DEPARTMENT OF HEALTH AND HUMAN SERVICES
DIVISION OF PUBLIC HEALTH
ENVIRONMENTAL HEALTH SECTION
ON-SITE WATER PROTECTION BRANCH

North Carolina Residential Wastewater Treatment System Approval

Issued To: Ecological Tanks, Inc
2247 Hwy 151 North
Downsville, LA 71234

For: Aqua Safe AS Series

Date: April 9, 2020

I. Approved Models

Residential wastewater treatment systems shall be manufactured as per the approved drawings, specifications and testing results, and in concurrence with 15A NCAC 18A .1957(c).

Approved models, corresponding daily design flow rates, and approved RWTS numbers are as follows:

Model Number	Approved Daily Design Flow Rate	RWTS Number	Imprint
AS500	500 gpd	RWTS-76	ETI-RWTS-76-500
AS500-C	500 gpd	RWTS-77	ETI-RWTS-77-500
AS500+5 Duo Pre	500 gpd	RWTS-78	ETI-RWTS-78-500
AS500+5 Pre Concrete	500 gpd	RWTS-79	ETI-RWTS-79-500
AS500+75 Duo Pump	500 gpd	RWTS-80	ETI-RWTS-80-500
AS500 5+75 Trio	500 gpd	RWTS-81	ETI-RWTS-81-500
AS500 4+75 Concrete	500 gpd	RWTS-82	ETI-RWTS-82-500
AS500L	500 gpd	RWTS-83	ETI-RWTS-83-500
AS500L-C	500 gpd	RWTS-84	ETI-RWTS-84-500
AS500L+5 Duo Pre	500 gpd	RWTS-85	ETI-RWTS-85-500
AS500L+75 Duo Pump	500 gpd	RWTS-86	ETI-RWTS-86-500
AS500L 5+75 Trio	500 gpd	RWTS-87	ETI-RWTS-87-500
AS500L-C +5 Pre	500 gpd	RWTS-88	ETI-RWTS-88-500
AS500L 4+75 Concrete	500 gpd	RWTS-89	ETI-RWTS-89-500
AS600	600 gpd	RWTS-90	ETI-RWTS-90-600
AS600-C	600 gpd	RWTS-91	ETI-RTWS-91-600
AS600+5 Duo Pre	600 gpd	RWTS-92	ETI-RWTS-92-600
AS600+75 Duo Pump	600 gpd	RWTS-93	ETI-RWTS-93-600
AS600 5+75 Trio	600 gpd	RWTS-94	ETI-RWTS-94-600
AS600 4+75 Concrete	600 gpd	RWTS-95	ETI-RWTS-95-600
AS600+4NR	600 gpd	RWTS-96	ETI-RWTS-96-600
AS600+4NR-C	600 gpd	RWTS-97	ETI-RWTS-97-600
AS600+5NR	600 gpd	RWTS-98	ETI-RWTS-98-600

AS600+5NR-C	600 gpd	RWTS-99	ETI-RWTS-99-600
AS600L	600 gpd	RWTS-100	ETI-RWTS-100-600
AS600L-C	600 gpd	RWTS-101	ETI-RWTS-101-600
AS750	750 gpd	RWTS-102	ETI-RWTS-102-750
ASO-750C	750 gpd	RWTS-103	ETI-RWTS-103-750
AS800L	800 gpd	RWTS-104	ETI-RWTS-104-800
AS800L-C	800 gpd	RWTS-105	ETI-RWTS-105-800
AS1000	1,000 gpd	RWTS-106	ETI-RWTS-106-1000
AS1000-C	1,000 gpd	RWTS-107	ETI-RWTS-107-1000
AS1100L	1,100 gpd	RWTS-108	ETI-RWTS-108-1100
AS1100L-C	1,100 gpd	RWTS-109	ETI-RWTS-109-1100
AS1500	1,500 gpd	RWTS-110	ETI-RWTS-110-1500

The following models are approved in both fiberglass and concrete units: AS500, AS500L, AS600, AS600L, AS600+4NR, AS600+5NR, AS750, AS800L, AS1000, and AS1100L.

The following models are approved in fiberglass units only: AS500 +5 Duo Pre, AS500 +75 Duo Pump, AS500 5+75 Trio, AS500L +5 Duo Pre, AS500L +75 Duo Pump, AS500L 5+75 Trio, AS600 +5 Duo Pre, AS600 + 75 Duo Pump, AS600 5+75 Trio, and AS1500.

The following models are approved in concrete units only: AS500-5 Pre Concrete, AS500 4+75 Concrete, AS500L-C +5 Pre, AS500L 4+75 Concrete, and AS600 4+75 Concrete.

Shoaf Precast Septic Tank, Inc, and High Point Precast Products, Inc. are approved to manufacturer the concrete tanks for the above approved models under the following approval numbers:

Shoaf Precast Septic Tank, Inc

Model Number	Approval Number
AS500-C	SHOAF/ETI RWTS-77 500
AS500-5 Pre Concrete	SHOAF/ETI RWTS-79 500
AS500 4+75 Concrete	SHOAF/ETI RWTS-82 500
AS500L-C	SHOAF/ETI RWTS-84 500
AS500L-C +5 Pre	SHOAF/ETI RWTS-88 500
AS500L 4+75 Concrete	SHOAF/ETI RWTS-89 500
AS600-C	SHOAF/ETI RWTS-91 600
AS600 4+75 Concrete	SHOAF/ETI RWTS-95 600
AS600+4NR-C	SHOAF/ETI RWTS-97 600
AS600+5NR-C	SHOAF/ETI RWTS-99 600
AS600L-C	SHOAF/ETI RWTS-101 600
AS0-750C	SHOAF/ETI RWTS-103 750
AS800L-C	SHOAF/ETI RWTS-105 800
AS1000-C	SHOAF/ETI RWTS-107 1000
AS1100L-C	SHOAF/ETI RWTS-109 1100

High Point Precast Products, Inc

Model Number	Approval Number
AS500-C	HPCP/ETI RWTS-77 500

AS500+5 Pre Concrete	HPCP /ETI RWTS-79 500
AS500 4+75 Concrete	HPCP/ETI RWTS-82 500
AS500L-C	HPCP /ETI RWTS-84 500
AS500L-C +5 Pre	HPCP/ETI RWTS-88 500
AS500L 4+75 Concrete	HPCP/ETI RWTS-89 500
AS600-C	HPCP/ETI RWTS-91 600
AS600 4+75 Concrete	HPCP/ETI RWTS-95 600
AS600+4NR-C	HPCP/ETI RWTS-97 600
AS600+5NR-C	HPCP/ETI RWTS-99 600
AS600L-C	HPCP/ETI RWTS-101 600
ASO-750C	HPCP/ETI RWTS-103 750
AS800L-C	HPCP/ETI RWTS-105 800
AS1000-C	HPCP/ETI RWTS-107 1000
AS1100L-C	HPCP/ETI RWTS-109 1100

II. Approved Settling Tanks

The approved settling tanks for each of the model numbers are as specified below:

Model Numbers	Approved Settling Tank
All AS500 and AS500L	Integral part of tank, minimum capacity of 50% of design flow, or separate State approved 1,000 gallon septic tank
All AS600 and AS600L	Integral part of tank, minimum capacity of 50% of design flow, or separate State approved 1,000 gallon septic tank
All AS600+4NR	Integral part of tank, minimum capacity of 400 gallons as per approved plans
All AS600+5NR	Integral part of tank, minimum capacity of 500 gallons as per approved plans
All ASO-750	Separate State approved 1,000 gallon septic tank
All AS800L	Separate State approved 1,000 gallon septic tank
All AS1000	Separate State approved 1,000 gallon septic tank
All AS1100L	Separate State approved 1,000 gallon septic tank
All AS1500	Separate State approved 1,000 gallon septic tank

III. Influent and Effluent Sampling

Influent samples shall be taken from the outlet end of the settling tank. The sample shall be taken from the clear zone beneath any scum layer using a sludge judge or similar device. Influent samples shall be tested for BOD and TKN.

Effluent samples shall be taken in accordance with one of the following methods.

Sample Port:
A suitable sampling port can be constructed from a pre-fabricated container that is constructed from watertight material, with watertight joints. A standard distribution box can be used for this purpose provided:

(1) It has a minimum diameter of 8 inches at the point of sample collection;
(2) The inlet is at least 8 inches above the bottom of the sample port; and,
(3) There is at least 2 inches of fall between the inlet and outlet of the sample port.

Directions for Collecting Sample:

- Using a dipper or suction device, remove the water from the bottom of the sample port
- Using a clean cloth or paper towel, clean the inside of the inlet pipe to remove any scum or debris that might have collected on the interior of the pipe
- Turn on a faucet to cause water to flow through the treatment plant (<5gpm), generating a flow into the sample port.
- Allow the water to run for 30-60 seconds, and then collect a sample from the free falling stream running into the sample port. Do not collect the sample from the stagnant water from inside the sample port.

Valve Located Within the Pump Discharge (Pressure) Piping:
On certain Aqua Safe systems that utilize an effluent pump, a valve is installed on the pressure line in location that allows for the collection of a sample of the pumped effluent. In these instances, samples should be collected in the following manner:

- Make sure that there is sufficient water (effluent) in the pump chamber to allow for a sample to be collected.
- Raise the pump float to activate the pump.
- Slowly open the valve and allow for the discharge to run for 10-20 seconds in order to clear any debris from the pump discharge line.
- Reduce the volume of the effluent flow by partially closing the valve.
- Place the sample container under the effluent flow in order to collect the sample.
- After collecting the sample, close the valve completely and lower the pump float.

Effluent samples shall be tested for CBOD and TSS.

Systems shall be sampled annually for design flows less than 1,500 gallons per day.

All sampling shall be done in accordance with Rule 15A NCAC 18A .1970(n).

IV. Flow Monitoring

Flow monitoring shall include a determination of the 7-day and 30-day flow for the corresponding time period preceding each ORC inspection/sample collection.

Where effluent flows by gravity to the receiving environment, a flow meter shall be installed on the inlet water line or the inlet line from the well depending on the water source.

For installations where effluent is under pressure, flows shall be determined by using an elapsed time meter in the effluent pumping station control panel.

When a drip distribution system is proposed, the drip manufacturer shall provide the necessary flow monitoring capability with their separate drip system control panel.

V. Operation, maintenance and monitoring requirements

The ORC must be a licensed subsurface operator.

For all systems, Ecological Tanks Inc. shall provide for the ongoing operation and maintenance of their systems. Ecological Tanks Inc. shall make available to the owner an operation and maintenance contract that meets the requirements of 15A NCAC 18A .1961. The contract shall be renewable, and the contract term shall be for a minimum of one year.

The ORC must either work for Ecological Tanks Inc., be an authorized representative of Ecological Tanks Inc., or be authorized in writing by Ecological Tanks Inc. or their authorized representative to operate the system.

The State may modify, suspend, or revoke the approval of a system as follows:

1. The system approval shall be modified as necessary to comply with subsequent changes in the laws or rules which affect their approval.
2. The approval of a system may be modified, suspended, or revoked upon a finding that:
    a. subsequent experience with the system results in altered conclusions about system performance, reliability, or design;
    b. the system or component fails to perform in compliance with performance standards established for the system; or
    c. the system, component, or the system applicant fails to comply with wastewater system laws, rules, or conditions of the approval.