

# Certificate of Accreditation Sewage Management Facility Aerated Wastewater Treatment System Advanced Secondary Effluent

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

System:

Taylex Concrete ABS 1500 Advanced STS AWTS

Manufacturer:

Taylex Industries Pty Ltd

Address:

56 Prairie Road, Ormeau, QLD, 4208

The Taylex Concrete ABS 1500 Advanced STS AWTS as described in Schedule A, has been Accredited as a sewage management facility in accordance with the Secondary Treatment System Accreditation Guideline 2018 for use in single domestic premises in NSW. This Accreditation is subject to the conditions and permitted uses specified in Schedule B.

A/Director, Environmental Health for Secretary (delegation PH335)

Issued: 9 October 2019

Certificate No: STS-AWTS049 Expires: 31 December 2025

### Schedule A: Specification / Description of the Taylex Concrete ABS1500 Advanced STS-AWTS

Name and Model of STS: Taylex Concrete Advanced Blower System (ABS) 1500 Advanced STS-AWTS

The Taylex Concrete ABS 1500 Advanced STS-AWTS is designed to treat sewage from a residential dwelling occupied by a maximum of 10 persons.

The Taylex Concrete ABS 1500 Advanced STS-AWTS is contained in the following vessel(s):

- Vessel 1: A collecton well with design capacity of 9300 L. NSW Health Accreditation Number STCW045; alternatively,
- A collection well 10700L -T3, or 11,000L T4 or 11,700 T6 with operational capacity of 5,880 L. NSW Health Accreditation Number STCW045.

Chamber	Design capacities
Primary treatment	2526 L (1684L + 842L)
<ul> <li>Partition</li> </ul>	yes
Secondary treatment	842 L
<ul> <li>Aeration chamber</li> </ul>	2071 L
<ul> <li>Clarifier</li> </ul>	602 L
<ul> <li>Irrigation chamber</li> </ul>	621L
Emergency storage	1000+ L
Operational water level (depth)	(mm)
primary	1430
<ul> <li>secondary</li> </ul>	1410

The emergency storage capacity is achieved by allowing primary, secondary and aeration chambers to rise without shortcuts.

The Taylex Concrete ABS1500 Advanced STS-AWTS is contained in one concrete collection well having the attached specification sheet "Concrete ABS150".

### Schedule B: Conditions of Accreditation

### 1. General

- 1.1 Prior to installation the owner/occupier of the premises shall make an application, in accordance with Clause 26 of the *Local Government (General) Regulation 2005*, to the local council for approval to install and operate the Taylex Concrete ABS 1500 Advanced STS-AWTS as a Sewage Management Facility in accordance with Section 68, Part C of the *Local Government Act 1993*.
- 1.2 The local council shall apply those Conditions of Accreditation, appropriate to the owner / occupier, to any approval to operate the Taylex Concrete ABS 1500 Advanced STS-AWTS issued under Clause 45(4), Local Government (General) Regulation 2005.
- 1.3 In accordance with Clause 36 of the *Local Government (General) Regulation 2005*, the Taylex Concrete ABS 1500 Advanced STS-AWTS shall have an expected service life of 5 years in the case of mechanical and electrical components and 15 years in the case of other components.
- 1.4 The owner / occupier shall ensure that the Taylex Concrete ABS 1500 Advanced STS-AWTS is installed or constructed:
  - in accordance with the accredited specifications of the type tested unit and in accordance with good trade practice, and
  - so as to allow ease of access for maintenance, and
  - with regard to the health and safety of users, operators and persons maintaining the facility, and
  - must be installed or constructed so as to make appropriate provision for access to and removal of contents in a safe and sanitary manner, and
  - must, if it is intended to be a permanent fixture, be anchored to prevent movement.

- 1.5 The manufacturer / supplier shall ensure that the Taylex Concrete ABS 1500 Advanced STS-AWTS is supplied, constructed and installed in accordance with the design (including the disinfection unit) as submitted and accredited by the NSW Ministry of Health. The Taylex Concrete ABS 1500 Advanced STS-AWTS shall not be modified or altered except that alternate individual mechanical and electrical components such as pumps, PLCs, etc, may be substituted provided that the component meets the Accredited design specification.
- 1.6 Any permanent modification or variations to the Accredited design of the Taylex Concrete ABS 1500 Advanced STS-AWTS shall be submitted for separate consideration and variation of the Certificate of Accreditation by the NSW Ministry of Health. Modifications will be considered in accordance with section 2.3.13 of AS1546.3:2017.
- 1.7 Each Taylex Concrete ABS 1500 Advanced STS-AWTS shall be permanently and legibly marked by the manufacturer in accordance with section 3 of AS1546.3:2017.
- 1.8 The manufacturer shall supply with each Taylex Concrete ABS 1500 Advanced STS-AWTS an owner's manual, which sets out the care, operation, maintenance and on-going management requirements of the system. The owner's manual prepared by the manufacturer shall specifically contain a plan for the ongoing management of the. The plan shall include details of:
  - the treatment process,
  - procedures to be followed in the event of a system failure,
  - emergency contact numbers,
  - maintenance requirements,
  - inspection and sampling procedures to be followed as part of any on-going monitoring program developed by the local authority.
- 1.9 The manufacturer shall provide the following information to each local council where it is intended to install an AWTS in their area once Ministry Accreditation has been obtained:
  - Statement of warranty
  - Statement of service life
  - Quality Assurance Certification
  - Installation Manual
  - Service Manual
  - Owner's Manual

- Manufacturer's Service Report Form
- Engineering Drawings
- Specifications
- A4 Plans
- Certificate of Accreditation documentation from NSW Health.

The manufacturer need not provide the above information to the local council where the information or document is contained on the manufacturer's web site.

### 2. Installation and Commissioning

- 2.1 The owner / occupier shall have the Taylex Concrete ABS 1500 Advanced STS-AWTS inspected and checked by the manufacturer or the manufacturer's agent. The manufacturer or the agent is to certify that the system has been installed and commissioned in accordance with its design, conditions of Accreditation and any additional requirements of the local council.
- 2.2 The owner / occupier shall ensure that all electrical work is carried out on the Taylex Concrete ABS 1500 Advanced STS-AWTS by a licensed electrician and in accordance with the relevant provisions of AS/NZS 3000.
- 2.3 The owner / occupier shall not commission the Taylex Concrete ABS 1500 Advanced STS-AWTS unless the land application system has been completed.

### 3. Maintenance

- 3.1 The owner / occupier of the premises shall enter into a minimum 12-month contract or agreement with a service agent and ensure that the Taylex Concrete ABS 1500 Advanced STS-AWTS is serviced:
  - in accordance with the manufacturer's / supplier's service manual and using the manufacturer's / supplier's service sheet; and
  - by a service agent who

- o has completed a course on the servicing and maintenance of STS; and has some supervised servicing experience or extensive un-supervised experience;
- is employed or authorised by the manufacturer / supplier of the Taylex Concrete ABS 1500 Advanced STS-AWTS:
- uses replacement parts which meet the minimum specification of the Taylex Concrete ABS 1500 Advanced STS-AWTS;
- o has advised of their name, contact details and credentials to the local council;
- o submits a completed NSW Health "Local Council Service Report" (attached) to the local council immediately after each and every service;
- o shall report to the local council any instances where the owner / occupier refuses to authorise repairs, replacement of parts or maintenance; and
- does not perform electrical work or enter confined spaces unless trained and is suitably qualified to do so.
- 3.2 The owner/occupier shall not service the Taylex Concrete ABS 1500 Advanced STS-AWTS unless they are an authorised agent.
- 3.3 The Taylex Concrete ABS 1500 Advanced STS-AWTS once installed and commissioned shall be serviced at 3 monthly intervals.
- 3.4 The manufacturer / supplier of the Taylex Concrete ABS 1500 Advanced STS-AWTS shall place on its web site a copy of the service manual, service sheet or form and specifications for the Taylex Concrete ABS 1500 Advanced STS-AWTS to facilitate servicing, maintenance and repairs. Commercial-inconfidence documents may be provided directly to the service agent without uploading to the web site.
- 3.5 Each three monthly service shall, as a minimum where provided, include a check on all mechanical, electrical and functioning parts of the system including:
  - The chlorinator and replenishment of the disinfectant,
  - Any alternative disinfection unit,
  - Replace a UV light globe at recommended intervals and keep a record,
  - Pump and air blower,
  - The alarm system,
  - Slime growth on the filter media,
  - Operation of the sludge return system,
  - The effluent irrigation area,
  - On-site testing for free residual chlorine, pH and dissolved oxygen at the appropriate check points.

### 4. Verification

- 4.1 Effluent from the Taylex Concrete ABS 1500 Advanced STS-AWTS taken in any random grab sample shall comply with the following standard:
  - BOD<sup>5</sup>

less than 30 mg/L

TSS

less than 45 mg/L

E coli

less than 100 cfu/100 ml

• Free residual chlorine greater than 0.5 and less than 2.0 mg/L

### 5. Permitted uses

- 5.1 The effluent is suitable for re-use for garden purposes by way of any of the forms of irrigation as described in AS/NZS 1547:2012:
  - above ground spray irrigation; and/or
  - surface drip irrigation covered by mulch; and/or
  - · sub-surface drip irrigation installed at around 100 mm depth; and or
  - any form of sub-soil application.

Each of the forms of irrigation or application is subject to the approval of the local authority.

### 6. Advanced Secondary Treatment System

The Taylex Concrete ABS 1500 Advanced STS-AWTS when tested by a Product Certification Body in accordance with AS1546.3:2017 was found to comply with the Advanced Secondary Effluent Criteria as follows:

### TABLE 2.1 (Abrev) AS1546.3:2017 ADVANCED SECONDARY EFFLUENT COMPLIANCE CRITERIA FOR A STS

Parameter	Advanced secondary effluent	
	90% of Samples	Maximum
BOD5	≤ 10mg/L	20 mg/L
TSS	≤ 10 mg/L	20 mg/L
E. coli *	≤ 10 cfu/100mL	30 cfu/100mL
FAC þ	Minimum	N/A
	0.5 mg/L†	
Turbidity ?	N/A	10 NTU

<sup>\*</sup> Where disinfection is required.

Þ Where chlorine disinfection is used.

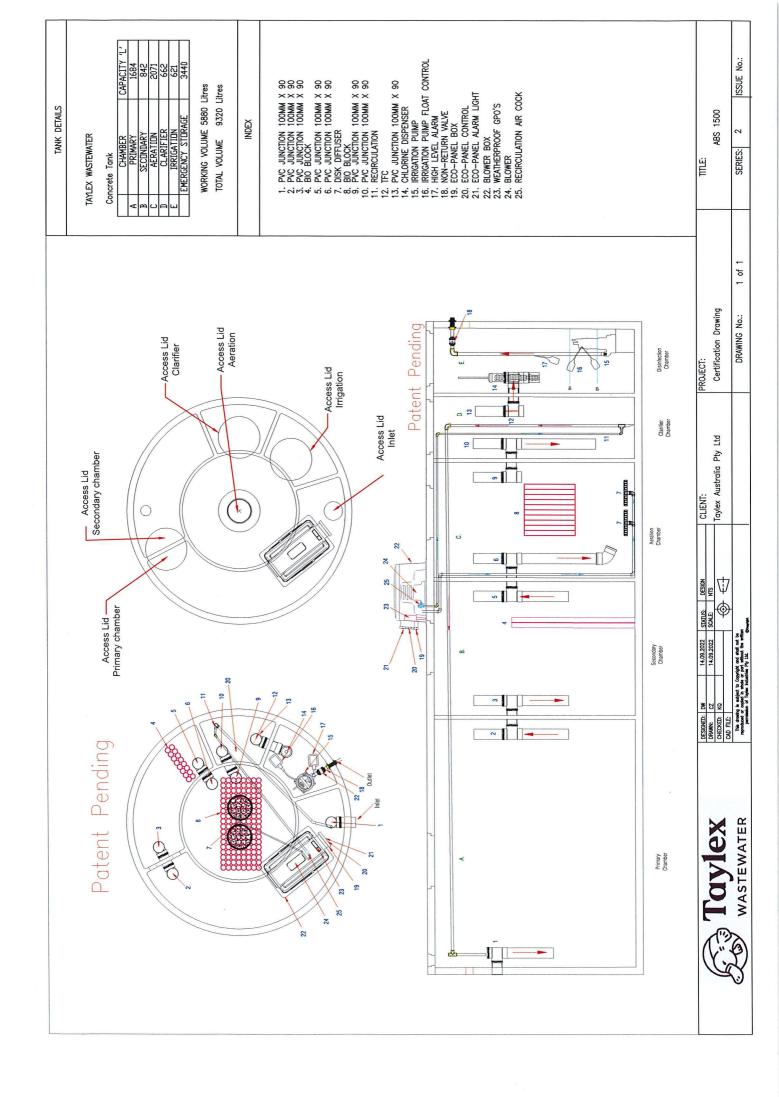
<sup>†</sup> Minimum level, not 90% of samples.

<sup>?</sup> Where UV light is used for disinfection .



Local Council STS (DGTS) Service Report: February 2018				
Owner's Name:	Local Counci			
Installation Address:				
System Brand & Model:	□ Domestic		☐ Commercial	
Date of this service:	Date of last Serv	ice:	Next service due:	
Has the STS/DGTS been <b>serviced</b> using the service sheet? If "No" why not?	in accordance with		's / supplier's requirements and	
STS/DGTS <b>functioning</b> correctly? If "No" why not?	□ Yes □ N	lo		
According to sludge-judge or ot If "Yes" what action is recommend		is de-sludging ne	eded?	
Offensive odours?	□ Yes □ No	If "Yes" what ac	tion is recommended?	
Alarms tested and functional?	Alarms tested and functional? ☐ Yes ☐ No If not "functional" what action is recommended?			
Tested?				
Run off? Excess plant growth? Effluent leaving premises? High risk areas contaminated?*	☐ Yes ☐ No	* Patio, play area If "Not operating	s, BBQ, etc satisfactorily" what action was	
Overall Condition of STS? ☐ Excellent ☐ Good ☐ Fair ☐ Poor Comments / Action Recommended / Repairs Needed / Repairs Performed:  Has the owner / occupier taken recommended actions? ☐ Yes ☐ No				
Service Agent:		Contact Details:		
Signature:	ı	Date:		

Source: Adapted from "Checklist 4.2: Operational AWTS inspection report for use by service providers and Council inspectors" in Designing and Installing On-Site Wastewater Systems, Sydney Catchment Authority, May 2012





## Specification

CONCRETE ADVANCED BLOWER SYSTEM
1500L per day

ABS-1500



### **ABS-1500**

### **Specification**

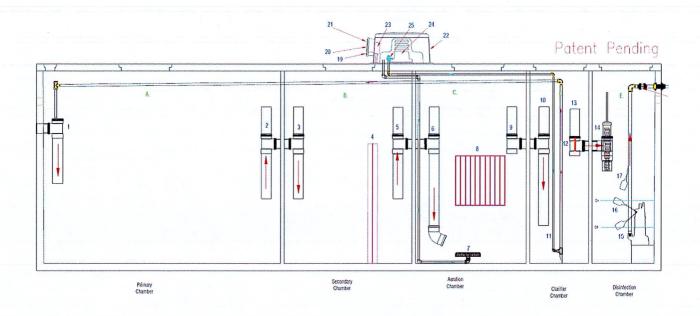
### **General Description:**

The Taylex Concrete Advanced Blower System 1500 (ABS-1500) Secondary Treatment System (STS) is designed to treat the wastewater from a residential dwelling up to 1,500 Litres per day, with a daily flow of 150 Litres per person and an average daily BOD<sup>5</sup> 70g per person.

The Taylex ABS-1500 STS is contained in one vertical axis type cylindrical precast concrete collection well with a design capacity of 9,320 Litres and an operating capacity of 5,880 Litres.

### Flow path of wastewater:

- 1. A primary pre-treatment chamber, with a capacity of 1,684 Litres.
- 2. A secondary pre-treatment chamber, with a capacity of 842 Litres.
- 3. An aeration chamber, with a capacity of 2,071 Litres. This chamber is fitted with bio block media, 12" disk diffuser.
- 4. A sedimentation / clarifier chamber, with a capacity of 662 Litres, containing a Taylex Filter Control (TFC) fitted to the outlet, and recirculation to the primary.
- 5. A Disinfection chamber, with a capacity of 621 Litres, incorporating a capacity of 300 Litres for chlorine contact of effluent. A chlorine disinfection unit is installed on the inlet to the irrigation chamber. The system is fitted with either a Davey D25 or D42 Irrigation Pump.
- 6. An Emergency Storage Buffer 3440 Litres.
- 7. The automatic irrigation pump transfers the treated effluent to the effluent disposal area / land application area (LAA).





### **Product Specification Table:**

Aust	ralian Standards Compliance	
Effluent Testing	AS1546.	3:2017
Tank Design and Testing	In Ground	AS1546.1:2008
Turk Design and Testing	Above Ground	AS3735.2001
System Model	ABS-1500	CONCRETE
Treatment Level	Advanced Seco	ndary Quality

Tank Capacity		
Total Tank Capacity	9320L	
Operating Capacity	5880L	712 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1

Syste	n Chamber Capacities	
Primary Chamber	1684L	
Secondary Chamber	842L	
Aeration Chamber	2071L	
Clarifier Chamber	662L	
Irrigation Chamber	621L	
Emergency Storage	1541L	
Maximum Hydraulic Loading Capacity	1,500 litres per day / 10EP	

Design Parameters		
Parameter	Total Per Day	Total Per person per da
Daily flow	1,500L / 10EP	150L
Maximum Organic Loading BOD⁵	700g	70g
Total Suspended Solids (TSS)	700g	70g
Total Nitrogen (TN)	150g	15g
Total Phosphorus (TP)	22.5g	2.5g

Effluent Com	npliance: AS1546.3:2017	
Biochemical Oxygen Demand (BOD <sup>5</sup> )	≤10mg/l	
Total Suspended Solids (TSS)	≤10mg/l	
E. Coli	≤10cfu/100ml	

	Temperature	
	Minimum	Maximum
Operating Temperature C°	-2°C	45°C

Electricity Consumption		
Kilowatt hours per day (kWh/d)	2.21	
Kilowatt hours per 1000L (kWh/1000L)	1.62	

	Servicing and Maintenance	
Servicing Frequency	Every 3 months	



### **Components List & Repair/ Replacement Instructions:**

- 1. Primary Chamber
- 2. Secondary Chamber
- Aeration Chamber 3.
- 4. Clarifier Chamber
- Irrigation Chamber
- 100mm inlet Junction, BIO Block
- 100mm Junction x 2
- 100mm Junction x 2, BIO Block, Air Lift, Disk Diffuser
- 100mm Junction, Taylex Filter Control, Recirculation Chamber
- 100mm Junction, Chlorine Dispenser, Irrigation Pump, High Level Alarm Float, 100mm Elbow

### Component List

### TANK

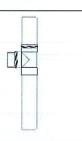
Concrete Tank and Lid Made from 32mpa concrete with SL 41 Mesh

Repair / Replacement Details: Replacement lids available from Taylex Industries or your local Service Agents.

Chips and cracks can be repaired using Sika panel patch or mortar.



- 100mm Sweep Tee With dropper pipe and riser. 1)
- 2) Repair / Replacement Details:
- Replacement tee and pipe can be purchased from a local plumbing 3) store. Cut 100mm pipe at wall and using a 100mm slab repair
- coupling install new tee.
- 5)



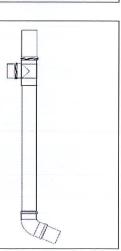
- 4) BIO Block Media Width - 385mm
  - Length 110mm
  - Height 1400mm
  - Surface Area 20.6m<sup>2</sup>



- 100mm Sweep Tee With 1000mm dropper pipe and 100mm 45° M&F 6)
  - Repair / Replacement Details:

Replacement tee and pipe can be purchased from a local plumbing store. Cut 100mm pipe at wall and using a 100mm slab repair

coupling install new tee.

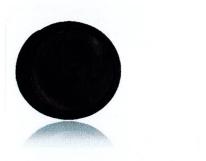




7) Diffuser x 2 Material – EPDM Diameter – 250mm (9inch)

Repair / Replacement Details:

Turn the system off. Replace the diffuser by making a new complete aeration pipe assembly fitted with the Diffuser. Cut the main aeration supply line, place the new diffuser in the system, weighed down with a small concrete block and rotate the diffuser under the biomass. Re fix the new aeration pipe assembly complete with a joining socket. Removing the old Diffuser is not required. Turn the system on. Purchase the complete assembly from Taylex.



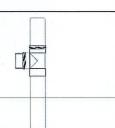
8) BIO Block Media Width - 550mm Length - 1100mm Height - 500mm Surface Area - 105m²



9) 100mm Sweep Tee With dropper pipe and riser.

Repair / Replacement Details:
Replacement tee and pipe can be purchased from a local plumbing store. Cut 100mm pipe at wall and using a 100mm slab repair

13) coupling install new tee.



11) Recirculation System

For the transfer of fluids using the 'Venturi Principle'. Air is injected toward the base of a vertical open ended PVC conduit. Continuous displacement occurs as the air moves vertically to the liquid, drawing liquid through the bottom of the conduit. The air/liquid mixture reaches a vertical maximum where it then moves through the 90° bend into the primary chamber. The conduit is arranged in the base of the clarifier so that the residual sludge constitutes the main vacuum target.

Sludge Base Removal

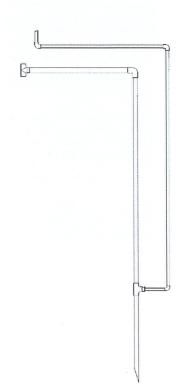
Sludge deposit removal is to be scheduled 1 time per 6 years or as determined necessary by a licenced Taylex Sales Technician or the client or due to mechanical failure.

Servicing

Routine maintenance/servicing of the Taylex ABSNR -2000 is to be scheduled quarterly or as determined necessary by an approved Taylex Sales Technician or due to mechanical failure. Refer to Field Service Report sheet for testing requirements.

Repair / Replacement Details:

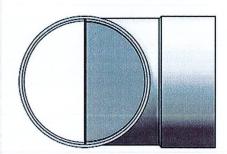
Turn the system off. Replace the Sludge Recirculation Assembly by cutting the main line and installing the new assembly with a joining socket. Turn the system on. Purchase the complete assembly from Taylex.





12) Taylex Filter Control (TFC) Material - HD Polyethylene

> Repair / Replacement Details: Replace the TFC assembly by cutting the 100mm slab repair coupling, install the replacement TFC assembly.



14) Chlorine Dispenser
Material – HD Polyethylene
Length – 500mm
Diameter – 90mm

The chlorine dispenser is placed in the 100mm Tee located in the irrigation chamber.

Repair / Replacement Details: Repairing the Chlorine Dispenser is not recommended. If the Dispenser is damaged, replace it with a new unit. Purchase the complete assembly from Taylex.



15) Irrigation Pump

The irrigation pump is self-controlled via a ball bearing activated float switch. When the according volume is reached in the pump chamber, the ball bearing in the float moves and creates an active connection. The treated effluent is pumped to the approved dispersal zone, as the chamber reaches minimum volume, the float drops and deactivates the pump. The type and capacity of the pump will be in accordance with the land application requirements.

Repair / Replacement Details:

Turn the system off. Replace the pump by disconnecting the barrel union, be sure not to drop the internal valve assembly. Lift the Pump Assembly out of the tank. Undo the threaded fitting connect to the outlet of the pump. Re apply thread tape and fix the threaded fitting back onto the pump. Return the assembly to the tank and reconnect the barrel union, ensuring the valve is seated correctly. Turn the system on. Purchase the correct pump from Taylex or a local outlet, ensuring the performance is identical to the pump removed.

DAVEY D25 - 9m Head Voltage - 220 ~240 IP 68 AMPS - 1.9 Phase 1 50hZ Max Flow - 200L/min 7m DAVEY D42A/B3 - 32m Head Voltage - 220 - 240 IP 68 AMPS - 4.3 Phase 1 50hZ Max Flow - 130L/min 7m





17) Alarm System High Water

Material - PVC Length - 20mm

Width - 90mm

Trigger - High Water

Code - 3

Visual - Red L.E.D - 3 Flashes

Audible - Micro Buzzer

Voltage - 12V

Repair / Replacement Details:

Turn the system off. Replace the float by disconnecting the electrical connection in the terminal block, located in the lower section of the control box. Feed the new float cable into the control box and connect to the terminal block, fixing the screws firmly. Re fix the float to the pipe assembly and loop the lead around the barrel union, to set the float height. Turn the system on. Purchase the float from Taylex.



18) Non- Return Valve

Height - 85mm

Length - 140mm

Width - 85mm

Repair / Replacement Details:

Turn the system off. Replace the Non- Return Valve by cutting the pipe in either side of the valve. Re-join the pipe using sockets and glue the Valve and sockets together. Ensure the glue is set before turning the system back on.



19) Control Panel Box

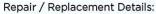
Material - HD Polyethylene

Height - 210mm

Length - 190mm

Width - 85mm

The weather proof control box is fixed to the side of the blower box using stainless steel screws. The control panel is fitted to the inside of this box and is connected to the power, high water alarm and pressure switch, via a gland at the back of the box.



Repairing boxes is not recommended. Replacements boxes be purchased from Taylex or your local service agent.





20) ECO Control Panel

(240v to 12V Power Supply)

Length - 160mm

Height - 100mm

The Taylex ECO is a 12V controller powered by the 24Ov to 12v power supply plug. As the unit is 12V all works including replacements and repairs do not need to be completed by a Licenced Electrician. All service agents can therefore complete all works within the Control Box and on the Taylex ECO Controllers.

The Taylex ECO Controller Assembly (complete with Controller, Control Panel Box, 3 x GPO Assembly and Blower Box) is classed as electrical equipment and has been certified to comply with AS/NZS 3820, meeting the Electrical Safety requirements in Australia and New Zealand

Repair / Replacement Details:

Turn the system off. Replace the Control Panel by removing the 4 screws in the control box. Disconnect the Loom plug from the rear of the panel. Connect the loom to the new panel; return the new Control Panel to the control box and re fix the 4 screws. Turn the system on. Purchase the Control Panel from Taylex.





21) L.E.D Light

Height - 30mm Length - 20mm

The LED visual alarm is constructed within the Eco Panel. This LED Red light will flash when an alarm is present. The number of flashes represent the particular code.

Repair / Replacement Details:

Replacement of the LED lights only is not possible; the complete Control Panel must be replaced. Purchase the Control Panel from Taylex.



22) **Blower Box** 

Material - HD Polyethylene

Height - 350mm

Length - 600mm

Width - 400mm

The Blower boxed is fitted to the lid of the ABS using 4 x 30mm anchors.

Repair / Replacement Details:

Repairing boxes is not recommended. Replacement boxes can be purchased from Taylex or your local service agent.



Weatherproof GPO's 23)

Single

Height - 85mm

Length - 85mm

Width - 80mm

Double

Height - 85mm

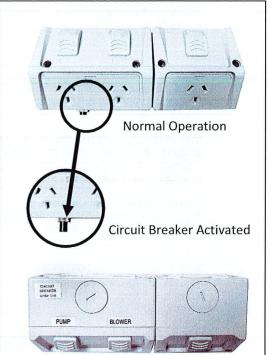
Length - 115mm Width - 80mm

Mains 10amp power is connected through the 25mm coupling provided on the side of the ABSNR -2000 and pulled up through a conduit into the Single GPO. The 12volt power pack plugs into the single GPO to power the control panel. The blower and irrigation pump are plugged into the double GPO.

The double GPO contains a 5amp circuit breaker, which will activate if either the pump or blower (or both) draw too many amps, indicating a fault with the pump or blower. The breaker can be reset by pushing in the button if activated. The systems normal operation including alarms will continue to function, if the breaker is activated.

Repair / Replacement Details:

Replacing the GPO's can only be completed by a licenced electrician, please refer to the Taylex Electrical Connection instructions for details. Replacements can be purchased from Taylex or your local service agent.





Nitto 80L Blower 24)

Material - Alloy / Plastic

Height - 188mm

Width - 214mm Length - 305mm Weight - 5.3kg

Noise Rating: 40dB(A) Capacity - 80L

Back Pressure Range - 5kpa - 20kpa

Motor Power - 86 Watts

Power Source - 240V 50hZ

Repair / Replacement Details:

Purchase replacement Blowers and parts from Taylex.



#### 25) Recirculation Control Valve

The Recirculation system has been designed to recirculate a precise volume of bacteria and sludge back to the primary chamber for denitrification and sludge management. The control valve should be set to '10' on the dial for optimum operation.

Repair / Replacement Details:

Turn the system off. Replace the Recirculation assembly by cutting the main line and installing the new assembly with a joining socket. Turn the system on. Purchase the complete assembly from Taylex.

