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MPE Engineering Ltd.

ON-LOT SERVICING

MPE Engineering (MPE) has provided minimum requirements for STEP on-lot systems for the Summer Village of Ma-Me-O Beach in their on-lot design basis memorandum DBM 3B, which includes a standard installation drawing for various installation types. All on-lot systems must meet the criteria specified in this DBM and must be installed by a ***pre-qualified, certified installer***. Ultimately it will be the ***certified installer's*** responsibility to ensure the minimum requirements established in DBM 3B are met, but also that all applicable building codes and standards of practice are satisfied for each specific lot system.

Several ***certified installers*** will be pre-qualified for the Summer Village of Ma-Me-O Beach through a qualification process that will be completed by the Summer Village. Once completed, a list of pre-qualified installers will be provided to residents to use to complete their on-lot installation. It is anticipated that this list will be available by this fall (2017) and installation can begin once the main collection system contract is completed (i.e. late fall, 2017 or early spring, 2018). The Summer Village office will keep residents informed of the progress of the collection system contract.

We realize that many residents have questions regarding their specific situation. Unfortunately these cannot be directly answered at this time as there are hundreds of variations and specific situations which cannot be answered over the phone. It will be the responsibility of the ***pre-qualified certified installer*** to assess each lot individually and discuss with the landowner any specific requirements that pertain to their situation (i.e. additional freezing protection; adequacy of existing tank, etc.).

FREEZING PROTECTION

Due to the high ground water table and poor soil conditions in Ma-Me-O Beach, the collection mains will be shallow buried (1.2 m) and thus are insulated and heat traced with a thermo cable to prevent freezing during the winter. Service lines from the collection mains to the on-lot septic tanks must also be insulated and heat traced. A thermostatic controller is required to regulate the heating requirements for each service line, and is to be located at the septic tank. The pipe material and components of the service line from the collection main to the check valve in the tank are to be of robust material; however, **it is recommended that the thermostatic controllers and heat trace system for the service lines are left on during the winter** regardless of intended winter use.

The required septic tank has two chambers, a treatment chamber and a pumping chamber. The treatment chamber has a permanent liquid depth and the anaerobic digestion of sludge in this chamber naturally produces heat which helps to keep the tanks warm in the winter. With proper installation techniques tanks typically do not experience freezing when homes are occupied year round (permanent occupation). The following minimum installation requirements are recommended:

- Tanks must have a minimum of 1.2 m of cover (depth from ground to top of tank) and/or be insulated such that freezing does not occur for units that are occupied permanently.
- Access riser shall be fitted with insulated discs.
- New installations shall include spray foam insulation on the outside of the risers and tanks.

For existing tanks that are shallow buried or where intermittent winter use is anticipated, **additional freezing protection may be required**, and this should be discussed directly with the ***certified installer***. Depending on the situation, some potential options may include:

- Excavate and install board insulation above the existing tank.
- Excavate around the tank and insulate the outside of the risers and tank.
- Provide some form of heat tracing on the outside of the tanks.
- Drain the piping in the tank.
- Provide some form of bypass piping and valving to allow circulation during the winter.
- Your certified installer can provide recommendations of the best alternative for your specific case, including intended use during the winter (if any).

WINTERIZING CONSIDERATIONS

It is not the intent to require home owners to complete onerous procedures such as pulling pumps, draining or flushing lines, etc. In most cases, if the on-lot systems are properly installed, winterizing requirements will be relatively simple; however, this depends somewhat on the intended use (or occupancy) during winter months.

- For **permanent residents**, if tanks are installed properly, no specific winterization procedures are required other than ensuring that the thermostat and heat trace system for the service line is operational and left on during the winter.
- For **seasonal users** (no use in the winter time), some winterizing precautions are recommended.
- For **intermittent winter users** additional freezing protection considerations may be required and should be discussed directly with your ***certified installer***.

The following outlines the suggested winterizing procedures:

Permanent Residents (Residents living in their home year round):

- Ensure the thermostat and heat trace system is plugged in and operating throughout the winter. It will activate automatically when the temperature drops below a pre-set point.
- If away for an extended period in the winter, refer to the recommendations for Intermittent Residents.

Seasonal Residents (Residents that do not occupy their home during the winter):

- Prior to leaving for the winter:
    - Ensure the heat trace system and thermostat for the service line is plugged in, operational and left on during the winter.
    - Unplug your STEP pump and request the Summer Village to close the isolation valve (curb stop) at the property line. This is a pre-caution only but is recommended as best practice.
- Upon returning in the spring:
    - Request the Summer Village to open the isolation valve at the property line.
    - Verify that there is no ice remaining in the tank via visual inspection through the septic tank riser.
    - Plug in the STEP pump and verify that it is operational.

Intermittent Residents (Residents that occupy their home occasionally in the winter):

- System operation under this condition may be problematic as freezing could occur that prevents further use during the winter.
- Discuss and implement additional freezing prevention requirements with your ***certified installer*** to allow intermittent use in the winter time.
- Ensure the thermostat and heat trace system is plugged in and operational throughout the winter.
- Inspect the tank prior to intermittent use in the winter time to confirm that the pump is operational.