

BIOSEPTIC S-5000 NR STS AWTS 2022 Welcome Pack and Installation Manual



WELCOME

Dear BioSeptic Client,

Thank you for purchasing a BioSeptic Sewage Treatment System.

We welcome you to the BioSeptic community that relies on a BioSeptic system to treat their daily wastewater.

We will work with you until the system is installed and operating correctly. There are a few steps to be negotiated.

BioSeptic will guide you through the application to Council and after the Council Approval has been granted we will arrange the delivery when it is required. After it is installed and operating the BioSeptic service department will continue to ensure its efficient operation so that it will provide you with many years of operation.

This document provides the information needed to facilitate the smooth installation of your BioSeptic system and provides the following information:

- Council requirements – the need to make a council application is mandatory
- Whether or not a wastewater site and soil report is required
- When Council Inspections are required
- How to install the tank – The BioSeptic Installation Manual begins on page 7 of this document.
- Who should be engaged to install the tank.

We invite you to phone to discuss any concerns. Initially this can be done by contacting your salesman's mobile phone or 4629 6666. As the process continues you will get to know other team members.

BioSeptic Pty Ltd.

THE APPROVAL AND INSTALLATION PROCESS

1. A council application to install and operate the BioSeptic system is mandatory and can only be made by the registered landowner. The application will require a fee.
2. Installation cannot occur without Council approval.
3. When you receive the Council Approval please read it and consult BioSeptic if assistance is required to understand your obligations.
4. Download a copy of the *BioSeptic Installation Manual* from the BioSeptic website. Please read it and provide it to your drainer/plumber.
5. You need to engage a licensed plumber/drainer to install the tanks. BioSeptic is a licensed drainer and can undertake the installation if you require. In the Installation Manual the section *Let BioSeptic Provide a Seamless Installation* explains how we can take over arranging most of the installation process.
6. If you are an owner builder or your builder or plumber is installing the tanks, negotiate a suitable installation day with your house builder or plumber. Different sites require, and different builders will want the tank installed at different times see the *Delivery Process* on page 12.
7. Coordinate a delivery day between the drainer and BioSeptic. Phone 4629 6666 between 8.00am and 4.00pm to arrange a delivery date.
8. If you are managing the installation arrange a Council inspection for a time after the tanks have been installed and the sewer pipes have been laid, but before the pipes are backfilled. However, arranging the council inspection is a task better given to the drainer doing the work.
9. After the tanks have been installed, your electrician should complete the electrical connections. *Read the S5000 NR Control System beginning on page 16* in this *BioSeptic Installation Manual*.
10. If the Council requires a Compliance Certificate this can only be supplied after the tanks have been installed, and the sewer and power connected. After Council receives the Compliance Certificate it will provide a *Certificate to Operate a Sewage Management Facility* so that the BioSeptic can be used.
11. Download the *BioSeptic S5000 NR Owner's Guide* for information on the BioSeptic process and advice on how to use it. It has a list of Do's and Don'ts.

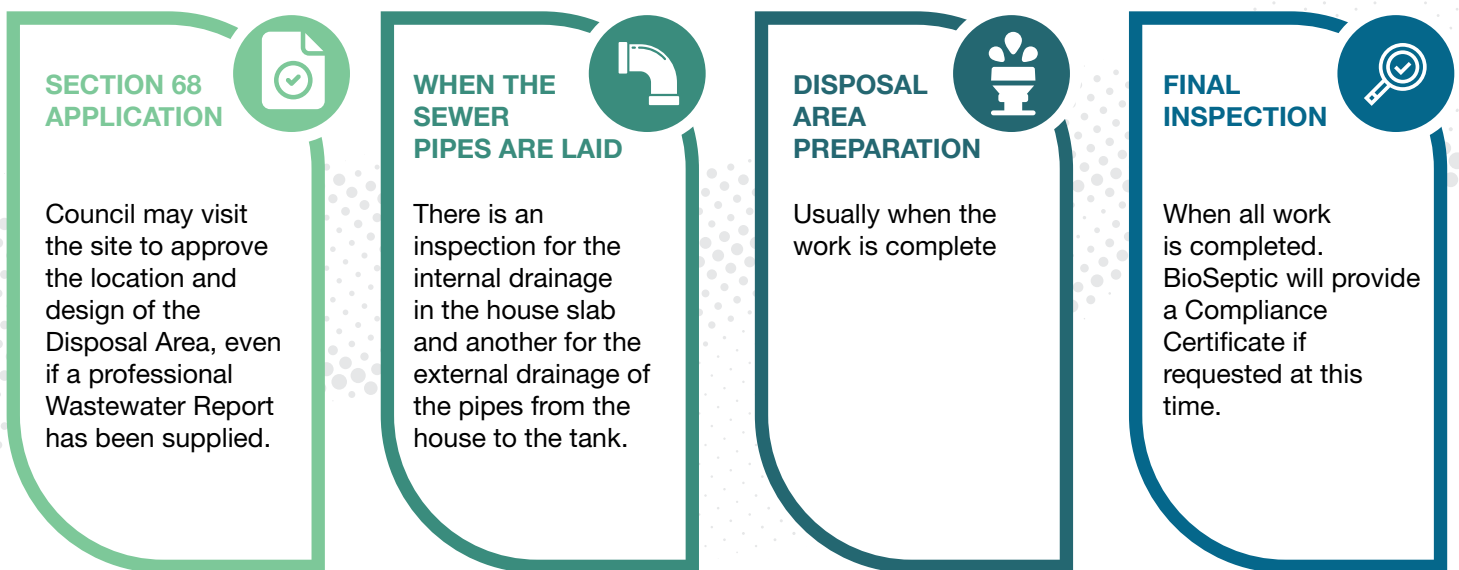
DISPOSAL AREAS

After the wastewater is treated it is discharged to the disposal area. The different disposal methods shown in the Installation Manual are required for different sites. Not all methods are allowed on all sites. The various popular disposal methods are:

1. Semi fixed surface sprays
2. Sub-surface irrigation
3. Evapotranspiration beds
4. Pressure dosed beds
5. Absorption trenches

COUNCIL INSPECTIONS

Council Inspections are generally required at these stages:



COMPLIANCE CERTIFICATES

When all work has been completed you will require these certificates so Council can issue the Certificate of Occupancy:

1. SMF Compliance Certificate – BioSeptic will provide a Compliance Certificate for the BioSeptic system.
2. Completion of Works Certificate for the sewer pipes – provided by the drainer/plumber
3. Disposal area Compliance Certificate – provided by whoever installed the disposal area.

It is the owner's responsibility to ensure these certificates are obtained from BioSeptic, the plumber/drainer and disposal area provider.

OWNERS RESPONSIBILITIES

! BioSeptic will assist you with the installation process, but it is ultimately the site owner's responsibility to comply with all these local council requirements.

! YOU MUST OBTAIN A COUNCIL APPROVAL

Your local council requires an application for the Installation and Operation of a Sewerage Management Facility (SMF), also known as a Section 68 application. It is best submitted to Council with the Development Application. Only the registered owner of the land can make the council application.

There are three components to the Sewerage Management Facility: -

1. the premises sewer pipes,
2. the BioSeptic treatment system, and
3. the disposal area for the treated wastewater.

Sometimes the Section 68 requirements for wastewater disposal may have an impact on the premises design and it is easier to have both the BioSeptic/SMF Approval and the Development Approvals in place before building begins. BioSeptic can assist if adjustments to the disposal areas are required.

Once the SMF approval is received the BioSeptic tank and sewer pipes can be installed. Please note it is an offence to install a SMF and sewer pipes without council approval. Towards the end of the building process, after the BioSeptic has been installed and the Treated Wastewater Disposal Area completed, the Council will make another inspection and grant an Approval to Operate.

WASTEWATER/GEOTECHNICAL SITE AND SOIL REPORTS

Some local councils require a wastewater/geotechnical site and soil report to designate an area on the site for the wastewater disposal and to determine the type of disposal area to be used. This report will form part of the Section 68 Application to Install the SMF. BioSeptic can recommend several companies that can produce these reports.

For larger premises, the report may undertake a wastewater audit to determine the size of SMF required to treat the wastewater. The BioSeptic S5000 NR STS AWTS is accredited for 5000L/day to the Advanced Secondary Level. Larger systems are available if required.

THE BIOSEPTIC PROCESS

The BioSeptic AWTS is a compact sewage treatment plant that safely processes all household wastewater and recycles it as clear odourless water; to be disposed of in evapotranspiration beds (ETA beds), sub surface or surface irrigation.

For the environmentally responsible person this means that the waste is treated and disposed of on the property where it is produced rather than moving the waste problem to another location, such as a town sewage treatment plant.

The BioSeptic process begins when all household wastewater from the kitchen, toilets, bathroom and laundry flows into the first tank. The solid waste settles in the primary chamber, where naturally occurring anaerobic bacteria slowly break it down.

The settled wastewater flows by gravity through the concrete baffle via three gross pollutant filters into the equalization chamber. An air lift pump doses the wastewater at a prescribed rate into the treatment tank.

The treatment process begins in three aeration sequential chambers, containing bacterial support media. Air is diffused into the chambers to create aerobic bacteria. These quick acting bacteria reduce the organic matter to carbon dioxide and water. Because aerobic bacteria breathe oxygen, there is little odour.

The three reducing capacity aeration chambers are in series to provide a positive surge control to slow down and ensure correct treatment of surge wastewater flows from baths or washing machines.

After aeration the wastewater displaces to the primary clarifier where any remaining sediment settles out of the water to be recycled to the primary tank. It then overflows to the secondary clarifier for final polishing. A skimmer keeps the surface of the clarifiers moving to prevent mosquitoes breeding.












In the final process the wastewater passes into the chlorine contact chamber/pump chamber, where a small amount of chlorine kills any remaining pathogens. The treated wastewater can now be safely pumped to the disposal area. Plants are nature's best method to take up the nutrients that must be prevented from flowing into streams and rivers. Depending on the disposal method trees and shrubs transpire the treated wastewater to the atmosphere.

They are able to enjoy the beneficial reuse of a valuable resource rather than having to deal with an unpleasant problem.

INFORMATION

INSTALLATION OF THE BIOSEPTIC S5000 NR STS AWTS

The BioSeptic Installation Manual is available at www.bioseptic.com.au. It also forms the following part of this document.

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LET BIOSEPTIC PROVIDE A SEAMLESS INSTALLATION

BioSeptic Pty Ltd is a licensed Drainage Contractor and has an experienced team available to complete the installation of your BioSeptic system using late model equipment and trucks. Our drainage team are employees not sub-contractors. Our licensed drainers can visit the site to confirm the final tank location and arrange the complete installation. This can include the preparation of any evapotranspiration areas (ETA beds) and trenching in of any irrigation system. We have a relationship with local councils and know most of their particular requirements.

After our sales team has managed the sale and Council Application, our Installation Team can make

it a seamless event by completing the installation. The time and date of the tank delivery, plus any changes for weather become our responsibility. For some sites we can also install the sewer pipes that connect the tank to the house, this is known as the external drainage. This relieves you and the builder of the responsibility of ensuring the sewer pipes are installed at the correct depth to connect the house and tank. The stormwater connections to any water tank or the street are often part of the external drainage installation.

For many projects we will be quicker and more economical than an independent drainer or the builder's drainer.



[DOWNLOAD THE FULL BIOSEPTIC EXCAVATION SERVICES FLYER HERE](#)



INSTALLATION

The dimensions shown on the drawings are to be regarded as the minimum size for the excavation.

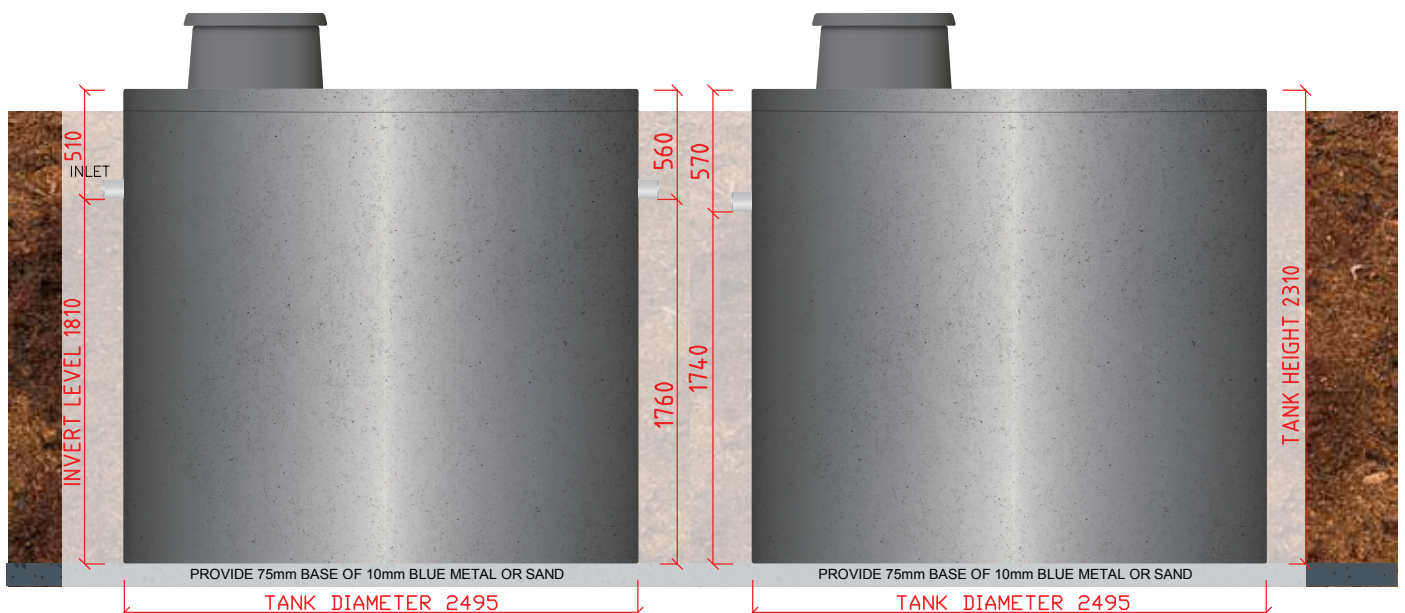
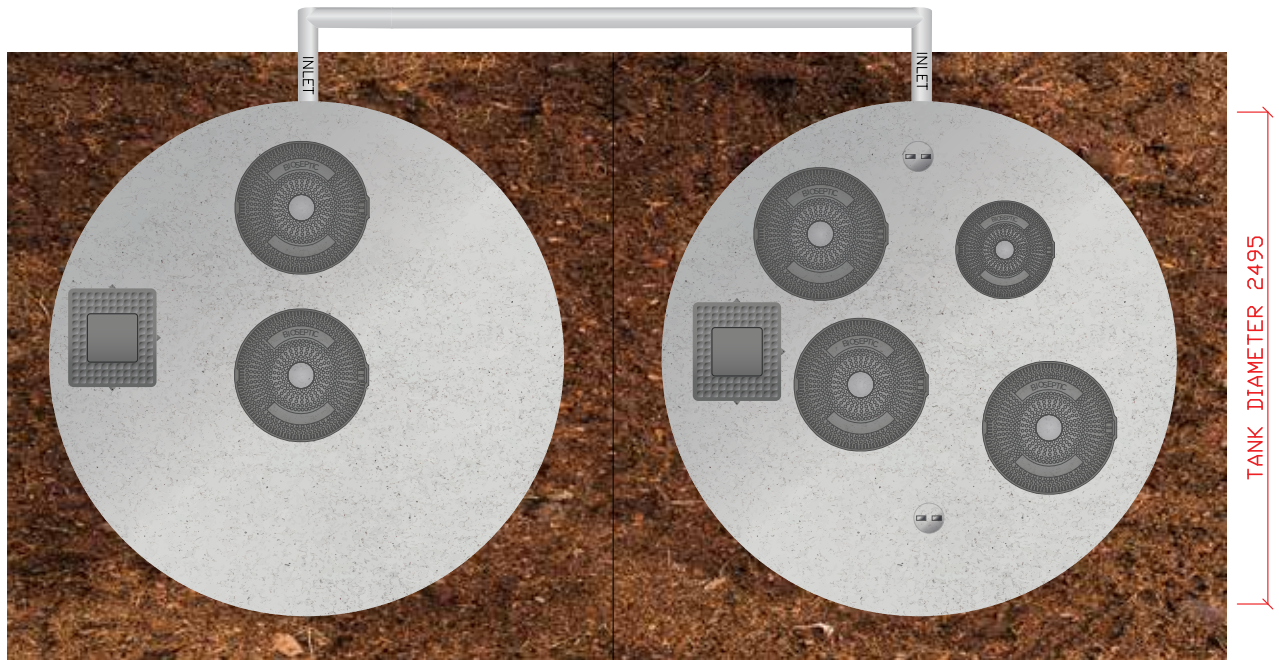
The base of the excavation should be prepared by spreading a 75mm (minimum) layer of 10mm blue metal, recycled concrete to form a firm foundation. Do not use sand because if the excavation remains open for a period of time and the excavation fills

with water, sand becomes a sloppy mess, while the recycled concrete or blue metal retains its integrity once the rain or ground water is pumped out.



RECOMMENDATION

The top of the tanks must be a minimum of 100mm above the finished ground level.



INSTALLATION CONT.

The lid of the tank should be 100-150mm above finished ground level, so be sure to allow for any topsoil or turf that may be laid around the tank after the tank installation.

It is the drainer's responsibility to supply and fit the sewer pipe from the house to the inlet and between the tanks. In conjunction with the drainer **it is the owner's responsibility to ensure that the tank is filled with water to prevent the tank floating.** See Filling the tank with water on page 14.



BACK FILLING

The tank can be backfilled with material excavated from the hole, unless it is hard rock in which case suitable soft backfill should be substituted. **Do not** backfill with large rocks or boulders.



IMPORTANT!

Before backfilling the pipes check that a Council Inspector **has approved the pipe and tank installation.**



IMPORTANT!

A Council Inspection should be arranged for when the sewer pipes and/or the tank installation is completed, but before backfilling.

RISER EXTENSION INFORMATION

All sewer pipes (also known as drainage pipes) connecting the house to the BioSeptic tank must be installed with a fall (descending depth) of 1:60. For every 60 metres of distance the pipe falls 1 metre. Sometimes when laying pipes at 1:60 fall in flat ground or when there is a long sewer run the pipe can arrive at the tank lower than the tank inlet. Lifting the pipe is not allowed as it will reduce the required fall and cause the sewer pipe to block. Moving the location of the tank or the path of the sewer to better locations should be considered before using riser extensions.

When there is no option, but to use a riser, the tank is installed lower in the ground so that the sewer pipe enters the inlet at the required depth. The tank lid is removed and a concrete collar or riser is sealed on top of the tank to create an extension to the tank wall that extends above the finished ground level. The lid is then replaced. Risers are available in 300mm and 450mm increments. Multiple risers can be used if greater depth is required. Servicing a tank with more than 600mm risers can be difficult. Please consult BioSeptic before considering very deep risers. There is an alternative.

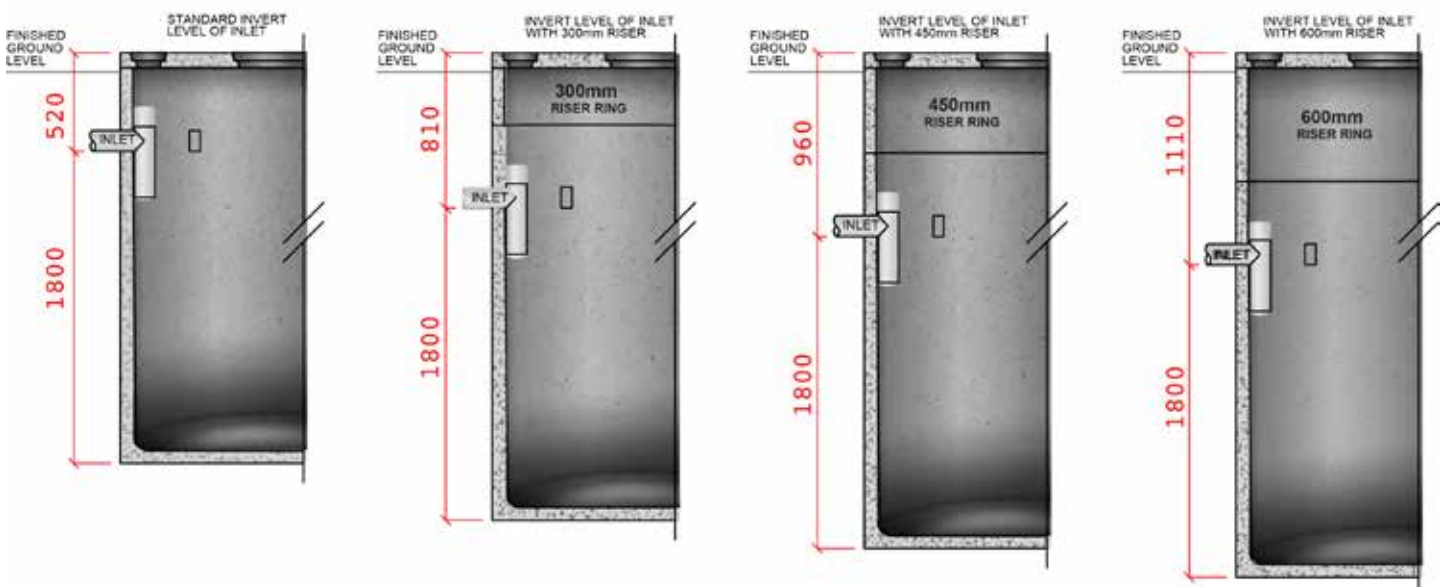
If the riser size is known prior to the tank delivery the 300mm and 450mm risers can be factory fitted. This is a more economical option. 600mm risers have to be fitted to the tank on site, as the tank would be over height on the truck. When considering risers it should be remembered that it is a council requirement that the top of the tank lid is 100mm above finished ground level in order to avoid surface water from entering tank.

So please make sure that your drainer has checked if there is any need for risers before requesting a delivery date. A few days' notice is required for factory fitted risers, which are cheaper and save a lot of time on site. However, it is not always possible for the need to be determined until excavation for the sewer pipes begins. If accurate levels are provided on a survey drawing BioSeptic can estimate the need for risers to assist the plumber/drainer.



RECOMMENDATION

The top of the tanks must be a minimum of 100mm above the finished ground level.



THE DELIVERY PROCESS

BOOKING A DELIVERY DATE

Providing BioSeptic with adequate notice will ensure that your BioSeptic System is delivered when you want it. The time needed to reserve a delivery time varies from week to week and it is best to arrange a delivery date as soon as possible. A minimum of two to three weeks' notice is usually required to reserve the date you require. Call BioSeptic to plan the delivery.

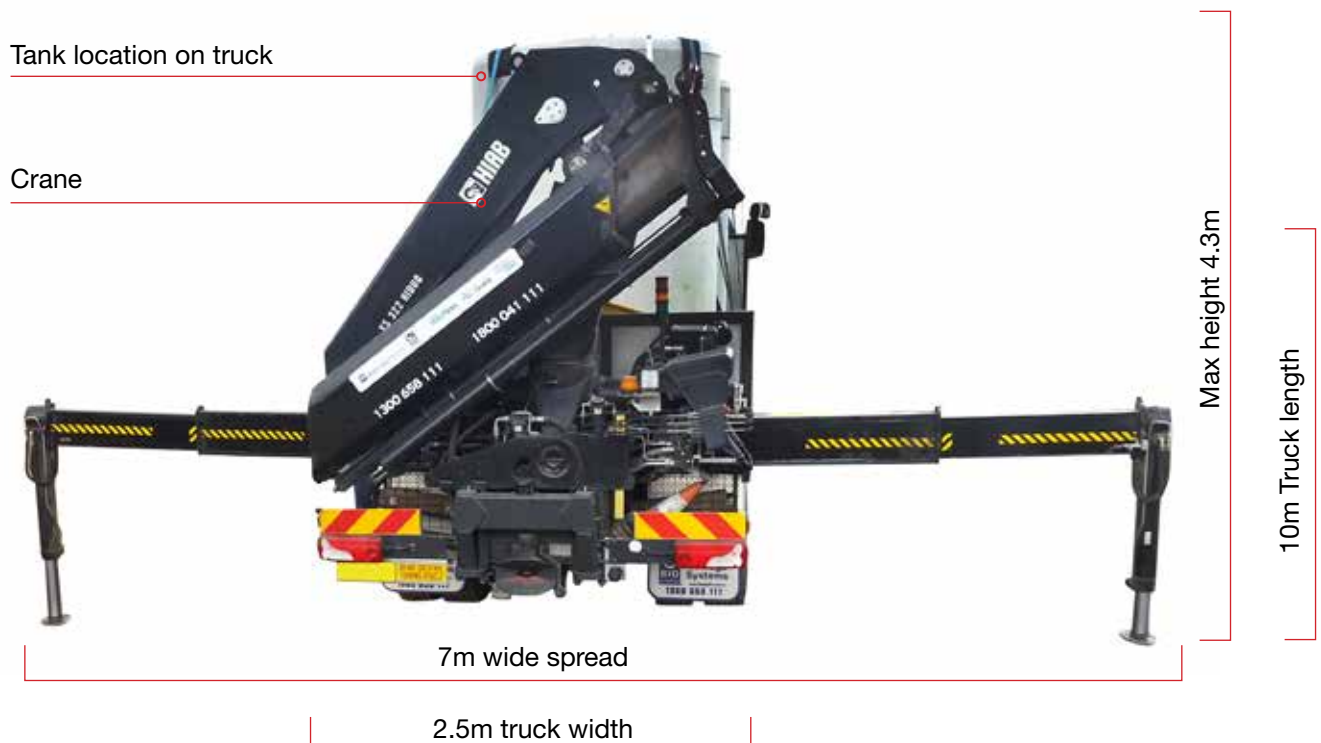
TRUCK ACCESS

- The site access route to the edge of the excavation must be free of obstructions, overhanging trees, house eaves, overhead power and telephone wires
- The site access must allow the truck shown below to reverse to the edge of the excavation and allow its stabiliser legs to be extended each side, see the picture on the next page.
- The site must be suitable for all weather access (tarmac or hard standing) if the delivery is required to proceed in wet weather
- It is the purchaser's, or their representative's responsibility to notify BioSeptic if the site is inaccessible by the truck due to wet weather prior. BioSeptic must be informed of any cancellation before the tank is loaded on the truck
- A re-delivery fee will apply if the truck arrives on site and cannot safely unload the tank
- Should the owner insist that the truck attempts to enter the site, the driver will formally request the owner to agree to pay for all delays and recovery costs



CRANE TRUCK DIMENSIONS

- Width 2.5m
- Length 10m
- Fully loaded 27.5 or 31 tonnes
- Height up to 4.3m maximum
- Extended stabiliser legs width 7m
- Crane is rear mounted



PREPARING FOR THE DELIVERY

- The purchaser or their representative is to be present to acknowledge delivery.
- The excavation must be ready when the truck arrives and it must be prepared according to BioSeptic's tank installation diagram on page 9.
- An hour is allowed to unload and place the tank first into position. 30 minutes each tank after the first tank.
- A waiting fee may be charged if these times are exceeded

DELIVERY POSTPONEMENT

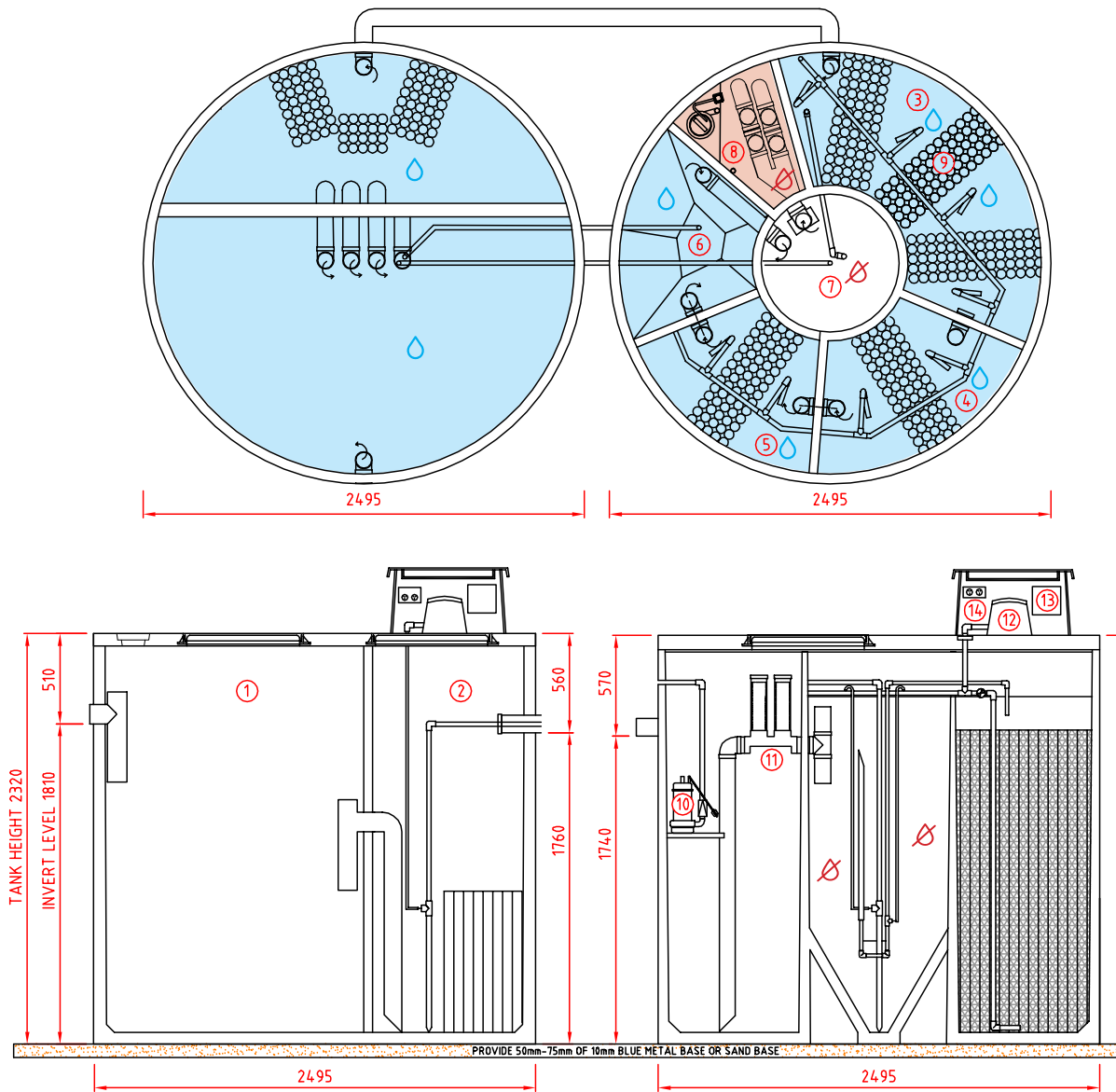
- Once a delivery date has been reserved a cancellation fee may apply for any cancellations/postponements made less than 48 hours prior to the delivery date.
- This does not apply in extreme weather conditions or for any unforeseen natural events.
- A 4 hour re-delivery fee will be charged once the truck has left the BioSeptic yard.
- It is the purchasers' responsibility to ensure that the drainer receives a copy of this manual.



BIOSEPTIC S5000 NR SEWAGE SYSTEM CHAMBERS AND COMPONENTS

FILLING THE TANK WITH WATER

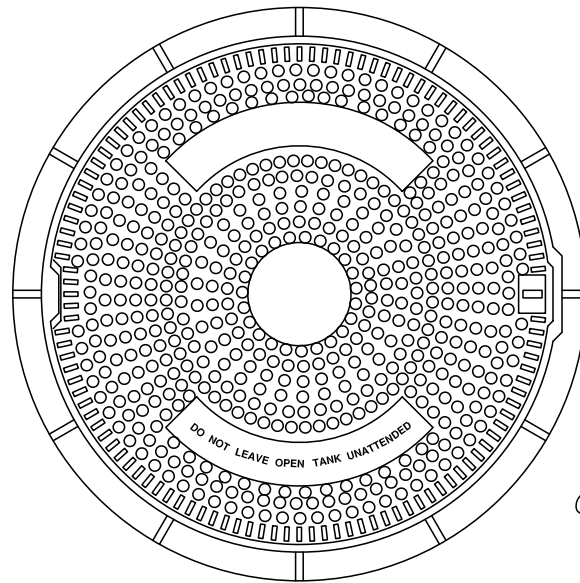
If the sewer pipe is connected fill the tank from the premises taps. Follow the water flow from chamber to chamber and turn off the tap(s) when the water begins to flow into the clarifier. It is not a problem if there is water in the clarifier. The clarifier and pump chamber will fill when normal waste water flow begins from the premises.



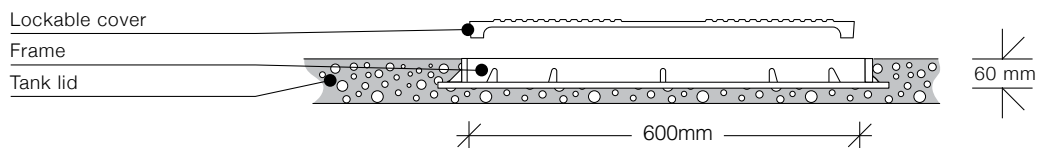
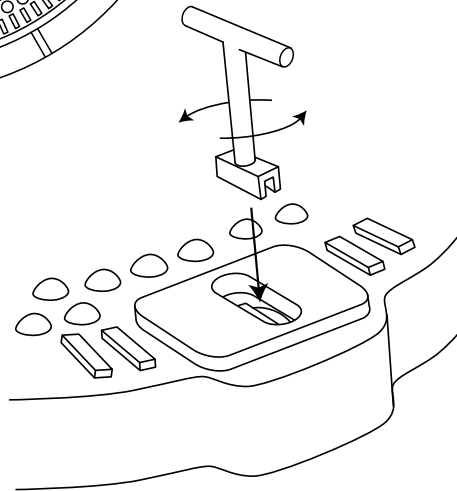
Legend

| | | | |
|---|----------------------|----|-------------------------|
| 1 | Septic Chamber | 8 | Pump Chamber |
| 2 | Equalisation Chamber | 9 | Bacterial Support Media |
| 3 | Aeration Chamber 1 | 10 | Water Pump |
| 4 | Aeration Chamber 2 | 11 | Chlorinator |
| 5 | Aeration Chamber 3 | 12 | Air Blowers |
| 6 | Primary Clarifier | 13 | Control Box |
| 7 | Secondary Clarifier | 14 | Power Point |

REMOVING COMPOSITE RESIN LIDS



1. Locate key onto lock and push down
2. Turn key ¼ turn anti-clockwise



i S5000 NR CONTROL SYSTEM

This operation and installation information should be provided by the purchaser to the builder and electrician, so that the control box and alarm panel can be correctly connected by the electrician. It can be downloaded from www.bioseptic.com.au/ electrical connections. The electrician is provided by the purchaser.

The BioSeptic control boxes are factory fitted inside the grey boxes on top of the tanks. Also inside the grey box is the 12v alarm panel that is to be installed

by the client's electrician in the client's nominated position. Only the electrician needs to open the control box to connect the two alarm wires. It must be unplugged from the power point before being opened.

There are no owner serviceable components inside the box, and it is best left intact and only opened by the electrician.

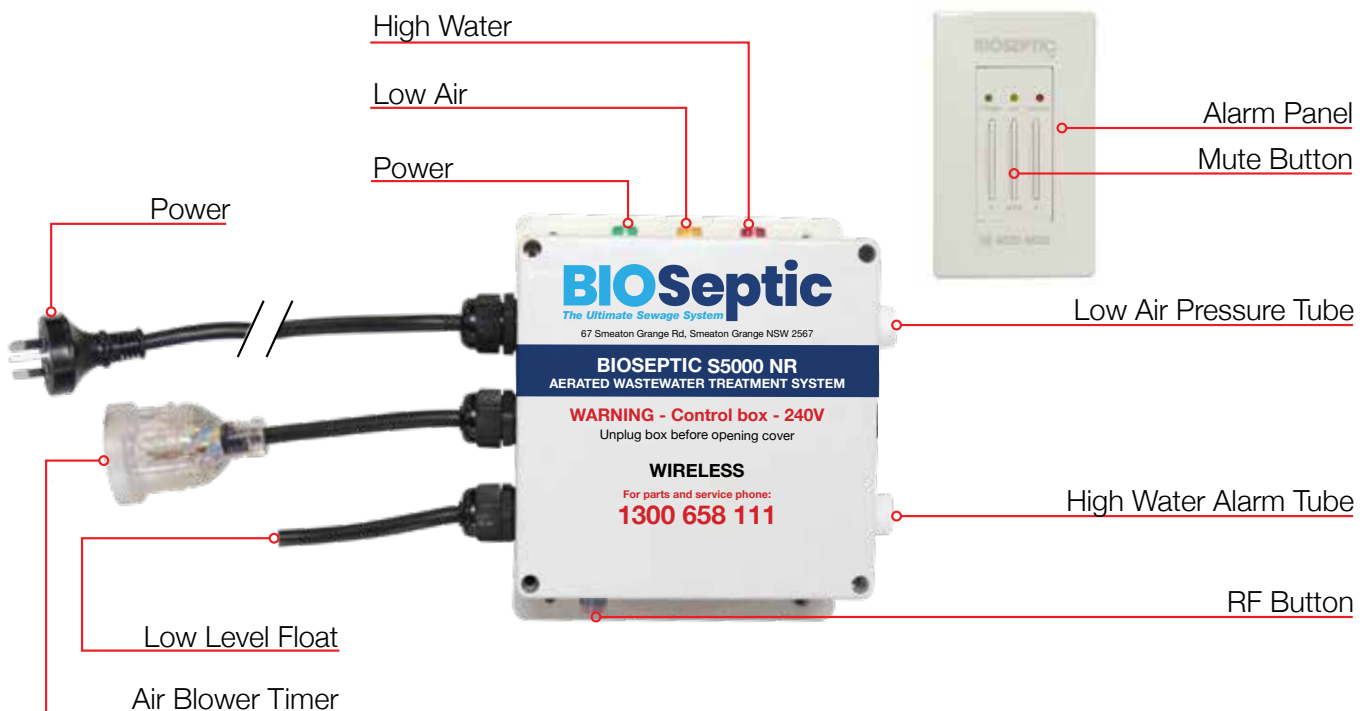
Each of the two tanks that make up the S5000 has its own control system. They are different in operation.



NOTE

BioSeptic does not undertake any electrical work.

EQUALISATION CHAMBER/DOSING SYSTEM CONTROL PROCESS



EQUALISATION TIMER

The primary or first tank has a control box inside the grey cover box. This box controls the timer that doses the wastewater from the equalisation chamber into the treatment tank. The correct setting of this timer is important so that it transfers water over a 23 hour period each day. If there is no flow in the 24th hour then the system is being optimally dosed. If there is a large variation in the daily flow the settings must be made for the highest flow. During low flow days there may be longer periods of no flow. This will not adversely affect the operation. Not transferring all of the water on the higher flow days will build up a surplus which may eventually flood the system.

Please phone BioSeptic if further assistance is required to set the timer.

HOW THE DOSING TIMER WORKS:

- Power is supplied to the equalisation control box.
- The control box supplies power to the timer.
- The timer supplies intermittent power to the air blower.
- The blower supplies air to the air lift pump water to transfer water to the treatment tank.
- The timer can be adjusted to decrease or increase the flow into the treatment tank.



SETTING THE DOSING TIMER:

The timer is factory set to operate the dosing air blower at one minute on and three minutes off.

The timer has two concentric dials. Rotating the outer dial changes the dosing frequency and the inner dial changes the dosing period.

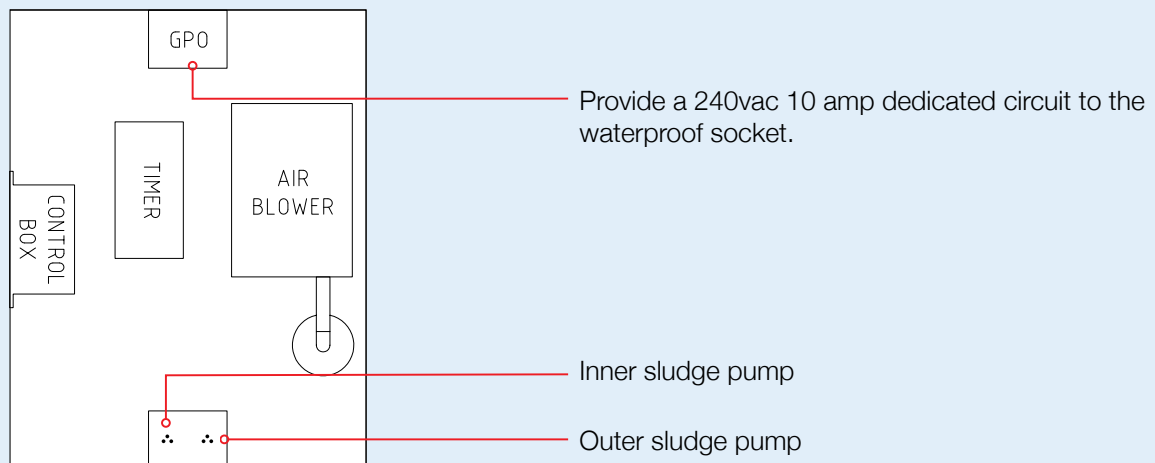
To increase the flow decrease the frequency (the larger outer dial), i.e from three minutes off to two minutes and forty five seconds off.

Controlling the off timer is easier than adjusting the on timer (the smaller dial)

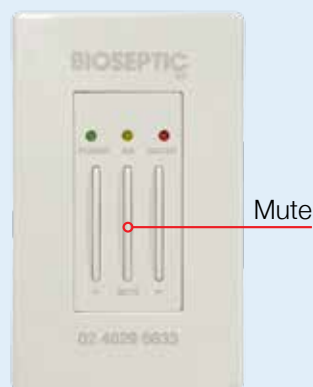
DISPLAY LIGHTS - EQUALISATION DOSING / CONTROL PROCESS

| Control Box | Alarm Panel | Condition | Possible fault condition |
|-------------|-------------|------------------|--|
| Green | Green | Power is on | Display light is off - check main supply. |
| Yellow | Yellow | Low air pressure | a) the air tube may be disconnected, b) the blower is not working or c) there may be a broken pipe inside the tank |
| Red | Red | High water level | If power has only recently been turned on the tanks may be overfull. The discharge pump will pump the level down. |
| | Mute button | | Pressing the mute button for 2 seconds silences the audio alarm – it will re alarm in 24 hours if the fault is still present. Quickly tapping the mute button will not silence the alarm |

ELECTRICAL SUPPLY



ALARM PANEL



Install the alarm panel in the client's preferred location, usually inside the house

- Install in a clearly visible and audible position
- Do **not** install near bedrooms
- Connect the two alarm wires to the terminal block. They are not polarity sensitive.

To mount the alarm:

Insert a screwdriver in the two slots at the base of the faceplate to remove the faceplate.

ALARM SYNCHRONISATION.

Press the RF button on the underside of the control box. Press the mute button on the alarm panel until the green lights on the control box and alarm panel flash.

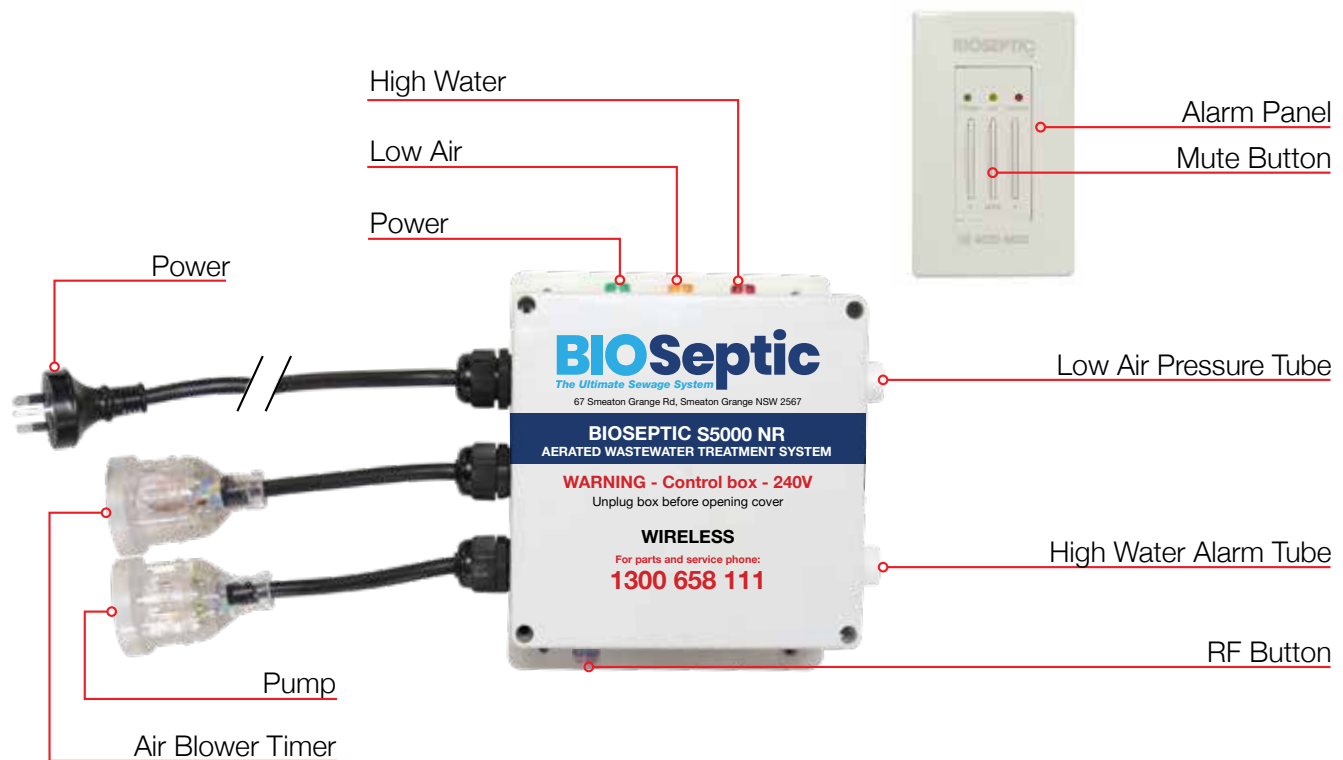
The control box and alarm are now paired.

Remove the air blower tube to test the alarm.

TREATMENT TANK CONTROL PROCESS

Power is supplied to the control box which supplies power to the air blower, discharge water pump timer is powered directly from the power socket. The sludge pumps.

- The treatment tank air blower operates continuously to provide the best aeration to the treatment process.
- The skimmers in each clarifier operate continuously and independently of the pump timers.
- A timer operates the two sludge pumps that desludge the two clarifiers each day.



HOW THE SLUDGE PUMP TIMERS WORKS:

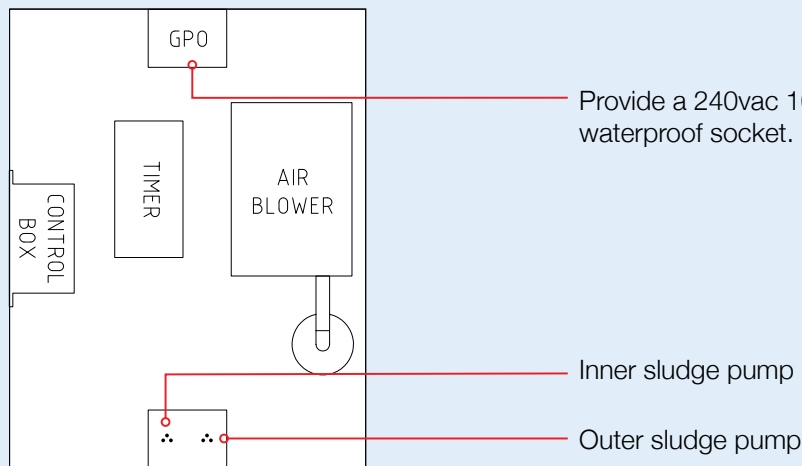
- The timer has permanent power.
- The timer supplies power to the sludge pumps for 15 seconds every 12 hours.
- When the pump operates, settled sludge in each clarifier is pumped to the septic tank for digestion by the anaerobic bacteria.
- 15 seconds should be an adequate time each day to remove any sludge build up. If a longer time is required to desludge the clarifier. Connect the pump lead to power. Make sure to plug it back into the timer.



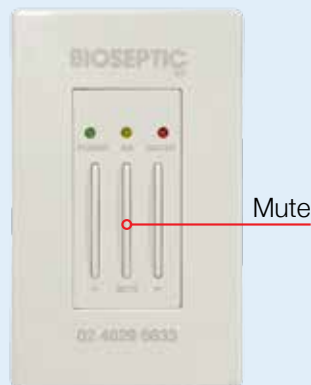
DISPLAY LIGHTS - TREATMENT TANK CONTROL BOX

| Control Box | Alarm Panel | Condition | Possible fault condition |
|-------------|-------------|------------------|--|
| Green | Green | Power is on | Display light is off - check main supply. |
| Yellow | Yellow | Low air pressure | a) the air tube may be disconnected, b) the blower is not working or c) there may be a broken pipe inside the tank |
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Press the RF button on the underside of the control box. Press the mute button on the alarm panel until the green lights on the control box and alarm panel flash. The control box and alarm are now paired. Remove the air blower tube to test the alarm.



CAUTION

During installation, do not leave the electrical conduit open in the trench - water may enter the conduit and drain into the blower enclosure, causing

a short circuit. The control boxes are not covered by warranty if damaged by water ingress.



TURNING ON THE BIOSEPTIC SYSTEM

When the tanks are installed and connected to power it is ready to use.

When the tanks are delivered:

- The air blowers will be fitted inside the cover box on the tank.
- The irrigation pump will be inside the tank in the pump chamber.
- Chlorine is in the chlorinator canisters in the pump chamber.

As soon as power is connected it will operate. If for some reason there is insufficient water in the aeration chambers the air alarm may sound and the yellow light may be lit. This is because there is insufficient back pressure on the alarm. As the water rises the alarm will stop.



THE OWNER'S GUIDE CAN BE DOWNLOADED FROM THE BIOSEPTIC WEBSITE.

Please read it as it has a lot of information about the BioSeptic process and helpful hints on how to use a BioSeptic sewage system.



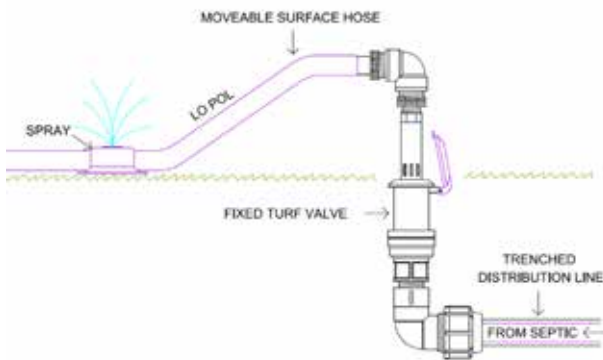
IRRIGATION INFORMATION - DISPOSAL AREA

DISPOSAL METHODS:

An irrigation or disposal system must be installed to comply with your council approval. The particular disposal method will have been included in the Section 68 or Geotechnical Wastewater Site and Soil report and one or two options will have been approved in the Licence to Install issued to the owner by the Council. Always check for any alteration made by council to the plans. They are usually in red ink and in the text of the Licence. These are four common methods that may be required by your local council.

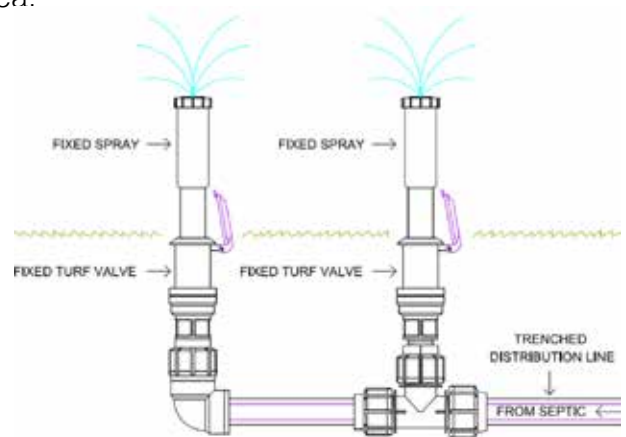
SEMI FIXED SURFACE SPRAYS

Allows the use of a moveable hose or hoses fixed to a permanent point within the approved effluent disposal area.



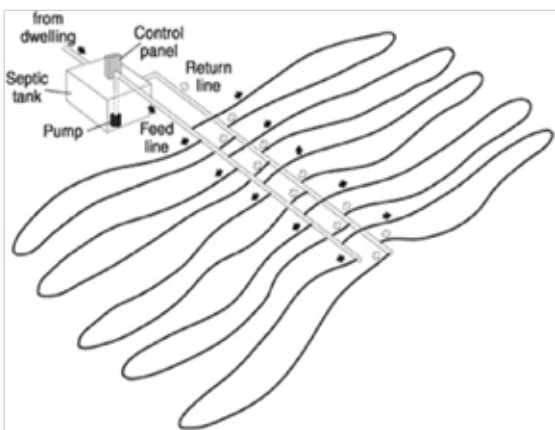
SEMI FIXED SURFACE SPRAYS

Allows the use of fixed sprinkler points that must be rotated throughout the approved effluent disposal area.



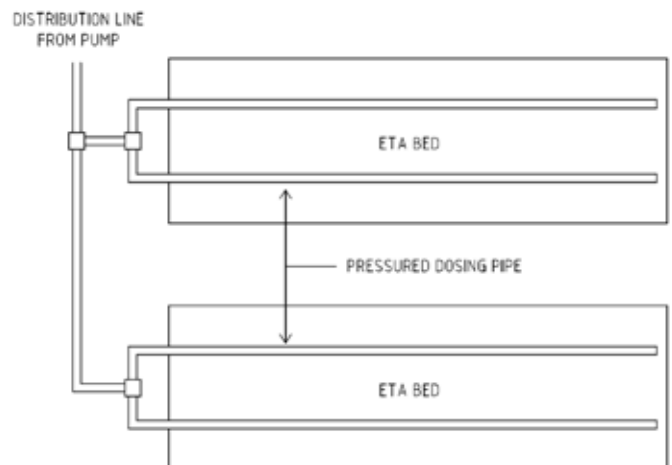
SUBSURFACE/RAISED SUBSURFACE IRRIGATION BED

Requires the use of pressurised drip line emitters installed below soil surfaces.



ETA/ABSORPTION TRENCHES AND BEDS

This method is designed to disperse effluent by the processes of evaporation, transpiration and absorption.



If you wish to have information on installers who can provide these system please feel free to contact your BioSeptic sales person.

 **CHECKLIST**

These items must be completed before the system will comply with your Council Approval to Operate Licence and is ready to use.

| | |
|--|--------------------------|
| Excavation has been backfilled | <input type="checkbox"/> |
| Sewer pipes to the tank installed | <input type="checkbox"/> |
| Electrical – power point installed inside cover box | <input type="checkbox"/> |
| Alarm panel installed at the nominated location | <input type="checkbox"/> |
| Tanks filled with water see page14 | <input type="checkbox"/> |
| Disposal area installed and connected to tank outlet | <input type="checkbox"/> |

Your annual service contract automatically begins once the **Notice of Occupancy** is returned to BioSeptic. The first service will be when the service run in your area is due. After that it will be every three months. The frequency may vary a little because of inclement weather, natural disasters, pandemics and public holidays etc.

Our aim is to make the installation of your BioSeptic AWTS as easy and smooth as possible. Should you require assistance please contact the BioSeptic sales or service team.



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