



Tasmania

Certificate of Accreditation

On-Site Waste Water Management System

This Certificate of Accreditation is hereby issued by the Minister for Justice and Workplace Relations pursuant to Section 59(2) of the Building Act 2000 and Part G2 of the Tasmanian Plumbing Code 2006.

System: Wet Innovations Domestic (WI-D) AWTS

Manufacturer/ **JM Waste Pty Ltd,**
Supplier: ACN:128 331 411

Trading as: **Wet Innovations**

Of: **135 Karinie Street, Swan Hill, Victoria, 3585**

*This is to certify that the **Wet Innovations Domestic (WI-D) Aerated Wastewater Treatment System (the system)** as described in Schedule 1, has been accredited as an on-site waste water management system for use in single dwellings within plumbing installations in Tasmania. This accreditation is subject to the conditions of accreditation and permitted uses specified in Schedule 2, and in accordance with the Tasmanian Plumbing Code 2006.*

Kerrie Crowder

Director of Building Control

delegate of the Minister for Justice and Workplace Relations

Date of Issue: 5 May 2011

Certificate No: BSR0609/2011

This Certificate of Accreditation is in force until 4 May 2012

SCHEDULE 1: Specification

Wet Innovations Domestic Aerated Wastewater Treatment System

General Description

The Wet Innovations Domestic ('the system') collects and treats domestic wastewater.

For Engineering drawings refer to Appendix A.

For treatment system schematic drawings and flow path, refer to Appendix B.

For treatment system components list refer to Appendix C

System Components (refer also to Appendix C):

A 7900L fibreglass reinforced polyester tank containing:

- a 4023L primary treatment chamber with four compartments;
- a 120L Ozofractionation (ozonation) chamber with ozone supply via an air diffuser;
- a 2497L biological aeration chamber;
- a 120L foam fractionation chamber with venturi pump;
- a 881L clarification and effluent storage and irrigation pump chamber;
- Avarhil electronic controller and alarm system.

Energy consumption


Estimated Electricity Usage for a 4 person household with average wastewater flows and loads:

Electrical Equipment	Watts	Daily operation (hours)	kWh/year	Estimated ~Annual Cost @ ~\$0.20/kWh
Tsurumi 40PU2.15S Ozofractionation Pump	150	min 6 max 24	329 to 1314	\$66 to \$263
Remair Air pump	41.4	min 6 max 24	91 to 363	\$18 to \$73
Claytech Blue Diver 20 pump	600	0.5	110	\$22
Electronic controller	8	24	70	\$14

Description of Treatment Processes

a) Wastewater flows into the first compartment of the Primary Chamber through an inlet below the scum and crust layer that forms in the chamber. Each compartment is separated by a baffle. After more than 27 hours of sedimentation, flotation and anaerobic digestion in the primary compartments, the primary treated effluent flows into the Ozofractionation Chamber.

b) Ozofractionation is a combination of ozonation and foam fractionation. Ozone is generated in the control box when high voltage discharge passes across a gas stream containing oxygen.

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The ozone causes the organic compounds in the wastewater to oxidise and facilitates increased flocculation and fractionation.

- c) The air and ozone is supplied to the Ozofractionation chamber by a diffuser, creating millions of tiny bubbles in the wastewater which attract dissolved organic molecules, trace elements and flocculated organic matter. The air bubbles laden with dissolved and particulate material rise to the surface of the Ozofractionation Chamber forming a surface layer of foam which is returned to the Primary Treatment Chamber. The residence time in the Ozofractionation Chamber is 1 hour and twenty minutes.
- d) The partially-treated wastewater flows into the Biological Aeration Chamber where it remains for 27 hours while bacteria digest the organic solids, utilising the oxygen supplied and circulated by the venturi injector.
- e) After biological metabolism in the Aeration Chamber, the wastewater flows into the Foam Fractionation Chamber where air and waste ozone from the Ozofractionation Chamber, drawn from the venturi injector, causes foam to again form on the surface of the liquid. The foam laden with suspended and dissolved solids is returned via an interconnecting pipe to the Primary Chamber. The residence time in the Foam Fractionation Chamber is 1 hour and twenty minutes.
- f) The liquid from the Foam Fractionation Chamber flows into the final Clarification Chamber which also acts as the final effluent storage chamber and houses the irrigation pump well. The residence time in the Clarification Chamber is 10 hours. The solids which settle out in the Clarification Chamber are periodically removed by the service agent and returned to the Primary Treatment Tank.
- g) Effluent is dispersed to the land application area typically using the Geoflow™ Wasteflow™ or Netafim™ sub-surface irrigation system in accordance with Australian Standard AS/NZS 1547 Onsite Wastewater Management.
- h) Sludge removed from the Primary Treatment Chamber is tankered off-site to a centralised sewage treatment plant.
- i) The system is designed for domestic waste water flows in accordance with AS/NZS 1546.3 and is capable of achieving a BOD₅ less than or equal to **20 g/m³** and a TSS less than or equal to **30 g/m³**.
- j) No Chlorine sterilization is used in the system.

Schedule 2: Conditions of Accreditation

1.0 Definitions

In this schedule:

AS/NZS 1547 means the Joint Australian/New Zealand Standard 'AS/NZS 1547:2000 On-site domestic-wastewater management';

AS/NZS 1546.3 means the Joint Australian/New Zealand Standard 'AS/NZS 1546.3:2001 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';

Council means 'the Municipal Council having jurisdiction';

Commissioned means 'when the test results from a NATA Certified Laboratory show that the water quality requirements for the AWTS have been met and all pre-commissioning tests have been carried out in accordance with AS/NZS 1547 on all associated equipment and the sub-surface irrigation system';

Designer means 'a person who has a specialty in the area of designing on-site waste water management system installations and may include but not be restricted to appropriately trained professional engineers, soil scientists, land surveyors and plumbers';

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';

g/m³ means grams per cubic metre

Manufacturer means '**JM Waste Pty Ltd,** trading as **Wet Innovations**;

N means 'Nitrogen';

NATA means 'National Association of Testing Authorities';

PCA means 'Plumbing Code of Australia 2004';

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';

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 **Wet Innovations Domestic is JM Waste Pty Ltd, trading as Wet Innovations**;

System means '**Wet Innovations Domestic**';

TPC means the 'Tasmanian Plumbing Code 2006';

TSS means 'Total Suspended Solids'.

2.0 General

- 2.1 The *system* must be supplied, constructed and installed in accordance with the design submitted and accredited by the *Director*.
- 2.2 The *system* must not be installed in a plumbing installation other than in accordance with the conditions of permit issued by the *Permit Authority*.
- 2.3 Each *system* must be permanently and legibly marked on a non-corrosive metal plaque or equivalent, attached to the lid with the following information:
- The brand and model name or designation of the system;
 - The *manufacturer's* name or registered trademark;
 - Top load limitations; and
 - The month and year of manufacture.
- 2.4 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 and sampling procedures to be followed as part of the on-going monitoring and program required by the *permit authority*.
- 2.5 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.
- 2.6 Each application to a *permit authority* to install a *system* must be accompanied by a site-and-soil evaluation report and design report in accordance with AS/NZS 1547 as appropriate.
- 2.7 The *supplier* must provide the following information to each *permit authority* where it is intended to install a *system* in their jurisdiction:
- 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
 - Certificate of Accreditation and Schedules.
- 2.8 This Certificate of Accreditation is valid for **one (1) year** from the date of issue or until withdrawn by the *Director*.
- 2.9 Before expiry of this Certificate of Accreditation, an application must be submitted to the *Director* for a new Certificate of Accreditation for a system modification that provides a minimum emergency storage of 1,000L without cross-contamination between any of the chambers.
- 2.10 At least six months before the expiry of this Certificate of Accreditation, a completed Application for Accreditation must be submitted by the manufacturer to the *Director* for the

purpose of verification of the system's performance. The effluent from systems installed in Tasmania must be tested to ensure that they comply with the Requirements of AS/NZS1546.3.

2.11 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. The *Director* may randomly select up to 10% of the installed systems from each year of installation. The *Director* will notify the *supplier's* nominated NATA accredited laboratory which systems are to be sampled and tested for *BOD₅* and *TSS*. The sampling and testing of the selected *systems* 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;
- *BOD₅*;
- *TSS*; and
- Service history

2.12 Where a *system* has been found not to operate satisfactorily during its serviceable life, and as a result require modification to achieve the required water quality limits, all installed *systems* are to be modified accordingly.

2.13 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.

2.14 The *system* must not be deployed to areas where seasonal climatic conditions will negatively affect its proper operation (refer to *manufacturer's* specifications).

2.15 Prior to the granting of a *permit* to install a *system* the following reports must be submitted with an application to the *permit authority*:

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 4.1.5 and associated appendices to 4.1).

Design report

The Design Report is to 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 4.2.4 and associated appendices to Clause 4.2 for further information).
- (c) A report on the selection of the wastewater-treatment unit. (Refer to AS/NZS 1547, Clause 4.3.6 and associated appendices to Clause 4.3 for further information).
- (d) Sufficient information to show that the relevant performance requirements set out in the *PCA* have been met.
- (d) 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.

2.16 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 *system*:

Installation and commissioning report

The Installation and Commissioning Report is to cover the 'as-constructed' records of the *system* installation together with the results of *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 4.5.6.3 and associated appendices to Clause 4.5).

Inspection and Maintenance Report

Maintenance reports cover ongoing inspection and maintenance operations in order to monitor the operation of the installation. (Refer to AS/NZS 1547 Clause 3.7.4 and associated Appendix 3A).

2.17 Where the supplied pump is not suitably rated for the proposed land application area it must be replaced with a pump which has a rated capacity that matches the hydraulic characteristics of the irrigation system and be capable of discharging at least 50% more than the 30 minute flow rate. For drip irrigation systems, ensure that drip emitter flow rates do not vary more than 10% from the design rate over the whole of the system when installed on a sloping site.

Note: The pump selection is to be based on flow, head loss and pressure requirements

2.18 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 the:

- (a) effluent can be retained within the authorised land application area;
- (b) where applicable the land application system has been designed and is capable of being installed and maintained in accordance with AS/NZS 1547;
- (c) the location of the land application system satisfies the relevant requirements of the *State Policy on Water Quality Management 1997*; and
- (d) the discharge is capable of satisfying the relevant water quality limits (see 5.7).

3.0 Installation and Commissioning

- 3.1 The installation and operation of the *system* must comply with the conditions of accreditation and the *manufacturer's* instructions.
- 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 registered plumber with appropriate training and qualifications.
- 3.3 All installations of the *system* must satisfy the installation requirements set out in *Appendix A1 – On-site Waste Water Management Systems* of the *TPC*.
- 3.4 All electrical work must be carried out by a licensed electrician and in accordance with relevant provisions of AS/NZS 3000.
- 3.5 The *system* requires a 240V AC power supply. A weather-proof isolating switch must be provided at the power outlet. The power supply must have its own clearly marked designated circuit breaker in the electricity supply fuse box.

- 3.6 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, the conditions of accreditation and any additional requirements of the *council* and/or *permit authority*.
- 3.7 Where discharging wastewater to a land application system by irrigation, a lockable sampling tap or gate valve is to be provided on the outlet pipe to the irrigation system.
- 3.8 A report is to be prepared by the *council* approved plumbing contractor detailing the inspection of the installation and the results of the *commissioning* tests and be accompanied by a certificate certifying that the system is operating and performing adequately.
- 3.9 Copies of the following reports/certificates must be submitted to the *council* and the owner as soon as practicable after the commissioning of the *system* and after each scheduled or unscheduled service or inspection for the period specified in the *permit*:
- (a) The initial plant installation and commissioning report;
 - (b) All required laboratory analytical test reports; and
 - (c) All inspection and maintenance reports
- 3.10 Copies of any report or certificate required by the conditions of accreditation must be made available to the *Director* on request.
- 3.11 The *designer* is to provide a statement warning the user of which items and products that must not be placed in the *system*.
- 3.12 To verify that the plant is commissioned, sampling must be carried out, by a *council* approved person, for *BOD₅*, and *TSS*. The samples are to be tested and reported on by a NATA certified laboratory.

4.0 Maintenance and monitoring

- 4.1 Each installation must be serviced and monitored at not less than 3 monthly intervals in accordance with the conditions of accreditation, the conditions of *permit* and *manufacturer's* requirements.
- Notes:**
- 1. Only a licensed plumber can carry out the maintenance and required monitoring of the *system* other than electrical work unless licensed to do so.
 - 2. The licensed plumber may need to complete training by the *supplier* before carrying out any maintenance on the *system*.
 - 3. The maintenance and monitoring intervals may be combined provided the monitoring frequency remains at 3 month intervals.
- 4.2 The owner of the *system* must enter into and maintain a maintenance contract with the *council*, the *supplier* of the *system*, or other *council* approved plumbing contractor.
- 4.3 The owner must enter into an agreement with the *council* to maintain the maintenance contract where that contract is with the *supplier* of the *system* or other *council* approved plumbing contractor.
- 4.4 The *system* must be operated and maintained to ensure it performs continuously and without any intervention between inspections carried out by the *council* approved plumbing contractor.

- 4.5 A service report is to be prepared by the plumbing contractor who carried out the work detailing the inspection of the installation and the results of all servicing tests and conditions at the completion of all scheduled or unscheduled services or inspections.
- 4.6 The service report is to be accompanied by a signed certificate certifying that the system is operating and performing adequately.
- 4.7 A copy of the service report and certificate is to be provided to the occupant and *council*. Each service report is to contain a statement reminding the user of which items and products that must not be placed in the *system*.
- 4.8 Each service must include monitoring the operation of the *system* and associated land application system.
- 4.9 Maintenance must be carried out on all mechanical, electrical and functioning components of the *system* as appropriate.
- 4.10 The monitoring, servicing and reporting of the installation must include but not be restricted to the following matters, as appropriate:
 - (a) Reporting on weather conditions, ambient temperature, effluent temperature;
 - (b) Odour;
 - (c) Check and test pump
 - (d) Check and test air blower, fan or air venturi and clean/replace air filters;
 - (e) Check and test alarm system;
 - (f) Check slime growth on membranes and report the on condition of membranes;
 - (g) Check and report operation of sludge return, sludge level and de-sludging;
 - (h) Check and record water meter reading (if fitted);
 - (i) Check and record operation of irrigation area, irrigation fittings;
 - (j) Check and clean/replace irrigation filters, backflush irrigation system to remove biofilm scale as required;
 - (k) Check and report on water quality (testing for pH, Turbidity, EC and dissolved oxygen);
 - (l) Check and clean ozone generator and ozofractionation components;
 - (m) Cleaning of the following items at above the waterline–
 - I. clarifier,
 - II. pipework,
 - III. valves
 - IV. walls of chambers

5.0 Performance

5.1 Hydraulic and Organic Loading:

The system is accredited for treatment of domestic wastewater from residential and commercial premises with the following MAXIMUM hydraulic and organic loads:

Model	Hydraulic load (L/day)	Biochemical Oxygen Demand (g/day)
Wet Innovations Domestic	1687.5	525

Treated effluent from the system must not exceed the following limits (90% of samples):

For sub-surface irrigation:	
5-day Biochemical Oxygen Demand (BOD ₅)	20 g/m ³ (max. 30 g/m ³)
Total Suspended Solids (TSS)	30 g/m ³ (max. 45 g/m ³)

6.0 On-going management

- 6.1 The mandatory servicing and monitoring is to commence 3 months after the plant is *commissioned*. The servicing and monitoring is to coincide with the *supplier's* required on-going routine scheduled maintenance program.
- 6.2 Where any *systems* have been found not to operate satisfactorily during their service life, and as a result require modification to achieve the required performance requirements, in particular, water quality limits, the installed *systems* are to be modified accordingly.
- 6.3 In the event of failure to comply with the water quality limits set out in these conditions, fortnightly sampling and testing for *BOD₅*, and *TSS* must be carried out until the plant is *re-commissioned*.
- 6.4 The method of preserving and the handling of samples taken from the plant must satisfy the relevant requirements of *AS/NZS 5667*.
- 6.5 Copies of the following reports and certificates must be submitted to the *permit authority* and the owner as soon as practicable after the *commissioning* of the *system* and after each scheduled or unscheduled service for the period specified in the *permit*:
- the initial plant installation and *commissioning* report
 - all laboratory analytical test reports; and
 - all inspection and maintenance reports
- 6.6 The system is to be de-sludged strictly in accordance with the *manufacturer's* recommendations and the sludge is to be disposed of in accordance with the Tasmanian Biosolids Reuse Guidelines and the conditions of *permit*.
- 6.7 Only persons with a waste transport business Environment Protection Notice are to be engaged for the removal, transporting and disposal of accumulated sludge removed from the *system*.
- 6.8 Any waste material removed from the system must be collected and disposed of or utilised by an approved facility or agency.
- 6.9 Measures are to be put in place during servicing that will protect the environment, personnel and any other persons who could be affected by the activity.

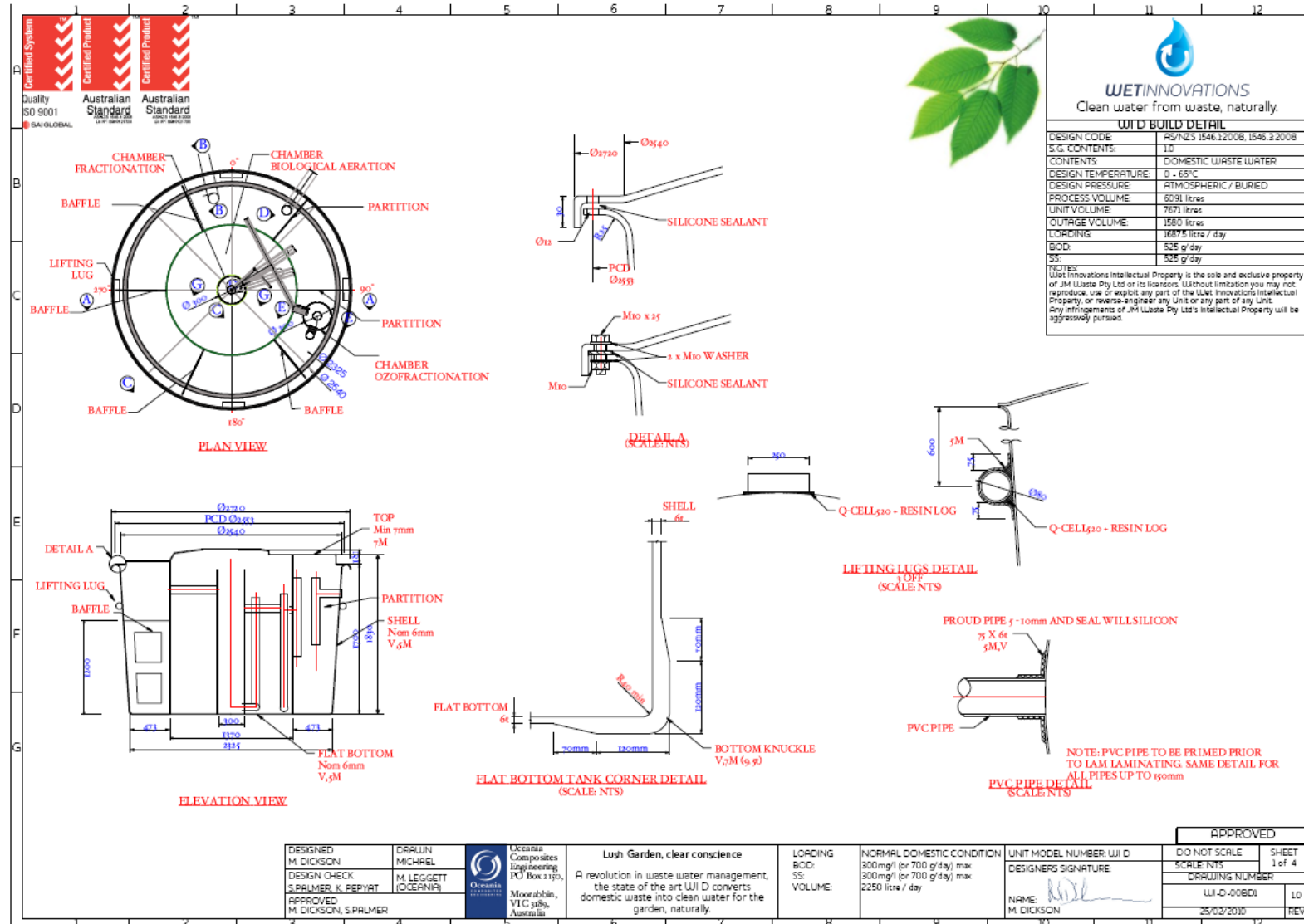
7.0 Permitted uses

- 7.1 The effluent is suitable for land application by way of the following forms:
- sub-surface by:
 - subsurface drip irrigation in accordance with the relevant provisions of *AS/NZS 1547*;
 - trenches, beds, mounds, evapo-transpiration systems in accordance with the relevant provisions of *AS/NZS 1547*;

Note: Each of the above forms of irrigation is subject to consent from the *permit authority* and the relevant provisions of *AS/NZS 1547*.

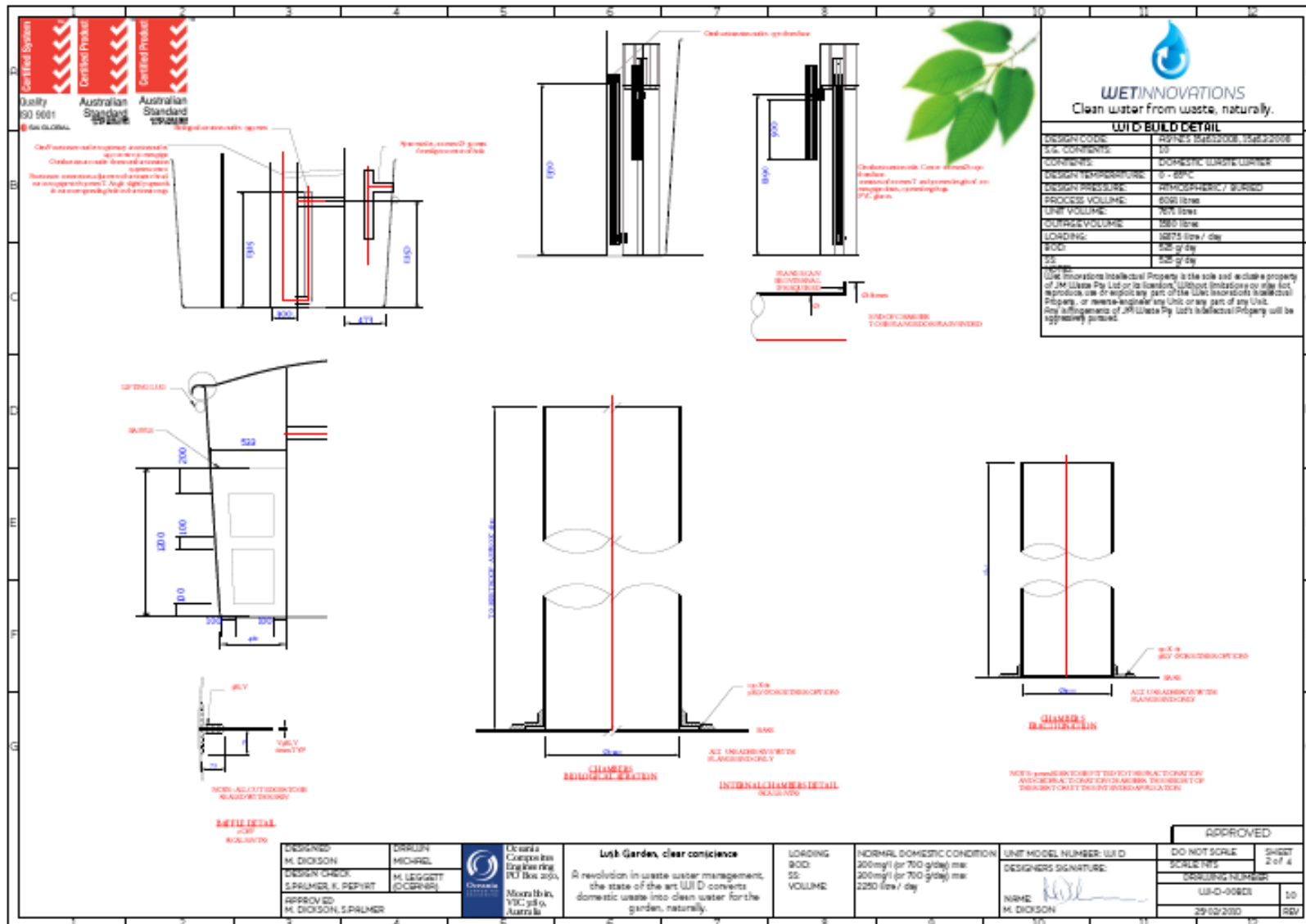
- 7.2 Where it is not practicable for effluent from the system to be applied in accordance with *AS/NZS 1547* the method of discharge must satisfy contemporary relevant regulatory requirements to the satisfaction of the *permit authority*.

Appendix A - Engineering drawings Wet Innovations Domestic



Date of issue: 5 May 2011

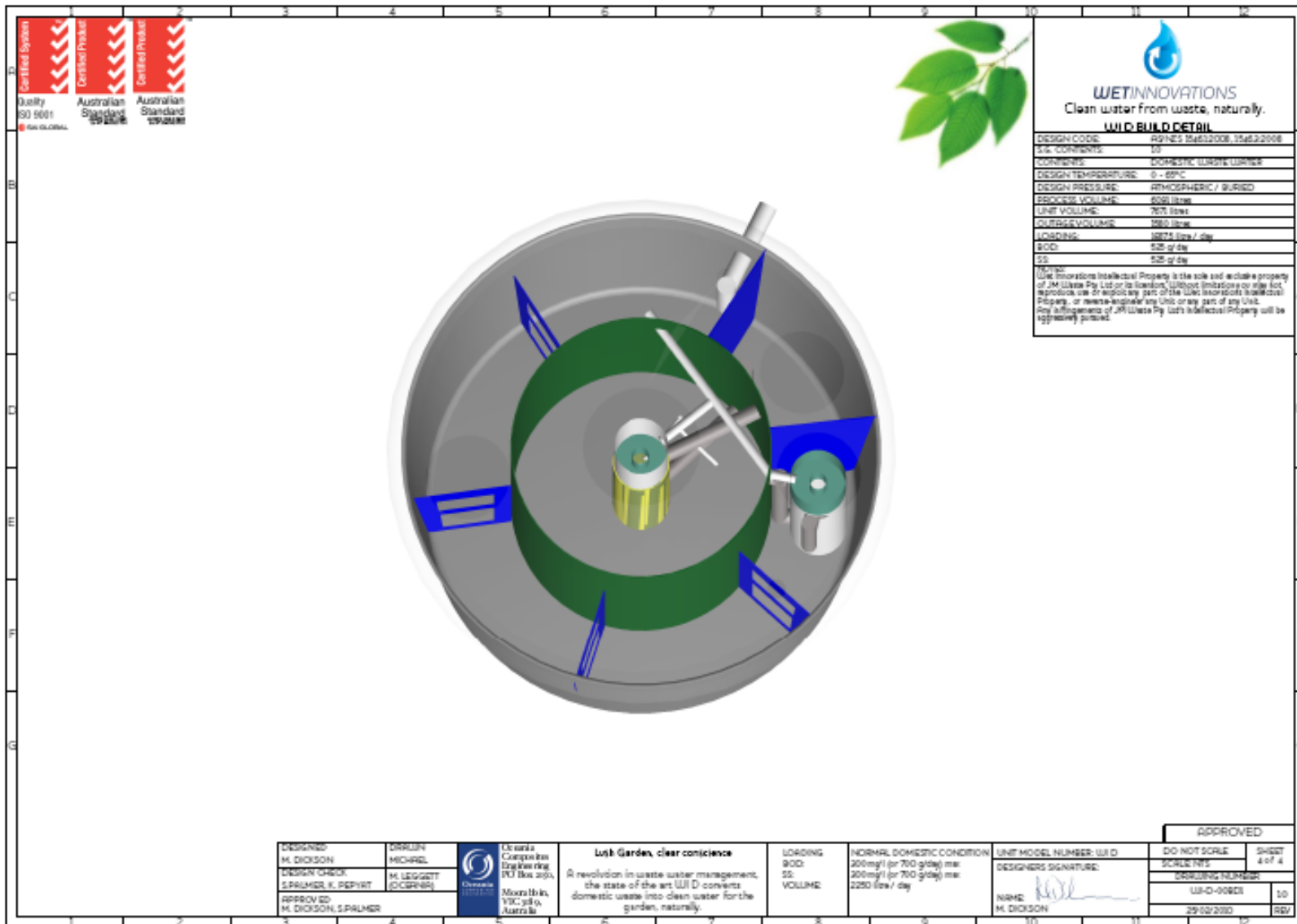
Director, Building Control
delegate of Minister for Workplace Relations




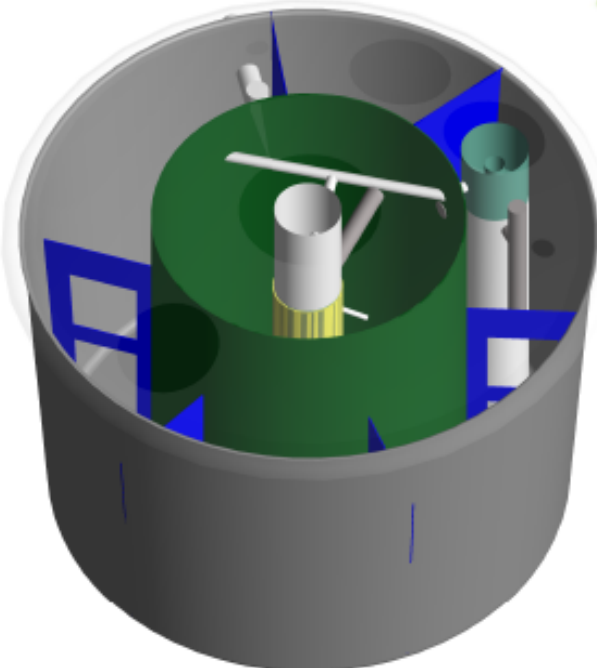
Date of issue: 5 May 2011


Director, Building Control
delegate of Minister for Workplace Relations

Appendix B - Schematic Drawings









WETINNOVATIONS
Clean water from waste, naturally.

WU-D BUILD DETAIL

DESIGN CODE:	WUDES 24612008_154622008
UIC CATEGORY:	U1
FUNCTIONS:	DOMESTIC WASTE LUNDS
DESIGN TEMPERATURE:	0 - 60°C
DESIGN PRESSURE:	ATMOSPHERIC / BURIED
BRICKS VOLUME:	6000 litres
UNIT VOLUME:	700 litres
COURTSE VOLUME:	3800 litres
LOADING:	10000 litres / day
QOD:	525 g/dw
SS:	525 g/dw

WU-D
Wet Innovations Intellectual Property is the sole and exclusive property of WU Waste Pty Ltd or its licensors. Without limitation or in any form, approach, use or require any part of the WU-D incorporates Intellectual Property, or reverse-engineer any Unit or any part of any Unit. Any infringement of WU Waste Pty Ltd's Intellectual Property will be aggressively pursued.


DESIGNED:	M. DICKSON
DRAWN:	MICHAEL
CHECKED:	S. PALMER, K. PEPIET
APPROVED:	M. DICKSON, S. PALMER

UIC CATEGORY:	U1
FUNCTIONS:	DOMESTIC WASTE LUNDS

Wish Garden, clear conscience

A revolution in waste water management, the state of the art WU-D converts domestic waste into clean water for the garden, naturally.

LOADING:	QOD:	SS:	VOLUME:
NORMAL DOMESTIC CONDITION:	200mg/l (or 700 g/dw) max:	200mg/l (or 700 g/dw) max:	2250 litres / day

UNIT MODEL NUMBER:	WU-D
DESIGNER'S SIGNATURE:	
NAME:	M. DICKSON

APPROVED	
DO NOT SCALE	SHEET 4 OF 4
DESIGNING NUMBER:	WU-D-0001
DATE:	29/02/2008
REV:	

Date of issue: 5 May 2011

Director, Building Control
delegate of Minister for Workplace Relations



Appendix C - Component list

No	Waste Treatment System BOM	P/No	Supplier	Qty/Length
1	Air stone to hose joiner 20mm (Model: PCF 10-04 Brass)		O'Grady	1
2	the clear 8mm hose - length 2x2000mm - which is already fitted in box at Ozo unit and goes to primary chamber (4000)	1243291	Tradelink	6000
3	Teflon Tape	5500424	Wet Tech	1
4	50mm pipe coming out - length 30mm, 2x270mm, 850mm (1420)	010002	Tradelink	3000
5	50mm 45° elbow	010094	Tradelink	2
6	50mm tee with	010097	Tradelink	1
7	There are 100mm Coupling	010309	Tradelink	2
8	100mm Caps	010338	Tradelink	2
9	Red Primer	010917	Tradelink	1
10	25mm class 12 pipe - length 30mm, 200mm, 220mm, 250mm, 520mm, 550mm, 1120mm (2890mm)	011074	Tradelink	6000
11	90mm PVC Class 12 Pipe - length 1220mm high (1220)	011175	Tradelink	3000
12	300mm pipe - length 345mm, 550mm, 1330mm, 1365mm (3590mm)	011179	Tradelink	4000
	400mm pipe - Length		Tradelink	
13	90mm x 90° elbow	011261	Tradelink	2
14	90mm Tee (glue top & bottom, middle must have female thread)	011261	Tradelink	1
15	25mm 45° elbow	012038	Tradelink	1
16	25mm 90° elbows	012053	Tradelink	2
17	25mm 90° Faucet Elbows	012081	Tradelink	2
18	Socket Valve 25mm	012149	Tradelink	3
19	25mm Tee	012190	Tradelink	1
20	25mm Barrell Union	012290	Tradelink	1
21	32/25mm compression coupling (which goes in between the 300mm pipe & is glassed in)	012356	Tradelink	1
22	1"/3/4" Reducing Poly Bush - attached to side of Tee	014980	Tradelink	2
23	25mm Hex Poly Nipple	015090	Tradelink	2
24	25mm Female Poly Tee	015239	Tradelink	2
25	White Cable Ties	029580	Tradelink	4
26	12mm poly tubing - length 50mm, 70mm, 2800mm, 2x3500mm (9920mm)	082680	Tradelink	12000
27	12mm poly elbow	083875	Tradelink	2
28	and on top of hole is 90mm PVC overflow (top hat)	090212	Tradelink	1
29	3/4" BSP to 12mm Barb	12432294	Tradelink	2
30	25mm Poly tank fitting	12902761	Tradelink	1
31	Green Glue	13374478	Tradelink	1
32	Tsurumi Pump 40PU2.15S, including Float switch coming from side of Clarification Chamber & otherside of gland clamp	40PU2.15S	Pentair	1
33	Teflon Tape	5500424	Wet Tech	1
34	WI 24/36 Venturis - attached to bottom of Tee	801059	Pentair	2
35	D42 A/B Sump Pump	D42A/B	Davey	1
36	16mm gland clamp	LANMG16	L&H	7
37	attached to 20mm Gland to wall	LANMG20	L&H	1
38	300mm disk, no hole on bottom of	TBA	Mulfords	2
39	300mm disk with hole in it	TBA	Mulfords	2
40	Air Stone, then	TBA	Aquasonics	1
41	5/8" 55mm long Hex bolts, washers & Nuts	TBA	Karinie BS	8
42	Wallace seal	XSW50SW	Indac	3
43	Lifting Lugs on sides on tanks - 90mm pipe		Wet Tech	4
44	1 Lock & 3 x levered locks (refer to Noel)		Lock Focus	4
45	Controller box housing		Avarhil	
46	Controller box excluding air pump		Avarhil	
47	Controller box inc air pump		Avarhil	1
48	Controller box inc high level, start & stop switches etc		Avarhil	0
49	Controller box Air pump			1
50	Name Plate		LNI	1
51	Sub Total			
52	Biological aeration cylinder		TWSH	1
53	Bucket		TWSH	1
54	Lid		TWSH	1
55	Table fittings		TWSH	2

Date of issue: 5 May 2011

Director, Building Control
delegate of Minister for Workplace Relations
