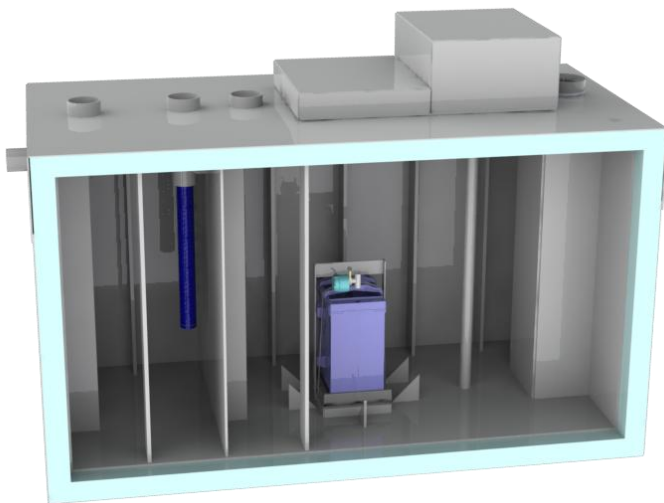




## Aboveground BBR500 Membrane Bioreactor Model ExtremeSTP® Sewage Treatment Plant

**High quality effluent** from ExtremeSTP® treatment systems using BioBarrier® membrane bioreactor (MBR) technology is suitable for direct discharge to groundwater, surface water, or the land surface. Membrane filtration is the state-of-the-art in sewage treatment technology, and Lifewater Engineering Company makes it work in cold climates.



### Treatment Technology:

MBR treatment technology is highly advanced yet elegantly simplistic. Wastewater is pretreated using a settling compartment and static screen. Then, an aerobic bacteriological process oxidizes the BOD<sub>5</sub> and COD. Final treatment is filtration by a BioBarrier® membrane filter. The BioBarrier®, located in the aerobic treatment compartment, directly separates clean water from solids tank using microfiltration membrane filters. A blower provides air for aerobic treatment and scouring of the membrane surfaces to prevent fouling. Clean water is stored in a third compartment and then discharged in doses to prevent icing at the surface discharge point.

### Features and Specifications:

- Sized for a 3-bedroom home (1 to 6 people) on a well or piped water system
- Indoor and outdoor models are available
- Outdoor model is fully insulated for operation anywhere in Alaska or Canada
- Indoor model is totally sealed and set for easy venting to the outdoors
- Heavy duty, non-corrodible, plastic tank
- The treatment system arrives on site fully assembled and ready for hookup
- Effluent pump eliminates the need for a separate lift station and prevents icing at the point of discharge
- Easily meets requirements for surface discharge
- TSS ≤5 mg/L and BOD<sub>5</sub> ≤5 mg/L
- NSF 40 and NSF 245-approved membrane module

### Options:

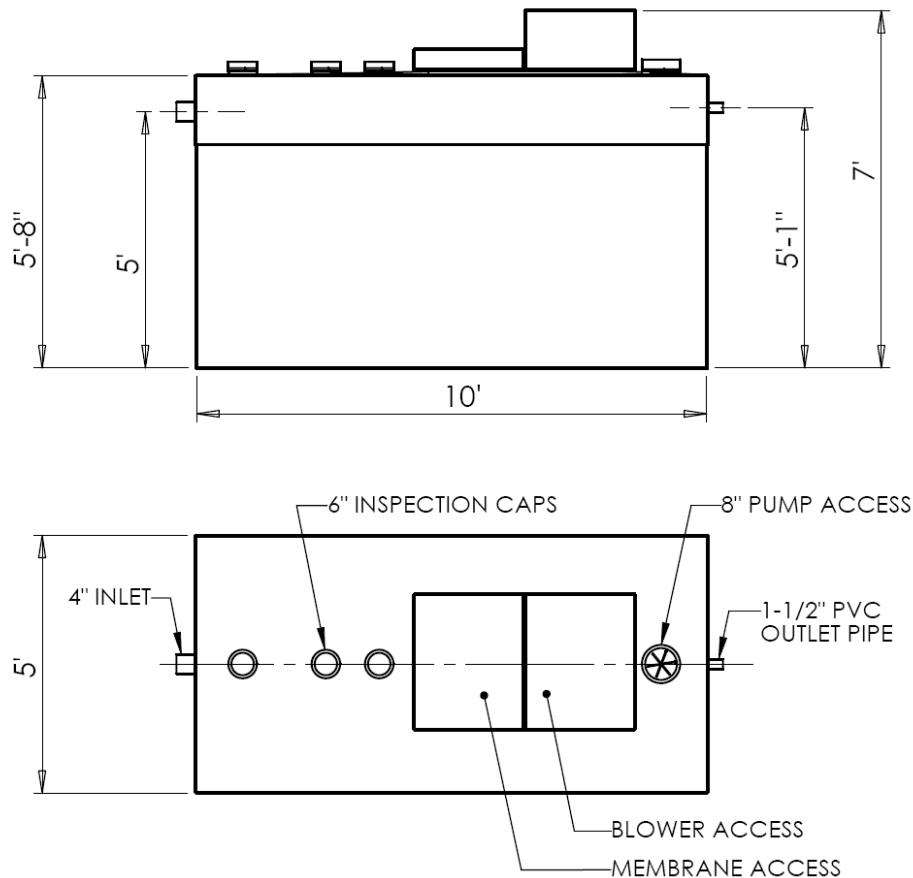
- Remote alarm system that operates on a cellular phone network
- Ultraviolet (UV) disinfection system as backup to microbial removal provided by the membranes
- Insulated/heated lift station for influent
- Thermosyphon to keep permafrost frozen
- Commercial-sized systems are available



Lifewater Engineering Company has been designing and manufacturing sewage treatment plants for cold climates since 1999

NOTES:

1. DIMENSIONS SHOWN ARE FOR INSULATED VERSION
2. SUBTRACT 8.5" FROM LENGTH, WIDTH, AND HEIGHT FOR UNINSULATED VERSION
3. SUBTRACT 4" FROM HEIGHTS OF INLET & OUTLET PIPES FOR UNINSULATED VERSION
4. 40" CLEARANCE NEEDED ABOVE TANK FOR MEMBRANE REMOVAL



### BioBarrier® MBR operational notes:

#### Clean-In-Place:

For residential systems, a Clean-In-Place (CIP) procedure is typically performed once every six months. Depending on usage, the need for CIP procedure can be extended beyond every six months and can be up to once per year for low water usage applications. A CIP procedure only takes a few minutes to complete and does not require special tools.

#### Recovery Clean:

A recovery clean, requiring the removal of the membrane module, is normally performed when the CIP procedure is no longer adequate to maintain the required throughput. When the membrane module is removed from the process tank, it will be placed in a chemical bath where the chemical(s) will react with foulants on the membrane. The duration of the recovery clean procedure can range from 4 hours to 24 hours.

#### Membrane Life:

Membranes modules will eventually need replacement to continue maintaining good quality effluent. Five years of normal operation can be expected before replacing the membrane module.