

Onsite

ONTARIO ONSITE WASTEWATER ASSOCIATION NEWSLETTER

Education | Engagement | Leadership

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COLLABORATION, COMMITMENT, AND CLEAN-UP: AN INSIDER'S LOOK INTO CLEARFORD'S FIRST NATIONS OPERATIONS

By Clearford Water Systems



Clearford expanded its water management service offering to First Nations in April 2022. Working closely with a Southwestern Ontario First Nation community (the Reserve or the Band) over the past two quarters has led to the successful operation of the water treatment plant and the delivery of potable water to members of the Reserve.

Managing and operating water facilities for First Nations has unique challenges that require spending time to learn about the community and to develop the specific plan and logistics to deploy an operations team. Clearford and the Band

shared a strong commitment to provide best in class water services. From cleaning up and labelling the inside of the plant to implementing operational forms and state of the art electronic logbooks, the Band supported Clearford throughout each developmental stage.

Water quality at First Nations communities is a frequent news topic across Canada. Located outside traditional municipal servicing boundaries means that the Band is responsible to deliver water and wastewater services. With over 290 plants under management in Ontario, Clearford is ideally suited to operate and manage the Reserve's community-owned water and wastewater infrastructure.

As mentioned in our initial blog post, Clearford Expands Services into First Nations Communities, a transition plan typically takes months; however, the urgency to transition operations was consolidated into a short two-week turnover period. As a result, Clearford executed a short-term plan while mapping out the long-term operations strategy.

Cont'd page 6

Land Acknowledgement

The Ontario Onsite Wastewater Association (OOWA) represents members from across the Province of Ontario and beyond. We respectfully acknowledge that Ontario's lands and waters are the traditional territories of many First Nations, including the Anishnaabeg, Cree, Haudenosaunee, Huron-Wendat, Mississauga, Odawa, and Petun.



The Trent River, part of the Otonabee River watershed, southeast of Peterborough Ontario. Photo credit: Jenn McCallum

Our office in Nogojiwanong, or Peterborough, Ontario, is on the traditional territory of the Treaty 20 Michi Saagiig and Chippewa Nations, collectively known as the Williams Treaties First Nations, which include Curve Lake, Hiawatha, Alderville, Scugog Island, Rama, Beausoleil, and Georgina Island First Nations.

OOWA acknowledges that the First Nations have been and continue to be the stewards and caretakers of these lands and waters in perpetuity, and that they continue to maintain this responsibility to ensure their health and integrity for generations to come.

As onsite wastewater professionals, we have a role in protecting our waterways and human health by following industry best practices and promoting the regular maintenance of onsite wastewater systems.



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President's Message

It was great to see OOWA members networking and learning at our fall Regional Meetings. Five successful events were held across the province with a variety of attendees and speakers. Our in-person events will continue at the annual convention March 26-28, 2023 at Deerhurst Resort in Huntsville. The keynote speakers are secured and the organizing committee is bringing together the rest of the program. Watch your inbox for more details.

OOWA has been out promoting the association, and you, our members. We exhibited at both the Ontario Building Officials Association (OBOA) annual conference and the fall Cottage Life Show.

Regulator education and engagement is vital for a successful industry so we went to them at OBOA to raise awareness on our guidance documents and all things Part 8. Our newest guidance document, an FAQ from Inspectors on Key Inspection Points, is being finalized and some sections have already been released through our monthly OnTrack E-bulletin.

The Cottage Life show provided an opportunity to connect and educate the public about onsite sewage systems but also to highlight the importance of choosing OOWA member experts for their onsite sewage services.

At both events we showed our newest video, Septic Do's and Don'ts. This is a great tool for you to share with your customers. Check out our YouTube channel for this and other OOWA videos.

The Ministry of Municipal Affairs and Housing (MMAH) is currently reviewing changes to the 2012 Ontario Building Code. OOWA submitted recommendations to improve and clarify Part 8. You are encouraged to submit your own changes as well. OOWA is expecting to be involved in the consultation and review process and are communicating with MMAH as this process is determined.

The MMAH is also undergoing a review of the BCIN qualification program for building practitioners. OOWA was involved in a preliminary interview to discuss the current qualification program. We will continue to be involved in this review as it progresses.

OOWA is a proponent of ongoing education, it is important that we are continually learning and improving. Our voluntary Registered Professional Program provides an avenue for this with suggested courses for different industry practitioner types. Our monthly OnTrack E-bulletin includes available courses from our partners across the province. Contact us for additional program information.

Have a great finish to the 2022 season!

Sincerely,

Brady Straw, President



System Site Plans: Soil Evaluation, Loading Determination and Treatment Train Components

By Sara Heger, Ph.D.

Identifying critical information during the review and bidding process can help avoid problems and make for a smooth installation.

Soil and site evaluation report

Design plans might come with a soil and site evaluation report attached to the plans. The installer should have at least minimum knowledge of soil colors and texture to differentiate between topsoil, subsoil and parent materials. Additionally, the installer should be able to differentiate between fine-textured soils (clays and silts), medium-textured soils (sandy loams, silt loams), and coarse-textured soils (loamy sand, sand).

Soil morphology reports help the installer verify during installation that the bottom of the soil treatment area is in the soil horizon specified in the design. The soil in the soil treatment area, particularly at the infiltrative surface, is significant to the treatment and acceptance capabilities of the system. If the actual soil in the field varies from what is shown in the soil evaluation, it is likely the system will not function as intended. With experience and continuing education, installers can gain knowledge on where the seasonal high-water table resides in a soil profile.

Another important aspect of the soil and site report to consider is the hydrology of the site. It is important for the installer to understand how the groundwater moves within the site and if the design has elements that are going to modify or impede groundwater movement. For example, a site may have mainly clay soil and a shallow groundwater table. If a driveway is located down-gradient from the groundwater movement, traffic from the cars is going to compact the soil and slow down or impede groundwater flow. In this case, groundwater will rise up-gradient from the driveway and the soil treatment area may be compromised, potentially even to the point that effluent could come to the soil surface. In-ground pools or retaining walls are other examples of common structures that may impede groundwater flow.

Hydraulic and organic loading

The design hydraulic load to the onsite wastewater treatment system is an important parameter that can be found on the design plan. The hydraulic loading rate is the amount of wastewater per day that the system is designed to accept, typically expressed in gallons per day. It can be a prescribed number of gallons per bedroom per residence, flow per capita, a value based on average flow for a similar facility or a number derived specifically for the facility. The installer should be familiar with these numbers.

The peak flow may also be specified in the design plans. The peak flow is the highest occurring flow for a given period of time. The peak flow is typically site specific. For example, a church might have a design flow of 100 gallons per day but a peak flow of 400 gallons per day on Sundays. If a peak flow is given on the plan it should be documented as well.

Not only do all onsite wastewater treatment systems have a hydraulic loading capacity, but they also have limitations as far as organic loading. Ideally the design will indicate the organic loading rate that the system will be able to handle, particularly if the system is serving a facility other than a residence. Residential systems are typically assumed to have a biochemical oxygen demand (BOD) and total suspended solids (TSS) coming out of a septic tank of 170 mg/L and 60 mg/L, respectively. If concentrations of either constituent are considered beyond typical residential strength wastewater, special considerations in the design need to be in place for higher strength wastewater. (For more on understanding high-strength wastewater, you can watch this webinar here - www.onsiteinstaller.com/video/webinar/understanding-high-strength-wastewater.) The important thing to keep in mind is that a system that is not designed to handle the organic load will eventually malfunction when consistently loaded with high-strength waste.

Treatment train components

The design plan should include all details of the onsite wastewater treatment system. If the design is for innovative and alternative technologies, even greater attention must be given to the treatment train. If the installer understands the basics of each technology, they

can determine if the system is set up appropriately and whether the components complement each other to meet the treatment goal. If the plan is older or the designer specifies obsolete technologies, the installer should check if the technologies called for in the design plan are available.

There are many things to consider when evaluating the treatment train on the design. Component specification should include details such as dimensions, capacity and location. In addition, it is essential that all components in the treatment train be maintainable. A component should never be designed or installed in a manner that it cannot be maintained.

One of the most important aspects of treatment train evaluation to the installer is whether the system is constructible as designed. There are many reasons a system's constructability might be limited. For example, the components specified may not be locally available. This could be the case for sand used for single pass, recirculating, mound or bottomless sand filters. Such sand is an engineered media that may not be available in the area where the system is to be built and importing the material may not be economical. Constructability might also be limited by topography or existing structures that restrict access by the necessary equipment. On steep slopes, fill may be required, or structural walls may need to be built to contain the soil treatment area.

A design is full of useful information when evaluating and bidding a job. Identifying some of these critical items during the review and bidding process can help avoid problems and make for a smooth installation.

About the author

Sara Heger, Ph.D., is a researcher and educator in the Onsite Sewage Treatment Program in the Water Resources Center at the University of Minnesota, where she also earned her degrees in agricultural and biosystems engineering and water resource science. She presents at many local and national training events regarding the design, installation and management of septic systems and related research. Heger is the President of the National Onsite Wastewater Recycling Association and she serves on the NSF International Committee on Wastewater Treatment Systems. Ask Heger questions about septic system design, installation, maintenance and operation by sending an email to kim.peterson@colepublishing.com.

This article is part of a series on site planning:

- An Overview of Onsite System Site Plans for Installers
- System Site Plans: Soil Evaluation, Loading Determination and Treatment Train Components
- System Site Plans: Site Review of Topography and Existing Conditions
- System Site Plans: Review of Soils and Site Layout
- System Site Plans: Site Layout Details and Owner Interview

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Funding sources for property owners to repair or replace onsite sewage systems

By Jenn McCallum, OOWA's Programs and Outreach Coordinator

Did you know that there are funding opportunities for property owners looking to install, repair, or replace onsite sewage systems? There are often specific site requirements to be eligible for these funding sources, but please feel free to share this information with your clients.

For individuals in areas where the groundwater or surface water may be susceptible to pollution, there is sometimes funding available through Ontario's conservation authorities. For example, according to Peter Shuttleworth of the Lake Simcoe Region Conservation Authority: "The funding we offer for septic upgrades is available to any Lake Simcoe watershed resident whose property is within a municipal source water protection area. The guidelines for our program can be found here: www.lsrca.on.ca/Pages/Upgrading-Septic-Systems.aspx. We also offer a link to an interactive map that landowners can use to determine their eligibility (maps.lsrca.on.ca/EH5Viewer/index.html?viewer=SWPPolicy). Please note however, because properties must be in a high-risk area around a municipal water supply well or surface water intake, the number of eligible properties is limited."

Other conservation authorities who may have funding available include Rideau Valley, St. Clair Region, and South Nation. A map of Ontario's conservation authorities

can be found here: conservationontario.ca/conservation-authorities/find-a-conservation-authority, and individuals can reach out to their conservation authorities to find out if funding opportunities for onsite sewage systems may be available.

For Canadian municipalities only, grants of up to \$500,000 to cover up to 50% of costs are available through the Federation of Canadian Municipalities (FCM). These grants are for septic systems that will treat wastewater to at least a secondary level in certain target regions. Applications are accepted year-round, but applications will no longer be accepted once all funding has been allocated. Note that business-as-usual projects, such as replacing septic tanks with the same system, are not eligible; rather, the system must be a new technology that hasn't yet (fully) made its proof in the industry. Additionally, FCM does not fund individual/private residence septic wastewater systems; but could fund a system to process the effluent from multiple septic systems (for private residences or properties in which the municipality has an interest). More information is available at: greenmunicipalfund.ca/funding/pilot-project-septic-wastewater-systems.

Collaboration, Commitment, And Clean-Up: An Insider's Look Into Clearford's First Nations Operations

Story continued from cover...

Initial discussions with the First Nation's IT Manager, Public Works Manager, and previous operators allowed Clearford to hit the ground running. With this clear understanding of the Band's needs, Clearford developed a Standard Operating Procedure (SOP) as part of the long-term plan to maximize operational efficiencies and minimize costs.

The long-term plan also outlines logistical components for management of client relations, federal government regulations, classified system operational requirements, and team assembly and travel.

Client relations

After a series of virtual and in-person meetings with the Band, Clearford used its past experience to provide short and long-term plans for the efficient management and operation of the water and wastewater infrastructure on the Reserve. Beyond that, Clearford found itself working closely with the Reserve to further fine tune the plants for additional operational efficiencies. "The Reserve's IT Manager developed code that was implemented into the SCADA (Supervisory Control and Data Acquisition) system, giving Clearford the ability to operate chlorine control and alum dosing remotely," said Clearford's Hub Supervisor. "This was a huge advancement for both the plant operations and time management, especially when on-call," he concluded.

Federal government regulations

Water treatment systems servicing First Nation communities are regulated through the Federal Government rather than the Ministry of Environment, Conservation and Parks of Ontario. Clearford's compliance team engaged with representatives from both the Federal and Ontario ministries involved to ensure that all regulatory requirements are continuously met in the operating plants.

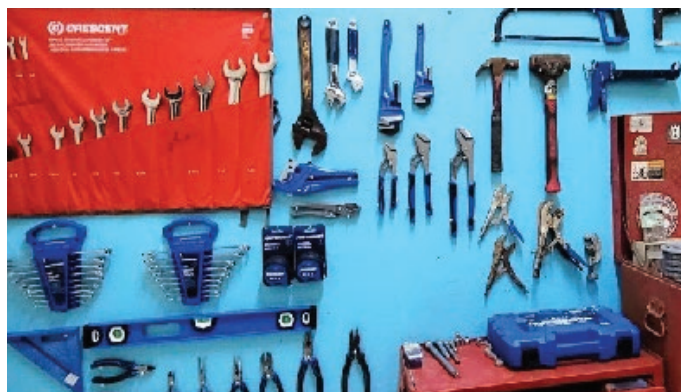
Operational requirements for classified systems

Existing Clearford staff hold the appropriate licenses and expertise required to operate any classified system, which enabled Clearford to rapidly assign an operations team at the Southwestern Ontario community. Taking over the operations of a system in the municipal water sector can involve many responsibilities including:

- Re-calibrating equipment;
- Testing chemical dosing;
- Adjusting chemicals;
- Evaluating equipment and repairs;
- Implementing operational forms and logbooks;

- Labelling equipment;
- Testing filters; and,
- Identifying historical and future trends.

It takes an experienced operator to execute this checklist and standardize operational procedures.



Assembling a qualified operations team

The operations team is supported by Clearford's experienced compliance and engineering teams. All teams are supported by an experienced Health and Safety department to ensure services are delivered in the safest way. The Reserve's decision to outsource its water operations means they can rely on Clearford to manage, operate, and take all compliance responsibility for their water and wastewater infrastructure and allow the Band to focus on other community initiatives.

About Clearford

Clearford is one of the largest operators of private water and wastewater systems in Ontario with approximately 290 systems across the province. Our diverse team of licensed engineers, certified operators and technical staff provide total solutions that meet the water management needs of owners, property managers, and communities.

In-house personnel include designers and technical specialists in water and wastewater, engineering, compliance & regulations, construction services, and health & safety. Water and wastewater operators are licensed by the Ministry of the Environment, Conservation and Parks.

Clearford continues to expand its capacity to deliver these services in Ontario and remote mines in Northern Canada.

Editor's Note: This post was originally published in April 2022 and has been modified to provide the latest information on this topic.

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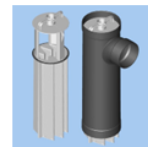
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A detective's analytical toolkit to find areas with high occurrence of malfunctioning septic systems

By Dr. Clare Robinson, Civil and Environmental Engineering, Western University

Most septic systems are regularly maintained and function properly resulting in limited discharge of wastewater pollutants into the environment. However, it is estimated that a minority of up to one-fifth of septic systems in Canada may be malfunctioning and releasing untreated or partially treated wastewater into the environment. Although this is a small percentage, the release of wastewater contaminants such as nutrients, fecal bacteria and pharmaceuticals is a concern for surface and groundwater quality, with implications for aquatic ecosystems as well as for human health. Various initiatives are underway in areas across Ontario to mitigate against malfunctioning septic systems including septic re-inspection programs and landowner incentives to support septic system repair or replacement. To inform these programs and ensure septic systems function as designed there is a need to develop field tools that can be used to identify areas where there may be a high occurrence of malfunctioning septic systems.



Water sampling in a stream downstream of a community that uses septic systems.

At Western University we are working together with researchers at Environment and Climate Change Canada to explore the feasibility of using different human wastewater tracers to detect and quantify the amount of septic system wastewater effluent that is in streams that run through communities that are serviced by septic systems. One of the

tracers we are measuring across streams in Ontario to detect septic system wastewater effluent is artificial sweeteners (acesulfame, saccharin, cyclamate, and sucralose). Artificial sweeteners are commonly added to foods, beverages, medicine and even toothpaste, and have been detected at high concentrations in septic system wastewater. They are useful chemical tracers for detecting human wastewater in the environment because they are widely used by households, are highly persistent in the environment and through wastewater treatment, and are often present in streams and groundwater at detectable concentrations. We are using these chemical tracers together with microbial DNA source tracking markers (HF183; which is specific to the human microbiome) to also identify the potential pathways via which the septic system wastewater effluent is delivered to streams. This can provide information on the way in which septic systems in an area may be malfunctioning. For example, whether there is a direct release of wastewater effluent to the stream via an illegal "hot pipe", whether septic wastewater effluent is breaking out to the ground surface in a drainage field and then flowing overland to a stream, or whether the septic wastewater effluent is moving slowly with groundwater through an aquifer and discharging to a stream. We are working to determine the best way to use this analytical toolkit, including how best to interpret field data, such that it can be applied more broadly by others to detect areas with high occurrence of malfunctioning septic systems that may be causing environmental contamination. This will be useful for informing and prioritizing septic system reinspection programs, and repair and replacement initiatives.



Potential illegal "hot pipe" in an old residential area that is suspected of releasing wastewater from a malfunctioning septic system to a nearby stream.

OOWA Membership Benefits



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The OOWA Insurance Plan is administered by SeptiGuard, a company within the Verge Group. Coverage includes: General Liability, Pollution/ Environmental, Impairment/ Underground tank policies, Contractors Equipment, Barging and Waterborne Risks, Professional Liability for inspectors, designers etc., Vehicle/ Fleet coverage and Discount Home and Auto rates. Contact Scott Mullen: 905-688-9170 ext. 132 or email at: mcmullen@vergeinsurance.com



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OOWA members get guaranteed and discounted rates on car and trunk rentals. Reference the business Account Number **provided by OOWA** when booking a rental vehicle.



OOWA's **Registered Professional Program (RPP)** includes an 'In-Development Stream' that addresses the needs of ongoing training and continuing education demands from our members. Professional Designations include: Wastewater Service Technician, Designer, Installer, Private or Regulatory Inspector, Residuals Hauler, Project & Administrative Professional and Technical Sales Consultant.



Onsite Installer Magazine is the foremost publication of the onsite wastewater industry. As a member of OOWA you can now get a hard copy delivered to your door at no charge. Keep up to date on the latest technologies, industry trends with interesting system profiles and installer profiles.



OOWA collaborates with other associations in communicating to government with one united voice on issues that are of mutual concern to our industries. OOWA is proud to inform our members that you can access membership rates for events and resources provided by our association partners:



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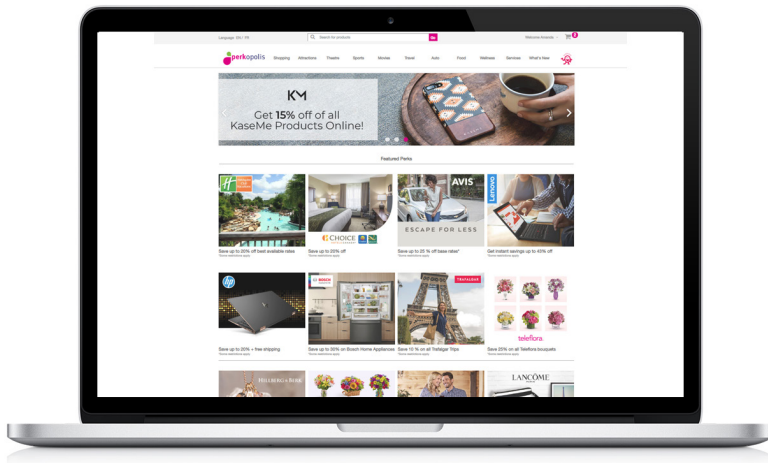
1 Go to perkopolis.com and click 'Register' in the top right corner. To access all perks you must register by using a valid email address.

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OOWA's promotional memberships



Since late 2021, OOWA has been offering 1-year promotional memberships, at no cost, to individuals who complete the Part 8 Exam Prep course throughout Ontario.

Since December 2021, we've registered over 130 promotional members, and we have been reaching out to them over the course of their 1-year membership to learn if and how they are using the membership benefits, and integrating within the onsite sewage industry. Some have decided to become full members, as they see the

benefits of OOWA membership for their businesses and for ongoing training and education. Some promotional members have been attending our in-person events this fall through our Regional Meeting Series, and we look forward to meeting more of them in person at the Annual Convention in March 2023.

**Would you like to be an ambassador or mentor for OOWA's promotional members?
If so, please contact us at 1-855-905-6692 ext 101 or outreach@oowa.org.**



Eastern Ontario regional meeting on October 19, 2022.
Photo credit: Kelly Andrews



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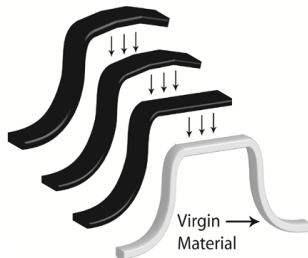
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MEMBER PROFILE

Gary Deppe

Product solutions specialist for Ontario & The Maritimes

Name of Organization: Mel C. Marshall Industrial Consultants Inc. (MCM Sales), representing Polylok Inc.

Owners: Not applicable

Services/Mandate: A supplier member/manufacturer's rep, catering to and providing solutions for the septic, onsite wastewater, and landscaping industries, as well as to concrete producers (precast, pipe & manhole, block, etc.).

Over the last 23 years, besides being known as "The Polylok Guy" across Eastern Canada, I'm also a manufacturer's rep for several other global companies, most of which cater to producers within the concrete industry. We provide specialized equipment such as concrete mixers, complete batch plants, traveling bucket delivery systems, concrete pipe & manhole rebar cage welding machines, large scale retractable enclosures, etc.

Service Area: As a company, Canada-wide, and personally, handling Ontario & The Maritimes.

Number of Years in Role: Our parent company was established back in 1980, and I have been their Eastern Canada Territory Manager since 2000.

What got you started in the onsite wastewater industry?

After spending 13 years in Sales & Marketing in the telecommunications equipment industry (mainly with Bell Canada & Northern Telecom), I then joined MCM Sales, to provide servicing and product solutions, to folks across Ontario and everything to the east. As our company had already been involved in the onsite wastewater industry for some time, I entered the market with a clean slate.

Give us one reason/secret for your success.

During my entire sales career, which began when I was a teenager, I've always lived by the same motto. Treat people as you would want them to treat you. Kindness and respect go a long way, as does fully educating your customers on all of the pertinent features & benefits, of the potential solution which you are trying to provide.

What was the most challenging onsite job you worked on or participated in?

That's a tough question really. Over the years, there have been several projects involving large, complex treatment plant installations, and in locations spanning from coast to coast,



GARY DEPPE

Product solutions specialist for Ontario & The Maritimes

which sometimes required very imaginative, non-cookie cutter, multi-product offering solutions.

On a different note, one of my biggest challenges over the years, was introducing Polylok's new and very first plastic septic tank riser and lid assembly across Eastern Canada, to an industry already saturated with a competitor's "somewhat similar" offering.

If you could change one thing about the onsite/decentralized industry, what would it be?

If we could get sufficient government funding to conduct further testing & research in our particular field, we would be in a much better position, to then develop newer, and more cutting-edge technologies.

It would also be nice, if we could somehow provide a means, or successful formula, to attract and promote more new, young candidates, to become industry designers. Looking at our industry right now, there seems to be a shortage of both designers, as well as a pool of potential candidates, who would eventually replace them.

Where do you see the onsite industry going?

With our world population continuing to grow exponentially, but the size of our planet remaining exactly the same, concerns regarding effective wastewater treatment methods and their associated overall, potential environmental impact, will be pushed more and more to the forefront.



New Guidance for Source Protection for Non-Municipal Drinking Water Systems

By Trent Bos, Source Protection Technician, Trent Conservation Coalition Source Protection Region

Sewage systems are recognized as potential significant drinking water threats in areas with municipal drinking water systems under the Clean Water Act, 2006. This act resulted in Source Protection Plans across the province, created to protect sources of drinking water for municipal systems. For people living outside of a municipal drinking water area and relying on a private drinking water system, a septic system can also be a potential threat. The property owner is responsible for their septic system, both ensuring it's working properly and not a harm to the environment or their own health. The same applies to private drinking water systems such as wells. When not on a municipal system, the property owner needs to be their own drinking water expert/operator. Fortunately, there is a wealth of newer resources to help them, including new guidance from the Ministry of the Environment, Conservation and Parks (MECP) on Best Practices for Source Water Protection. For homeowners with a well and a septic system, the easiest thing they can do is to regularly test their well water for *E.coli* and coliforms. These tests are free and available at the local health unit.

The MECP guidance is generally broken into three main sections: assessing vulnerability, identifying areas of risk, and managing those risks. This guidance is further broken down into how to apply these to both groundwater systems (such as wells), or surface water systems (lake or river intakes). Additional tips are provided for working together in a community-based approach, which may be useful for those on private communal wells, or well-clusters.

Is a source of drinking water vulnerable?

To answer this question, one must look at the characteristics of their natural environment. For groundwater sources, this can include the geology of the property, the surrounding land and how quickly water (and potential contaminants) can travel through it. This relates to infiltration and soil permeability. After it rains, does the water pool up, or absorb quickly into the soil? Highly permeable surfaces such as sand and gravel, or loose, mixed soil types over bedrock or shallow, fractured bedrock tend to indicate a high level of vulnerability to the drinking water source.

For surface water sources, the water flow is the major factor to consider. Slower moving water with less water circulation or mixing is typically indicative of higher vulnerability.

The other major factors affecting vulnerability are transport pathways. These are human-made shortcuts that allow water and contaminants to get to a drinking water source faster, such as abandoned wells, tile drains, pits and quarries, or trenches for utilities and sewers. Septic systems can also act as transport pathways, which is why it is important to adhere to the Ontario Building Code's minimum separation distance from drilled wells of 15 metres and 30 metres to dug wells.



While Ontario's Drinking Water Protection Program is generally focused on municipal drinking water systems, a significant portion of Ontarians get their water from private wells or drawing directly from lake intakes, including most cottagers. The new guidance for other systems targets these populations specifically, drawing from lessons learned from the municipal source protection program.

The other component of vulnerability has to do with risk: how likely something is to happen, and how severe it would be if it happened. A risk-based approach can be useful for smaller communities where the necessary information and resources are available. A risk assessment for drinking water can include questions such as: How sensitive is the population? How often is the system used? How many wells are in the area, and how deep are they? How deep is the intake and how far is it from the shore? A full list of possible risk factors is included in the MECP guidance. Assigning importance of weight to each factor can help determine an overall risk rating.

Identifying Areas of Risk

There are several methods available to establish an area of risk around a drinking water source; these are typically referred to as "protection zones". The best way to establish a protection zone is using a scientific method. This can be done in two ways: a fixed radius, the simplest and less expensive method involves using a set distance from the well or intake to determine the boundary; or time of travel, basing the distance of the boundary on the time it would take for contaminants to get to the well or intake. The latter is generally how protection zones for municipal systems are established. The Director's Technical Rules under the Clean Water Act recommends a fixed radius of 100 metres to protect the most vulnerable area next to a well. The MECP guidance covers other more complex methods which can offer a greater level of accuracy and protection, but these typically require the technical expertise of hydrogeologists.

These approaches can also be applied to surface water systems. The recommendations consider the time it would take to respond to a spill near the drinking water intake.

The MECP guidance then goes further into identifying and managing potential risks to drinking water. These come in the form of chemicals, such as fuels, solvents, metals and pesticides; or biological pathogens, such as bacteria and viruses. These are released through activities which have been recognized as potential significant threats. Common threats to private well owners include septic systems, liquid fuel and fuel oil handling and storage, and agricultural operations.

For individuals who are concerned about their private drinking water sources, or the functioning of their septic systems and effects on their drinking water sources, they can review the new [MECP Best practices for source water protection online](http://www.ontario.ca/document/best-practices-source-water-protection) here: www.ontario.ca/document/best-practices-source-water-protection and consult experts as needed.



The Trent River, north of Frankford, Ontario, in October 2021. Residents in Hastings, Campbellford, Frankford, and Trenton all rely on the Trent River as a drinking water source, and residents outside of these municipalities also rely on the river and its watershed for recreational and drinking water purposes.

Photo credit: Jenn McCallum

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Employee recruitment, retention, and turnover

By Jenn McCallum, OOWA Programs and Outreach Coordinator



A screenshot from our interview in July 2022 about employee recruitment, retention, and turnover. At left, Blu Desrosiers (BD), and at right, Jenn McCallum (JM).

During the summer, I connected with OOWA member Blu Desrosiers (BD) to discuss his recommendations for retaining employees. As the headlines have suggested over the past two years, employee turnover has been high, and there has been a significant labour shortage. Below is our exchange about employee retention, why it matters, and suggestions for businesses on how to retain their personnel.

JM: Why is employee retention important?

BD: When there is staff turnover at an organization, there are many negative consequences, including loss of productivity, and loss of experience and efficiency. When a new person is hired to fill the position, they require training and amalgamation into the organization's existing culture. According to my research, these training costs amount to \$1,252 per new hire; but this is a low estimate. On the high end, it can cost \$10,000 to \$20,000 in training costs per new hire.

JM: How can businesses retain their staff?

BD: In this time of high inflation, one major consideration is competitive wages, so that staff can maintain or improve their standard of living. There have been major changes in terms of livable wages in the last several months. Ten years ago, basic labourers would make \$16-17/hour, and within the last four to five years, that has increased to \$18-20/hour. Currently, organizations would be wise to offer more than \$19/hour, and to recruit new talent, it is advisable to offer \$21-22/hour. Businesses should also check their basic living wage for their region; for example, in Niagara, that number is \$18.55 per hour.

Aside from wages, businesses should also consider benefit packages and pensions. It is also wise for businesses to rethink entry-level positions, and instead view them as growth positions. As staff grow within their positions and continue their training and education, they are compensated appropriately for being assets to the organization. Employees don't want to be just a number within an organization, they want to be valued for their skills and contributions. Businesses can value staff contributions by celebrating them, by bringing treats to the office, or occasional staff parties.

Additionally, transparency and accountability are important for businesses and their staff. Managers should encourage employees to provide input and suggestions, and should share with them information about their organization's successes and failures. If staff are right about something, let them know. If they choose to do something differently, you can let them know you don't agree, but let them try it a different way. When staff are wrong about something, reason it out with them, and reiterate that the learning is part of growth. Be confident in the decisions that staff make; if employees fear making mistakes, then this is harmful to the organizational culture. Avoid micromanaging, because you will never be able to keep staff with this approach.

Effective leaders are open and real, communicate clearly and concisely, and work well with people. Leaders and managers who take the time to work shoulder to shoulder with their most junior staff demonstrate an understanding of their employees' working conditions, and can lead by example.

Furthermore, demonstrating a high quality of work is important for staff to be proud of their work. For example, when I install onsite sewage systems, I put down sod on top of the system for the client, so that

the job is done when I leave. This is meaningful both to clients and to staff in my organization. Another example of this is by maintaining cleanliness and organization within the shop, by washing and maintaining trucks and equipment regularly, and putting tools back in their place. Finally, health and safety should always be a priority within the organization, and following best practices to keep staff safe and prevent accidents will go a long way towards retaining staff.

JM: What tips can you share for hiring new staff?

BD: Job ads are a marketing strategy, and they should be seen as marketing to a client, rather than recruiting new staff. The job ads must stand out, and should include a logo, tagline, and mission or value statement. In the wastewater industry, the jobs are not glamorous, so posting positions with the potential for growth, such as the opportunity to take college courses while working, can be appealing to new staff. The job ad and interview process are opportunities for the organization to explain why their workplace is more desirable than a competitor's.

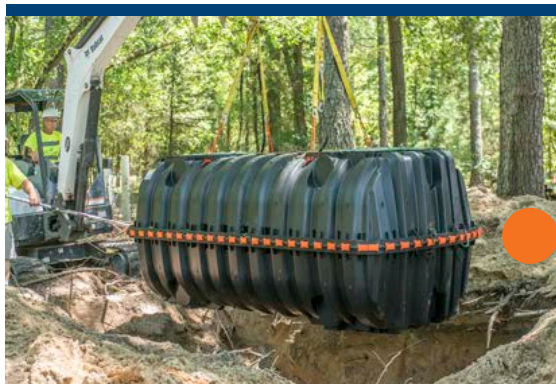
Similarly, the business' website should be presentable, because this is the first place that job candidates will

go after the job posting. After the website, candidates may check out the organization's social media, so it is important to keep social media updated, whether weekly or monthly. This is also an opportunity for candidates to observe what the organization's relationships are like with other businesses and clients.

JM: What about turnover?

BD: Organizations need to be okay with letting people go. Businesses do have a finite number of staff that they can employ, and some positions are only short term, such as summer or contract employment. There are also instances where a business needs to dismiss a staff member, such as instances of chronic absenteeism or lack of punctuality. Alternatively, there are instances where an employee wants to take a new path, and the organization should not hold them back; rather, they should support them in their new endeavours.

JM: Thank you, Blu, for sharing these suggestions! To the readers, I hope you will find these suggestions useful in your own business management.



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MEMBER PROFILE

Hendrik van de Glind

Civil Engineering Technologist

Name of Organization: Paterson Group Inc.

Owners: Paterson Group is governed by a board of directors which are appointed by the shareholders of the company.

Services/Mandate: Geotechnical, Environmental, Materials Testing, Noise/Vibration Studies, Building Science and Hydrogeology (Sewage System Inspections, Sewage System Designs, Lot Grading and Servicing Plans)

Service Area: Ottawa Valley and Eastern Ontario

Number of Years in Role: 6 Years with Paterson Group, and about 3.5 years in my current role

What got you started in the onsite wastewater industry?

After I graduated college in the winter of 2015, there were few jobs available in the civil technologist field. Paterson Group took a chance with me, and I enjoyed the industry immediately!

Give us one reason/secret for your success.

My predecessor, Albert Van Schie, was with our company for over 37 years and was an expert in the industry. When he left, it left a large role open in the company that allowed me to step up. As a part of this, I have found that being patient, asking questions and just speaking with other professionals to be the biggest factor in my growth with the company. There is a large knowledge base in the industry and taking time for consulting and collaborating with other professionals allows one to continually develop.

What was the most challenging onsite job you worked on or participated in?

There have been a lot of challenging sites, one that will always stick out in my mind was from my first summer in the industry. It was the inspection of a system servicing a strip mall, which was done in the pouring rain and was a large peat system having 8 cells and years of overgrowth. It wasn't as much of a challenge to understand the system as it was a challenge to have the patience to complete the investigation. It was also a great lesson to always have your waterproof gear and to have more than one spare set of dry clothes.

If you could change one thing about the onsite/decentralized industry, what would it be?

I believe that an increase in educational opportunities would



HENDRIK VAN DE GLIND
Civil Engineering Technologist

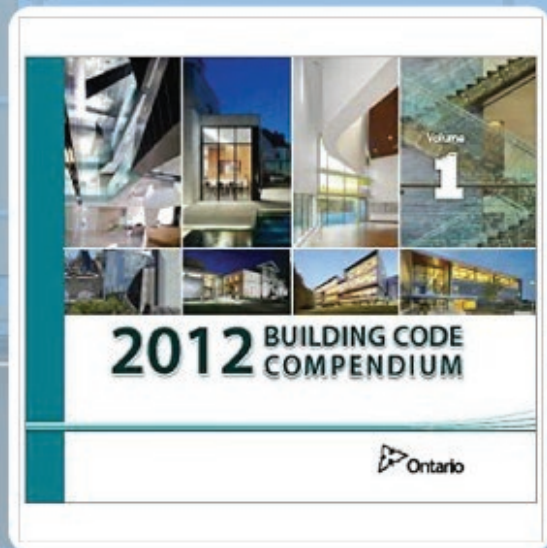
be beneficial. The work OOWA and other organizations have been doing with regards to industry meetings and conferences is a great way for installers, designers, and regulators to learn together and to help educate the owners of their systems. There is so much information out there that it may be hard to navigate through, but with the right guidance we can all benefit.

Where do you see the onsite industry going?

With many of the experts in the industry nearing retirement, I see a lot of the younger generation moving into more integral roles across the industry. This will shape the way organizations operate and how information can be spread within the industry. It will be great to see how these new innovations will be shared amongst the industry and how we will all be able to assist each other in our challenges.



Photo credit: OOWA



Phase 3: Fall 2022 Consultation, The Next Edition of Ontario's Building Code

The Ministry of Municipal Affairs and Housing has launched the third and final phase of public consultations on proposed changes for the next edition of Ontario's Building Code. This phase focuses on remaining Ontario specific provisions that were not included in the first phase of consultation and new changes related to harmonization identified in the first two phases of consultation.

The Phase 3 -Fall 2022 Consultation consists of engagement sessions in November/December 2022, and three simultaneous online registry postings (each open for 45 days) on the:

1. Regulatory Registry of Ontario on Building Code Changes to Support More Homes Built Faster: Ontario's Housing Supply Action Plan 2022-23 [[Housing Supply Action Plan Changes](#) | [RR Notice](#)]
2. Regulatory Registry of Ontario on General Proposed changes for the Next Edition of Ontario's Building Code [[General Changes](#) | [RR Notice](#)]
3. Environmental Registry of Ontario on Proposed Changes to Sewage Systems and Energy Efficiency [[Sewage Systems and Energy Changes](#) | [ERO Notice](#)]

The postings are open until December 9, 2022.

Further opportunities for discussion during and after the posting are available. If you are interested in participating in these discussions or would like more information on the consultation, contact: buildingcode.consultation@ontario.ca





A homeowner's perspective: why the CSA B66-21 safety screens matter

By Sarah Chabot, North Dumfries, Ontario

I want to share my story so that I may bring awareness to the dangers of septic tanks. My husband and I have 4 children and live in North Dumfries. We are self-employed so I work from home. My mother takes care of our small children in my home while I work in the office.

One day in August, my children were outside playing, and I was in my office. My 3-year-old son was driving around the property on his power wheels machine. I had the window to my office open and I heard my mother yell my son's



name and call for me. She was hysterical and was asking why the lid to the septic tank was off. Immediately I ran out to see that the lid to the septic tank was off and was very confused as to what happened. At the time, I knew my son was in the house as he had just come in to go to the washroom. My mother didn't know this as she was still making her way to the front of the house with my one-year-old. My 3-year-old came outside and told us he ran over the septic tank with his power wheels and the lid came off and he told us he was looking down in there.

I have to say, I was SHOCKED that there was nothing in there preventing my son from falling in!! I shudder to think what could have happened. I covered the lid immediately and began googling septic tank safety, and quickly found that the manufacturer produces safety screens that are cheap and easily installed. I contacted the septic tank manufacturer locally and was able to purchase safety screens for \$40 each. I was also shocked to find out from them that they supply the safety screens with every septic tank they sell, meaning my installer CHOSE not to install them. Had we been asked if we wanted it installed, we most definitely would have said yes!! We would have paid above and beyond to ensure that the septic tank had additional safety.

This incident has caused me many sleepless nights imagining that this could have turned out very differently. I'm sharing my story because I want people to know that the lid can come off and that ensuring a safety screen

is installed could prevent a tragedy. We are thankful our story has a positive outcome. I really hope that it doesn't take a tragedy to make it to the Ontario Building Code to have safety screens installed with every septic tank.

Editor's note: We are not sure of when this onsite sewage system was installed, as the CSA B66-21 manufacturing requirement did not come into effect until October 2021. Prior to this regulation, the CSA was not requiring the safety screens for manufacturers of onsite wastewater systems.

This fall, the Ontario Onsite Wastewater Association's (OOWA) Onsite Technical Committee has been in contact with the Ontario Ministry of Municipal Affairs and Housing, and is advocating that the Ontario Building Code reflect the current version of the CSA B66-21 regulation, in the interest of preventing future tragedies from occurring.



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Recap of the 2022 Regional Meeting Series

By Jenn McCallum, OOWA Programs and Outreach Coordinator

This fall, with the lifting of COVID-19 pandemic restrictions, we were able to hold a fall Regional Meeting Series in five locations across the province.

In total, 188 people attended these events, with the opportunity to network with industry professionals, enjoy burgers and beer (with alternatives), and discuss regionally relevant topics. Each event was held from 4:00 until 7:00 pm, with the venues and speakers varied between the regions. We requested that those interested in attending to pre-register for the events, so that we could provide enough food

and beverages for everyone. We are grateful for the support of ten industry sponsors who helped make these events possible.

Don Krauss of Infiltrator Water Technologies, who presented updates about the CSA B66:21 manufacturing regulation for safety screens at two of the events, shared the following feedback: "I am glad that OOWA has been able to return to face-to-face meetings and events, and I'm looking forward to more events in the future and the 2023 Annual Convention."



September 15: Peterborough and the Kawarthas

Our first event in the series was during balmy summer weather, with bright sunshine and warm temperatures at the outdoor patio space of the Peterborough Lions Club. Terry Rees of the Federation of Ontario Cottagers' Associations (FOCA) presented about FOCA's role in promoting environmental best practices within its audience of cottagers' associations across the province. Dr. Mike Dolbey of the Kawartha Lake Stewards Association (KLSA) shared some insights about phosphorus loading in groundwater sources, and he has included an article within this edition of the Onsite newsletter with more information.



September 27: Near North and Muskoka

This event took place at the beautiful Port Carling Community Centre, in partnership with Sandy Bos, Bylaw Officer and Building Inspector with the Township of Muskoka Lakes. Sandy presented briefly about locally relevant updates at the township level, and welcomed Rob Kennedy of the Law Department at the Township of Muskoka Lakes to update about penalties surrounding building infractions. Rebecca Willison of the District of Muskoka spoke about the recreational water quality of the Muskoka Lakes and Official Plan policies to protect the water quality. We are grateful to the Lions Club for lending us their barbecue, and to Sandy Bos for spreading the word about the event!



Photo credit Pat Burke, Waterloo Biofilter Systems

October 5: Southern Ontario

Waterloo Biofilter Systems hosted the event at their new office and manufacturing location in Guelph, and CEO and President, Dan Madon, managed the barbecue. Jasper Belding of Waterloo Biofilter Systems explained the importance of maintaining advanced wastewater treatment systems. Don Krauss of Infiltrator presented about the importance of the CSA B66:21 safety screens for protecting young children, pets, and wild animals from falling into septic tanks in the case of lids becoming dislodged.



October 13: Central Ontario

Dave and Danika Dobinson of Dave Dobinson Excavating Inc. hosted the event, and Jasper Belding and Don Krauss presented on the same topics as on October 5. We are grateful to Dave and Danika for hosting, and have heard from many individuals in the central Ontario region how reliable and knowledgeable Dave is within the industry.



October 19: Eastern Ontario

This event took place at the Patrick J. McManus Interpretive Centre at Baxter Conservation Area in Kars-Osgoode along the shores of the Rideau River, in partnership with Rideau Valley Conservation Authority (RVCA). Claire Milloy, P. Geo., from RVCA discussed lesser-known strategies for protecting groundwater, while considering differences between the Ontario Building Code requirements and MECP (Ministry of Environment, Conservation, and Parks) best practices. Eric Kohlsmith explained the regional changes to regulatory jurisdiction in the eastern Ontario region, and Terry Davidson of the Ottawa Septic Office reiterated the importance of industry best practices and system maintenance to protect human health and the environment.

If you have any suggestions for the regional meeting series or other events in the future, please contact me at 1-855-905-6692 ext 101 or outreach@oowa.org.

Above photo credits: Kelly Andrews, OOWA

We are grateful to the following sponsors for supporting these events:

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Phosphorus Sequestration in Waterfront Property Septic Systems

By Mike Dolbey, Ph.D, P.Eng (retired), Kawartha Lake Stewards Association

On September 15, 2022, I had the opportunity to address OOWA members at their Peterborough Regional Meeting. Representing the Kawartha Lake Stewards Association, I discussed the results of our lake water monitoring programs and explained our concern about phosphorus in our lake environments. High levels of phosphorus in lake water may result in increased growth of aquatic plants and algae, a process known as eutrophication. Onsite wastewater systems of waterfront property owners are known to be a potential source of phosphorus due to the development of phosphorus plumes in calcareous soils as described by University of Waterloo's Professor Will Robertson in his 1998 review paper on the subject. Based on this work, I stated that I believed all new or renewed onsite wastewater systems on properties within 100 to 200 metres of a waterbody should be tertiary or BNQ Level 4-P2 systems that were capable of removing or immobilizing phosphorus. Additional information has come to my attention that has changed my opinion on this subject as explained below.

The Ontario Ministry of the Environment and Climate Change recently funded Professor Robertson et al. to write a review of their 30 years of work on phosphorus

attenuation in groundwater plumes. Their paper, published in 2019¹, concluded that conventional onsite wastewater treatment systems constructed with the correct materials can immobilize up to 99% of effluent phosphorus as stable mineral precipitates in the drainfield zone 1–2 m below the infiltration pipes, which is primarily within the unsaturated zone. The phosphorus mineralization only occurs under acidic conditions usually generated by the oxidation of effluent ammonia (NH₄). Filter sand in the drainfield must have less than 2% calcium (weight%, acid extractable) in order to maintain the acidic conditions required for phosphorus mineralization. The study showed that phosphorus mineralization continued to occur equally in systems of all ages and that water table depth between 1 and 5 m had little effect. Most systems studied had loading rates of <2 cubic meters/day, typical of most residential properties, but further studies will be required to determine the removal effectiveness at higher loading rates. A number of the systems examined in the study were located on low permeability calcareous soils, but they still demonstrated high phosphorus removal rates because their drainfields had been constructed with sufficient imported non-calcareous sand.

¹ Robertson, William D., Dale R. Van Stempvoort, Sherry L. Schiff, Review of phosphorus attenuation in groundwater plumes from 24 septic systems, *Science of the Total Environment* 692 (2019) 640–652.



The development of effluent phosphorus plumes outside the drainfield is dependent on the pH of the surrounding soil. In acidic soils (pH below 7), any residual phosphorus in the effluent water leaving the drainfield is primarily mineralized and minimal plumes develop. In neutral to calcareous soils (pH 7 and above), residual phosphorus is adsorbed by the soil. As the soil becomes saturated, phosphorus must travel further before being adsorbed resulting in a plume in the direction of groundwater flow, which in waterfront properties this is usually towards the water. The rate of plume growth depends on several factors such as soil adsorption potential, effluent loading rate and groundwater velocity. However, the more phosphorus that is precipitated in the drainfield, the lower the phosphorus concentrations in the groundwater plume with measured values being typically less than 1 mg/L in systems with high drainfield phosphorus retention. This value is comparable to the current Ontario standard for most municipal sewage treatment plant effluent discharges, (OMECC, 2018).

Based on the above I now believe that all new or renewed onsite wastewater treatment systems within 300 m of a waterbody should be constructed with approved filter sand that has a calcium content less than 2% (weight%, acid extractable). If such systems are constructed on calcareous soils, phosphorus plumes may still develop over time, but they will develop more slowly, and their phosphorus content should be low enough to avoid serious environmental damage. Most pits in southern Ontario produce filter sand with high Paleozoic Limestone content, typically between 25 and 60%. Many pits in near northern Ontario

(Bancroft, Haliburton, Muskoka) produce filter sand with low Paleozoic Limestone content, typically 0 and 2%². Importing filter sand from these pits to locations in southern Ontario would increase the cost of their waterfront septic systems.

It is generally accepted that failed septic systems may pose a public health risk, but they also may release high phosphorus content to the environment. Septic system reinspection has been introduced by many municipalities to address this concern. If all municipalities around our lakes required septic system reinspection and required the use of low calcium filter sand for all new and renewed systems within 300 m of waterbodies, our lakes would be protected from this potential source of environmental damage within 30 to 40 years at only a modest increase in cost to waterfront property owners. It is a small price for them to pay to protect their substantial real estate investments and the publicly owned lakes on which much economic activity depends.

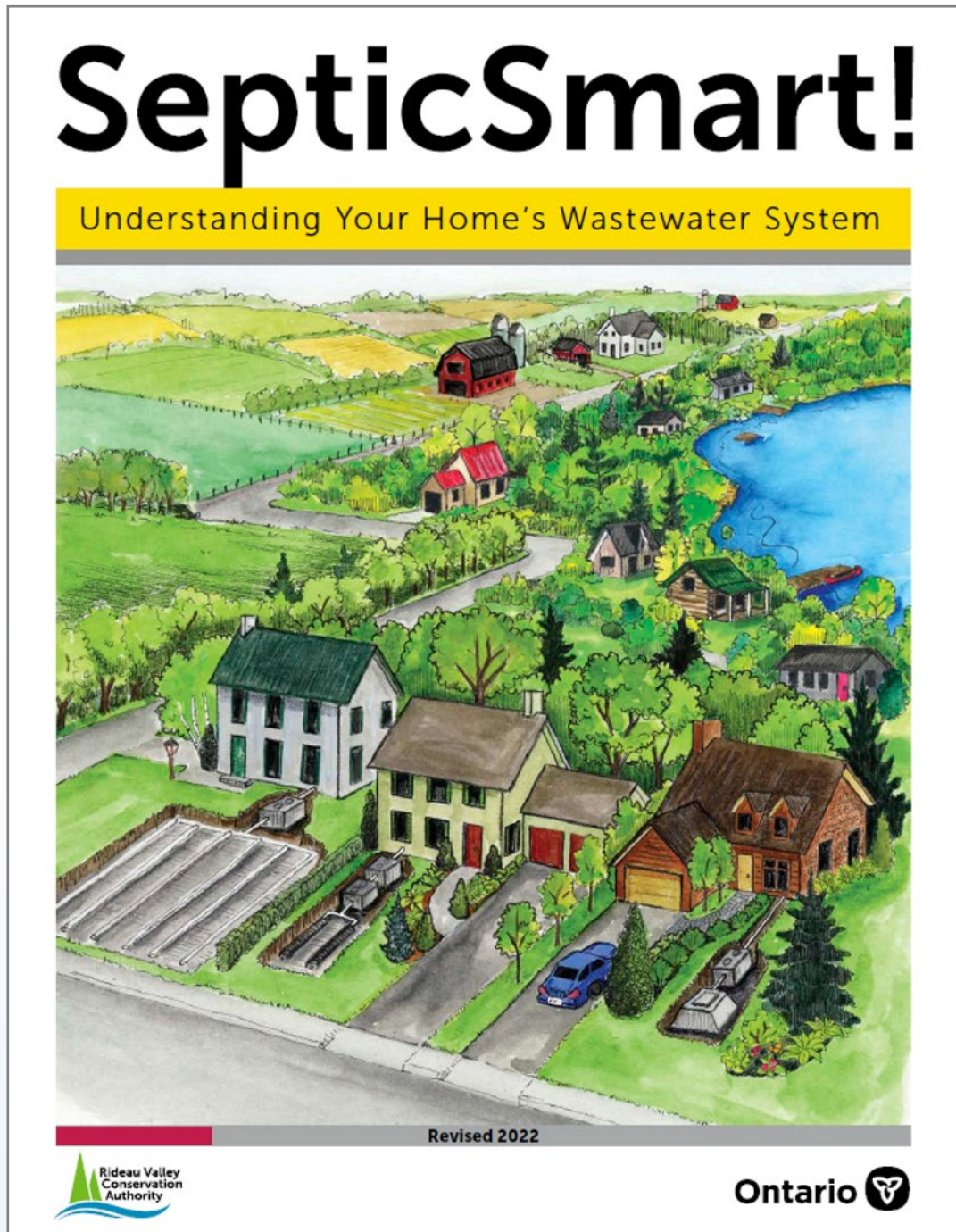


Photo credit: Waterloo Biofilter Systems

² <http://www.geologyontario.mndm.gov.on.ca/mndmfiles/pub/data/imaging/IMR011/IMR011.pdf>

New Septic Smart Guide released provincially

In partnership with Rideau Valley Conservation Authority, the province of Ontario has released a 2022 revised version of the Septic Smart: Understanding Your Home's Wastewater System guide.



If you would like to read it yourself, or share it with property owners, you can access the guide here:
bmpbooks.com/publications/septic-smart-understanding-your-homes-wastewater-system/.

Throwback Article

Volume 13, Issue 2, Summer/Fall 2012

A Look Back

Caring at Home

Home Dialysis and Sewage Systems *By Brock Cross, Gunnell Engineering*

As our families age or succumb to illness it becomes important to assist them with their medical needs. Increasingly, these needs are being met in our homes with the assistance of family, friends and medical personnel.

One such medical treatment that can occur in the home is dialysis. In fact, many dialysis patients prefer to undergo this procedure in the comfort of their homes as it allows them to receive the treatment more slowly and at their own convenience, limiting trips to a dialysis clinic and allowing for a more normal daily routine.

Generally, dialysis systems function by removing blood from the body and cleansing it of toxins, normally removed by healthy kidneys, prior to being returned to the body. In order to cleanse the blood of the impurities it is passed through a dialyzer (filter) that removes excess wastes and water and re-introduces clean water.

So how does this affect sewage system design?

The volume of water used during a treatment is specific to each machine and the required operating time. Flows generated can vary from 500 to 1000 litres during a single treatment. These treatments can occur multiple times each week, adding significant flows to the existing sewage system.

From a design standpoint it is important to first establish the flows generated by the proposed dialysis unit by speaking with the homeowner and understanding the treatment needs of the patient. It is also good practice to confirm if additional fixture units, bedrooms, or building additions have been added since the original sewage permit was issued.

After design flows have been established an assessment of the existing sewage system should be undertaken to confirm that it can accommodate the additional flows. The assessment should include an inspection of the septic tank and, if necessary, the pumping chamber. Are they sized appropriately? Are there any upgrades that may be required?

It may be possible to only need to increase the size of the septic tank or perhaps balance the additional flows by installing a pump chamber or replacing an existing pump chamber with a larger one, although the Municipality should be consulted to verify that balanced flows are permitted within their respective jurisdictions.



Additionally, an investigation of the disposal field should be undertaken to establish its health, by examining the stone and pipe for biomat build-up, or the stone and sand interface in the case of a filter bed or area bed. It should also be confirmed that the disposal field is sized appropriately for the increase in flows.

A common concern from Municipalities is the suspected release of contaminants into the sewage system, however the water required to complete the dialysis cycle needs to be free of chlorine and any contaminants. As such, a reverse osmosis process is employed. The bulk of the flows generated by each treatment is used in the pre-dialysis reverse osmosis filtration and is highly filtered and purified water.

The remaining water generated is spent dialysate effluent, which is formed after blood contact and consists of the filtered out impurities which can include nitrogenous metabolic wastes (urea), electrolytes, potassium, phosphates, calcium and creatinine. These wastes are typical of the wastes generated by healthy, functioning kidneys.

The dialysate can also contain acetate, sodium bicarbonate, and acetic acid based solutions used in the dialysis process. When these wastewaters enter the sewage system the concentration of chemicals is low due to dilution and generally have little effect on the treatment of the sewage.



From Inspectors on Key Inspection Points

Produced by the OOWA Onsite Technical Committee

In an attempt to strengthen the influence of the Association, OOWA leverages the expertise of members to improve on best practices and industry-wide performance. OOWA has produced several documents that provide guidance to industry practitioners on topics that our members have expressed a need for. Below is a sneak peek at one of the latest documents from OOWA. Stay tuned to our communications products as we reveal the remainder of the document.

Question:

How many inspections should be completed?

Discussion:

The Ontario Building Code (OBC) requires a minimum of three inspections of a sewage system to be completed as follows:

1. Readiness to construct the sewage system,
2. Substantial completion of the installation of the sewage system prior to backfill, and
3. Completion of construction of the sewage system. (OBC Division C, 1.3.5.1.(2).)

Readiness to construct a sewage system is commonly referred to as a base cut or subgrade inspection and is completed after the base of the leaching bed has been excavated and prepared but before any fill is placed. Some municipalities may choose to complete test pits to satisfy the readiness to construct stage.

A substantial completion inspection of the sewage system is conducted when all components of the system have been installed but before they are backfilled.

A completion of construction inspection is required to permit the issuance of an occupancy permit. The installation must be complete for this final inspection and the sewage system must be operational. This means that all components should be plumbed, backfilled, seeded and/or sodded, and pumps if present should be wired and operational.

Additional inspections can also be added if a bylaw is passed by the authority having jurisdiction. A common inspection that is added is a test hole inspection that is completed prior to the issuance of a building permit to ensure the design meets the requirements of the OBC.

Question:

Is a base cut inspection necessary?
(Base cuts vs test pits)

Answer:

The OBC requires an inspection at "readiness to construct". This may be interpreted in different ways by different municipalities. The intent of the readiness to construct inspection is to confirm that the subsurface conditions are suitable for the proposed installation. A Subgrade (base cut) inspection will help the inspector confirm that the dimensions, elevations, slope, scarification, clay seal (if applicable), and loading area requirements of the proposed leaching bed are met. They can also help the inspector confirm that the assumptions used for design, such as T-time or elevation of groundwater, are appropriate.

Some municipalities may choose to supervise the excavation of test pits to satisfy the readiness to construct inspection required. Information collected during a test pit inspection may be used to determine if a further subgrade or base cut inspection is required, such as:

- i. Percolation rate (greater than 15 min/cm),
- ii. Soil type (smearing, structure, fill soils, complex/ varying soil, etc.),
- iii. Amount of soil (less than 250 mm)
- iv. Separation distance to limiting layer (bedrock, high ground water, impervious soils).

Where none of these conditions are present, the inspector may be satisfied with test pits at the "readiness to construct" stage. Municipalities should develop their own protocols for satisfying this critical first inspection stage.

If you feel a Guidance Document on a particular topic would be beneficial for the industry, please contact us (oowa.org/contact) to submit your idea.



Septic Awareness Week 2022

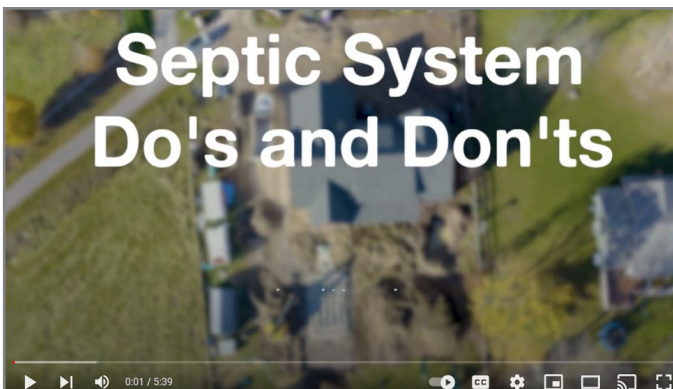
By Jenn McCallum, OOWA Programs and Outreach Coordinator



Western Canada Onsite
Wastewater Management
Association

September 19 to 23rd, 2022, marked Septic Awareness Week, which promotes onsite sewage system maintenance to property owners. OOWA partnered with the Western Canada Onsite Wastewater Management Association (WCOWMA) to promote onsite sewage system best practices and maintenance, and the U.S. Environmental Protection Agency (EPA) celebrated Septic Smart Week during the same time frame.

During Septic Awareness Week, OOWA provided tips and resources to property owners via three means: by releasing a Septic Do's and Don'ts video on our YouTube channel, hosting a live virtual webinar, entitled Septic System Basics for Rural and Waterfront Property Owners, and by providing daily maintenance tips to property owners via our social media channels (Facebook, Twitter, Instagram, and LinkedIn). Both the webinar recording and the video are currently available on our YouTube channel, and have 630 views combined. The Federation of Ontario Cottagers' Associations (FOCA) has promoted both resources within their network, ensuring that cottagers have access to them.



Septic System Do's and Don'ts video screenshot. This video was released during Septic Awareness Week 2022, and is available for viewing on OOWA's YouTube channel.



Screenshot from Septic System Basics for Rural and Waterfront Property Owners webinar held virtually on September 21, 2022. This webinar was recorded and is available to view on OOWA's YouTube channel.

We encourage you to share these resources with clients and property owners, follow us on our social media channels and re-share our content with your networks!



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2023 ANNUAL CONVENTION & EXPO

TOGETHER IS BETTER

Announcing the keynote speakers for our Annual Convention in March 2023

By Jenn McCallum, OOWA Programs and Outreach Coordinator

Throughout the last several months, OOWA's Annual Convention Task Group has been planning towards our Annual Convention, which will be held from March 26-28, 2023, at Deerhurst Resort in Huntsville. We have been accepting presentation proposals from OOWA members and other organizations, and we are working towards opening registration and finalizing the agenda for the convention. In the meantime, we have our two keynote speakers confirmed, who are the following. We are looking forward to hearing more from them, and learning from their expertise!

Keynote speaker for Monday, March 27, at 9:00 am:



Jill Heinerth, Explorer-in-Residence, The Royal Canadian Geographical Society

More people have walked on the moon than have visited many of the places that Jill Heinerth has seen on Earth. From the most dangerous technical dives deep inside underwater

caves, to searching for never-before-seen ecosystems inside giant Antarctic icebergs, Heinerth's curiosity and passion about our watery planet is the driving force in her life. In her visually stunning presentations, Heinerth encourages audiences to reach beyond their limitations, challenge the unknown, and overcome their fears, while applying her practical experience to share lessons on risk management, discovery learning, failure, and collaboration strategies.

From desert oases of the Sahara to Baffin Bay's cold waters, Heinerth has been the hands and eyes for climatologists, archaeologists, and engineers worldwide. She was named the first Explorer-in-Residence of The Royal Canadian Geographical Society in 2016. Her other many accolades include induction into the Explorer's

Club and the inaugural class of the Women Diver's Hall of Fame. She is also a Fellow of the International Scuba Diving Hall of Fame, Underwater Academy of Arts and Sciences, National Speleological Society, and the Explorers Club, which recently named her the recipient of the William Beebe Award for ocean exploration.

In recognition of her lifetime achievement, Heinerth received the Wyland ICON Award, an honor she shares with several of her underwater heroes including Jacques Cousteau, Robert Ballard and Dr. Sylvia Earle; and was also awarded the inaugural Sir Christopher Ondaatje Medal for Exploration, which recognizes singular achievements and the pursuit of excellence by an outstanding Canadian explorer.

Heinerth published her first book, *Into the Planet*, in 2019. It has been lauded by the Wall Street Journal, Oprah Magazine, and the New York Times. She is also a presenter on several radio and TV broadcasts worldwide.



Keynote speaker for Tuesday, March 28, at 9:00 am:

Chris Magwood, author, researcher, and teacher, co-founder of the Endeavour Centre, the Sustainable Building School.

Chris Magwood is obsessed with helping reverse climate change by making carbon-storing

buildings that are also healthy, beautiful, efficient and inspiring and assisting others to do the same.

In 1998 he co-founded Camel's Back Construction, a design-build firm focused on straw bale construction and renewable energy.

Chris has authored seven books on sustainable building and is co-editor of the Sustainable Building Essentials series from New Society Publishers. His new book, *Building Beyond Zero: New Ideas for Carbon-Smart Architecture*, is co-authored with Bruce King and published by Island Press.

From 2011-2022, Chris was a director and teacher at The Endeavour Centre, a not-for-profit sustainable building school.

In 2019, he helped to establish Builders for Climate Action, and has been leading development of the BEAM carbon estimator tool for low-rise construction. He is working closely with many levels of government to develop embodied carbon benchmarks and regulatory programs, and helping developers and builders figure out how to reverse climate change with their buildings.

Chris has completed an MA at Trent University. His thesis, *Opportunities for Carbon Removal and Storage in Building Materials* was published in the fall of 2019.

In 2022, Chris joined the Rocky Mountain Institute's Embodied Carbon initiative within RMI's Carbon-Free Buildings team.

Chris is an active speaker and workshop instructor in Canada and internationally.

SAVE *the* DATES



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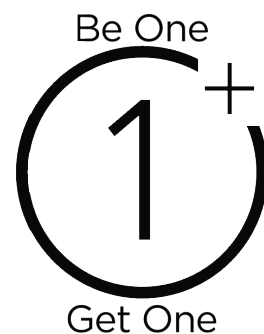
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OOWA's Membership Recruitment Rewards Program

OOWA is the onsite wastewater industry's voice. The power of our association lies in the high degree of professionalism of its members and in its ability to sit at tables where individuals cannot. There is power in numbers.

Be counted as one – and go get one more.



OOWA Members that recruit new members are eligible for the following rewards:

1. For every new Primary, Associate, or Young Professional member recruited, receive a \$20.00 Tim Horton's gift card
2. For every 10 new Primary, Associate, or Young Professional members recruited, receive a \$150 gift cards to The Keg Steakhouse

**Buy your colleagues a coffee, take a loved one out for dinner
- courtesy of OOWA!**

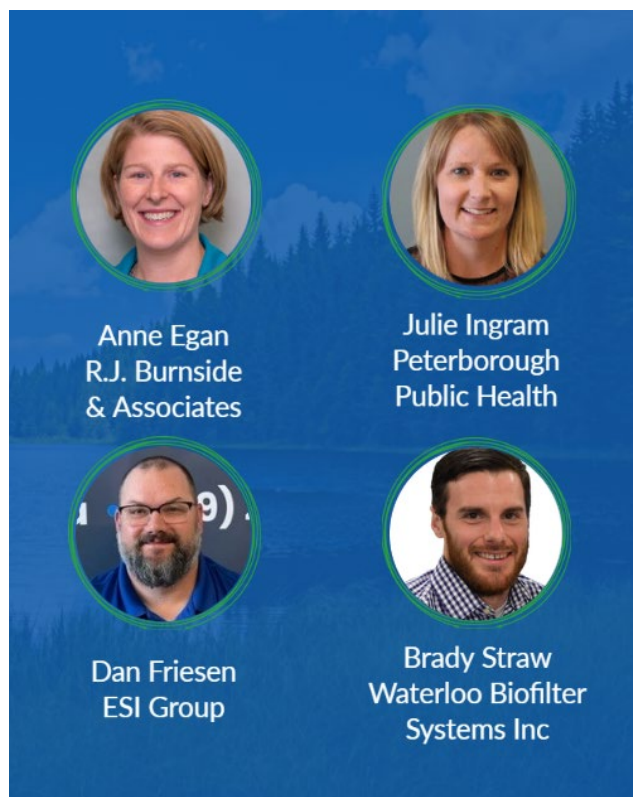
2022 Updates & Upcoming 2023

Virtual Part 8 Panel Discussion held on November 2

*By: Jenn McCallum, OOWA Programs and
Outreach Coordinator*

One of the ongoing challenges for onsite wastewater professionals is interpreting the nuances within the Ontario Building Code. To inform this process of interpretation, OOWA hosts Part 8 Panel Discussions a few times per year, and most recently, on **November 2nd at 12 noon via Zoom**. Our three panelists, Julie Ingram, Anne Egan, and Dan Friesen discussed their strategies for defining structures when determining clearances, and how either heavy ($T > 50 \text{ min/cm}$) or highly permeable ($T < 1 \text{ min/cm}$) soils affect their design and installation of onsite sewage systems.

We are planning our next Part 8 Panel Discussion to be in person at the Annual Convention and Expo, which will be held March 26-28, 2023. If you would like to volunteer to be on our panel, or if you'd like to suggest topics for the discussion, please let us know by calling or emailing the OOWA office.



Upcoming in 2023

Stay tuned to our social media channels, website, and if you're an OOWA member, the monthly OnTrack e-bulletin. We have plans in the works for 2023, including the Annual Convention in March, and training courses in both Introductory and Advanced Design for Onsite Sewage Systems, plus other events and social gatherings. Looking forward to these opportunities to see you in person!



Submit your photos to us!

Do you have great photos of onsite sewage systems being installed, maintained, or failing?

If so, please send these our way, including the photo credits! We are always looking for new photos to include on our social media, in presentations and resources, and on our website.

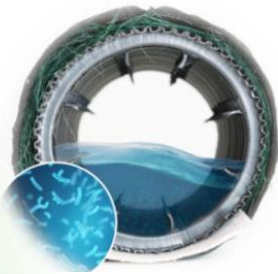
*Photo credit: Eric Kohlsmith,
Ottawa Septic System Office, 2021.*

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