

AIRTECH™ 7000

AERATED WASTEWATER TREATMENT SYSTEM

**Operation &
Maintenance
Manual**



by **alixis**

Whether you are storing, transporting or distributing water or wastewater, RXP has the solution for you, with manufacturing facilities New Zealand wide and a selection of strong supporting brands.



OUR SOLUTION

Thank you for installing an AirTech™ aerated wastewater treatment system. The AirTech™ system is an efficient, lightweight sewage treatment plant that safely and effectively processes your disposables and wastewater. The unit recycles it as clear, odourless nutrient enriched water, that can be safely discharge into disposable field.

For the environmentally minded this means that the sewage and wastewater is treated on the property where it's produced and then recycled for reuse with little environmental impact on the land.

So welcome to your new wastewater system. It will give you years of reliable service. It is backed and supported by our network of independently trained and approved installation and service technicians.

Our independent and friendly expert technicians have extensive product and system knowledge and are happy to take your call to provide support wherever you are. It is all part of our commitment to your total satisfaction and peace of mind.

The AirTech™ system has been designed recognising the industry's latest Australia/ New Zealand joint standard 1546 Part 1 septic tanks –1547 onsite Wastewater Management and A.R.C TP 58. It is local body approved and has been through, and passed all on-site Effluent Treatment National Testing Program (OSET NTP).

The AirTech™ system meets World Health Organisation (WHO) effluent quality standards.

The AirTech™ is a tough, robust and effective domestic wastewater system and has been designed by New Zealanders for New Zealand conditions. The design utilises innovative sewage treatment technology and together with modern rotomoulding manufacturing processes at our factories in Ashburton and Hamilton, we can deliver a reliable and efficient wastewater system to you.

SYSTEM & PROCESS

Holiday precautions

If you are away for more than six weeks please contact your service supplier so they can monitor your system.

When you return you will get a smell from the system. Once in use and wastewater is coming in, the micro organisms will populate and smell will disappear. If it continues to smell, call your service supplier.

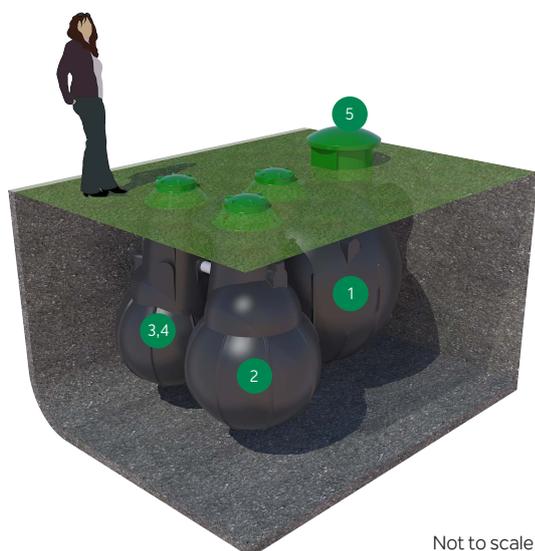
How does it work?

Ask your installer to explain the workings of the system during the commissioning of the system.

The AirTech™ system has been designed to include a simple owner service programme carried out at six month intervals (depending on usage).

The service requirements of the system should be carried out by an independent, approved or qualified service technician.

Following and understanding the instructions in this manual will ensure long term trouble free performance of the AirTech™ system.



1. Primary septic chamber (anaerobic digestion)

This is the main chamber where all household sewage and wastewater is discharged and the settling out of up to 95% of solid waste occurs. There is also a reduction in the biochemical oxygen demand (bod5) of up to 40%.

The primary chamber has a large liquid working capacity ensuring maximum retention time allowing anaerobic digestion of the accumulated solid waste.

The primary chamber is a sealed chamber ensuring there is no cross flow contamination between the separate treatment processes within the system. The outlet is fitted with an industry proven 3mm biow filter minimising solid waste carry-over integrating a flow modulation baffle to manage peak flow levels limiting shock loading of the system.

2. Aeration chamber (aggressive aerobic digestion)

The partially treated wastewater flows into the aeration chamber where aggressive digesting aerobic bacteria can further reduce the suspended solid sludge. Efficient oxygen transfer through fine air diffusion maintains high aerobic activity and population. Increased surface area through additional submerged media enhances and accommodates a greater growth of bacteria.

3. Clarification chamber (dormant settling of suspended solids and sludges)

Wastewater effluent is gravity fed into the clarification chamber where, in quiescent conditions, any remaining sludge and suspended material settle and are returned to the primary chamber through a venturi airlift manifold. Sludge is returned by a tap timer once a day.

4. Irrigation pump chamber

The gravity flow of clean, clear, odourless effluent into the irrigation pump chamber is nutrient enriched and is recycled through a designed irrigation field to enhance landscape on your property. This chamber is protected with an alarm that will activate in the event of a pump failure, and has a large capacity effluent storage.

5. Blower box (housing for Air Blower and Electronics)

This houses all of the electronic connections (including the alarm set and sludge return timer), required for the AirTech™ system. Connection from the house is terminated on the outside of this box. The blower provides all of the air required for the aerobic digestion of your waste and must constantly run to achieve best results.

GUIDELINES FOR YOUR AIRTECH

Guidelines

Your home has a modern waste water treatment plant.

This plant treats your household waste water to a high quality and requires bacteria (bugs), to break down the waste matter. The wrong products going down your drains will kill the bugs and the system will not operate correctly.

Do not turn the power off to the AirTech™ advanced septic tank system (unless you are rinsing your external filter) the bacteria will die and the system will smell.

Items not to be flushed down drains

- No bleaches or chlorine (i.e. Napisan, Bleach)
These products are designed to kill bugs and will kill off the bacteria in the tank causing smells and constant blocking of the Bio (internal) filter. You can use these products if used in a bucket and tip on the lawn or safe place, not down your drain
- No fats or oils
Fats and oils may block the tank filters and kill the bacteria in the tank
- No tea leaves or coffee grounds
These may block the filters in the tank and the external filter
- No washing paint brushes or disposing of paints
These products will not only kill bacteria in the tank, but the residue is very difficult and costly to remove
- No disposable nappies, sanitary napkins, tampons or condoms
These products do not break down and cause a mass build up in the tank, which can cause blockages that can be costly to clean
- Do not have a waste disposal unit
This waste takes a long time to break down and the system will require frequent emptying which is very costly
- Use low sudsing laundry powder/liquid and non-caustic dish washing powder
- Heavy antibiotics, also kill off the bugs. (after the medication is complete the system will return to normal).
- On reflection if you won't eat it, don't flush it

Other household items not to be flushed

- Cat litter, kitty litter
- Clothes dryer sheets
- Baby-wipes
- Antibiotics, medicines
- Hair
- Liquor
- Paper towels
- Photo chemicals
- Swimming pool chemicals
- Washing machine lint
- Cigarettes, butts and filters
- Cotton swabs, dental floss
- Dirt
- Food scraps, ground food
- Latex, gloves and similar
- Motor oil
- Pesticides
- Plastic bags
- Water in large quantities
- Trash, toys and scrap

Suitable products to use

Please note: all products should be used in moderation. This list is a suggestion only as there are other products available not listed. Liquid laundry detergents are better suited to septic and waste treatment systems than powder laundry detergents (powder fillers are used in power laundry detergents).

- Dish washing liquids (Ecostore Dishwash Liquid, Morning Fresh, Palmolive, Sunlight)
- Surface cleaners (Ecostore spray cleaners, Nifty, Swipe, H7, Jiff Cream Cleanser, Shower Power, Windex, Bio Zyme, Spray and Wipe (limited quantity)
- Dish wash powders (Ecostore Auto Dishwash Powder)
- Toilet cleaners (Ecostore Toilet Cleaner, H7, Jiff Cream Cleanser)
- Clothes washing powders (Ecostore Laundry Powder, Cold Power liquid and concentrate, Ecostore Oxygen Whitener (soaking), EarthOn)

The above list is not intended to promote or discredit the product of any company. It is provided to assist in ensuring the correct operation of your waste water treatment system.

CLEANING YOUR FILTER

Filter cleaning

Although your waste water system is serviced on a regular basis, there is one crucial task that you as the occupants of the house should schedule, as part of your regular home maintenance.

The outlet filter on your waste water system must be cleaned regularly to reduce the stress on your pump, and it helps keep your power bill down too. We recommend cleaning the filter once a month (1st of each month, so that it is easy to remember), and the filter is kept squeaky clean.

Most modern systems have a filter that looks like, or is similar to this:



How to clean it?

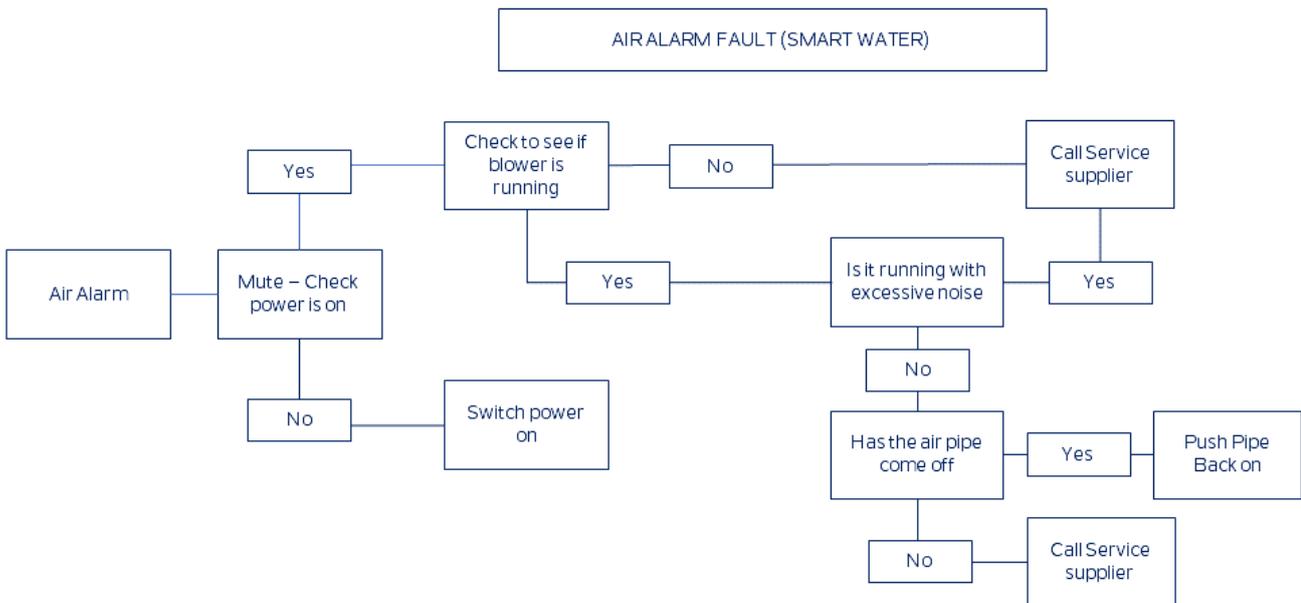
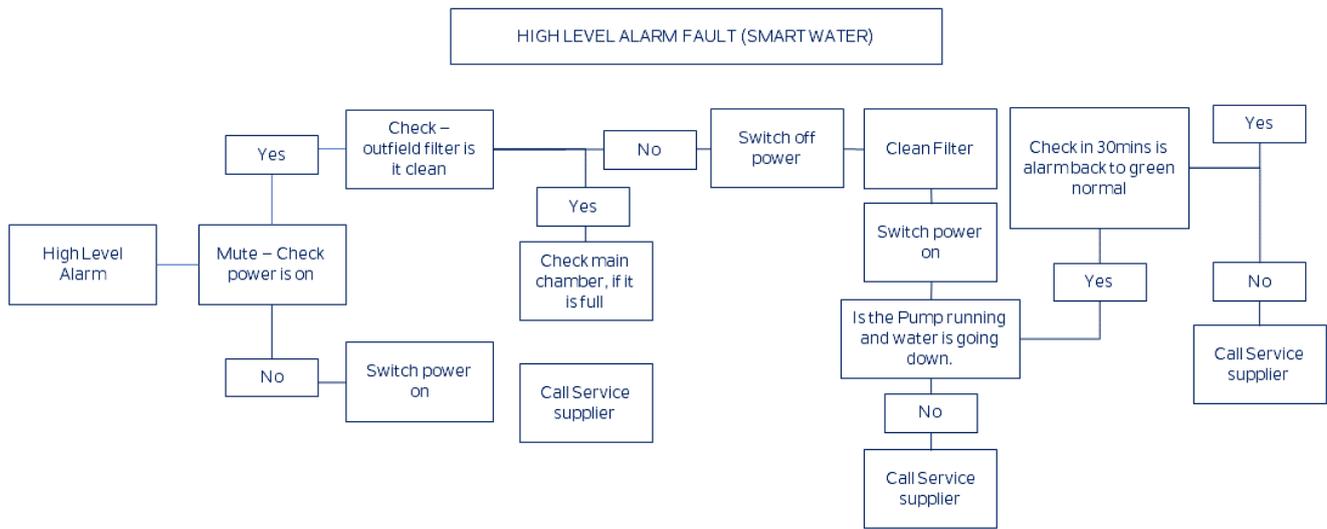
1. Always wear rubber gloves when cleaning your filter
2. First switch your system off at the power source to prevent pump out
3. To remove the cartridge, hold the bottom of the casing and screw the collar anticlockwise to undo (hold pipes when doing this, to prevent pipes from breaking)
4. Rotating the disc cartridge for a minute or two under the garden hose is usually sufficient to clean all the silty residue off the filter (to keep the discs spinning well)
5. Put the cartridge back in the casing and screw back on – hand tight only
6. Remember to switch the power to the system back on!

High Water alarm

When the High-Water alarm activates, it is usually because the filter is blocked. The filter should be cleaned immediately the alarm activates, as your pump will be continuously trying to pump water out and cannot. This will cause undue stress, and will possibly shorten the life of the pump.

If you clean the filter and the alarm does not go off after half an hour or so, please ring your installer or service agent as there may be a problem with the pump

Troubleshooting



General do's and don'ts

- Don't turn your system off
- Do call your supplier when you encounter a problem
- We recommend that you do your washing up on a daily basis so as not to shock load the system
- Try to avoid using showers, washing machines, dishwashers etc. all at the same time
- Don't try to service the system yourself as there are health risks to consider and you may compromise your warranty
- Do use common sense, adhering to the basic rules provided throughout this manual will ensure a trouble free, and cost effective system

Suitable plants for Evapo-transpiration systems

Evapo-transpiration systems employ the combined effects of evaporation from soil and transpiration from plants to dispose of wastewater effluent to the atmosphere. Moisture is wicked up to plant roots and to the soil surface. The plants use the moisture in their growing processes and subsequently transpire the excess through their leaves to the atmosphere.

Native Shrubs and Trees

Coprosma	Coprosma Propinqua
Hebe	Lacebark (fast)
Manuka	Leptospermum Scoparium
Flax (fast)	Phormium Tenax

Grasses

Jointed Twig Sedge	Baumea Articulata
Longwood Tussock	Carex Comans
Pukio	Carex Secta

Introduced Species

Canna Lillies	Taro
Aralia	Fuschia
Philodendrons	Begonias

Frequently asked questions:

- What does the alarm do?

The alarm system doesn't run the AirTech™ system, it is an audible and visual alarm to alert the homeowner of possible issues with the system

- My septic tank is starting to smell, what do I do?

Your systems anaerobic bacteria has died or is dying – check the points in the guidelines section (pages 6 & 7) of this manual. If you are still not happy with the results, please consult your independent service supplier for assistance

- My septic tank is overflowing, what do I do?

Either the internal/external filter is blocked and needs cleaning, the power is off, or the pump has failed. Firstly, check that the power is turned on to your system, if it is, check to see if the internal or outlet filter is blocked and needs cleaning. If the pump has failed, call your independent service agent/installer for assistance

- Will reception be reduced if trees or walls are in between the AirTech™ and LCD unit?

Any wireless system will have range and reception reduced by obstacles. Similar to the poor reception of radio stations in valleys and near power lines. It is recommended to minimise obstructions in the direct path of the wireless signal. Metal clad walls will cause a drop in signal and use of an external aerial should be considered if tank is downhill of house.

- What happens if there is a power cut or the power to the LCD is interrupted?

Once power is restored the LCD unit will communicate with the tank and previous readings/data will be restored to the screen automatically. No data will be lost and you will not need to re-connect the LCD to the AirTech™ unit.

If power is lost to the outside tank unit an alarm will sound only after 3 hrs, alerting the home owner to this signal loss as (septic 1 not reporting). If an electrical strike has occurred it is possible for the LCD screen to revert to it's original state of a water tank monitor the picture of an empty water beaker will be displayed in this instance a reset and repairing will be required.

ALARM FEATURES

The alarm panel

In 'Normal' mode, your screen should look like this.

- 1 Status button
- 2 Tank signal strength
- 3 AirTech™ icon
- 4 Tank number / Tank 1 = AirTech™
- 5 Menu button



Troubleshooting

If you have a fault, your touch screen will be beeping and at the top, in red, it will say 'FAULT'.

- 1 Warning Icon
- 2 Air tech has a FAULT, press to see fault

The screen will indicate the fault, either as:

- A High Water Alarm which can mean that your irrigation filter is blocked and needs cleaning, or that you have a problem with your irrigation pump. Please contact your independent service supplier/ installer
- B Aeration fault, which can mean that your aeration blower is not working or blowing enough air. Please call your service supplier/installer.

On pressing the FAULT this will silence the buzzer for 24 hours only. Once 24 hrs are up the alarm will again activate reminding the homeowner of the FAULT
Once the system is fixed or corrects itself after a power interrupt the system will revert to NORMAL use
Every 6 months from a Service due



Alarm Features

The AirTech™ system is equipped with a wireless alarm system with sensor interface LCD touch screen. This will alert you with an audible and visual alarm so you can contact the supplier/installer network in the event of system malfunction.

This wireless alarm system will also alert you to your six monthly servicing. This alarm will go off every six months and can be re-set by your service agent after they have serviced the AirTech unit.

The face plate should be installed in the laundry or garage but away from bedrooms and has a "one glance" LCD display screen with graphics designed for the ultimate in simple, user friendly operation.

Please contact your independent supplier/installer in the event of any alarm alert, this is a sewerage system and may be harmful to health.

General

The system will already be paired by your service agent upon installation of your system. The installation process will ensure your AirTech unit is connected wirelessly to your base station.

The base station will be supplied with a wallmount unit. This will start flashing after 6 months from install to remind you it is time for a service.

Warranty

The AirTech™ aerated wastewater treatment unit is covered by the RXP extended warranty and covers all polyethylene rotomoulded tanks to be free of defects in workmanship and materials for a period of 15 years.

NOTE: The electrical componentry, including the alarm, is covered by a two year warranty only. The manufacturer's own warranty applies to the Airblower and Disposal Pump, and is a TWO year warranty. Does not cover labour, freight or any travel cost that may be incurred in the repair or replacement of a part.

RX Plastics holds no responsibility for the installation including the design and care, this is between the independent installer/service supplier and the customer. If you have any failures please call installer/service supplier and reduce water usage till issue has been resolved.

Servicing Arrangements

Your AirTech™ aerated waste water treatment system requires service and maintenance inspections every six months for continuity of warranty. RXP recommends the system be serviced every six months, by trained independent service agents/installers. This is a warranty requirement.

Your system alarm set will notify you every six months for you to arrange a suitable time to attend to your AirTech™ system servicing needs.

Arrange with your service supplier to give you a report on every service. You need to hold onto these for 10 years. You can record services and repairs in this manual.

Please call your installer/service supplier for servicing costs in your area. Servicing is usually carried out every six months, unless heavy usage occurs, during holiday periods for example, where your system may need to be serviced sooner. If you have any failures, please call agent and reduce water usage until issue has been resolved.

Your responsibility

As the owner of the system you are responsible for the correct operation and maintenance and to conform to regional and local council requirements as set out in your discharge permit/resource consent.

Council requirements

Now that your AirTech™ system has been installed there are a few council regulations that you must adhere to:

- Irrigated water must not be allowed to run off onto other properties or into waterways
- No fruit or vegetables grown on your property are to be irrigated with effluent from the system. The irrigated water is to be used only for irrigation purposes. It is not suitable for human or animal consumption
- To avoid confusion, use only the purple coloured drip line as this identifies waste water
- The council must approve that the area being landscaped or planted is to their standards
- All storm water and groundwater seepage should be diverted around the disposal and tank areas to avoid entering the system and irrigation area

Servicing includes

1. A general inspection of tank area, irrigation and drainage
2. Cleaning internal bio filter and external filter
3. Inspection of all chambers for correct operation and usage
4. Checking air blower, submersible pump switch and alarm operation
5. Checking sludge return and adjusting if necessary
6. Ensuring all lids are secure before leaving area

Note: As with any septic tank, the primary tank will need to be de-sludged (pumped out) every three to nine years. Service Agent needs to test for sludge build up at every service, and if the sludge is greater than a 30% of the volume of the tank the tank will need to be pumped out.

- The cost of de-sludging is the home owner's responsibility
- Never pump out in wet weather as flotation may occur

TECHNICAL SPECIFICATIONS

Customer care

An AirTech™ aerated wastewater treatment system will provide you with many years of rewarding and reliable performance supported and serviced by our network of trained installation and service technicians.

These technicians have extensive product and system knowledge and are able to provide you with excellent support should you require it. It's all part of our commitment to your total satisfaction and peace of mind.

Technical specifications for AirTech

The specifications of the AirTech™ aerated wastewater treatment system are as follows:

- **Tank chambers** - Polyethylene modular interlocking tank chambers - complying with construction standard AS/NZS 1546.1
- **Primary chamber filter** - 100mm S/S effluent filter. Flow modulated outlet
- **Air blower** - Blower – JDK80.053kw (the manufacturer recommends changing the filter every 3 months)
- **Diffuser** - 250mm disc diaphragm
- **Air system** - Supplies air to the diffuser and venturi sludge return system (aerobic and anaerobic). The venturi sludge return system is controlled by valve or timer enabling the air supply to be regulated and fined tuned to achieve the most effective and efficient use of air in the treatment system.
- **Media** - Bio-tube module – purpose made polyethylene biological treatment and filtration media
- **Effluent pump** - Davey D42 A/B submersible pump, 32m maximum head
- **Effluent filter** - 1 1/4" disc filter – red grooved rings 120 mesh = 130 micron
- **Disinfection (option)** - Ask your installer about this option.

Design certification

The design of the AirTech™ sewage treatment system has been developed in accordance with sound and widely accepted engineering principles and technology. The system has been assessed, for a typical domestic household wastewater load, as capable of meeting the

following quality of effluent treatment:

Biochemical oxygen demand	14 to 20 mg/l
Total suspended solids	20 to 30 mg/l
Faecal coliforms (Soil treatment)	less than 1000/fcu/100ml (crc ga standard)
Faecal coliforms (With disinfection)	0 to 200/100ml

The technical specifications are for the AirTech™ domestic wastewater treatment system. Because of the company's on-going research and development, RX Plastics Ltd. reserves the right to alter specifications without notice. Such alterations will maintain or improve the above effluent quality standard.

OSET Effluent Treatment National Testing Programme

Many local authorities are interested in an assessment of the effectiveness of advanced (aerobic) wastewater treatment systems (compared to conventional septic tanks) for when no reticulated sewerage system exists.

A trial site was established at the site of the Rotorua wastewater treatment plant in 2005 to measure advanced wastewater treatment system performance.

RXP has independent certification on all Wastewater Treatment units. Certified out to 31st December 2026. Available on request.

Compliance and certification

The RXP Septic Tank range meets the objectives of:

- Australia New Zealand joint standard 1546 1
- Australia New Zealand joint standard 1547
- ARC Environment TP 58
- Design and testing verified by registered engineers and consultants
- Local authority approved
- Meets World Health Organisation (WHO) effluent quality standards
- ISO 9001:2015 Quality Management System: Bureau Veritas, Certification # NZ001751-2
- NZ Pat Appn No. 529820

Commissioning Servicing report

AirTech™ Environmental Aerated Waste Water Treatment System

Commissioning/Servicing Report	Nº
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AirTech™ 7000

AirTech™ 9000

Owner		Home	Yes	No	Date
Address		Call first	Yes	No	Telephone
Council		Tank id number			

Electrical

Comments

Alarms tested	Water	Yes	No	Air	Yes	No	
Electric blower box checked and cleaned					Yes	No	
Lid secured					Yes	No	

Air blower

Temperature	Okay	High	
Noise level	Okay	High	
Filters cleaned - internal	Yes	No	

Septic chamber

Bio tube filter cleaned									
Accumulation - sludge	Low	Med	High	Crust	Low	Med	High		
Inlet and junction clear							Yes	No	

Air and sludge return systems

Odour	OK	High	
Aeration	Good	Poor	
Air diffuser checked	Yes	No	
Clarification chamber	Good	Poor	
Sludge return to primary clear	Yes	No	
Sludge accumulation (check depth)	High	Low	

Irrigation chamber

Clean irrigation chamber	Yes	No	
Turbidity	Mg/litre		
Irrigation pump operation pressure	Good	Fair	Poor
Condition	Ok	Inaccessible	Replace/repair
Irrigation laterals	Ok	Cleaned	Replace/repair
Arkal filter	Ok	Replaced	Cleaned
Lid covers	Yes	No	

Comments

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Technician

Signed:



Service Schedule

AIRTECH™ 7000 SEWAGE TREATMENT SYSTEM

SERVICE SCHEDULE

RX Plastics specify that the system shall be serviced in accordance with the following regime:

Full service by the manufacturers approved service technician : annually

Regular service by the service technician or "owner" * : as specified by the manufacturer

* "owner" must be the property owner who has been specifically trained by the company to service the system.

The system is designed so that it can be simply serviced. The company has developed a recording system for the monitoring of each installation.

The owner will be required to submit certification that the servicing has been carried out in accordance with the service schedule, specified below.

The servicing requirements for componentry, as recommended by manufacturers, are as follows:

1	Primary Chamber	check annually /de-sludge every five years or as required
2	Bio Tube Effluent Filter	remove filter and wash annually
3	Air Blower	clean the air filter three times per year
4	Air System	check diffuser/sludge return/air flow annually
5	Chlorinator (if fitted)	top up chlorine tablets three times per year
6	Effluent Pump	general check of pump and flow pressure annually
7	Disc Filter	check and wash three times per year
8	Alarm System	check system twice a year
9	Effluent Disposal System	check disposal area twice a year

Servicing Chart

	Function	4 Monthly	6 Monthly	Annually
1	Primary Chamber/Check		Service Technician	Service Technician
2	Bio Tube/Clean Filter		Service Technician	Service Technician
3	Air Blower/Clean Blower		Service Technician	Service Technician
4	Air System/Check		Service Technician	Service Technician
5	Chlorinator/Tablets	Owner	Service Technician	Service Technician
6	Effluent Pump/Check		Service Technician	Service Technician
7	Effluent Filter/Check	Owner	Service Technician	Service Technician
8	Alarm System/Check		Service Technician	Service Technician
9	Effluent Disposal System		Service Technician	Service Technician
10	Sludge measurement		Service Technician	Service Technician

Note: The desludging of the anaerobic chamber is the responsibility of the owner and should be carried out at least every five years or sooner if required.

Performance Certificate

Certificate of Construction / Installation Onsite wastewater system



Issued by: _____ To: _____
Installation Company's name Consent holder

Copy to be supplied to: _____ Council: _____

In respect of discharge consent to: _____ Condition: _____

Property address: _____
Property on which sewage system has been installed

Property legal description: Lot: _____ DP: _____

Installer's name: _____ Company name: _____

Address: _____ Town/city: _____

Phone: _____ Email: _____

I _____, duly authorised agent of _____
Installer's name Company name
have read and fully understood the relevant conditions of _____ and certify that this onsite wastewater system has been constructed and installed in accordance with these conditions as well as the approved design plans attached to this consent.

Installation date: _____ Installer's signature: _____ Date: _____

Certificate of Training Onsite wastewater system



This is to certify that the owner has been trained and has a firm understanding of the system, how it works and the service requirements

Owner: _____

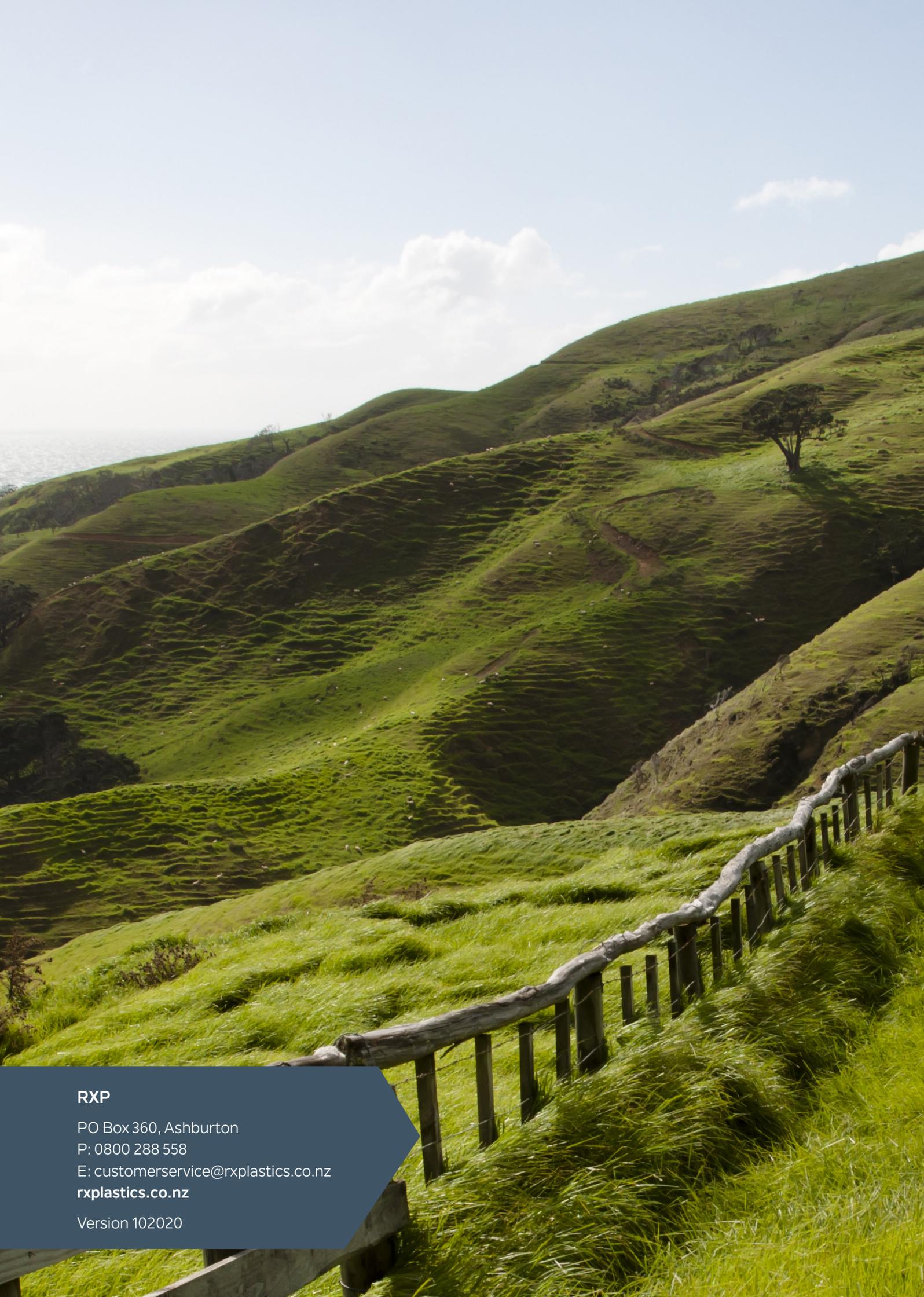
Address: _____

Approved Certifying Technician:

Signed: _____ Date: _____

SYSTEM LAYOUT

Draw your system layout here (This is important as you will need to know where the dripline is for servicing).



RXP

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Version 102020