EverBlue Lakes EBC-300 Aeration System Installation/Construction Process

General

- Target completion time-line is two weeks from arrival of equipment to project site.
- Best practice is to have the Electrical Installed prior to arrival of Compressors, Airline and Diffusers.

Electrical Installation

Electrical Installation for the EverBlue EBC-300 Aeration System typically consists of the following activities:

- Confirmation that the Transformer in proximity to the installation site can support an additional 200 Amp Single Phase Service. Upgrade/addition of transformer at the pole if needed.
- Meter and socket can be installed at pole or integrated into the "H" Frame provided by EverBlue Lakes.
- Trenching or underground boring of the electric service to the compressor location.
- Installation of the "'H" Frame supplied by EverBlue Lakes by a licensed Electrical Contractor who installs according to local code. Typically, the 3" Rigid Conduit is driven 4'into the ground and a concrete or similar material is used to hold it in place.
- Wiring to breaker box, VFD unit, 110-volt service outlet completed by Electrical Contractor.
- Wiring to Compressor completed by Electrical Contractor.
- Programming of VFD completed by EverBlue Lakes.
- Start-up Process completed by EverBlue Lakes.

EBC-300 Compressor Station Installation

- A small Skid Steer will be used to create a maximum 14-foot x14-foot level area at each of the two Compressor Stations. We anticipate minimal excavation of this area and will select and adjust each compressor site to require as minimal excavation as possible.
- Any removed material will be spread and utilized on-site.
- A 10-foot x 9-foot landscaped pad will be constructed using landscape timbers or other preferred material, landscape weed barrier and up to 3 inches of river stone will be added as top fill over the weed barrier. Not more than .8 cubic yards of stone will be applied per Compressor Station.
- The remaining area within the 14-foot x 14-foot fenced in area weed barrier can be installed with mulch or river rock applied over the weed barrier as preferred. Generally, using river rock in this area reduces maintenance.
- Six 16-inch diameter by 6-inch thick concrete footer blocks will be set and placed under each of six legs of the compressor unit.
- The Skid Steer will be used to move the compressor into place.

- Post holes for a 12-foot x 12-foot perimeter fence will be dug, and a fence will be constructed of out of wood selected. Fence posts will be set in quick-set concrete.
- Once completed, any disturbance of soil or vegetation around the Compressor Station will be restored. Appropriate erosion control measures, such as straw matting and reseeding and/or silt fencing, will be taken as needed during and after construction. It will remain in place until vegetation is re-established.
- Site will be seeded and/or planted as needed to restore native vegetation as soon as possible.

Manifold Stations

- Directional boring or trenching of the main airline to the Manifold Stations will be done from the Compressor Station Locations to the location of the manifold box at the shoreline. For distances less than 50 feet, trenching is typically the preferred method. Trench will be dug using a small excavator, ditch witch trencher or hand dug as needed.
- A maximum 7-foot x 7-foot landscape pads will be prepared at the shoreline for the manifold box. A border of landscape timbers or other preferred material will be installed and weed barrier and up to a 3-inch layer of natural river stone or other preferred material will be used as top cover over the weed barrier. Less than .6 cubic yards of stone will be used for each Manifold Station. Silt fencing will be used during and after the trenching process until vegetation is re-established.
- Airlines will be connected to the manifold in the manifold box and run into the lake. The lines will be buried at the shoreline or similarly protected with existing rock/riprap. Silt fence will be used throughout the installation.

Airlines and Diffusers

- Airline will be run by specialized boat and crew that enables the “unrolling” of the lines in 500-foot reels at the surface of the lake. As the line is fed off the back of the boat it sinks to the bottom. Every 500-feet the next roll is spliced to the previous roll using a brass hose coupler and 100% stainless steel hose clamps.
- Diffuser locations are mapped using a GPS/Sonar Depth Finder marking system prior to installation of the lines. Each diffuser site is also marked with a temporary physical buoy so that the spacing and placement can be visually checked and confirmed prior to installation. The marking is typically completed the day before diffuser installation begins.
- During installation this same system is used to guide the boat to the designated diffuser location for each diffuser. The physical buoy is used as a cross-check. Once at the diffuser location, a diffuser is attached to the end of the airline using a stainless-steel hose clamp. A drop line is fed through the center I-ring of the diffuser and the diffuser is slowly lowered into place at the designated location. Once on the bottom, the drop line is used to set the diffuser properly to ensure it is flat on the lake-bottom. One end of the drop line is then released, and the drop line is retrieved back into the boat. Once the diffuser is placed, the temporary buoy is removed from the lake.

- The specialized installation boat is equipped to carry multiple rolls of airline with a draft of less than 18-inches. This allows the boat to maneuver close to shore without disturbing the lake-bottom. A shore-based crew member assists in making a hand-off of each line so that the boat can remain 20 to 25 feet from shore at the start of each run.
- The lines will be run straight out for 100 to 200 feet from the point on shore where they enter the water. This keeps the lines in a "bundle" for the first 100 – 200 feet. Once all lines are run for a system, we will use the crew and boat to complete the assembly of the lines into a bundle and secure the bundle with rope approximately every 20 feet.

Figure 5: Airline Bundling

Airlines Bundled From Shore

Once bundling is complete, the bundled lines will be buried by hand for as far as possible into the lake. Typically, the lines can be buried until water depth is 4 – 5 feet. On most installations, this allows us to bury the lines 25 – 50 feet from shore.