

## Re-Using Treated Sewage

for Irrigation Toilets & Truck Washing by E. Craig Jowett, Waterloo Biofilter Systems

**A**lthough Ontario is lucky with her abundant water resources, other parts of Canada are not, and development is limited as a result. Re-using treated sewage for irrigation of turf grass, on golf courses for instance, does not substantially decrease the overall amount of water used on the property, but does divert much of the unwanted nutrients, such as phosphorus and nitrogen, away from nearby surface and subsurface water resources by uptake in the botanical horizon of the turf grass.

However, re-using treated sewage for toilet flushing or truck washing at commercial facilities does have a substantial effect on the overall quantity of water used, so that facilities can be constructed where water supplies are otherwise too limited. It turns out also that the re-use inside the facility provides a benefit with respect to diverting nitrogen away from the natural environment.

### New Regulatory Efforts

Over the past few years, the Canadian Council of Ministers of the Environment and the CMHC have sponsored workshops across Canada on re-using treated sewage and other non-potable water. These workshops have culminated in the recent standard CSA B128 “Non-Potable Water Systems” which deals with installation and testing of dual plumbing in buildings so that public health and safety is upheld, and should be installed in the National Plumbing Code within a few years. In addition, the Canadian *Guidelines for Household Reclaimed Water for Use in Toilet and Urinal Flushing* by Health Canada is now out in draft form. This document sets quality limits on parameters of interest for the water itself.

While Ontario has not seen a lot of sewage re-use, the Toronto Healthy Houses sponsored by CMHC has been re-using treated sewage inside for toilets and laundry for 10–12 years now. When constructed in the mid-1990s, many rules were broken because this type of enterprise was just not allowed in the Codes. Now, with the right mind-set of a number of government officials in the provincial and federal arenas, both a plumbing standard and a water quality guideline have been introduced, and within a very short timeframe for this type of work. Now, fewer rules need be broken.

### Examples of Treated Sewage Re-Use

This paper details the process design and analytical results at two truck stops where sewage is treated and re-used for toilets or for truck washing and irrigation. Due to the presence of busy restaurants, particular attention was made to the proper maintenance scheduling for

the exterior grease traps and, in one case, the use of a “dead end” holding tank for kitchen waste.

### Process Design & Operation — Truck Stop A

An existing truck stop on the busy 401 Highway near London Ontario wanted to expand the facility with a new restaurant and store. The expansion to 56,000 L/day design flow, space limitations, and lack of adequate groundwater supply resulted in a sewage treatment process that re-uses the treated effluent immediately inside the facility for urinal and toilet flushing. The process design (Figure 1) consists of exterior grease trap, septic tanks, balance-pump tank, WATERLOO BIOFILTERS in the SC-40 shipping container configuration (Figure 2), MS-FILTER sand-charcoal-ozone

Figure 1. Process diagram of sewage treatment for toilet use and subsurface disposal at Truck Stop A.

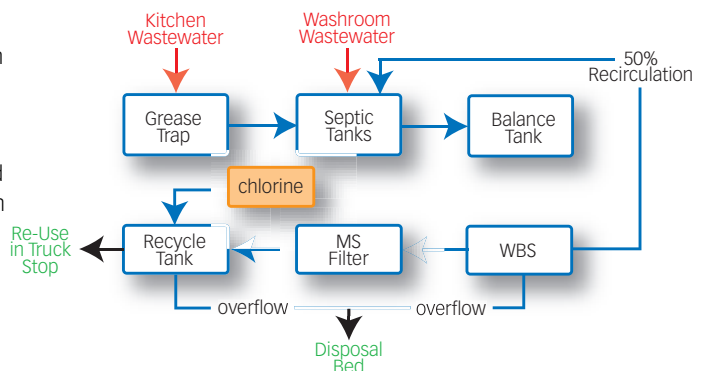


Figure 2. WATERLOO BIOFILTER SC-40 configuration that can treat 25 three-bedroom houses or the equivalent. Two SC-40s are used at Truck Stop A.





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# Inside

- 5 President's Message
- 6 On-site Sewage Project Profile: Ontario Parks
- 11 The Business of Barging
- 12 MOE Court Bulletins
- 12 OOWA Committee Updates
- 14 Bonnechere Valley's Answer To Septage
- 17 Rob's World

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To submit an article or place an advertisement contact Denis Orendt at dorendt@yahoo.ca.

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Continued from page 1

polishing, subsurface disposal of excess water, and 0.2 mg/L residual chlorination of final effluent entering the facility.

Safety measures inside the facility consist of dual, independent plumbing, “non-potable” labeled pipe, and a three-way back-flow preventer valve to allow switching to potable for toilet flushing without compromising the potable lines. Ontario’s Ministry of Environment reacted enthusiastically to the proposal for re-use, in part because the Building Code already allows non-potable water from cisterns and lakes for toilet flushing, and approved a monitoring program that was reasonable for the client and adequately maintains public safety. The program consists of weekly sampling by contracted operators and objectives of 10 mg/L for cBOD and TSS, and 5 cfu/100mL for Total Coliform and *E. coli* parameters in the re-usable effluent.

**Process Design and Operation — Truck Stop B**

The owners of another facility, also on the busy 401 Highway, had a mandate of “in 20 years, the property can be renovated and sold without environmental cleanup issues.” The proposal was to treat the sewage from the facility and re-use it as much as possible for truck washing and irrigation, and minimize disposal into the property’s storm water pond.

The process design consists of an exterior grease trap, septic tanks, balance-pump tank, WATERLOO BIOFILTERS in the PE-5 above-ground polyethylene configuration, and UV disinfection. The disinfected Biofilter effluent is used as irrigation water in the summer and planned as partial influent to a proprietary water conditioning system for high-end truck washing at the facility. Excess water is sent to the on-site storm water infiltration pond.

A novel aspect to this treatment train is a 4,500 L holding tank connected to a sink for disposal of coffee, soups, grease strippers, and disinfectant wash water. Elsewhere, excessive amounts of these materials have been found to be deleterious to high-quality treatment. Contents of this “dead-end tank,” of small volume but high toxicity, are trucked off site cost-effectively, to reduce nitrogen contamination and ease the production of high-quality re-usable effluent.

**Analytical Results & Discussion**

Table 1 summarizes analytical results of influent and re-useable effluent parameters at Truck Stop A, which have been within the objectives since start-up in January 2004. The percentage removals are estimated by back-calculating the influent raw sewage. Since treatment is so consistent over many years, a request was made to decrease the number of analyses, and replace these with photographs and on-site testing that mimics more expensive laboratory work. Expensive monitoring is one hurdle to overcome before re-use is regularly proposed.

Nitrogen is a parameter of interest to the MOE, and with ~65 percent of the water going to the disposal field due to re-use in the facility, and it contains only ~60–65 percent of the total nitrogen concentration, the mass of TN entering the subsurface is reduced by about ~60 percent.

Table 2 depicts the clear and consistent effluent at Truck Stop B to be used for truck washing when the subsequent water conditioning unit is fully operational, and the WATERLOO BIOFILTER effluent is now presently used for irrigation of landscaping as much as possible.

Table 1. Average values since early 2004 at Truck Stop A of influent and effluent re-used in facility; N = 199 samples.

Parameter	Mixed Sewage 50% final effluent	Calculated Raw Sewage	Final Effluent for Re-Use	Estimated % Removal
pH	7.6	7.6	7.7	—
cBOD mg/L	129	255	2.6	>98
TSS mg/L	53	105	1.5	>98
TN mg/L	47.8	58.1	37.5	35.5
<i>E. coli</i> cfu/100mL	1.0e6	—	<5	>99.9

Table 2. Average values at Truck Stop B of effluent re-used for irrigation and truck washing treatment unit; N = 33 samples.

Parameter	Effluent
cBOD mg/L	2.8
TSS mg/L	5.9
O&G mg/L	<2
<i>E. coli</i> cfu/100mL	<10

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## President's Message



**A**nother winter approaches and we reflect back on our year. We look back on our accomplishments and our challenges. Personally for me, this year brought many triumphs. My daughter Rebecca, who I thought would always be a baby girl, received her Ontario Scholar honours this year, and is off to her post-secondary education. My oldest son Trevor was

Captain of his high school football team this year and doing very well in school. My younger sons Jack and Sam continue to grow in their pursuits of learning, sports and the arts. Jack is joining the enrichment program at school and Sam is enjoying a part in our local play *The Rise and Fall of Humpty Dumpty*. They have all brought me great pride.

Professionally, this year brought many challenges. Learning a new system and starting over at a new company was a big step, but the transition from being uncomfortable and nervous to confident and

secure was almost instantly made due to the professionals involved in and around both companies affected by my move. These are the types of professionals we need in our business.

I say this not to boast, but because we must be thankful for what we have, but also continue to strive to be the best we can. Not only does this apply in our personal lives but also to our professional lives and our business relationships. With our economy in turmoil and the future of our business threatened by these circumstances, our unity as an association is paramount. I encourage you to take a good look at this association and evaluate what we have accomplished over the last 10 years. Do you want to belong to an association that grows each year? Of course you do. So help us grow...help us reach the type of membership numbers that will make us a force to be reckoned with when we bring our concerns and ideas to government.

If we continue to pride ourselves on professionalism and integrity, and to speak as one, our association will continue to grow with Denis leading the charge.

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# On-site Sewage Project Profile:

Ontario Parks — Sandbanks by S. D. Filipowicz, P. Eng.

## Park Background

Ontario Parks, a branch of the Ministry of Natural Resources, manages 330 provincial parks covering 9 million hectares or almost 9 percent of the province. That is similar to the size of Portugal. The Ontario Parks system has 18,900 car accessible campsites, 7,000 backcountry campsites, 7,000 electrical campsites, 10,000 educational programs and is home to more than 65 percent of Ontario's species at risk.

Sandbanks Provincial Park covers 1,600 hectares of land along Lake Ontario southwest of Picton in Prince Edward County. Sandbanks has 549 campsites, 140 of which are electrical campsites, approximately 10 km of spectacular beaches and a diverse range of provincially significant ecosystems. The campsites are generally at 92–97 percent capacity between the Canada Day and Labour Day weekends. Due to the attractive beachfront and highway accessibility, Sandbanks can issue as many as 2,700 day use permits. This can equate to a total estimated weekend population of 15,000 to 18,000 people which would be equivalent to the population of Trenton at 16,770.

Originally there were two designated parks in the area each covering one of the distinct coastal baymouth sand dunes. Outlet Beach Provincial Park to the east (est. 1959) and Sandbanks Provincial Park to the west (est. 1962) were separated by rural lands on a limestone peninsula. In 1984, the two parks were joined together with the purchase of peninsula lands and regulated under the *Provincial Parks Act* as Sandbanks Provincial Park. Sandbanks is split into three sectors: the Outlet Sector to the east, Dunes Sector to the west and Woodlands Sector bisecting the two sand dunes formations.

The Ontario Parks Environmental Design Services Unit is responsible for all park environmental and building designs. The Design Team is made up of an Architect, Engineers and Designers. Outside consultants are retained to complete a full service design package.

## Project

Three comfort stations and septic systems in the Outlet Beach sector that were 45–50 years old were replaced in 2007–08. The facilities and design daily flow (Q) for each comfort station is summarized below:

- Day Use Comfort Station #1– Q1 = 36,000 L/day based on 600 vehicles per day (3 persons at 20 L/person);
- Day Use Comfort Station #2– Q2 = 36,000 L/day;
- Campground B Comfort Station #5 – Q5 = 34,000 L/day to serve 90 campsites (375 L/day/site).

As the combined sewage production on the property is greater than 10,000 L/day, a Certificate of Approval is required prior to construction in accordance with the *Ontario Water Resources Act*.

## Site Constraints

The *Sandbanks Provincial Park Management Plan* (1993) defined the park and protected areas such as Nature Reserves (Outlet River Dunes), as Historical Zones (heritage properties) or Natural Environment Zones where development and other land use is prohibited. In the Outlet Beach sector, the Development Zones are pretty much restricted to existing built-up campgrounds, main park road allowance, adjacent building sites and beach parking lots.

A conventional septic system that meets today's *Ontario Building Code* (OBC) and MOE requirements will not fit within the original footprint and the park cannot extend the system into the protected dunes or into campsites or parking areas. The Outlet Sector is essentially a narrow sand island between two freshwater bodies (Lake Ontario and East Lake) bisected by the Outlet River channel.

It was understood that a Class IV septic system with tertiary treatment

was going to be necessary for Comfort Station #5 so that we could situate the system within the footprint of the existing site and meet expected treatment needs. For the Day Use Comfort Stations #1 and #2, there was insufficient space to locate the leaching bed on the existing site and a remote site was needed. The only local site large enough for septic system development was across from Comfort Station #2 where the septic system for the Park Store/Restaurant existed. It was understood that a central Class IV septic system with tertiary treatment would be needed to treat wastewater from Day Use Comfort Stations #1 and #2, the Park Store/Restaurant and from a nearby Trailer Sanitary Dumping Station. By incorporating added balancing storage into the pumping chambers at the Day Use Comfort Stations and Trailer Sanitary Dumping Station, we were able to reduce the daily design flow sizing of the central treatment system by 25 percent to 70,400 L/day.

## Site Assessments

A topographic survey and hydrogeological study of the areas was undertaken by consultants for Ontario Parks (2006–07). Following the groundwater, surface water and surficial soils analysis, the hydrogeological study and MOE pre-consultation concluded that:

- Groundwater flow direction is towards Lake Ontario. Background wells and surface water quality (Lake Ontario and Outlet River) is not impacted by nitrogen or phosphorus;
- The proposed septic systems at the Day Use Area and at the Campground B Comfort Station #5 will not negatively impact Lake Ontario;
- Due to the limited area available and sensitive park features, tertiary effluent quality was needed to take advantage of using area bed design;
- The native sand with T of 6–10 min/cm could be used in the area bed. The effluent loading rate for area bed design was 50 L/m<sup>2</sup>/day;
- Groundwater monitoring of the constructed systems was necessary.

## As Constructed System Descriptions

### General Contractor and Licensed Installer —

Wemp & Smith Const. Ltd., Kingston

### Pre-cast Supplier — Anchor Concrete, Kingston

### Tertiary Treatment — Ecoflo-Ontario, Ottawa

### Commissioned — Spring 2008

#### 1. Day Use Area Central Sewage System Q = 70,400 L/day

**Comfort Station #1 and #2** — each comfort station equipped with 2x45,000L septic tanks in series, 50,000 L lift station with duplex effluent pumps, level and dosing controls, 50 mm HDPE forcemain to the main dosing chamber and a flowmeter inside the building on incoming waterline;

**Trailer Sanitary Dumping Station** — 45,000 L septic tank, 22,700 L lift station with duplex effluent pumps, level and dosing controls, 50 mm HDPE forcemain to the main dosing chamber (water flow included with Comfort Station #1 flowmeter);

**Park Store/Restaurant** — Grease Interceptor (Big Dipper by Pinnacle Environmental) inside Restaurant, existing 13,600 L septic tank re-used with second 5,400 L tank in series, discharging to 50,000 L main dosing chamber with four effluent pumps, level and dosing controls and a flowmeter inside the building on incoming waterline;

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medium in a fibreglass shell discharging treated effluent to an area bed having a 200 mm thick crushed stone layer over 1505 m<sup>2</sup> placed over native sand (T of 6–10 min/cm). Each effluent pump in the main dosing chamber is connected via 50 mm HDPE to a pressurized flow divider that splits the flow to eight peat filters. Each set of eight peat filters also has a dedicated forced air ventilation system.

2. **Comfort Station #5** — Sewage System Q = 34,000 L/day 2x45,000 L septic tanks in series, 50,000 L lift station with duplex effluent pumps, level and dosing controls, 16 Ecoflo Model ST-650 Biofilter treatment units with open bottoms, peat-based biofilter medium in a fibreglass shell discharging treated effluent to an area bed having a 200 mm thick crushed stone layer over 693 m<sup>2</sup> placed over native sand (T of 6–10 min/cm). Each effluent pump in the lift station is connected via 50 mm HDPE to a pressurized flow divider that splits the flow to eight peat filters. Each set of eight peat filters also has a dedicated forced air ventilation system.
3. **Certificate of Approval Conditions** — Conditions imposed by the MOE include but are not limited to: Ecoflo effluent objectives of <15 mg/L BOD<sub>5</sub>, <10 mg/L CBOD<sub>5</sub>, <10 mg/L TSS, effluent and groundwater monitoring twice per operating season, measure and record daily volume, manuals, maintenance agreement with annual inspection, as-constructed drawings, peat replacement every eight years or less as recommended by the manufacturer and an annual performance report.

### 2008 Sewage System Performance

As of publishing this article, the operating season was just concluding and the annual performance report was not yet available. Upon review of partial data and in discussion with the park, the following is a brief performance summary:

- The septic tanks and effluent pumping systems ran trouble free. Note: It took until the fourth week of June for Comfort Station #2 and #5 septic tanks to fill. Comfort Station #1 was commissioned later in June and its septic tanks did not fill until the second weekend in July. The park is still waiting for the Trailer Sanitary Dumping Station septic tank to fill.
- The Restaurant concession operator liked the new grease interceptor. The grease interceptor's removable collector was emptied into a bulk container about once per day.
- The Ecoflo systems ran trouble free, although the performance of the pressurized flow diverters will need to be checked on a regular basis. Note: Obtaining an Ecoflo effluent grab sample was time consuming for operators due to the lack of continuous flow. The operators had to leave the open sample bottle inside one of the Ecoflo units overnight to fill the bottle. This may be the reason for an erroneous BOD<sub>5</sub> sample result taken on August 12 from the Day Use Area system. Additional training or apparatus from the manufacturer may be required.
- Daily Flows — Outlet Beach Day Use Area saw the maximum daily flow on August 3 (holiday Monday) of 41,400 L. The extra balancing volume incorporated into the system has not yet been needed. On August 3, 2008, 2,147 day use permits were issued out of a possible 2,200 parking spaces available. Weather conditions were rainy on a lot of weekends and thus the day use area daily flows should be lower than expected. It appears that there could be excess capacity for future connection of Day Use Comfort Station #3. Another couple of seasons monitoring the system could confirm that.
- Daily Flows — Comfort Station #5 saw average daily flows normally less than 24,000 L except for July 12 at 28,000 L. The B campground campers served by this comfort station had visitation levels from 7 to 11 percent lower than previous years due to the rainy weather conditions in 2008.

Although this is one of many on-site tertiary treatment projects for Ontario Parks, we are always looking at approved technologies for future projects.

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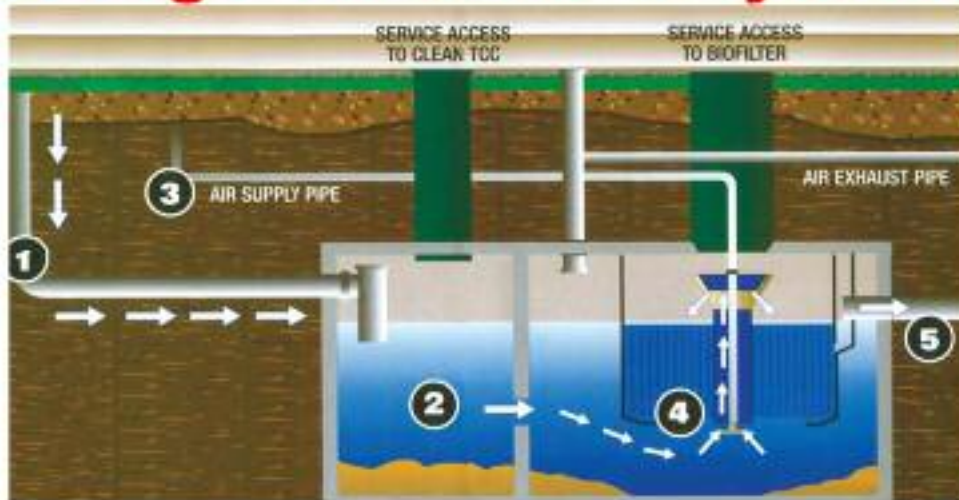
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# The Business of Barging

by Denis Orendt, Executive Director, OOWA

For many of us in the onsite business we take for granted the work and effort involved by installers who have to barge to the job site. The scheduling and delivery of equipment, materials, inspections all hinge on weather conditions, access to the lake, and a variety of other government regulations that water access installers face when having to barge to the job site.

I have had the pleasure of meeting two such companies that mainly do water access only sites. Both OOWA members, Coulson Brothers Scow Service in Milford Bay and Butterfield Barge & Excavating on Matinenda Lake near Blind River are the “Pro’s from Dover” when it comes to barging.

Coulson Brothers is a family business with more than forty years of experience that specializes in water access only projects in Muskoka. They also own Muskoka Disposal Services which is the pumping side of their business. One difficulty for many water access property owners is finding someone who will pump out their septic tank when required. Coulson provides both install and pumping services, something that is not an easy task with all the additional requirements from the MOE branch of the Ontario government. There is a unique septic pumper as it slides off the flatbed truck and onto one of four barges that they have available. Their truck rarely goes on the barge. The tank is secured on the barge for safe and efficient transporting.

Coulson Brothers is run by Keith, Arnie and Donna Coulson who have stepped in to continue a long tradition by their parents Ken and Linda, who have been a permanent fixture in Muskoka for years. The interesting aspect of their business is that they do not do any advertising other than a small ad in the Yellow Pages. The majority of their work is received through word of mouth based on a track record of exemplary work, honesty and integrity.

Keith, President and Arnie, Vice President are BCIN certified and Donna, the Treasurer, handles all the financing and billing. They have a staff which is divided into four crews and have had very little turnover in their staff which says something for the working environment. Many have been with the company more than twelve years.

Experience has taught Coulson Brothers the importance of education and training with seven of the staff being certified welders, some who can easily work in the fully equipped certified welding shop as well as the wood working shop. Some staff members are certified as rock crackers. Rock cracking utilizes a non explosive demolition agent that provides minimal disruption and concussion to the landscape.

With a vast array of equipment Coulson Brothers do more than just septic systems. They can also provide services for retaining walls, tennis courts, access roads and rock walls. They have years of experience in property development of vacant land as well as lots that required clearing.

Their fleet of vehicles include four barges and four tug boats and each barge has a 17-foot Stanley Center console emergency boat. They have six 307 and 308 Cats as well as a 311 Cat. Some John Deer mini’s, and one old “cat” which is painted all blue affectionately named the “Smurf.” Four John Deer all terrain skidder trucks with articulating fork lifts as well as six to seven skid steers round out their equipment fleet. There are even a couple of float planes available should they be required.

Coulson Brothers do conventional septic systems and are also trained on tertiary technology with a preference for installing Aquarobic Systems. Some systems have been custom engineered and designed using a unique system consisting of multiple plastic tanks and integrating the Aquarobic System into the tanks.

With six kids between them the Coulsons will continue for generations serving the needs of those in Muskoka Lake, Lake Rousseau and Lake Joseph.

The other barging company I met during a road trip to the north was Butterfield Barge and Excavating up in Blind River. Theirs is a unique story as to how they started in the onsite business. A few years ago annexation happened in their area and due to huge tax increases they closed their fishing and hunting camp business and sold the buildings. Steve and Sharon Watson live near Blind River on Matinenda Lake and use the lake for their water source along with other residents.

Butterfield Barge & Excavating has been in business for more than four years providing septic installations and a variety of related services for customers wanting to upgrade their properties for their wastewater treatment. Steve’s main goal in starting the business was not for profit but to protect their environment as many of the lots in the area have sub standard or non compliant systems installed. They are true believers in following the building code making sure their customers receive the best service possible.

After much research for equipment Steve Watson purchased a 20x40 barge and a push boat to start their business. He then added a Kubota KX161 and a Case 450 CT loader as well as a 15-foot steel hull boat for his safety back up requirements.

His system of choice is Infiltrator chambers as they are light weight, easy to load and handle on the barge and easy to transfer and install at the selected site.

To handle the challenges of pumping Butterfield works with local pumping contractors to services their customers needs for tank pumping.

Although small in stature they have very big hearts when it comes to protecting the environment. Butterfield Barge & Excavating goal is to ensure safe source water practises as there are many locations on the lakes in the area that require new and upgraded systems due to improper septic and grey water systems previously installed.

OOWA is pleased to have these two unique companies as members. They exemplify what a professional onsite OOWA installer is, honest, have integrity and provide the best in customer service.



## MOE Court Bulletins

www.ene.gov.on.ca/en/news/convictions (Portions Reprinted with the Permission of MOE)

**Wilhelm Wolfert Fined \$25,000 For Waste Discharges Into Scanlon Creek, Barrie** — Wilhelm Wolfert has been fined \$25,000 plus a victim fine surcharge, after pleading guilty on October 29, 2008 to five violations under the *Ontario Water Resources Act*, namely for discharging high organic strength effluent and high strength organic carrot processing waste onto lands and waters that drain into Scanlon Creek. Wilhelm Wolfert was given 24 months to pay the fine.

The Court heard that Wilhelm Wolfert is a Director of a company that operates a vegetable washing and processing facility in the Town of Bradford, West Gwillimbury in Simcoe County. The company collects the process water from the plant into a series of sewage lagoons located on site, which is then spray irrigated onto an adjacent field. Inspection by ministry staff revealed both uncontrolled discharges of processing effluent from various sources at the facility and runoff from the spray irrigation activities, discharging into Scanlon Creek.

Wilhelm Wolfert was charged following an investigation by the Ministry of the Environment's Investigations and Enforcement Branch.

**The Corporation Of The Township Of North Glengarry Fined \$28,000 For Unauthorized Sewage Discharge And Drinking Water Approval Violation, Alexandria** — The Corporation of the Township of North Glengarry has been fined \$25,000 plus a victim fine surcharge, after pleading guilty to failing to notify the ministry of an unauthorized sewage discharge into the Scotch River. The Township also pleaded guilty to using and operating a municipal drinking water system without approval and was fined \$3,000 plus a victim fine surcharge. The Township was given 90 days to pay the fine, totalling \$28,000 plus victim fine surcharge.

The Court heard that The Corporation of the Township of North Glengarry owns and operates a municipal sewage works that serves the Village of Maxville. The sewage works comprises sanitary sewers, sewage pumping stations and the sewage treatment plant which is a

year round retention two-celled lagoon, known as the Maxville Sewage Lagoons, which operate under the authority of a Municipal and Private Sewage Works Certificate of Approval issued by the ministry. The approval authorizes discharges of the contents of the lagoons into the Scotch River under specified conditions to ensure that water quality is not impaired. Inspection by the ministry revealed that an unauthorized discharge took place and the ministry was not notified.

The Court also heard that the Township owns and operates a municipal drinking water system that serves the Town of Alexandria. A ministry inspector observed new fire hydrants and evidence of recent construction. A subsequent investigation determined that an existing watermain was replaced and a new one had been installed. Follow-up with the ministry's Environmental Assessment and Approvals Branch revealed that this work was carried out without approval from the ministry.

The Corporation of the Township of North Glengarry was charged following an investigation by the Ministry of the Environment's Investigations and Enforcement Branch.

**City Of Ottawa Fined \$450,000 For August 2006 Sewage Discharge Into The Ottawa River, Ottawa** — On October 10, 2008, the City of Ottawa was fined \$450,000 for two offences under the *Ontario Water Resources Act* in connection with the discharge of sewage to the Ottawa River during the month of August 2006, plus \$112,500 for the victim fine surcharge. The City pled guilty to these offences on September 11, 2008 and an agreed statement of facts was heard by the Court on October 3, 2008.

The Court heard that the City is the owner of and responsible for the operation and maintenance of sanitary sewers and sewage treatment systems within the City's geographic area. There are a number of regulators located within Ottawa's sewer line network. A regulator is designed to protect public health and the sewer line network when the amount of sewage in the system reaches the capacity of the pipes. This

## OOWA Committee Updates

The OOWA committees were developed to allow members the opportunity to actively participate in the development and growth of the association by volunteering their talents and time.

### Policy and Procedures Committee

The policy and procedures committee mandate has two main purposes:

To assist the Board of Directors in matters of procedure in order to make effective decisions that will have a positive impact the association. To help make and change policy with respect to Constitutional Issues within the organization, while protecting the best interests of the association and its members.

At the last conference the P&P committee developed and proposed some changes to our constitution which were reviewed at the AGM held during the 2008 conference. These changes were voted on and adopted. The P&P committee is continuing to strive to enhance and improve the organizations interests and professionalism in Ontario.

John Doner — P&P Committee Chair

### Membership Services

The purpose of the membership committee is to enhance the services currently offered to our members as well as develop new programs and initiatives to increase membership to OOWA. Committee members also participate in planning and organizing our annual conference.

OOWA has seen an increase in membership over the last two years. This is due to the efforts of the Board of Directors with the Executive Director to improve and enhance communications and services for OOWA members. The OOWA web site received a major overhaul and we are regularly adding member changes and updates when they become available. Our program partners have increased with companies seeing the value of joining OOWA to offer products and services specifically geared to OOWA members. We will be adding new partners to our program for 2009. Speaking of 2009, the planning for the OOWA Conference, March 1–3 is well under way and I urge all members to consider attending as it will be OOWA's 10<sup>th</sup> year anniversary. More and more members are benefiting from the attendance as they upgrade their skills learning about new techniques and all the approved technologies in Ontario.

Terry Davidson — Membership Services Chair

most commonly occurs during storm events. Under these circumstances, gates within the regulators in combined sewer lines direct sewage and storm water to outflow pipes. This practice is referred to as a Combined Sewer Overflow event.

Between the days of August 1 to August 3, 2006, the City experienced extremely heavy rains, resulting in a number of Combined Sewer Overflow events. During this time, the regulator gate that directs the combined sewage near Keefer Street became jammed and from August 4 to August 15, 2006, sewage continued to discharge into the river. The City's Public Works and Services Department did not discover the jammed gate until August 15, 2006, and therefore, between August 4 to August 15, 2006, the discharge was unlawful. During this period, it is estimated that 764 million litres of sewage was unlawfully discharged into the Ottawa River.

Upon learning of the jam, the City took immediate steps to ensure the gate was returned to proper operating condition. The City's Public Works and Services Department did not notify the ministry at the time it became aware of the jam until an informal phone call was placed on April 23, 2007. The Department formally notified the ministry of the discharge in a letter dated May 16, 2007.

The City was charged, following an investigation by the Ministry of the Environment's Investigations and Enforcement Branch.

The City was charged, between August 4 and August 15, 2006, of causing or permitting the discharge of sewage into waters that may impair the quality of water, contrary to s. 30(1) of the OWRA. The City was also charged with failing to notify the ministry forthwith, on August 15, 2006 of the discharge, contrary to s. 30(2) of the OWRA.

The sentencing submission took into consideration other sewage discharge events that occurred between 1998 and 2008.

Justice of the Peace Louise Girault heard the case in the Ontario Court of Justice in Ottawa, Ontario and imposed sentence on October 10, 2008.

**Richard Gionette Fined \$5,000 For Sewage Works Violation, Thessalon** — On September 8, 2008, Richard Gionette was convicted by the Court under the *Ontario Water Resources Act* with altering a

sewage works without a Certificate of Approval at the Aubrey Falls Trading Post, a tourist operation in Villeneuve Township. Richard Gionette was charged following an investigation by the ministry's Investigations and Enforcement Branch. He was fined \$5,000 plus a victim fine surcharge, and was given six months to pay the fine. Richard Gionette was also issued a Court Order requiring the submission of a completed application for a Certificate of Approval by June 4, 2009.

**Gas Station Owner Fined \$124,500 For Violating *The Ontario Water Resources Act*, Whitby** — On September 18, 2008, Khaled El-Masri and 1098431 Ontario Limited were convicted of a total of 11 counts of violating the *Ontario Water Resources Act* in connection with the operation of a sewage works and were fined \$124,500.

1098431 Ontario Limited is a company that owns and operates a gas station located at 3005 Highway 115/35 in the Municipality of Clarington. Mr. El-Masri has been a designated officer of the company since 1999.

The Court heard that on July 16, 2004, the ministry had issued a Certificate of Approval to the company for a new sewage works. On November 15, 2006, a ministry inspection revealed that the sewage works was not in compliance with its certificate.

The 11 charges involved various contraventions of the *Ontario Water Resources Act*, as prescribed in the certificate. Some of these included: failing to build, install and operate the sewage works in accordance with the Act; failing to collect and analyze monthly effluent samples; and failing to collect and analyze monthly groundwater samples.

Mr. El-Masri and 1098431 Ontario Limited was charged following an investigation by the Ministry of the Environment's Investigations and Enforcement Branch.

The defendants were issued a Court Order on September 18, 2008, which requires them to comply with the Certificate of Approval within 90 days of the issuance of the order.

Justice of the Peace Alfred Johnston heard the case in the Ontario Court of Justice in Whitby, Ontario and imposed sentence on September 18, 2008.

## Education Committee

Maintaining and increasing the capabilities of our members in the onsite industry is a key focus for OOWA. We are developing new programs to enhance and improve onsite expertise and knowledge with the goal of providing professional services to the association and the industry at large.

Education is a key component for OOWA and we are currently developing programs with the ORWC and some of the colleges across Ontario to improve their curriculum as well as develop onsite courses to improve and upgrade the skills of those in the our industry. The committee has also developed a program to recognize anyone taking courses related to onsite applications and look to implement this for 2009. OOWA has presented its proposed plans and educational draft document to various government departments and have received a positive response in the direction we are heading.

Members are urged to consider upgrading their skills and expertise when the program becomes available. Details will be posted on the OOWA web site once completed.

Eric Gunnell — Education Committee Chair

## Government Relations

Developing and maintaining strong relations with government and licensing bodies is important to OOWA. Our goal is to continue to improve the communications with government and provide an opportunity to work together with regulators to enhance services to those in the onsite wastewater industry.

This past year the government relations committee has been developing stronger relations and improved communications with the MMAH, MOE, MNR as well as the regulators at the local level. OOWA members have participated on Technical Advisory Committees with the MMAH as well as Part 8 Code change recommendations. OOWA also engaged the services of Bolivar Phillips, a Planning Consulting firm, to assist in developing our profile with municipal planners. In 2009 OOWA will be having a Lobby Day at Queens Park to inform and educate members of Parliament on the benefits of onsite systems for their communities. Our goal is to continue to assist our government ministries and municipalities with the expertise and experience OOWA members can provide.

Rob Passmore – Government Relations Committee Chair

# Bonnechere Valley's Answer To Septage

by Matthew Green, Bishop Aquatic Technologies

For many septage haulers across Ontario the uncertainty surrounding the future of septage disposal is the cause of both frustration and confusion, however this is not the case for haulers residing in the Township of Bonnechere Valley (Eganville). Located an hour west of Ottawa, Bonnechere Valley is one of the few municipalities in Ontario which has already addressed the issue of septage disposal using Geotube® dewatering containers. The township first trial tested Geotube® dewatering containers in a small pilot project, processing about 21,000 gallons of septic tank waste in July of 2005. A Geotube® unit measuring 22 ft. x 22.5 ft. was filled and allowed to dewater through the winter months. Not only did Geotube® units successfully dewater the sludge, the lab results of both the effluent and retained solids were impressive. The effectiveness of Geotube® dewatering containers along with the simplicity and affordability of the technology encouraged Bonnechere Valley to implement Geotube® units as a long term solution for the treatment of septage and bio-solids from the wastewater treatment plant.

Construction on the permanent dewatering and processing facility using Geotube® technology began in September of 2007 and was completed in April of 2008. Located directly across the road from the wastewater treatment plant in the Village of Eganville, the dewatering and processing facility is now fully operational and consists of six, thirty foot circumference, fifty foot long Geotube® units. Two of the units are located in a greenhouse structure so that bio-solids from the wastewater treatment plant can be dewatered during winter months. These units also provide haulers a with a winter disposal facility for emergency pump outs that may be required during the winter. Neither the haulers nor the township will ever have to haul sludge to outlying treatment facilities during the winter months again.

The process for a septage hauler to empty his or her truck load at the dewatering facility is simple and straight forward. Haulers are required to pull their tanker truck up to the septage station and empty the load from their tanker into the 10,000 gallon underground holding tank. After emptying his or her truck, haulers can then drive away, and resume business as usual. Local haulers will no longer have to spend time land applying septage to fields, nor will they have to handle potentially dangerous chemicals.

A simple bar screen removes solid waste, such as plastics during emptying to ensure nothing to large is pumped into the holding tank. Once the 10,000 gallon holding tank has reached capacity the screened septage is mixed by a submersible pump located in the holding tank. The waste is then pumped into a Geotube® container. While the sludge is being pumped from the holding tank it is mixed with a polymer solution. As with most dewatering technologies, polymer is required in order to separate the solids from the liquids. While Geotube® dewatering containers are filling, a clear filtrate immediately begins to filter through the container. Eganville's Geotube® units sit on a concrete drainage bed which is designed to direct the filtrate, via gravity, into a 10,000 gallon filtrate storage tank. Once the storage tank is filled with clear filtrate, a batch entry is made back to the head works of the treatment plant where the filtrate undergoes further treatment to meet stringent Ministry standards before being released to the environment.

Once a Geotube® unit is finished dewatering and the retained solids have been processed into a nutrient, the contents can be easily removed by a front end loader. Now the nutrients can be applied to approved fields, or used for energy production.

Not only has Bonnechere Valley Township addressed the challenges facing the septage haulers across the province, it is also demonstrating environmental responsibility by choosing a treatment option for septage



and bio-solids which does not produce a waste, but an odorless, reusable nutrient.

The simplicity and affordability of Geotube® dewatering containers means proactive septage haulers do not have to wait for the hammer to



drop in Ontario so to speak. Affordable facilities can be implemented by haulers on their own land, providing dewatering, treatment and storage of septage. Haulers can also encourage their respective municipalities to follow Bonnechere Valley Township's example and address the issues facing the septage industry.

The implementation of Geotube® dewatering units into the Eganville wastewater treatment process makes the village's treatment plant one of the few in Ontario with the ability to accept, treat and store septage waste. For haulers in Bonnechere Valley Township, the dewatering facility provides a sense of security that few haulers in Ontario can enjoy. Regardless of when the new legislature bans the land application of raw septage is finally implemented, Bonnechere Valley septage haulers will always have a local, low cost and environmentally friendly means of disposal.

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## ROB'S world

*The opinions expressed herein are my own personal opinions and do not reflect the opinions of OOWA's Board of Directors or of the Association.*

# Perspective: "If We Build It They Will Come" (Onboard)

By Robert A. Passmore, P.Eng.

It is amazing how events, be they tremendously important or benign in nature, can fundamentally alter one's perception of life. For instance, before I had my first child I thought that people with small children were somewhat unengaged in their work — even lazy if you will, when faced with working extra hours and not immersing themselves entirely in their work. However, when my first son was born my perspective on life changed somewhat as I realized there was a completely different aspect of life that I had been missing. Now with the birth of my second child my perspective on life has once again been fundamentally altered — sleepless nights, ear infections, daycare, and more ear infections. Somewhere in all of the chaos I had the clarity of the moment to realize that those people who I once thought were underachievers should be immortalized as saints. This moment came while watching a late night movie entitled *Field of*

*Dreams*. I am sure that you all remember that movie and the catch phrase, "If you build it, they will come," that spun out of it.

It was during this moment of clarity that I also had an epiphany regarding our onsite wastewater industry. Now I want to be quite clear that I did not receive direction from some higher power. Rather I simply realized that we, as an industry, need to forge ahead with our own set of standards and initiative, rather than simply trying to change the minds of the legislators and government officials. In essence, if we create our own set of operational guidelines for all aspects of our industry, and adopt these guidelines in all areas of our membership, we are effectively altering how our industry is perceived.

While our membership numbers continue to increase steadily each year, our numbers remain small, however our influence at the Provincial level is beginning to grow. It is my belief that for our industry to continue to grow in size and influence, we need to adopt a series of guidelines and protocols for how we expect the members of our industry to act.

Take the present initiatives of the Ontario Onsite Wastewater Association (OOWA) regarding education and training. OOWA has forged ahead, amidst some stiff criticism, to create an education and training initiative which will, most certainly, lead to the more effective training of the members of our industry. This initiative was started out of OOWA's recognition of a need for such a program while realizing that the Province was not interested in modifying their present training programs at this time. It is likely that, should our industry embrace this education and training initiative, the Ministry of Municipal Affairs and Housing (MMAH) will be forced to consider integrating such programs.

It is my belief that the onsite wastewater industry needs to create a similar protocol or set of operational guidelines regarding sewage system inspections. With the inevitable rollout of a mandatory Province-wide re-inspection program and considering the "loose" wording of the proposed Regulations, it is imperative for us to act on this immediately.

This column is not meant to deal with the technical issues regarding the actual mechanics and implementation of such a complex item such as an industry wide septic reinspection protocol. However, it is the responsibility of this column to present the broader issues and give some direction on how to address them.

Presently there is too much confusion regarding how to properly carry out what is commonly referred to either as a sewage system assessment or sewage system inspection. Moreover, there is equal confusion in the presentation and interpretation of the findings. By resolving these two key areas, we can build a functional protocol that can be fine tuned in the future.

First, it is important to differentiate between an inspection and an assessment. An inspection is typically considered to be of a cursory nature where someone checks grading, dimensions, elevations, etc. against the current regulations and, perhaps, against the original permit. An assessment is generally considered to involve the collection and analysis of information beyond that of a simple inspection. Typically, observations are noted on the thickness and quality of the covering material, septic stone, receiving soil, development of biomat and the integrity and operation of all sewage system components, regardless of their complexity.

Obviously an assessment is by nature more onerous and detailed than a simple inspection and requires a higher level of understanding and education in sewage systems. It is far too common for unqualified persons to make unqualified judgments on the operation of a sewage system. Moreover, it is far too common for these judgments to be flawed and in and in many cases completely wrong. By allowing this sort of activity to persist in our industry we welcome criticism from those, both from within and outside of industry, regarding our professionalism and integrity. When three different parties can "inspect" the same sewage system and come up with three completely different judgments, we have a fundamental problem.

At that point, it doesn't matter who is right, the damage has been irreparably done. If the inspection was being carried out for a real estate transaction, the purchaser, seller and real estate agents are now tainted by the absence of professionalism in the onsite wastewater industry. To them we are nothing but a "bunch of two-bit hacks" who are looking to make a quick buck.

As an industry we need to establish a comprehensive yet workable protocol for sewage system assessments. We need to address such things as who is qualified to carry out an assessment, what the steps are to carrying out the assessment and perhaps most importantly, how to interpret the findings. We should first strive to formulate such a protocol on the basis of how to address a time-of-sale real estate transaction before expanding the protocol to address septic reinspection. In fact, it is quite likely that septic reinspection will require a separate, stand-alone protocol.

We have a unique opportunity to fundamentally influence the creation of the regulations regarding septic reinspection. It is imperative, based on the present timing of that legislation, that we take immediate steps to formulate a comprehensive and workable protocol which could be ready for implementation as early as spring 2009. As such, it is important that all of you voice your ideas, concerns, etc. either in advance of or at the upcoming OOWA conference in March 2009, where a panel discussion will take place to discuss this in greater detail. Please feel free to email me at [robworld@rogers.com](mailto:robworld@rogers.com) with your comments etc. and I will ensure that they are incorporated into that discussion.

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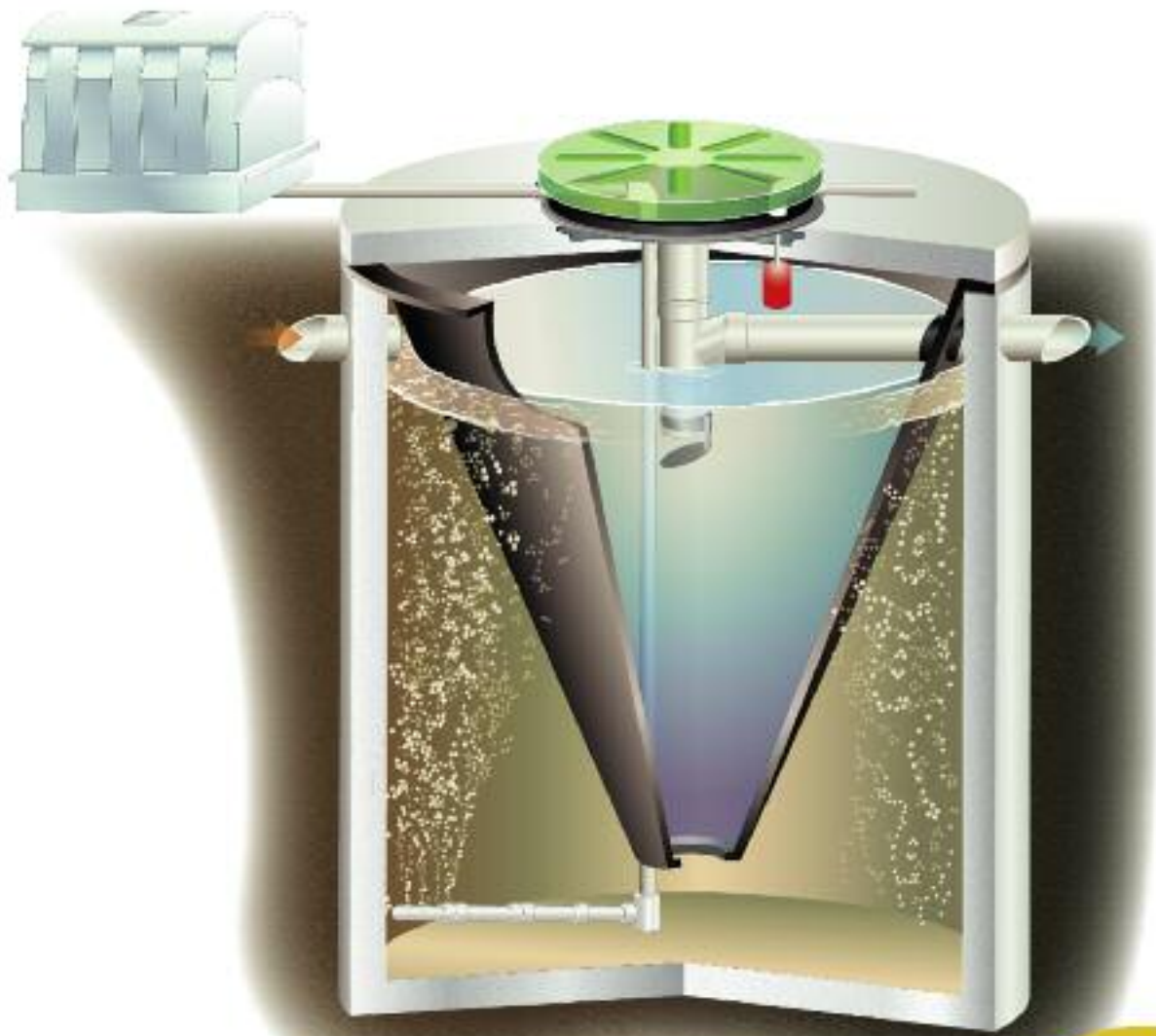
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