Bluewater

Simpler - Smarter - Cleaner

Siting and Installation Manual

B-SERIES ADVANCED WASTEWATER TREATMENT UNITS

NSF

Certified to NSF/ANSI Standard 40, Class 1

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Welcome

CONGRATULATIONS, AND THANK YOU FOR PURCHASING A BLUEWATER ADVANCED WASTEWATER TREATMENT UNIT (ATU).

This manual is designed to provide you with all of the information you need to help site and install your ATU. Please pass this document to your installation contractor, builder or architect if you are not installing the system yourself. Please ensure that you have a suitably qualified contractor available to excavate the installation site to accept the unit; suitable lifting equipment to lower the unit into the excavation and suitable equipment to backfill the site and level to surface.

Each plant will be delivered with two data plates. One will be attached to the top surface of the inner chamber of the ATU and the second must be located next to the Air Blower. These plates contain the name of the Bluewater supplier and the unit's serial number, which should be quoted in any future enquiries.

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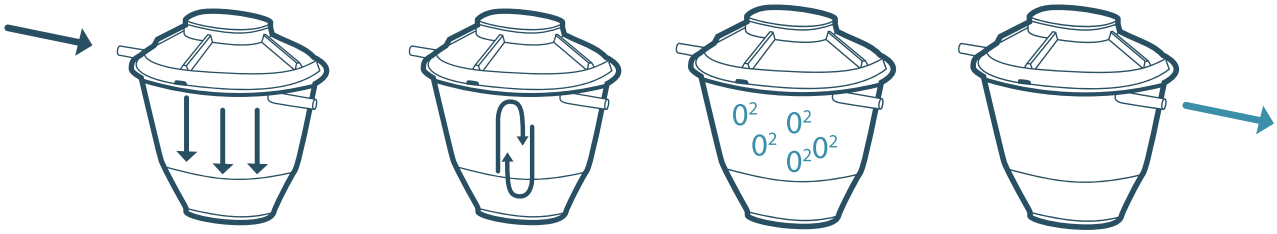


Siting

1. We recommend that your Bluewater ATU should be sited at least 20 ft from your house. The gradient of the inlet pipe from the house to the ATU must be at least 1:60.

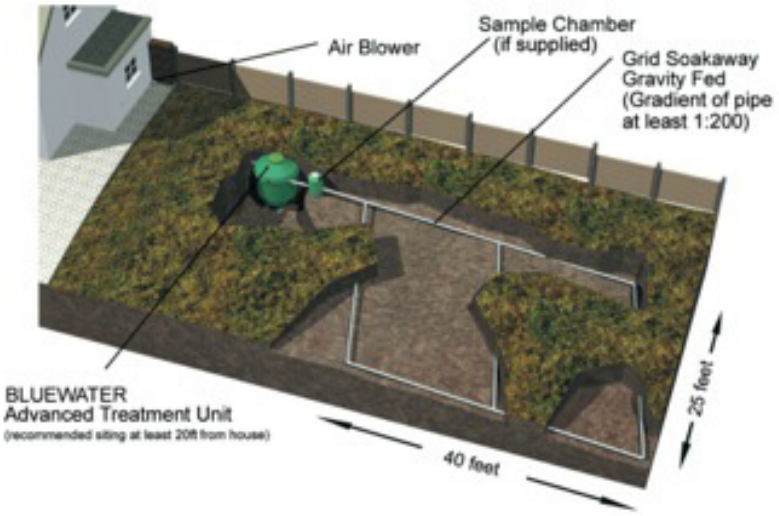
2. Your ATU MUST NOT be installed under a driveway, these units are NOT designed to support the weight of heavy traffic.
   **Subjecting the Unit to this sort of compression may cause collapse.*
   ***Siting a Bluewater ATU under a driveway will void all warranties.*

3. As most road tankers used for emptying sewage systems have a suction hose with a maximum length of 150 ft you should ensure that the plant is sited within this distance from a tanker's nearest access point. Remember these are heavy trucks. Also remember that if the tanker's hose access point is higher than the plant they may encounter problems with suction – we recommend that the maximum height differential should not exceed 15 ft.

4. If you are dispersing the treated effluent via a drain-field you must have enough space and gradient to build this. The minimum space required, subject to local regulations, is 40 ft x 25 ft. The minimum gradient is a drop of 1:200. If you don't have enough space down gradient you may be able to pump the effluent to another part of your land where there is enough space or gradient. You must also position the unit's outlet above the highest flood level; otherwise you may flood your ATU.

5. You must comply with any local regulations that may conflict with, override or supersede the contents of this manual.

6. All sections of this manual must be read before working on the equipment. Suitably qualified contractors must carry out the installation. Normal safety precautions must be taken and appropriate procedures observed to avoid accidents.



Installation

PROCESS OVERVIEW

Air is blown into the ATU by an electrically powered compressor. The air is circulated from the bottom of the air inlet pipe through one or more diffusers located at the bottom of the inner chamber. The air rising through the liquid inside this chamber increases the oxygen supply to the microorganisms that are naturally present in the system. This accelerates the growth and activity of these naturally occurring microorganisms or "biomass", which break down and degrade the solids to a clear effluent and a non-toxic sludge. The greater the biomass inside the ATU, the quicker and more efficient the degradation of the organic solids introduced to the system. To improve the efficiency of the Unit, the inner chamber contains plastic media. This media provides a large surface area to which the microorganisms adhere and grow.

The diffused air also operates as an 'Air Lift' which re-circulates solids from the outer Settlement chamber to the inner Treatment chamber. This recirculation ensures that the effluent is completely treated by making both chambers aerobic. The process runs continuously 24 hours a day.

STORAGE PRIOR TO INSTALLATION

The unit should be stored in a condensation-free environment. If stored outside, care should be taken to anchor the plant to prevent damage by high winds. The air blower should also be stored in dry, condensation-free surroundings.

SITE INSTALLATION REQUIREMENTS

In order to prepare for installation it is necessary to have:

1. Two external household electrical sockets, each with a 110v. supply, to power the air blower and the alarm.

2. A pre-dug trench to accommodate appropriate ducting to receive the wiring required to join the air blower to the external electricity supply.

3. A trenched drainage pipe leading from the house to connect to the influent pipe of the ATU, with a down gradient of at least 1:60.

4. A trench constructed to permit the connection of the effluent pipe to the drain-field, built in accordance with local regulations, with a recommended down gradient of 1:200.

DELIVERY

All Bluewater ATUs are delivered assembled, ready for installation and complete with plastic media, air blower and airline. Integrated lifting eyes are provided for your convenience. DO NOT lift the plant without using these lifting eyes and DO NOT install the plant if it contains water.
You must inspect the plant for damage on arrival and before signing the delivery note. After this inspection we shall not be responsible for complaints of pre-delivery or in-transit damage.

Before installation the level of the winter (peak) water table at the intended location must be established. Once you ascertain its depth, select one of the two methods of installation detailed below - "Wet Ground" or "Dry Ground".

If there is a possibility that the water table at the site will ever rise above the lowest point of the ATU, at any time of year, it is essential that you use the Wet Ground installation.

DRY GROUND INSTALLATION

Excavate a hole to a depth of 8" below the base level of the ATU. Ensure the base of the hole is level. Pour an 8" base layer either of sand, gravel, '3/4" to dust' crushed stone or concrete.

Lower the ATU into the excavation using appropriate lifting equipment, attaching suitable straps, ropes or chains to the lifting eyes built into the ATU. (See illustrations).

Carefully work the unit into this base, checking levels and the orientation of the inlet and outlet pipes. Connect inlet and outlet pipes.

WET GROUND INSTALLATION

If a wet ground installation is required the unit will be delivered with Wet Ground Anchors attached to the underside of the base.

After excavating the hole to a depth 8" lower than the base level of the ATU and ensuring that the bottom of the hole is level, pour 8" of concrete into the bottom of the hole.

Lower the ATU into the excavation using appropriate lifting equipment, attaching suitable ropes or chains to the lifting eyes built into the ATU. Carefully work the unit into this wet concrete base, making sure that the concrete covers the wet ground anchors to hold the unit into place and to prevent it floating should the water table rise.

Check the orientation of inlet and outlet pipes prior to connection. Check levels and depths and that the top of the ATU is level.

HOOK-UP

A Sampling Chamber will be supplied if purchased by the owner or if mandated by local regulation. The Sampling Chamber must be installed downstream of the effluent pipe, between the exit of the pipe from the ATU and the commencement of the piping for the drain-field. We recommend this chamber be installed at a distance between 3' and 6' downstream of the ATU.

Attach the Sampling Chamber, if supplied, to the downstream effluent pipe, connect a hose to the household water supply and fill the Bluewater ATU with water.

BACKFILLING

Once the unit is being filled with water it is necessary to backfill the excavation. Although any combination of sand, gravel, concrete or crushed stone can be used we strongly recommend backfilling with '¾" down' crushed stone to the required level. DO NOT use a compactor or vibrator.

PLASTIC MEDIA

The plastic media should have been delivered inside the Inner (Treatment) Chamber of the Unit when the ATU arrived on site. Occasionally, due to transportation logistics, it may be necessary to pack the plastic media separately, so please check whether the media is already in the Inner Chamber or delivered in a separate sack. If delivered separately, empty the sack of media into the Inner Chamber.

AIR BLOWER

The air blower is weatherproof but should be protected from direct sunlight and flooding. The blower may be installed in an outbuilding provided there is adequate ventilation and it is within a suitable distance of the plant. Avoid unusually damp, dusty or condensation-prone locations.

The blower should be mounted on a concrete pad, at least 4" thick to prevent vibration and noise, at a level higher than the ATU. This will provide a continuous gradient between the blower and the ATU ensuring, in the event of sub zero temperatures, that any condensation that may form does not freeze and block the airline. The airline should be ducted to the plant for ease of maintenance. If underground, the electrical supply must be armored. At this point the ground can be made good and the installation is complete.

FAILURE ALARM

Your unit is supplied with a low pressure alarm for the air supply system. During operation, when there is low pressure in the air supply due to the air pump losing performance or stopping, the alarm will sound automatically. The alarm runs on a 6v DC power supply (included) and has battery backup. Four AA batteries are included with the system when delivered.

We recommend siting the alarm close to the air blower and within hearing and sight of the house. Fence mountings are included with the alarm.

START-UP AND OPERATION

The start-up process may begin once the tank has filled with water, the anchoring and backfilling process is completed, the media has been poured into the Inner Chamber and the Air Blower connected.

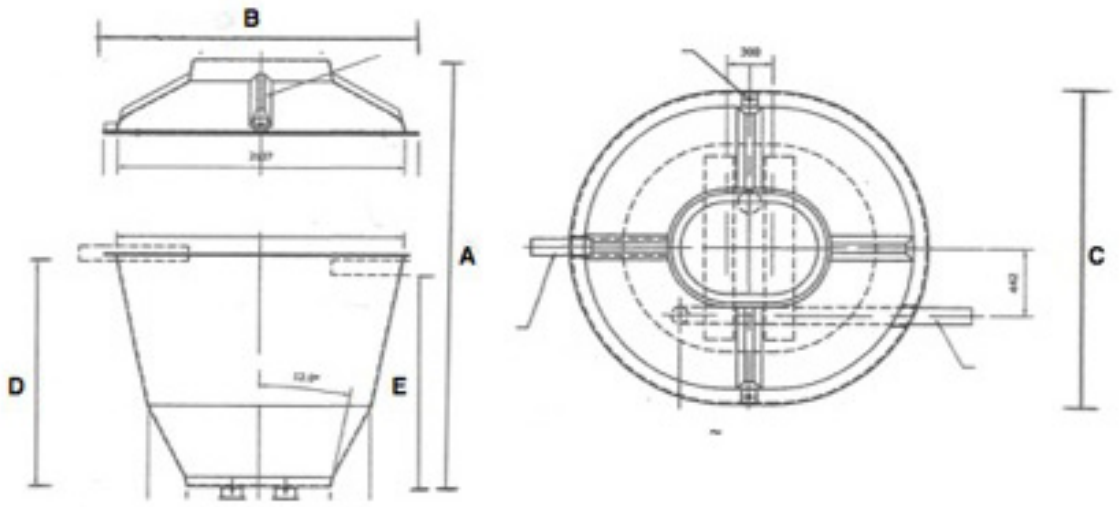
Ensure all taps are open and start the air blower. There should be a vigorous circulation of air in the central chamber. Check that air is coming out of all diffusers and that they are bubbling at similar rates.

Commence use and experience the benefits of using your Bluewater ATU.

REPAIR OR REPLACEMENT PARTS

For any and all replacement parts, please contact us at 1-877-702-4634.

ATU Design Construction & Material Specifications



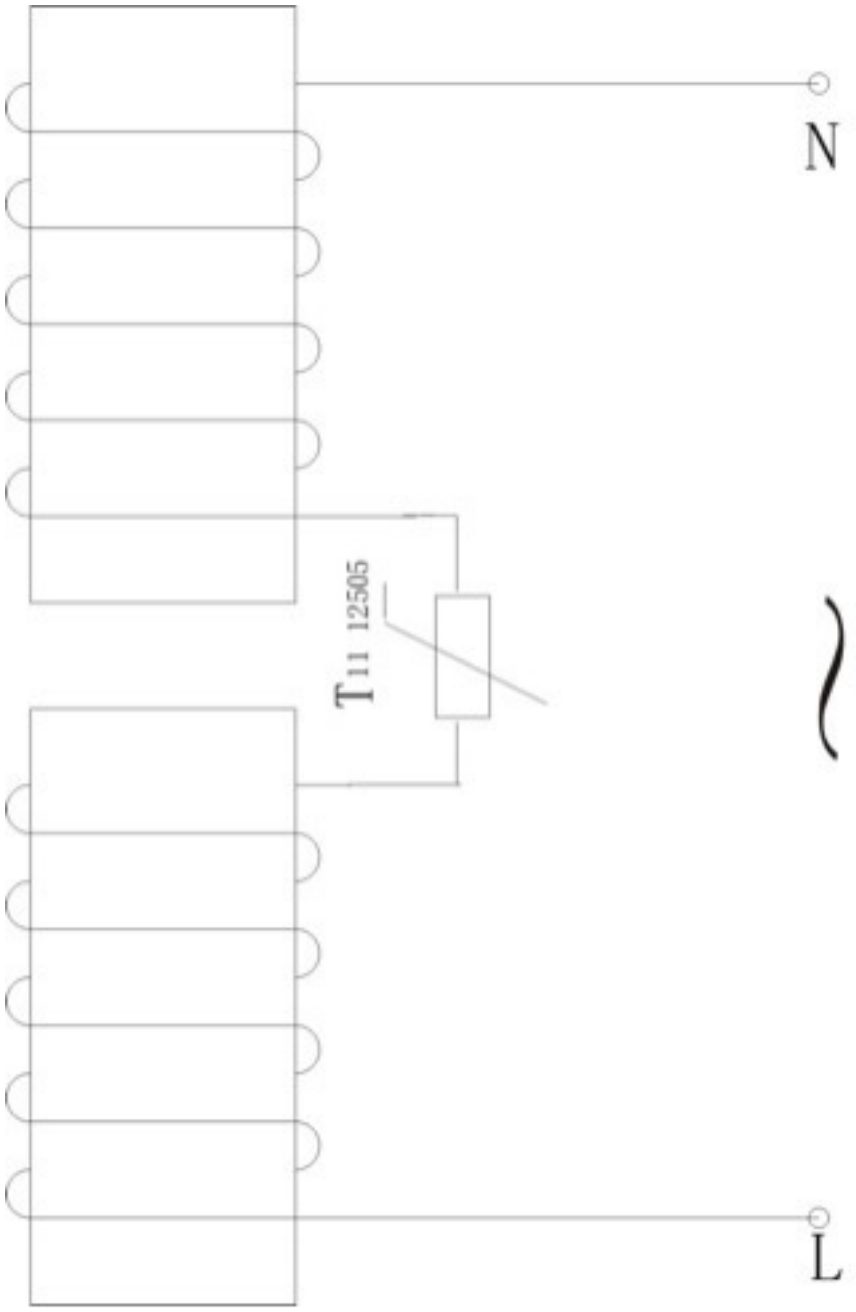
BLUEWATER UNIT	"A" HEIGHT	"B" LENGTH	"C" WIDTH	"D" INLET	"E" OUTLET
B-400	91.5"	92.5"	80"	66"	62"
B-600	94"	104"	72"	69.5"	65.5"
B-900	94"	137.5"	72"	69.5"	65.5"

All dimensions quoted in inches.

ATU Tanks are manufactured from fiberglass.

Thicknesses as per detailed engineering drawings.

Wiring Schematic for the Air Blower



Wiring Schematic for the Alarm