (viii) Consequences of underloading the system;
 - (ix) Consequences of lack of operation, maintenance and monitoring attention; and
 - (x) Any other relevant considerations related to the use of the system.

2.12. The following reports must be submitted to the *permit authority* and owner and be made available to the *Director* upon request after commissioning of the installation:

- *Installation and commissioning report*

Where an Installation and Commissioning Report is required it is to cover the 'as-constructed' records of the system installation together with the results of any required *commissioning* tests to demonstrate correct construction and installation and is to be provided to the owner and *permit authority* on completion of the work. (Refer to and AS/NZS 1547 Clause 6.2.5.4.

- *Inspection and Maintenance Report*

Maintenance reports covering any required ongoing inspection and maintenance operations in order to monitor the operation of the installation. (Refer to AS/NZS 1547 Clause 6.3.5, Appendix T & U).

2.13. Effluent distribution by sub-surface application may be permitted where the permit authority is satisfied that the application for a permit to install the system has demonstrated that:

- (f) the effluent can be retained within the authorised land application area;
- (g) the system has been designed and is capable of being installed and maintained in accordance with AS/NZS 1547.
Note that each application to a permit authority to install a system must also be accompanied by a copy of a completed GSF Design Report endorsed by the supplier, showing the footprint of the proposed system and number of modules for the site;
- (h) the location of the system satisfies the relevant requirements of the State Policy on Water Quality Management 1997; and
- (i) the discharge is capable of satisfying the relevant water quality limits (see 5.2).

3. Installation and Commissioning

- 3.1. The installation and operation of the system must comply with the conditions of accreditation and the *manufacturer's* instructions, in particular the “GSF Design Installation Manual (Nov 2015) and Operation & Maintenance” sections.
- 3.2. All plumbing work carried out in connection with the system installation must satisfy the requirements of the *Building Act 2000*, TPC and the Tasmanian Plumbing Regulations and be carried out by a *plumber* with the appropriate competencies.
- 3.3. An inspection/sampling point must be installed permanently.
- 3.4. All installations of the system must satisfy the installation requirements set out in *Appendix A1 – On-site Waste Water Management Systems of the TPC*.
- 3.5. Each system installation must be inspected and checked by the *designer* or the designer's agent. The *designer* on completion is to certify that the system has been constructed, installed and *commissioned* in accordance with its design, the conditions of accreditation and any additional requirements set out in the *permit*.

NOTE: Where the *designer* is not available to supervise the installation the *designer* should obtain signed certification from the installing *plumber* stating that the installation has been constructed/installed and *commissioned* in accordance with its design and the conditions *Permit*.

- 3.6. Copies of any report or certificate required by the conditions of accreditation must be made available to the *Director* on request.

4. Maintenance and monitoring

- 4.1. The septic tank that feeds into the system must be regularly monitored and maintained (including de-sludging) in accordance with the conditions of the permit and *manufacturers* recommendations. Failure to do this may cause premature failure of the system.
- 4.2. Routine maintenance shall be in accordance with the written requirements of the manufacturer. However, routine monitoring may be required by the permit authority, in the event of failure of the system's land application area.

Notes:

Only a *plumber* can carry out the maintenance and required monitoring of the *system* other than electrical work unless licensed to do so.

The *plumber* should complete training with the *supplier* before carrying out any maintenance on the *system*.

5. Performance

5.1. Hydraulic and Organic Loading:

The system is accredited for treatment of domestic wastewater from a septic tank connected to residential and commercial premises with the following **MAXIMUM** hydraulic and organic loads:

| Model | Max Hydraulic load (L/day) | Biochemical Oxygen Demand |
|----------------|----------------------------|---------------------------|
| GSPSFWL | 72L/day per module | 12.7mg/L |

6. Ongoing management

- 6.1. Where a *system* installed at a site has been found not to operate satisfactorily during its service life, and as a result requires modification to achieve the required performance requirements, in particular, water quality limits, the installed *system* is to be modified accordingly. Any modifications including any of the *supplier's* rejuvenation procedure outcomes must be recorded on the service report.
- 6.2. The *systems* associated septic tank is to be de-sludged every three but not exceeding five years and the sludge is to be disposed of in accordance with the Tasmanian Biosolids Reuse Guidelines and the conditions of *permit*.
- 6.3. Only persons with a waste transport business Environment Protection Notice are to be engaged for the removal, transporting and disposal of accumulated sludge.
- 6.4. Any waste material removed from the septic tank or *system* must be collected and disposed of or utilised by an approved facility or agency.

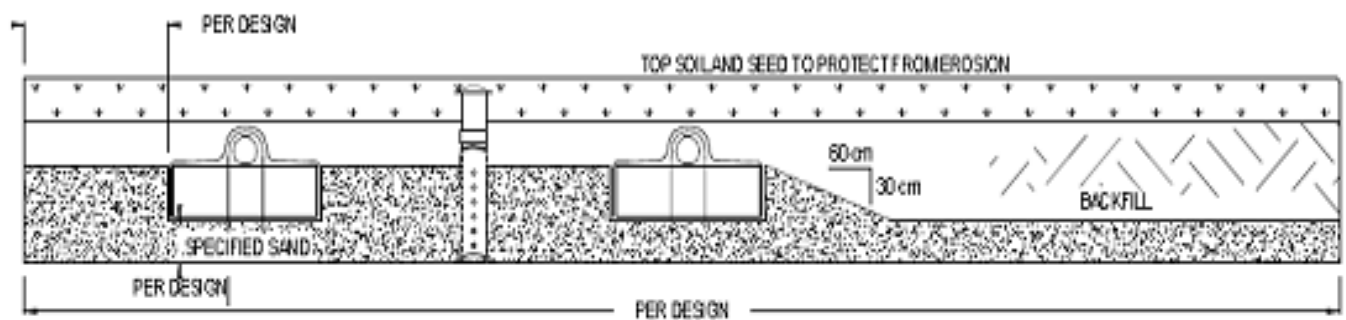
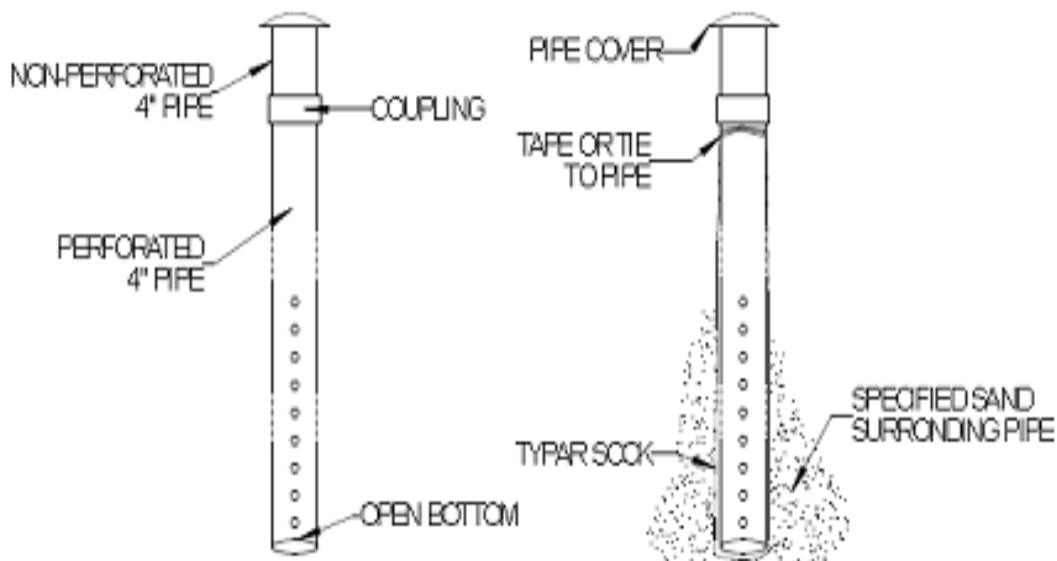
7. Permit uses

- 7.1. The effluent is suitable for sub-surface absorption only.

Inspection/Monitoring Port


The system shall include an Inspection/Monitoring Port designed and installed with access from the ground surface. It shall be open and slotted at the bottom, and be void of sand or gravel to the infiltrative surface to allow visual monitoring of standing liquid in the trench. The figures below depict construction and placement of the Inspection/Monitoring Port. Positioning the port in accordance to your local regulations and specifications with at least one inspection port per bed.

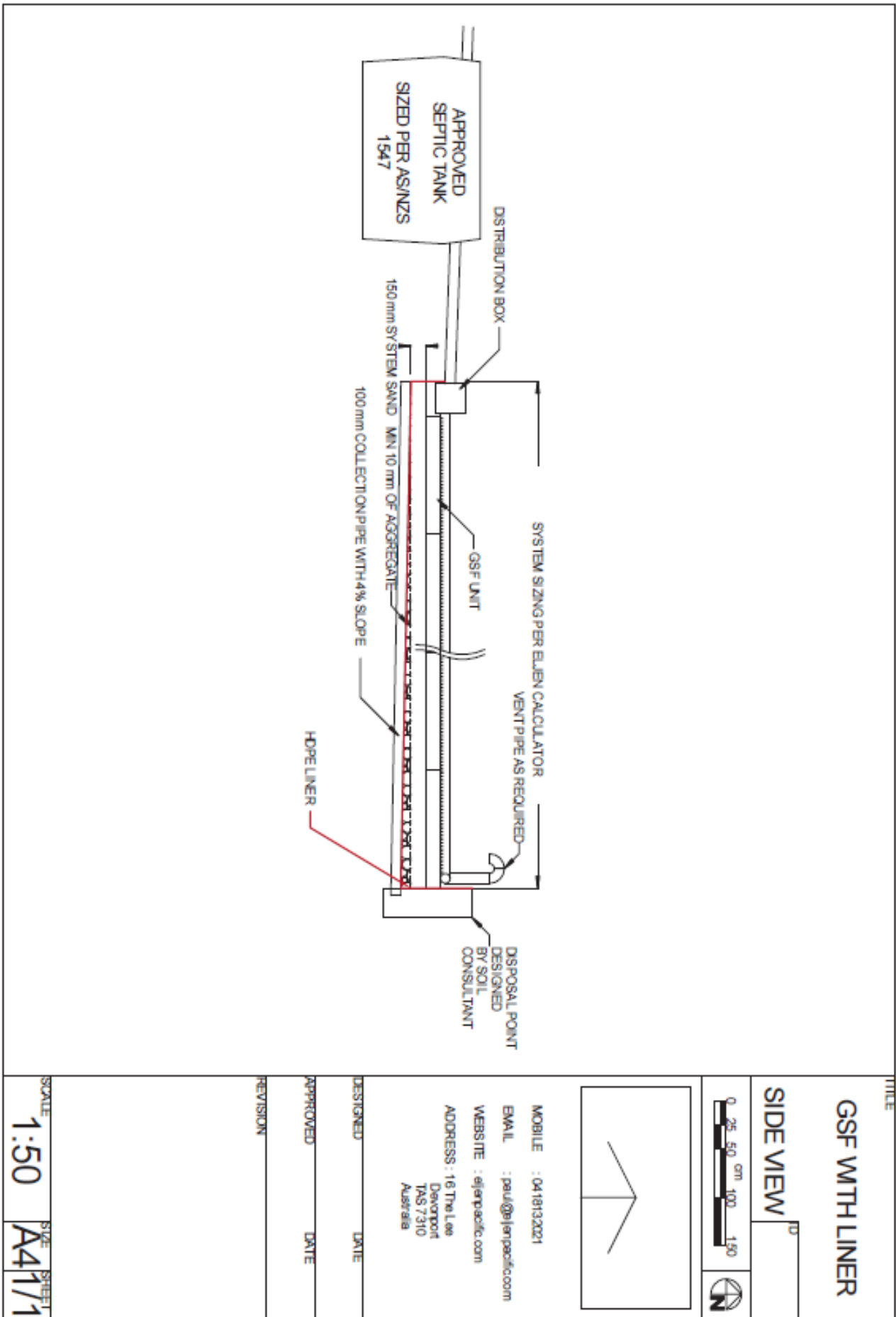
FIGURE 14: MONITORING WELL FOR SAND-SOIL INTERFACE



Example

Eljen GSF System Sizing Calculator Print Out

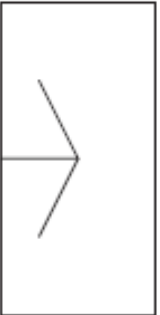
|  | | Eljen GSF System Design Program | | | |
|---|-----------------|---------------------------------|---------------------------|-------------------------|---|
| Date: | | Client Name: | | | |
| Site Address: | | | Council Area: | | |
| Designer: | | Designer Phone Number: | | QBSA License Number: | Is this new construction <i>Y or N:</i> |
| Plumber: | | Plumber Phone Number: | | Plumber License Number: | |
| <i>Note: This design program is a guide only. All design constraints and limitations must be addressed by the designer prior to design and installation.</i> | | | | | |
| System Design Information | | | Design Notes and Comments | | |
| Design Occupancy (Number of persons): | 4 | | | | |
| Daily Design Flow (L/Person/Day): | 150 | | | | |
| Total Daily Design Flow (L/Day): | 600 | | | | |
| Trench, Bed or Mound | Bed | | | | |
| Soil Category <small>(Note: Soil Categories 4-6 May Require additional design consideration. Please reference AS/1547 2012 when designing in these soil types.)</small> | 2 - Sandy Loams | | | | |
| Site Design Loading Rate (L/mm/day): | 10 | | | | |
| System Area Slope (%): | 3 | | | | |
| System Basal Area Bore Log Depth: <small>(Note: Must be greater than 600 mm)</small> | 600 | | | | |
| Maximum System Length Based on Site Constraints: | 18 | | | | |
| Desired Rows or Trenches in System | 2 | | | | |
| Distribution Type <small>(G = Gravity - P = Pump to Gravity - LPD = Low Pressure Distribution):</small> | G | | | | |
| System Dimensions | | | | | |
| Would you like to use a specific width? (y or n) Not applicable | | | y | | |
| Specific Width (m) | | | 5 | | |
| | | Treatment Zone | Dispersal Zone Extension | | |
| Length (m) | | 8.84 | 12.00 | | |
| Width (m) | | 2.00 | 5 | | |
| Sand Height (m) | | 0.15 | 0.15 | | |
| Sand Area (m ²) | | 17.68 | 60 | | |
| System Capacity | | | | | |
| Total Daily Design Flow (L/Day): | | | 600 | | |
| Minimum Number of A42 Units Required | | | 14 | | |
| Units per Row | | | 7 | | |
| Length of Rows with 0.15 m Sand Extension | | | 8.84 | | |
| End to End Space Between Modules (TRENCH ONLY) | | | | | |
| Materials | | | | | |
| Minimum Number of A42 Units Required | | | 14 | | |
| Effluent Filter | | | 1 | | |
| Pipe Required (m) | | | 17.68 | | |
| Estimate of System Sand Required (m ³) | | | 18,2648 | | |



TITLE

GSF WITH LINER

SIDE VIEW



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WEBSITE : elipacific.com

ADDRESS : 16 The Lee
Devonport
TAS 7310
Australia

DESIGNED _____ DATE _____

APPROVED _____ DATE _____

REVISION _____

SCALE **1:50** SIZE SHEET **A41/1**

