

# SINGULAIR GREEN®

## BIO-KINETIC® WASTEWATER TREATMENT SYSTEM

# QUICK START INSTALLATION GUIDE

### SINGULAIR GREEN TANK DELIVERY AND SETTING

The Singulair Green tank is constructed of high density polyethylene. All joints have been factory sealed. The tank has been designed for underground use only. Do not install in a location that is subject to vehicular traffic. Complete the Singulair Green Training Video prior to installation. Refer to "SINGULAIR GREEN TANK DELIVERY AND SETTING" document for detailed installation instructions.

1. The excavation overdig should allow between 18" to 24" of clearance around the entire perimeter of the Singulair Green system with a minimum of 6" and a maximum of 18 ½" of cover over the top of the tank.
2. Check the sewer line trenches. The trench depth should correspond with the Singulair Green system inlet and outlet connections and the trenches should be smooth to prevent damage to the sewer lines.
3. A minimum 4" thick leveling pad should be installed in the bottom of the excavation and leveled to within ¼" from side to side and end to end. The elevation of the top of the pad should correspond to the outside bottom of the tank when installed.
4. Do not install the Singulair Green tank in saturated clay, areas with a high water table, bogs, swampy areas, landfills where the soil is soft or wet, areas containing expansive soils or soils with an ultimate bearing capacity of less than 1,500 psf. This may result in damage to the tank and will void the system warranty.
5. Make sure the delivery vehicle outriggers are firmly placed on stable soil. All personnel must be out of the excavation area. Before lifting the tank, check all lifting chains, straps or cables to be sure they are properly secured. Lift the tank using at least four of the molded lifting lugs located on the tank. Carefully lower the tank into the excavation. Stop the tank several inches above the excavation floor and position it in the desired location. Lower the tank carefully until all tension is off the lifting device. Do not remove the lifting chains, straps or cables until tank leveling has been completed.
6. Remove the access covers and place a level on the risers to verify that the tank is level within ¼" from side to side and end to end. If the tank needs to be raised more than 6" to apply leveling material, all personnel should move to a safe location so the tank can be fully removed. Fall through the system from inlet invert to outlet invert is 4". Therefore, the outlet invert of the system must be installed 4" lower than the inlet invert.
7. If extension risers are required, install them as needed above each mounting riser. To insure a watertight seal, install a gasket in all joints between the risers.
8. Install sewer lines after the tank has been leveled. Sewer line trenches must be smoothly excavated and

free of debris. The trenches must allow sewer lines to be laid with ⅛" of fall per lineal foot. Influent and effluent sewer lines must be at least 4" in diameter and should be PVC pipe and solvent welded into the tank inlet and outlet couplings. Influent and effluent lines must be laid continuously and unspliced from the tank to the undisturbed earth beyond the tank excavation.

9. Underground electrical cable for electrical service to the Singulair aerator should be installed in the influent sewer line trench before backfilling the tank. Refer to the "ELECTRICAL WIRING AND CONTROL CENTER INSTALLATION" document for detailed instructions.

### BACKFILLING THE SINGULAIR GREEN SYSTEM

1. Add a minimum of 12" (250 gallons) of ballast water to the tank to prevent shifting in the excavation. Fill each chamber to an equal level. Do not add water through the clarifier access opening. The clarification chamber will be filled through the transfer opening between the aeration and clarification chambers as the aeration chamber is filled. The tank must be backfilled immediately after the sewer lines, underground electrical cable and ballast water are in place.
2. Cover all openings. Begin backfilling with gravel under and around the sloped clarifier. Add gravel until the discharge line from the tank is covered. Proceed to the inlet end of the pretreatment chamber and add gravel until the inlet line is covered.
3. Fine, loose earth may be used to backfill the remainder of the excavation. Be sure that the backfill is free of rocks, sharp objects, large clumps of earth and construction debris. Never use clay for backfill material. The backfill must flow freely. Insure that all recesses formed between the ribs and beneath the area between the pretreatment and aeration chambers are completely filled. Add backfill evenly around the entire perimeter of the tank in 12" increments. Hand tamp each layer of fill to compact soil. When backfilling over the tank, add fill to the area between the risers first. Final grading should be 3" to 4" below the top of each access cover and should slope away from the tank so surface runoff will drain away from the system. Do not allow dirt or mud to enter any part of the Singulair Green system or sewer lines.
4. The Singulair Green tank must be filled with clean water to the outlet invert immediately following backfilling. The water must be free of leaves, mud, grit or other materials that might interfere with system operation.
5. Special consideration should be taken if the tank is buried deeper than 18 ½" below grade. The tank should never be buried deeper than 36 ½" below grade.

# SINGULAIR GREEN QUICK START INSTALLATION GUIDE (Cont.)

## WIRING AND CONTROL CENTER INSTALLATION

The underground electrical service cable for the control center should be installed as soon as the tank has been placed in the excavation. The underground cable must be unspliced from the location of the control center into the aerator riser. The control center should be located so the red warning light can be seen and the audible alarm heard. The location should minimize exposure to direct sunlight, freezing rain or conditions that might prevent routine inspection or access. Mount the control center out of the reach of children. Use a dedicated 115 volt AC, single-phase, 15 amp (maximum) circuit breaker in the main electrical panel for service to the Singulair aerator. Install a watertight conduit fitting into the designated power cable entrance in the side of the aerator mounting riser. Refer to "ELECTRICAL WIRING AND CONTROL CENTER INSTALLATION" document for detailed instructions. Seal the conduits using expanding foam to prevent corrosive gases from entering the control center and to insure watertight integrity. The NSF mark and system capacity label must appear on the front of the control center.

## AERATOR INSTALLATION

Installation of the aerator and Bio-Kinetic system should take place when the system is ready for start-up. Be certain the circuit for the Singulair Green system in the main electrical service panel is de-energized and that the selector switch in the control center is placed in the "off" position. The moisture resistant electrical connector must be properly wired to insure system operation and protect components. Refer to "SINGULAIR AERATOR INSTALLATION" document for detailed wiring and installation instructions. To install the aerator:

1. Remove the blue sleeve from the aspirator shaft.
2. Locate the yellow alignment mark on the aspirator shaft and insert into the intermediate shaft on the aerator, insuring the alignment marks meet.
3. Tighten the two set screws that hold the aspirator shaft to the intermediate shaft. Do not overtighten.
4. Carefully lower the aerator into the aeration chamber riser. Avoid nicking or bumping the aspirator shaft.
5. Plug in the aerator and check the electrical connections to insure they are securely engaged and watertight.
6. Once the aerator is operational, use the hand held amp meter and air flow meter that are provided in the tool kaddy to check the aerator amperage draw. The aerator draws about 4.0 amps during normal operation. The Singulair air flow meter is used to verify proper operation. The aerator is designed to deliver 3.0 cubic feet per minute and will register between 2.5 and 3.5 cubic feet per minute on the air flow meter.
7. Make sure the aerator brackets are seated in the notches formed into the top of the riser. The blue lifting handle protects the air intake at the top of the aerator. Place the cable into the cable clips on each bracket to hold the cable secure and up off the aerator.

## BIO-KINETIC SYSTEM INSTALLATION

Remove all packing material from the Bio-Kinetic system, including the deck plate support box located inside the Bio-Kinetic system. This is designed to protect the deck plates in transit.

1. Use the universal tool and swab tool from the tool kaddy to apply a liberal amount of Bio-Kinetic lubricant to the entire face of the receiving flange installed in the outlet of the tank.
2. Apply a liberal amount of lubricant to the exterior surface of the gasketed discharge flange installed in the outlet of the Bio-Kinetic system.
3. Use the lifting tool to lower the Bio-Kinetic system outer bucket into the clarification chamber riser. Be careful not to tear the media.
4. Using the view port cut into the upper flange of the Bio-Kinetic system, align the Bio-Kinetic discharge flange with the receiving flange installed in the outlet of the tank.
5. Lower the system until the discharge flange fully engages the receiving flange and the top collar of the Bio-Kinetic system rests on the ledge of the clarification chamber access opening.
6. Use the locking lug tool to twist each of the round, black locking lugs clockwise to lock into the molded locking slots inside the riser.
7. Install the inner assembly. Locate the level indicator mounted above the flow deck to insure the Bio-Kinetic is installed in a level position. If necessary, the flow deck should be leveled using the four adjustment lugs located around the perimeter of the flow deck.
8. Install the moisture vapor shield, aligning the four holes with the four locking lug bolts.

Refer to "INSTALLATION OF THE BIO-KINETIC SYSTEM" document for detailed instructions and optional chemical feed tube installation instructions.

## COMPLETING THE INSTALLATION

Install a sealed access cover on the pretreatment and clarification chamber risers. Install a vented cover on the aeration chamber riser. Secure all access risers with the bolts that have been provided. Place the selector switch in the Service Pro control center in the "on" position. Latch the control center cover and secure it with a tamper evident seal. Refer to Singulair Green Product Manual for a complete set of detailed installation documents. Complete the Warranty Registration Card and return it to Norweco or enter the account information on the Service Pro website located at [www.servicepromcd.com](http://www.servicepromcd.com).

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