

WETINNOVATIONS Service Manual



Clean water from waste, naturally.

Proudly Australian designed and manufactured by:



WETINNOVATIONS

www.wetinnovations.com.au

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Introduction

Wet Innovations manufacture the finest domestic and commercial wastewater treatment systems available. These systems combine traditional organic waste treatment processes with state of the art separation and oxidation technologies to produce the most effective and biologically sound units of their kind.

The Wet Innovations 2250 is designed for the on site treatment of domestic wastewater to a capacity of 10EP.

Examples of 10 EP applications:

- 8 bed room house with standard water reduction fixtures
 - 10 bed room house with full water reduction facilities
 - 90 head / day tearooms with restrooms
 - 75 head per night restaurant
 - 50 child day care centre
-

The Wet Innovations Domestic is designed for the on site treatment of domestic wastewater to a capacity of 16875 litres per day.

Examples of Domestic applications:

- 4 bed room house with standard water reduction fixtures
 - 7 bed room house with full water reduction facilities
-

All Wet Innovations models are designed to exacting standards that meet or exceed those defined in AS/NZS 1546.1, AS/NZS 1546.3, and AS/NZS 1547 creating the new best practise in the water treatment industry. All our models are constructed using the latest techniques from the finest materials and yield an end product of superior quality and clarity without the use of Chlorine.

Wet Innovations guarantee workmanship

Operation and Maintenance procedures are handled exclusively by specially trained and accredited Service Agents to comply with best practice policy and ensure hassle-free performance.

This document outlines Operation and Maintenance Procedures and is designed as a reference for Accredited Service Agents Only.

Referenced Documents

The following documents are referred to in this manual:

- Wet Innovations Installation Manual
- Wet Innovations User Manual
- AS/NZS 1546.1 Septic tanks
- AS/NZS 1546.3 Aerated Wastewater Treatment Systems
- AS/NZS 1547:2000 On-site domestic wastewater management

Abbreviations

Abbreviations as utilised in this document are set out below.

- AWTS Aerated Wastewater Treatment System
- ORP Oxidation Reduction Potential
- SS Suspended Solids
- NFR Non Filterable Residue
- BOD5 5-Day Biochemical Oxygen Demand
- DOM Dissolved Organic Molecules
- TN Total Nitrogen
- TP Total Phosphorus

Description of Flow

Read in conjunction with Fig 1, Flow Description and Fig 2, Process Flow.

Sewage enters the Wet Innovations Model through the System Inlet (1) beneath a crust that forms in the Primary Chamber (2). Primary Treatment (A) occurs in the Primary Chamber and is a combination of gravity separation, anaerobic and aerobic digestion. Baffles (3) prevent the direct flow of wastewater through the Primary Chamber. Primary treated wastewater passes from the Primary Chamber to the Primary Treated Still Water Chamber (5) through a hole positioned in middle of the Crust Partition (4) that separates them.

Wastewater from the Primary Treated Still Water Chamber flows through the Ozofractionation Chamber (6) to the Biological Aeration Chamber (8). Ozofractionation (B) facilitates the removal by microfloculation of Non Filterable Residues (NFR) and Dissolved Organic Molecules (DOM) and the coagulation of colloidal sized particles and other suspended solids. It also increased the Oxidation/Reduction Potential (ORP) of the wastewater, which increases the efficiency of Biological Aeration (C).

Circular flow is generated in the Biological Aeration Chamber by water pumped (7) from the Fractionation Chamber (9) through an outlet positioned to effectively concentrate particles in the centre of the Biological Aeration Chamber. Water flowing through the Fractionation Chamber is drawn from just below the surface at the outer edge of the Biological Aeration Chamber and after Fractionation (D) flows to the Clarification Chamber (10).

Clarification (E) yields the final treated water that is pumped (7) through a sub-surface Irrigation (F) System (11) to the environment.

A small amount of water is pumped (7) continuously from the Ozofractionation Chamber to the Primary Treated Still Water Chamber through a Turnover (12) line to maintain flow through the Ozofractionation Chamber during periods of minimal loading. Suspended solids removed in the Ozofractionation and Fractionation processes are recycled to the Primary Chamber through Return (13) lines.

Fig 1 - Flow description

Key:

- 1 System inlet
- 2 Primary Chamber
- 3 Baffles
- 4 Crust partition
- 5 Primary treated still water chamber
- 6 Ozofractionation chamber
- 7 Pumps
- 8 Biological aeration
- 9 Fractionation chamber
- 10 Clarification chamber
- 11 Turnover
- 12 Waste foam return
- 13 Pumpout to subsurface irrigation

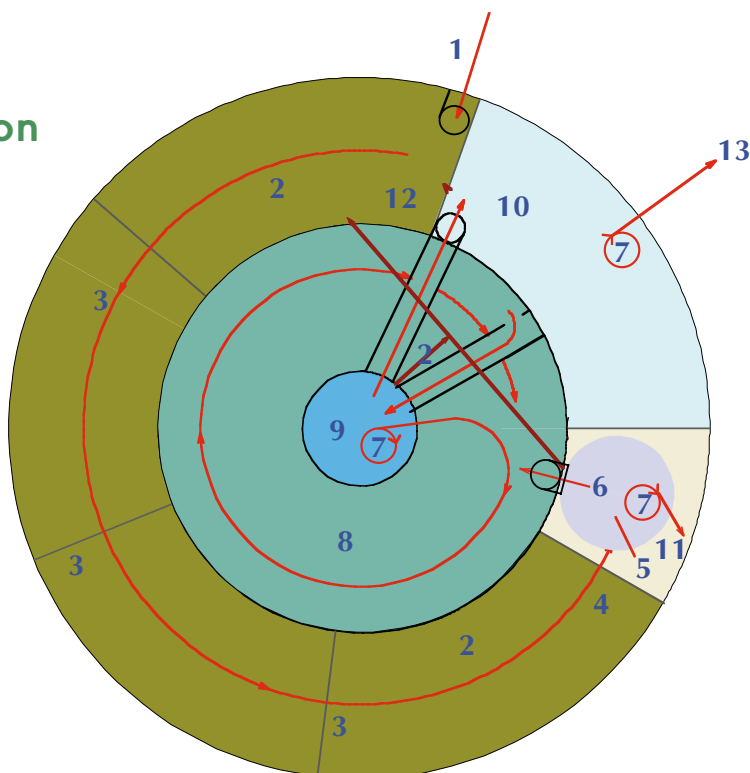
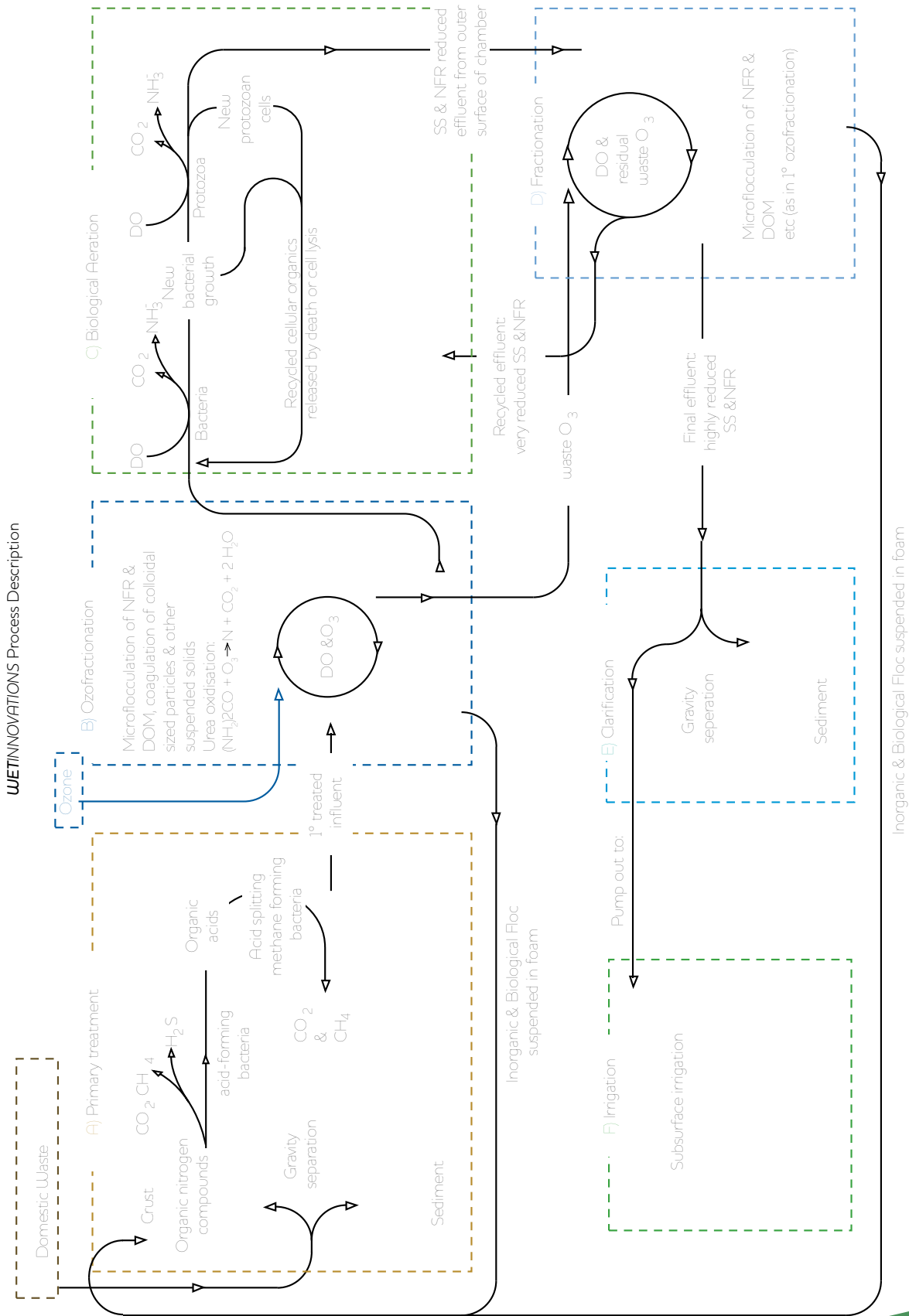


Fig 2- Process Flow



Description of Processes

The Processes that drive the Wet Innovations Models utilise a number of well known waste treatment technologies and some new and innovative techniques that are combined in such a way to provide the highest possible quality effluent for disposal to subsurface irrigation. The combination of the processes gives the Wet Innovations Models the ability to convert domestic waste in a wide range of environmental conditions - from under snow to the middle of an Australian summer.

Shock loading (big parties) will not create an issue as the Wet Innovations Models will continue to produce effluent within the AS/NZS 1546.3 and AS/NZS 1547:2000 standards whilst processing BOD levels of up to 835mg/l and SS levels of up to 4950 mg/l (compared with standard domestic wastewater which has levels for both BOD and SS in the range of 150 - 300mg/l).

A. Primary Treatment

The simplest and most common form of wastewater treatment is the septic tank, which has been used for domestic purposes for approximately 140 years with little change in design.

The Septic Tank is defined in AS/NZS 1546.1 as a single or multiple chambered tank through which wastewater is allowed to flow slowly to permit suspended matter to settle and be retained, so that organic matter contained therein can be decomposed (digested), by anaerobic bacterial action in the liquid. The term covers tanks used to treat wastewater, greywater and blackwater.

According to the standard, the function of a septic tank is to provide a relatively still zone of adequate size for the treatment of all domestic wastewater at all flow rates from a household, or institutional or commercial facility. Scum and solids capable of settling, are separated from the wastewater flow. The solids are retained, digested and consolidated between maintenance operations. The resulting non-biodegradable solids accumulate and are generally pumped out every 5 years in a usual IOEP application.

Gravity separation describes the process of flotation of fats and greases that form a crust (or scum) and the settling of solids to form an anaerobic sludge that is actively decomposed by bacteria. Anaerobic digestion converts bulky, odorous, raw sludge to a relatively inert material that can be rapidly dewatered with the absence of obnoxious odours. The bacterial processes summarised in Fig. 2 consists of two successive processes that occur simultaneously in digesting sludge.

The first stage consists of breaking down large organic compounds and converting them to organic acids along with gaseous by-products of carbon dioxide, methane and trace amounts of hydrogen sulphide. This step is performed by a variety of facultative bacteria operating in an environment devoid of oxygen. If the process were to stop there, the accumulated acids would lower the pH and would inhibit further decomposition by "pickling" the remaining raw wastes. In order for digestion to occur, second-stage gasification is needed to convert the organic acids to methane and carbon dioxide. The acid-splitting methane-forming bacteria that facilitate this stage are strict anaerobes and are very sensitive to environmental conditions of temperature, pH and anaerobiosis. In addition, they have a slower growth rate than the acid formers, and are very specific in food supply requirements.

Stability of the digestion process relies on proper balance of the two biological stages. Build up of organic acids may result from either a sudden increase in organic loading or a sharp rise in operating temperature. In either case, the supply of organic acids exceeds the assimilative capacity of the methane-forming bacteria. This unbalance results in decreased gas production and eventual drop of pH, unless the organic loading is reduced to allow recovery of the second-stage reaction.

B. Ozofractionation

Ozofractionation is a relatively new process combining foam fractionation with the aggressive oxidising properties of ozone.

Ozone, O_3 , is a highly reactive gas that is formed by electrical discharges in the presence of oxygen. Substantial amounts of energy are required to split the stable oxygen-oxygen covalent bond to form ozone, and the ozone molecule readily reverts to elemental oxygen during the oxidation-reduction (REDOX) reaction.

Ozone is more soluble in water than oxygen. The ozone residual present in water decays rapidly. Once ozone enters water it follows two basic modes of reaction: direct oxidation, which is rather slow and extremely selective, and auto decomposition to the hydroxyl radical. The hydroxyl radical is extremely fast and non-selective in its oxidation of organic compounds.

In fact, ozone is the most effective disinfectant for all pathogens.

However, ozone is rarely applied solely for disinfection. Its application is usually for a combination of disinfection plus additional beneficial reasons such as: taste, odour, or colour control; oxidation of humic organic substances that react with chlorine to form THM's; and destabilisation of colloids for improved flocculation or fractionation. Further, in waste treatment and other recirculation applications, ozone significantly increases REDOX potential, which in turn dramatically improves the efficiency of biological filtration.

Any air / water interface has a small electrical charge. Foam fractionation creates millions of tiny bubbles and hence the air / water interface surface area is extremely large. The corresponding electrical charge is a powerful attractant to dissolved organic molecules, trace elements and colloidal sized particles. With the addition of ozone this charge is very greatly increased and the result is a far more aggressive fractionation than in traditional foam fractionation.

C. Biological Aeration

AS/NZS 1546.3 defines an Aerated Wastewater Treatment System (AWTS) as a system that uses processes of aeration of wastewater by mechanical means to achieve biological treatment.

According to the standard, the function of an AWTS is to treat domestic wastewater by aeration, clarification, and where required, disinfection so as to produce an effluent appropriate (AS/NZS 1546.3 part 2.4.1) to the land application system (AS/NZS 1547 appendix 4.2B) to be installed within the boundaries of the property.

Raw wastewater (or in the Wet Innovations Models, effluent after Primary Treatment and Ozofractionation) flowing into the Aeration Chamber contains organic matter (BOD) as a food supply. Bacteria metabolise the waste solids producing new growth while taking in dissolved oxygen and releasing carbon dioxide. Protozoa graze on bacteria for energy to reproduce. Some of the new microbial growth dies, releasing cell contents to solution for resynthesis. After the addition of a large population of microorganisms, aerating raw wastewater removes organic matter from solution by synthesis into microbial cells.

The liquid suspension of microorganisms in an Aeration Chamber is generally referred to as mixed liquor. Mixed liquor is continuously transferred to a clarifier for gravity separation of the biological floc and discharge of the clarified effluent. In the Wet Innovations Models foam fractionation facilitates this transfer while simultaneously removing suspended solids which are returned to the Primary Chamber (see fig 1 & 2).

D. Foam Fractionation

Flotation and fractionation operations are borrowed largely from the metallurgical industry and are employed principally in the treatment of industrial wastes. In natural flotation, oil, grease, or other substances lighter than water are allowed to rise naturally to the water surface of quiescent tanks, where they are skimmed off in ways analogous to the removal of sludge from settling tanks. With air fractionation, particles heavier than water are lifted to the surface with the help of air.

There are a few methods that employ foams to achieve separations. In these, the principle of separation is adsorption on gas bubbles or at the gas-liquid interface. Two of these methods are foam fractionation for the separation of molecular species, and foam flotation for the separation of particles. When dissolved in water, a soap or detergent forms foam if gas is bubbled through the solution. Collection of the foam is a means of concentrating the soap. Flotation is a process in which particles are carried out of a suspension by foam. In this case, soap or another chemical agent first adsorbs on the surface of the particle to increase its ability to adhere to small air bubbles. The clinging bubbles make the particle light enough to float to the surface, where it can be removed.

Any air / water interface has a small electrical charge. Foam fractionation creates millions of tiny bubbles and hence the air / water interface surface area is extremely large. The corresponding electrical charge is a powerful attractant to dissolved organic molecules, trace elements and colloidal sized particles.

E. Clarification

Clarification (or gravity separation) describes the process where wastewater is held quiescent to permit particulate solids to settle out of suspension. The purpose of gravity settling following biological filtration is to collect biological growth, or humus, flushed from filter media. These sloughed solids are generally well-oxidised particles that settle readily. In the Wet Innovations Models a large percentage of these particulate solids are removed to primary treatment in the foam fractionation chamber before final effluent flows to the clarification chamber. Final effluent is discharged to the environment via sub surface irrigation. Sludge from the clarification chamber is removed periodically.

F. Irrigation

Sub surface irrigation is the land application system of choice because it can deliver the required volume of final effluent in a controlled manner to a defined area. These systems are usually a pressured reticulation circuit with drippers installed. The subsurface system allows the effluent to be distributed without the need for disinfection and as such avoids adding unnecessary chemicals to the environment. In addition to this subsurface irrigation is more reliable than surface spray irrigation in the longer term and has less incidental damage issues.

Wet Innovations recommend Geoflow™ Wasteflow™ or Netafim™ subsurface irrigation systems.

The irrigation beds are installed according to site requirements with reference to AS/NZS 1547:2000, generally referring to appendix 4.5C, Construction and installation requirements for shallow subsurface drip irrigation systems.

In certain circumstances other styles of subsurface irrigation may be required for the site and these are described in detail in AS/NZS 1547:2000.

Information and advice for the owner/occupier:

Using the Wet Innovations domestic waste treatment systems

The Wet Innovations domestic waste treatment processes depend on some part on the metabolic actions of natural occurring bacteria populations. To ensure the health of these populations there are some good habits to encourage and some bad habits to avoid.

In order to reduce sludge build-up in the Primary chamber of the system:

- ✓ Scrape all dishes to remove fats, grease, etc. before washing
- ✗ Keep all possible solids out of the system

In order to keep the biological processes in top condition in all areas of the system:

- ✓ Use biodegradable soaps
- ✓ Use a low-phosphorus detergent
- ✓ Use a low-sodium detergents
- ✓ Use detergents at recommended quantities
- ✗ Don't put chemicals or paints down the drain and avoid using any aggressive chlorine or caustic based products.
- ✗ Prevent any substantial quantities of anti-bacterial, antibiotic or antiseptic substances (including medication) from entering the system. For eg - flushing unused antibiotics into the system.

To keep your system's pumps and venturi's in working order:

- ✗ Do not dispose of tampons, sanitary napkins, disposable napkins, baby wipes, nappy liners, condoms or any other personal hygiene products in the system.

These items can damage your pumps and cause venturi and other plumbing failure. If the unit fails and the reason is found to be failure due to clogging with any of these type of items the cost of replacement pumps, venturis and other plumbing or cost of the service will not be covered under warrantee or under normal service fees.

Reduce your water usage during extended (greater than 36 hours) blackouts.

The use of water conservation methods such as taking showers instead of baths, Installation of water conservation fittings, washing clothes or using the dishwasher only when there is a full load will, in addition to conserving water, reduce the volume of effluent requiring disposal to the subsurface irrigation area, improving its performance and extending it's service life.

Maintaining Wet Innovations Models

The primary treatment chamber (septic tank) of the Wet Innovations Models will need to:

- Be desludged regularly - usually around five years, when operating at full load. Your service technician will let you know when this will be needed;
- Be protected from vehicles, it's relatively important to keep trucks or cars from driving over the system. While it's designed to take these type of loads, it's not terrific management of your system.

The subsurface irrigation bed should have these precautions in place:

- No vehicles or stock should be allowed on the beds. The subsurface irrigation pipe work may be damaged with these sort of loads.
- Gardening activities should be carried out carefully, aggressive spade or fork penetration may result in cut or punctured pipes.
(if this occurs contact the support site www.wetinnovations.com.au)
- If the site is sloping keep the surface water diversion drains around the subsurface beds clean to reduce soakage of rainwater into the subsurface irrigation beds
- Periodically (monthly or seasonally depending on load and location) change the valves in the distribution system to direct effluent into alternative beds, or as required by the your irrigation area design.

This design maybe many zoned and greater than 200m² - remember that this is your water to reuse and careful consideration of your site plan can allow for a large area of subsurface irrigation for your gardens - a very effective way of reducing your water usage.

- Maintain your subsurface irrigation areas. Grass should be mowed and plants maintained and pruned to ensure that these areas take up nutrients with maximum efficiency.



In the event of system failure

A failed septic tank and or AWTs and land-application system is a serious health and environmental hazard and can lead to:

- Spread of infectious diseases.
- Breeding of mosquitoes and attraction of flies and rodents.
- Pollution and infection of waterways, beaches, streams and shellfish beds.
- Contamination of bores, wells and groundwater.
- Alteration of the local ecology.

If the system appears to be failing in any way, or the alarms are activated contact the support site immediately either by calling 1800 355 859 or by lodging a service request on the web site www.wetinnovations.com.au

Scheduled maintenance

Wet Innovations ensures quarterly maintenance, performed by competent and accredited service agents backed up with comprehensive technical support systems and services that cater to all our customer requirements including a client website (www.wetinnovations.com.au) and help-line.

Service contract legislation is arranged by state (and in some cases by local council) and details regarding these arrangements will be provided to you prior to purchase. In almost all cases the contract will be directly with Wet Innovations.

Wet Innovations annual service fees:

WI 2250	\$560.00
WI Domestic	\$330.00

(as of Apr 2010 - subject to change without notice and cpi)



Scheduled Maintenance Procedure

1. Report presence to the owner/occupier (if in residence)
2. Open the electrical control box, open all lids and Inspection Ports.

WARNING: Ozone will be present. Allow 5 minutes for system to degas before inspecting the Ozofractionation chamber. (The Ozone cell will be deactivated on opening the electrical control box).

3. Check:

- i. **Venturis in biological aeration and fractionation operating correctly by observing air bubbles on surface of both chambers.**



Pass - move on



Fail - assess pumps, intake lines and venturi jet. Clean, remove or replace as appropriate

- ii. **Fractionation head integrity.**



Pass - move on



Fail - Reseal head

- iii. **High level alarm in pump out chamber by activating upper float switch**



Pass - move on



Fail - clear any obstructions, replace switch assembly in necessary

- iv. **Pump alarms by tripping pump circuit breakers**



Pass - move on



Fail - Replace alarm unit

- v. **Subsurface irrigation beds by activating a pump out cycle (if low water level - fill to half chamber with fresh water), check irrigation bed solids filter and clean if required, walk the bed, looking and listening for leaks, pooling water or unusual soakage points -**



Pass - move on



Fail - repair or replace as appropriate

- vi. **Ozofractionation chamber & head integrity - as for fractionation head look for bubbles on surface of chamber.**



Pass - move on



Fail - assess pumps, intake lines and venturi jet. Clean, remove or replace as appropriate

vii. **Ozone reuse line above the ozofractionation head, pipe should be clear and drawing air vigorously.**

✓ Pass - move on

✗ Fail - check for blockages, repair or replace as appropriate

viii. **Primary tank condition, record crust thickness and sediment depth**

4. Record (if required):

ix. **Chemical condition in chambers - Dissolved Oxygen, pH and temperature**

5. Clean:

x. **Ozone generation cell. Turn unit power off, disconnect positive and negative terminals from the ozone cell, remove cell from cradle, clean cell and reattach terminals, power unit back on. Test ozone cell operation by closing safety switch on inside of lid briefly. Buzzing from cell should be obvious.**

Warning! Ozone generator operates at 30,000 volts! and can kill you. Avoid close proximity and under no circumstances, touch the ozone cell while powered!



6. Finally:

xi. **If you have filled the fractionation or ozofractionation heads with water to check for water tightness check these haven't dropped their level now.**

✓ Pass - move on

✗ Fail - Reseal head

xii. **If the maintenance schedule calls for samples to be taken or there is some perceived need to test the unit's operation (for eg strange smells or effluent that's an unusual colour or turbidity) take samples from the appropriate chambers now.**

xiii. **Reseal the unit and close the electrical box. The ozone cell should be audible as a faint buzz.**

xiv. **Ensure the Maintenance schedule is completed, signed and entered online back at the office, and any samples sent for analysis.**

Specific techniques and problem solving

Venturi operation



All aerobic processes used in the the Wjet Innovations 2250 are powered by venturi aeration. In the WJI Domestic, Ozofractionation is powered by air pump.

Air/ozone must be freely available to the venturis or ozone diffusers at all times. The intake lines must therefore be checked to ensure they are not blocked or the flow otherwise obstructed.

The intake line for the ozofractionation venturi are located within the electrical control box.

The intake lines for the central fractionation venturi and biological aeration venturi are over the Ozofractionation chamber

Pumps and venturi operation can be easily checked by firstly checking the venturi suction lines. If they are sucking hard the venturi is working.

If there is no suction on a line then there maybe be a problem with either the pump being unable to circulate fluid to the venturi or the venturi may have something lodged in the jet causing failure.

If the venturi is failing first check the pumps output - turbulence will be evident in the chamber if it has output. If there is no turbulence the pump maybe blocked or has failed. Remove the pump and check. Be vigilant regarding tampons, liners, condoms etc.

If the pump is ok, check the venturi for blockages. Small flakes of fibreglass, plumbing glue and lumps of silicone are the most common cause of failure and while the unit has been carefully checked at the factory for these particles they are the most common cause of early failure in a venturi. They can also be washed down the plumbing in a new building project and for the most part they will be trapped in the primary chamber but can travel through the system and lodge in the jet of the venturi.

The simplest method for removing the offending lumps and bumps is to remove the venturi and either flush it backwards with fresh water or remove the air intake line and fish the lump out.

A short cut to checking the venturi's are operational is a squirt of detergent to the fractionation and ozofractionation chambers. If the venturis are operating correctly foam will rapidly form in the chambers.

Testing fractionation & venturis



Fractionation/ Ozofractionation head integrity

The heads should have waste fractionate to the level of the over flow. However in low load, low humidity and high temperatures the head can dry out. If dried out, fill with fresh water and leave for 10 minutes before checking again.

If they don't hold the level of the outlet then reseal the head.

Desludging the heads: vigorously flush the heads with freshwater. The sludge will circulate to the primary for processing.



Primary chamber & pump out requirements

Under maximum loads the primary chamber will usually need pumping out every 5 years or so.

There is however no hard and fast rule regarding this - the primary may only need pumping out after 20 years or longer under light loads and under very heavy load it may need pumping out every couple of years - but in both cases it also may not.

For this reason it is necessary to measure crust thickness and sediment depth. A healthy system should never have a combined crust and sediment thickness greater than 33% of the depth of the primary chamber. Either measure this with an ultrasonic probe or a cloth covered dipping pole. The sediment and crust will leave residue on the cloth and this will give a fair indication of the condition in the primary.

If a unit is found to have accumulated sediment or crust beyond this amount then alert head office and arrange a pump out.

It is of passing interest if a unit accumulates sediment and crust at more than the usual rate. Usually the crust will form completely in the first year of operation.

If it occurs more rapidly than this or shows sudden rapid development of crust thickness let head office know either by phone or when entering the data from the scheduled maintenance form online.



Ozone Generator

The Ozone Generation Cell must be cleaned regularly to ensure maximum efficiency. Generally the cells should be cleaned once every 6 months (so every service visit). Simply clean the cell in the unit as per instructions.

If the cell becomes dirty it is likely to cause hot spotting in the chamber and the ozone output will decrease. If hot spotting is found, change the cell. Only accredited service agents will have been trained to handle the ozone generation cells and High voltage units.

Power to the ozone generation cell will be shut off on opening the control box, however:

DO NOT attempt to service ozone cells if you are not trained or not accredited to service Wet Innovations waste treatment systems. Ozone generation cells run at above 30,000 volt and can kill you.



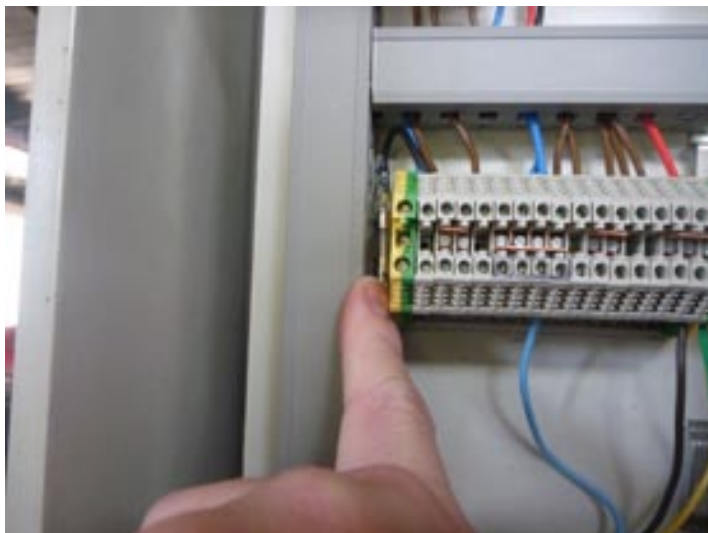
Cleaning ozone cells - this should be done with a clean damp cloth. Use gloves and safety glasses. Under damp conditions the ozone cell may accumulate Nitric acid formed from nitrogen present in the moist, highly charged environment of the cell. It appears as a whitish powder.



Isolating this will not turn off all power 10 Circuit breaker is for pump protection only, so alarm in house will still work you must turn off power point to isolate all power in control box



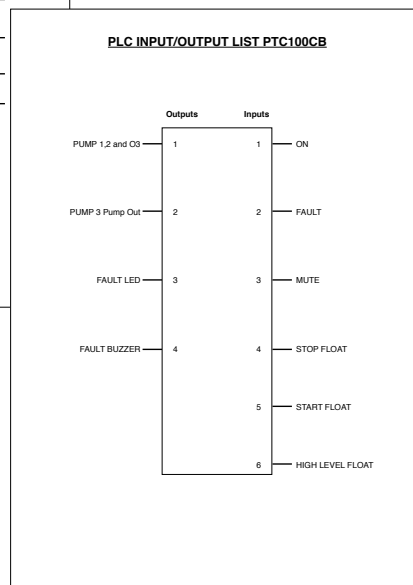
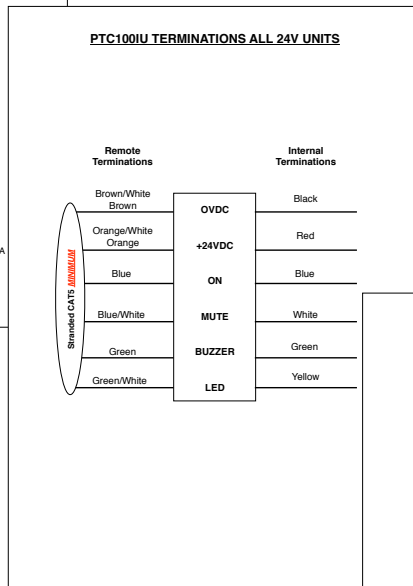
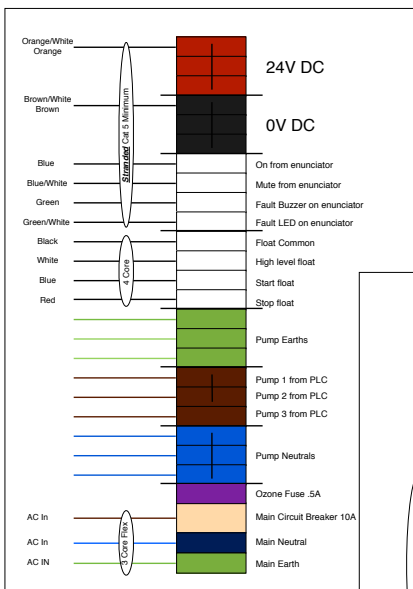
Air pump is optional and is only in AESPTC2250D-2A. AESPTC2250-3 doesn't have air pump



Ozone generator fuse is here and in the base models is not replaceable the whole ozone generator need replacing (if it blows then the unit most likely stuffed anyway)



2250 smart controller:



General observations

Unusual odours may sometimes be detected in the unit. These can include 'chemical' and 'organic' odours. From our point of view the more chemical the smell the more important it is to identify.

Organic odours are generally ok - for eg: if a unit smells especially strong and the odour reminds you of rotting grapes or a brewery the unit may have had an influx of wine or beer waste. These types of waste can create pH issues and a low pH may indicate a home brew going wrong and ending up in the system (in one way or another). Generally there will not be any long term effects but the observation should be noted so that at next service if it's still there it can be tested to determine if the system can be tuned to process the waste for it's owner.

Strange turbidity or colour in the waste is worth noting and sampling for similar reasons.

Chemical smells on the other hand can be destructive to the bacterial populations in the unit and can cause the unit to fail.



Petrol, kerosene and other flammable products, paints, solvents, motor oils, herbicides, pesticides and high doses of antibiotics are all going to create issues for the bacterial processes.

If the bacterial populations are compromised in any way the ozofractionation and fractionation systems will increase the load they take in the process and recycle most of the waste back to primary until the populations can recover. If this is a matter of weeks then the unit will maintain standard levels for effluent but if the bacteria can't recover then the process will start to fail and will need intervention in either pump out to remove the toxins or dosing with live bacterial culture to restart the bacterial processes.

Generally these conditions shouldn't occur but if they do it should be obvious to your nose first.

The schedule maintenance report

This will be generated by the database, it will have the client and site filled in, have a completion date and may have instructions for samples to be taken for Quality Assurance purposes.

Your jobs will be allocated to you directly from the database and will be grouped into areas and date range to assist you in planning the adequate and timely service. Simply log in to the database and the jobs due will be ready for you.

When you have completed a job simply enter the data online at the end of the day. A job report will be lodged to the relevant authorities, the client and admin, and an invoice raised.

Failure Contingency plans

The Wet Innovations Models hold an outage capacity as per the model specifications of extra waste in the case of power outage or irrigation pump failure.

In the event of pump failure the unit conforms to AS/NZS 1546.3 where the alarm will sound and keep sounding until the unit is serviced. Under normal household conditions in Australia the model's outage capacity allows the unit to hold for about 48 hours before service will be needed. If the unit is running at the full IOEP capacity the response will need to be 24 hours.

In either case the client will contact the support site either online or by phone and an urgent service job will be lodged to the nearest accredited service agent.

Marking and warrantee

Every unit is serialised, and under goes rigorous ISO 9001 Quality Assurance procedures.

The units are guaranteed against structural default for 10 years, pumps are guaranteed for 2 years and the subsurface irrigation system is guaranteed against root intrusion or failure for 10 years.

An example of a blank maintenance schedule form

Service agent name:	
Date:	Time:
Contact N°:	Agent N°:



WETINNOVATIONS

135 Karinie Street
Swan Hill Victoria 3585
Phone 1800 355 859
www.wetinnovations.com.au

Customer name and address:	Customer N°:	Service location:	Model:	Unit Serial N°:

Contact name:	Telephone N°:	Postcode:	Contact name:	Telephone N°:	Postcode:

Report Detail:

Alarms:	OK:	Fail:	Reason:			
Ozone:	HV unit OK:	HV unit Fail:	HV unit exgd:	cell OK:	cell Fail:	cell exgd: Reason: Warrantee / Replace
Fractionation heads	Ozofrac OK:	ozofrac fail:	desludged	Frac OK:	Frac Fail:	desludged Notes:
Venturis:						
Ozofractionation	OK:	Fail:	jet exgd:	Reason:		
Fractionation	OK:	Fail:	jet exgd:	Reason:		
Biological aeration	OK:	Fail:	jet exgd:	Reason:		
Pumps:						
Ozofractionation	OK:	Fail:	exgd:	Reason: Warrantee / Replace		
Fractionation & Biological aeration	OK:	Fail:	exgd:	Reason: Warrantee / Replace		
Irrigation	OK:	Fail:	exgd:	Reason: Warrantee / Replace		
1° Crust thickness	(mm)	Desluge: Yes / No	Estimated next Desluge:		Comments:	
1° Sediment depth	(mm)					
Dissolved Oxygen, Temperature and pH:						
1° chamber	DO:	Temp:	pH:			
Ozofractionation	DO:	Temp:	pH:			
Biological aeration	DO:	Temp:	pH:			
Clarification	DO:	Temp:	pH:			
Samples for BOD ⁵ and Suspended Solids: sample N° = 'unit serial N°'+Customer N°'+Date'						
1° chamber	sample 1:	sample 2:	Laboratory allocation:			
Ozofractionation	sample 1:	sample 2:	Reason for testing:			
Biological aeration	sample 1:	sample 2:				
Clarification	sample 1:	sample 2:				
Irrigation System						
Integrity	OK:	Fail:	Reason:	Action:		
Operating pressure	OK:	Fail:	Reason:	Action:		
Irrigation bed solids filter	OK:	Fail:	Reason:	Action:		
Client Comments:						
Agent Notes:						Agent stamp
						Agent signature

Scheduled Maintenance Report

Certified System

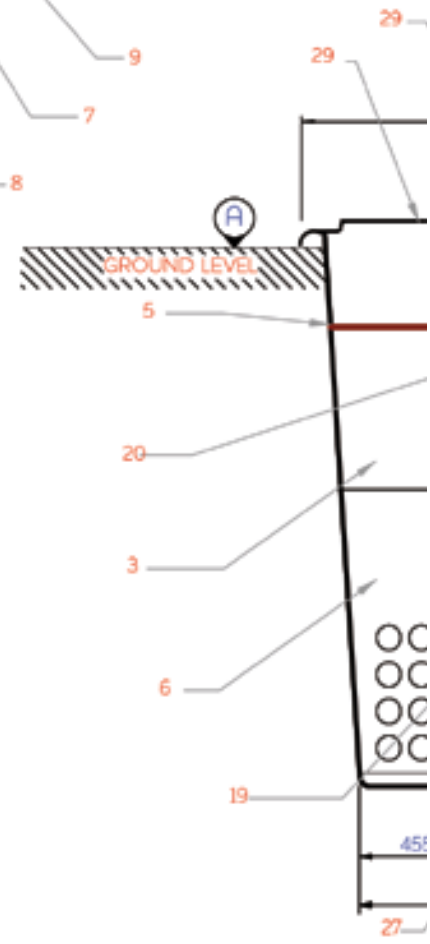
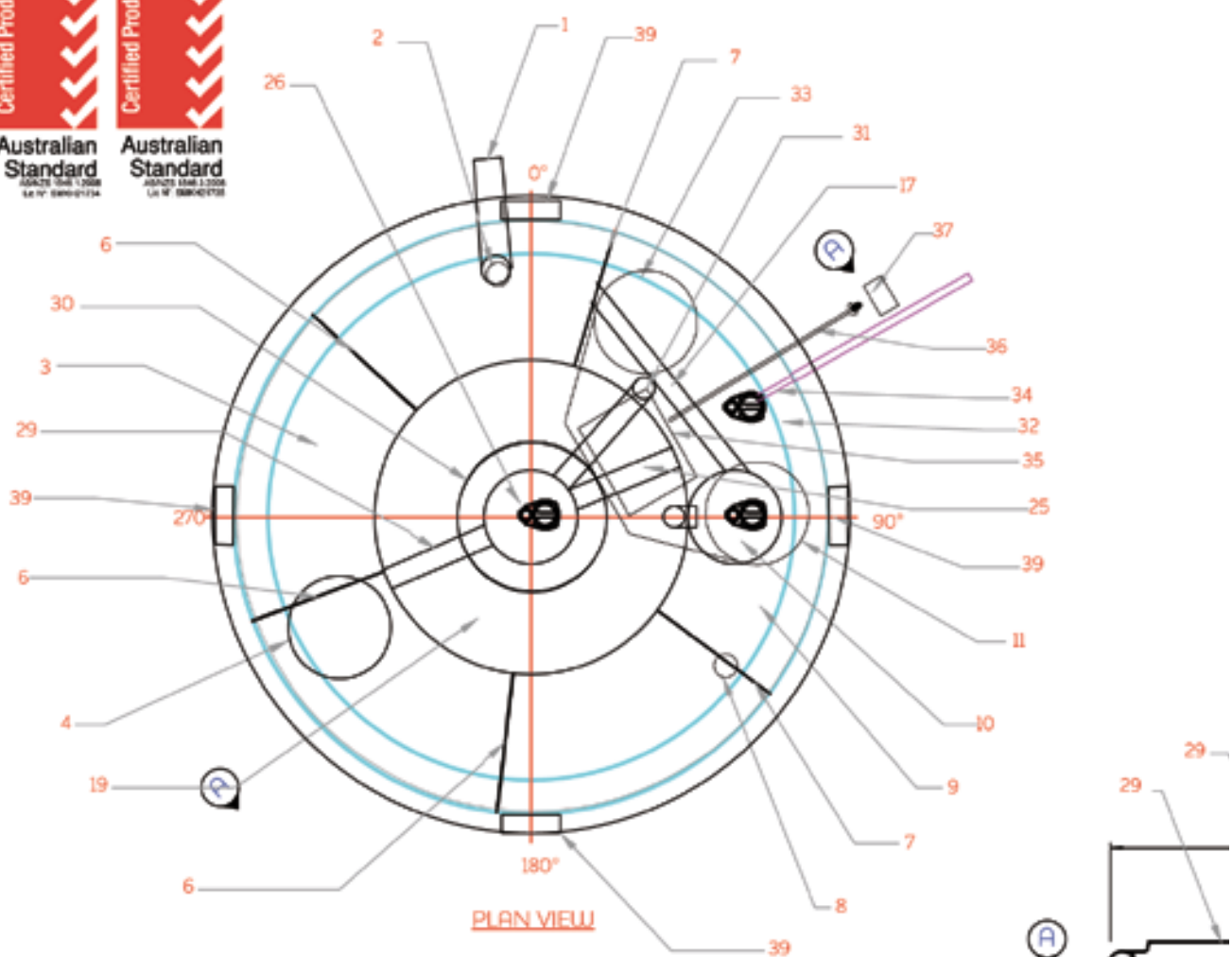
Quality ISO 9001

Certified Product

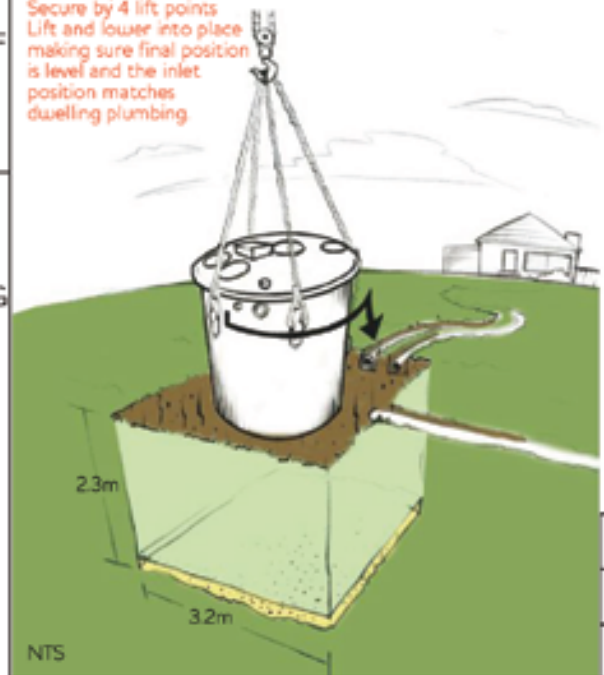
Australian Standard
AS/NZS 4588:2008

Certified Product

Australian Standard
AS/NZS 4588:2008



40: Lifting Instructions
 Secure by 4 lift points
 Lift and lower into place
 making sure final position
 is level and the inlet
 position matches
 dwelling plumbing



DESIGNED
 M. DICKSON
 DESIGN CHECK
 S.PALMER, K. PEYPAT
 APPROVED
 M. DICKSON, S.PALMER

DRAWN
 MICHAEL
 M. LEGGETT
 (OCEANIA)



Oceania Composites Engineering
 PO Box 2150,
Moorabbin, VIC 3189, Australia

Lush Garden,
 A revolution in the state of the art domestic waste in garden



WETINNOVATIONS

Clean water from waste, naturally.

2250 INSTALLATION SPECIFICATIONS

DESIGN CODE:	AS/NZS 1546.1:2008, 1546.3:2008
S.G. CONTENTS:	1.0
CONTENTS:	DOMESTIC WASTE WATER
DESIGN TEMPERATURE:	0 - 65°C
DESIGN PRESSURE:	ATMOSPHERIC / BURIED
PROCESS VOLUME:	8344 litres
UNIT VOLUME:	10153 litres
OUTAGE VOLUME:	1809 litres
LOADING:	2250 litre / day
BOD:	700 g/day
SS:	700 g/day

NOTES:

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Sunbury Vic., 3429

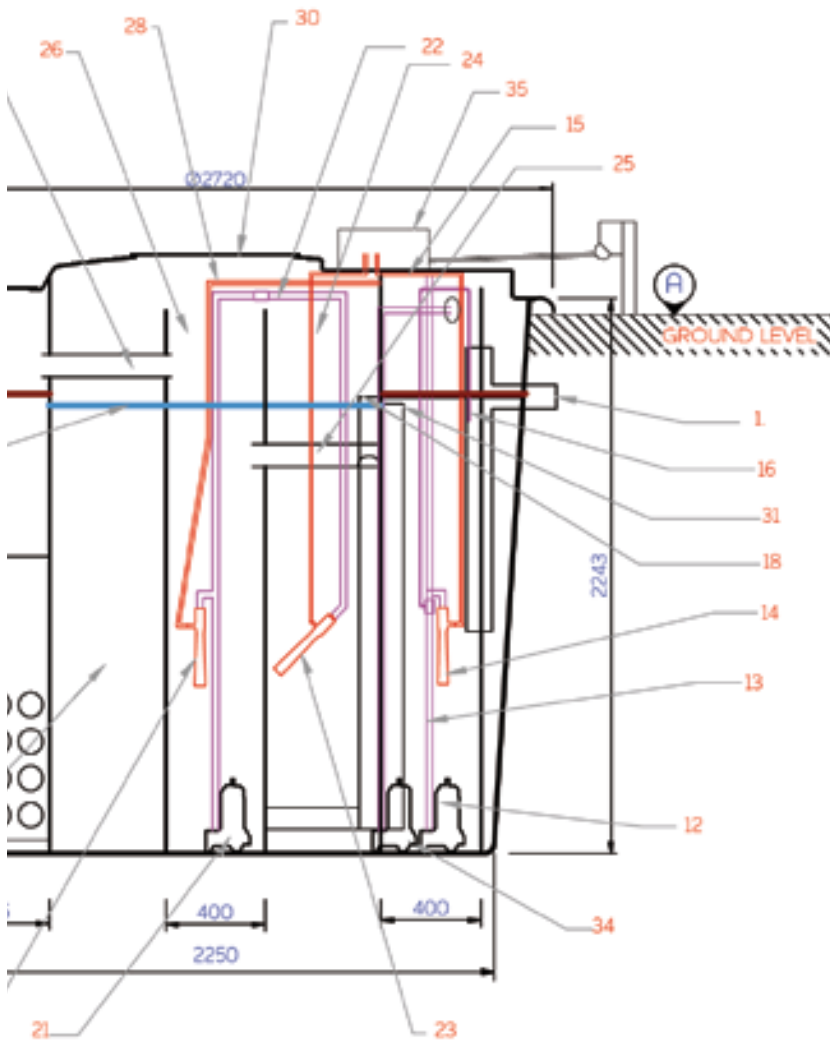
Street:
Suite 3, 33-35 Macedon Street,
Sunbury Vic., 3429

1800 355 859

JM WASTE PTY LTD ACN 128 331 411
t/a WETINNOVATIONS

www.wetinnovations.com.au

info@wetinnovations.com.au



ELEVATION VIEW

Key

- 1: System inlet
- 2: Inlet inspection port
- 3: Primary chamber
- 4: Primary chamber access
- 5: Primary fluid level (1850mm)
- 6: Baffles
- 7: Partition
- 8: Crust partition inspection port
- 9: Primary treated still water chamber
- 10: Ozofractionation chamber
- 11: Ozofractionation chamber access
- 12: Ozofractionation pump
- 13: Ozofractionation 25mm plumbing
- 14: Ozofractionation venturi
- 15: Ozofractionation venturi ozone supply line
- 16: Ozofractionation turnover
- 17: Ozofractionation return line
- 18: Ozofractionation outlet
- 19: Biological aeration chamber
- 20: Biological aeration fluid level (1805mm)
- 21: Biological aeration / Fractionation pump
- 22: Biological aeration / Fractionation 25mm plumbing
- 23: Biological aeration venturi
- 24: Biological aeration air supply line
- 25: Fractionation supply line
- 26: Fractionation chamber
- 27: Fractionation venturi
- 28: Fractionation venturi waste ozone supply line
- 29: Fractionation return line
- 30: Biological aeration / Fractionation chamber access
- 31: Final treatment overflow
- 32: Clarification chamber
- 33: Clarification chamber access
- 34: Pump out pump to subsurface irrigation
- 35: Controller
- 36: Unit Power supply
- 37: Double point 10AMP Weatherproof (by others)
- 38: Enclosure Panel (in dwelling)
- 39: Lifting lugs
- 40: Lifting instructions

APPROVED

clear conscience

Water management,
The WI 2250 converts
waste water for the
environment, naturally.

LOADING
BOD:
SS:
VOLUME:

NORMAL DOMESTIC CONDITION
300mg/l (or 700 g/day) max
300mg/l (or 700 g/day) max
2250 litre / day

UNIT MODEL NUMBER: WI 2250

DESIGNERS SIGNATURE

NAME:
M. DICKSON

DO NOT SCALE

SCALE: 1:40 Nom

DRAWING NUMBER

WI-2250-001is

12/06/2009

SHEET
1 of 1

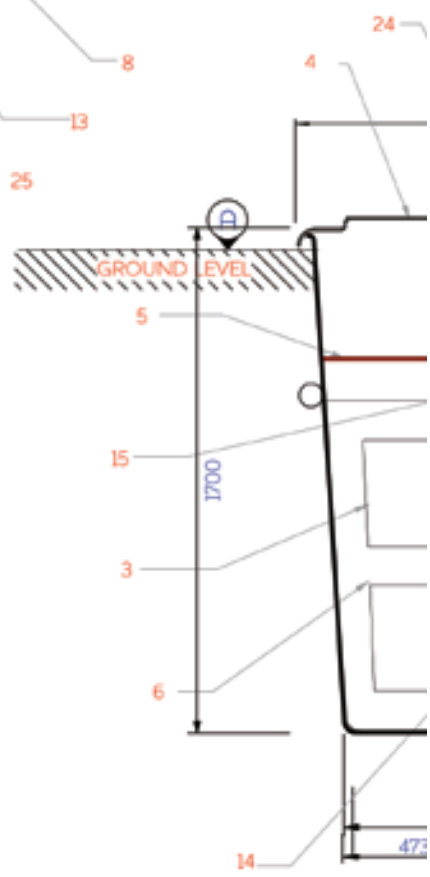
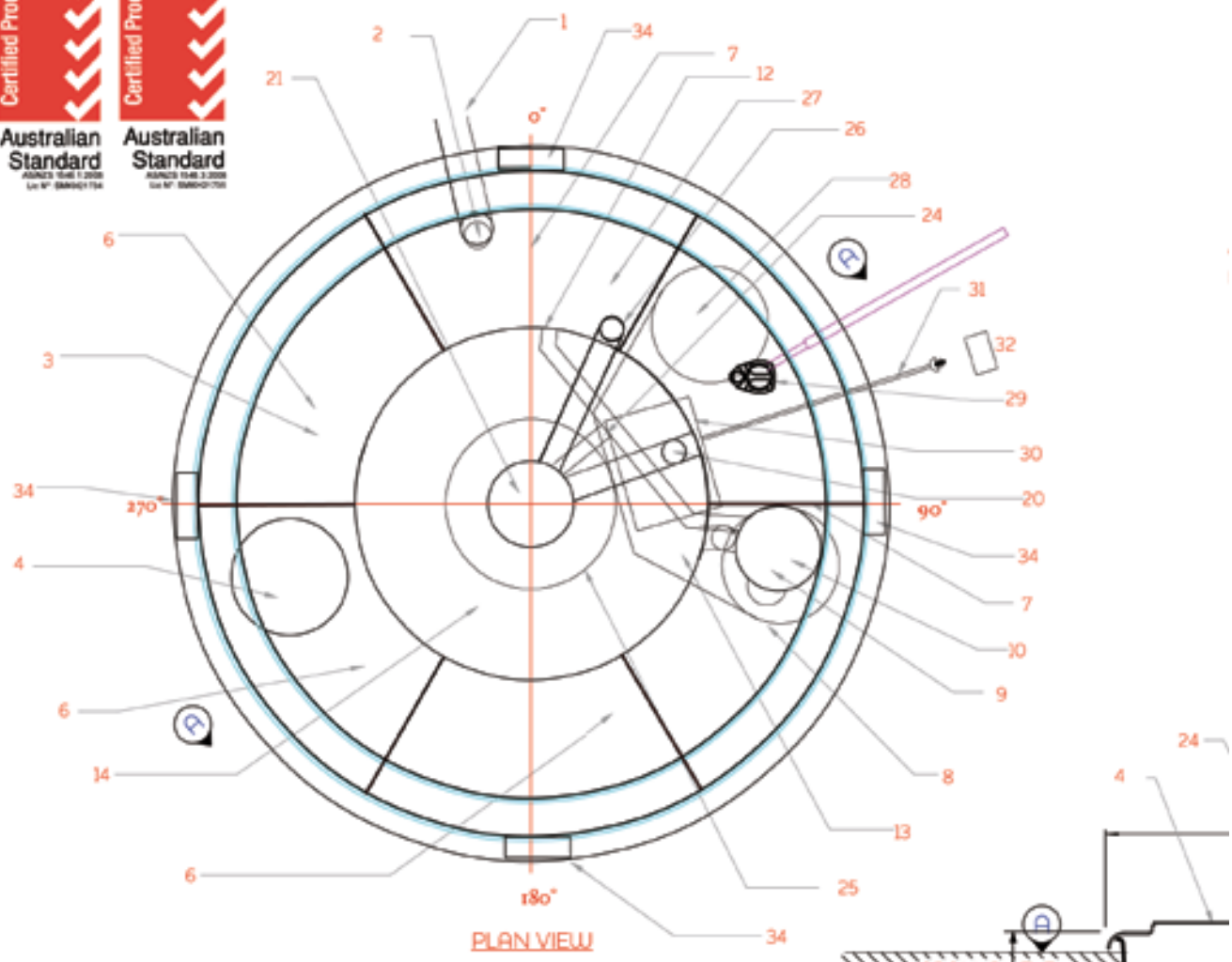
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REV

Certified System
Quality ISO 9001
 SAI GLOBAL

Certified Product
Australian Standard
 AS/NZS 1546.1:2008
 SA 17 000001754

Certified Product
Australian Standard
 AS/NZS 1546.2:2008
 SA 17 000001754



35: Lifting Instructions
 Secure by 4 lift points
 Lift and lower into place
 making sure final position
 is level and the inlet
 position matches
 dwelling plumbing.



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 DESIGN CHECK
 S.PALMER, K. PEPYAT
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 M. DICKSON, S.PALMER

DRAWN
 MICHAEL
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 VIC 3189,
 Australia

Lush Garden.
 A revolution in waste
 the state of the
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WETINNOVATIONS

Clean water from waste, naturally.
WI D INSTALLATION SPECIFICATIONS

DESIGN CODE:	AS/NZS 1546.1:2008, 1546.3:2008
S.G. CONTENTS:	1.0
CONTENTS:	DOMESTIC WASTE WATER
DESIGN TEMPERATURE:	0 - 65°C
DESIGN PRESSURE:	ATMOSPHERIC / BURED
PROCESS VOLUME:	6054 litres
UNIT VOLUME:	7671 litres
OUTAGE VOLUME:	1581 litres
LOADING:	1688 litre / day
BOD:	525 g/day
SS:	525 g/day

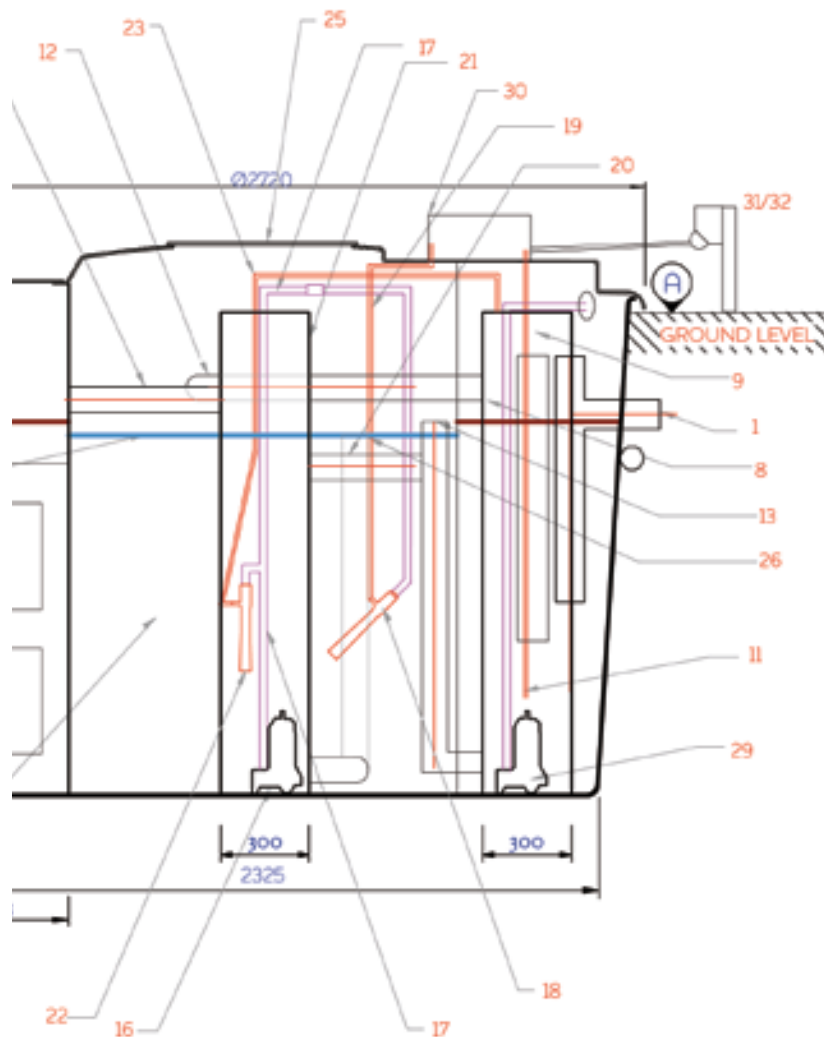
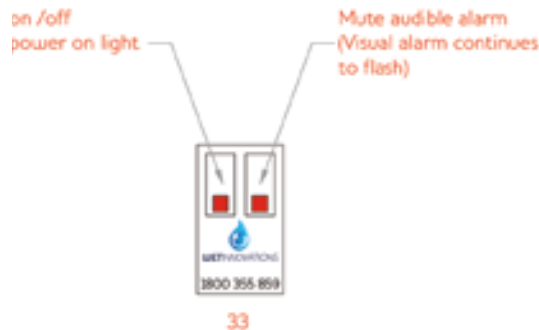
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Street: 135 Karlinie Street, Swan Hill Vic., 3585

1800 355 859

WET TECHNOLOGIES ACN 003 044 380
t/a WETINNOVATIONS

www.wetinnovations.com.au info@wetinnovations.com.au



ELEVATION VIEW

Key	
1:	System inlet
2:	Inlet inspection port
3:	Primary chamber
4:	Primary chamber access
5:	Primary fluid level (1370mm)
6:	Baffles
7:	Partition
8:	Crust partition
9:	Ozofractionation chamber
10:	Ozofractionation chamber access
11:	Ozone supply line
12:	Ozofractionate return line
13:	Ozofractionation outlet
14:	Biological aeration chamber
15:	Biological aeration fluid level (1325mm)
16:	Biological aeration / Fractionation pump
17:	Biological aeration / Fractionation 25mm plumbing
18:	Biological aeration venturi
19:	Biological aeration air supply line
20:	Fractionation supply line
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35:	Lifting instructions

APPROVED

<p>clear conscience e water management, art WI D converts o clean water for the naturally.</p>	<p>LOADING BOD: SS: VOLUME</p>	<p>NORMAL DOMESTIC CONDITION 300mg/l (or 525 g/day) max 300mg/l (or 525 g/day) max 1688 litre / day</p>	UNIT MODEL NUMBER: WI D	DO NOT SCALE	SHEET 1 of 1		
			DESIGNERS SIGNATURE:	SCALE: NTS			
			NAME: M. DICKSON	DRAWING NUMBER		WI-D-001is	1.0
						25/02/2010	REV

Wet Innovations Single tank systems specifications table

	WI D	WI 2250
Design load totals / day	8	10
Flow	1687.5	2250
BOD5 (grams)	525	700
TSS (grams)	525	700
TN (grams)	113	150
TP (grams)	19	25
Operating Environment		
Temperature range	-3°C to 35°C	-3°C to 35°C
Humidity range	24% to 100%	24% to 100%
Tank Specifications		
Tank volume	7900	10153
Fluid volume	6161	8243
Outage capacity	1739	1910
Retention time	65	27
1° Process Specifications		
1° Chamber Volume	3242	4799
Flow path	4500	5493
2° Process Specifications		
1° Ozofractionation	97	232
Ozone production mg/hr	500	500
Ozonation c.t	6	5
Biological aeration	1946	2552
Fractionation	94	227
Total 2° Process volume	2137	3011
Total 2° Process Aeration (l/min)	18	32.82
Settlement / Irrigation chamber		
Chamber volume	880	665
System Weight		
	450	650

State Certifications

STATE	APPROVAL N°:	ISSUE DATE
Tasmania	BSR0551/2009	08 July 2009
Vicoria	CA 111/09	06 July 2009
QLD		
NSW		
SA		



Typical installation - note cutoff drain protecting irrigation field.



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