

KEEPING IT CLEAN

Constructing a wash pad facility that is both environmentally friendly and low maintenance increases positive public opinion and worker efficiency.

By Brian D. Anderson, Director of Turfgrass Management, Nemaocolin Woodlands Resort, Farmington, Pennsylvania

Nemaocolin Woodlands Resort is an exclusive resort in the mountains of southwest Pennsylvania. We recently constructed a new maintenance complex and worked to address the issue of equipment washing and floor drains amidst the ever increasing environmental regulation and public scrutiny. The opportunity to design and build a new maintenance center presented us with an opportunity to weigh the options and consider a system that would perform multiple tasks and long term service. We worked with Carbtrol Corporation; a Connecticut based wastewater-recycling company, to custom design a wash water recycling system to fit our needs. The project engineer visited the site several times to design the best system for our company. After many meetings and revisions we finally constructed it. The recycling system was integrated within the construction costs associated with the new facility. The approximate costs for the recycling system designed for our use is \$50,000.

The system is a simple, but well engineered unit that offers unlimited water availability, removal of solids, hydrocarbons, and turf chemicals using EPA-recommended Best Available technology. The system achieves this by using chemical and physical treatment technology that will not be disrupted by temperature fluctuations, pH, or the influence of pesticides. Basically it uses carbon and sand filters in conjunction with a chemical treatment. The water used for equipment washing is recycled and the system does not discharge outside of the pad. Figure I on page 3 represents our wash water recycling system.



Our system at Nemaocolin Woodlands resort has some unique items that we added to be more environmentally protective. Our facility has over 38,000 square feet under roof which results in a lot of water drainage. We wanted to use the treatment system to catch and recycle all of the floor drains in our 8,000 square foot mechanics shop and 20,000 square foot equipment storage building in case we ever had a fuel or hydraulic oil spill. Any liquid that touches the floor in either facility is washed down the drain, pumped to the system, treated, and used to wash our turf equipment. Another thing we added to the system was a car wash; it is just like your everyday drive in high-pressure car wash. We thought that this might present a problem due to foaming and bubbling, but it didn't. The soaps are formulated to resist foaming and are also phosphorus free. We now have the ability to keep all of our turf equipment and vehicles looking brand new. Again we are using recycled water to continually wash all of equipment and vehicles, with no problems.



My biggest concern with a recycling system was the maintenance. We have all heard stories reporting the difficulty and costs in maintaining wash systems. To date, we have found this to be very low maintenance. On average it takes one person 5-10 minutes or about \$12.00 a day to keep it running smoothly. The biggest issue is training the staff to maintain the grass-clipping cart to ensure that the clippings are not overflowing from the trailer. The grass cart is the part of the system that requires the most attention. It is where all of the larger particles are

removed from the water and screened out for removal either to a compost pile or waste dump. The time invested in keeping the cart clean depends on the quantity of machines cleaned and volume of grass from those machines, but for our large operation we usually dump the cart up to two times a day.

The benefits of this wash water recycling system have been very positive for Nemaquin Woodlands Resort. The public views the golf facility as being an environmentally conscious property and as a positive influence on the local environment. We do not discharge any wash water into local streams and no grass clippings are washed down the drain to float through the resort's wastewater system. We reuse 100% of our wash water.

This layout and design has allowed us to become more efficient in our operation. All equipment washing and cleaning takes place on a large pad that is covered from the elements and can accommodate up to 4 fairway mowers at a time so this eliminates waiting in line to wash. All hoses are stored on retractable reels that are mounted to the wall so that there are no tripping hazards or hoses laying everywhere covered in grass clippings. Since it is a covered structure, on rain days we can scrub and wax our equipment so that it will last longer, look new, and have a better re-sale or trade in value.

All in all, I would have to say that the investment we made in the wash water recycling system has offered positive returns in many areas. We have taken the responsibility upon ourselves to become more environmentally responsible before wash water recycling becomes a legal requirement. As we move into the future and guidelines for all facets of golf course maintenance become more stringent, we are doing everything that we can to promote golf and the environment.

Photos and drawing courtesy of Brian D. Anderson

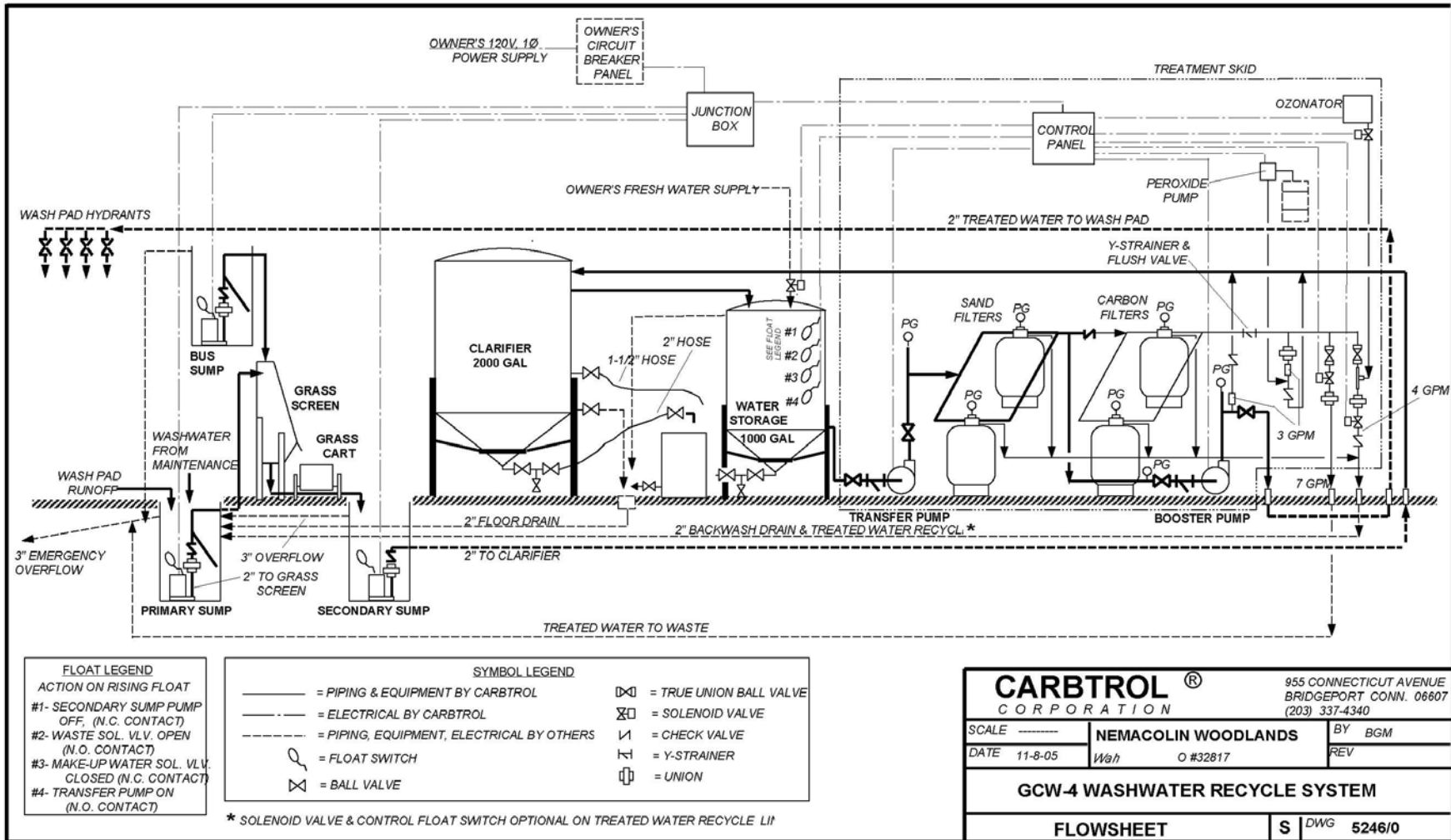


Figure I – Wash Water Recycle System