Volume 24 | Issue 3
FALL/WINTER 2023

Onsite

ONTARIO ONSITE WASTEWATER ASSOCIATION NEWSLETTER
Education | Engagement | Leadership

Ontario Onsite Wastewater Association (20 YEARS)

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INSIDE

Ontario Onsite Wastewater Association (20 YEARS)

A Multilayered Approach To Improving Industrial Effluent Quality

By: Morgan Crane, P.Eng.
Design Engineer, Municipal Engineering
MTE Consultants

Article originally published November 01, 2022 on MTE blog. It has been reprinted with permission.

As a supplier of over 500,000 tonnes of livestock feed annually, Wallenstein Feed and Supply (WFS) has been a staple of agricultural industry in Southern Ontario for 64 years. As their operations continued to grow, WFS found themselves in need of more space. They set forth with plans to expand their main mill site in the hamlet of Wallenstein, and enlisted our team to support their endeavour.

Through our efforts to obtain an Environmental Compliance Approval (ECA) for the expansion, we were able to develop a process water and stormwater management treatment plan that would meet the discharge criteria, as well as WFS's sustainability goals.

Site and Water Conditions

The facility lays on the banks of the Conestogo River and is serviced by a series of wells and an onsite wastewater system. Since WFS uses well water exclusively, they are dependent on the groundwater's natural characteristics. The raw groundwater in the area has extremely high hardness (>1500 mg/L CACO3) and a high sulphate concentration (98th percentile in the province). Due to the poor raw well water quality, alternate water sources were investigated, yet deemed unrealistic.

Current Raw Water Treatment Processes

Much of the process wastewater that WFS produces is from the treatment of the raw groundwater. There are several key components of the process, with reverse osmosis being the primary way that the water is treated.

Continued on page 26

Ontario Onsite Wastewater Association
PO Box 2336, Peterborough, ON K9J 7Y8
1-855-905-OOWA (6692)
www.oowa.org

OOWA COMMITTEES

- Communications
- External Relations
- Onsite Technical
- Events
- Membership Services
- Professional Development

OOWA NEEDS YOU!

WHAT'S IN IT FOR ME?

Are you an engaged professional looking to expand your knowledge and expertise? Do you care about improving the onsite wastewater sector? Do you want to collaborate with some of the industry's leading experts? Consider joining one of our volunteer committes or board of directors to grow your influence in the industry.

WHAT IS EXPECTED?

Our committees and board meet once a month (or as needed) via ZOOM to discuss, plan, and implement intiatives stemming from our Strategic Plan. You don't have to commit right away - come as a guest to a meeting to test the (waste)water!

info@oowa.org
1-855-905-6692

OOWA Board of Directors

President's Message

Fall/Winter 2023

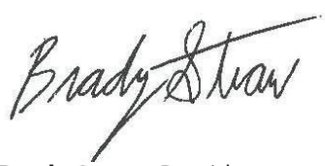
As we head toward the end of 2023, we take this opportunity to reflect on the year thus far and look ahead to the remaining months and 2024. We are so grateful to our members for their continued dedication to the Association and the industry. The amount of engagement with OOWA through events, training, volunteer work, and member longevity has been incredible.

Over the last couple of months, OOWA hosted our fall Regional Meeting series, bringing conversations to our members across the Province. Each event had local experts discussing Part 8 topics. Check out the Member Forum on our website to continue these conversations. Hopefully you had an opportunity to meet OOWA's new Programs & Outreach coordinator, Claire Johnston. Claire joined OOWA in early October, taking over the role previously filled by Jenn McCallum. Thank you, Jenn, for everything you did for OOWA in your time with us.

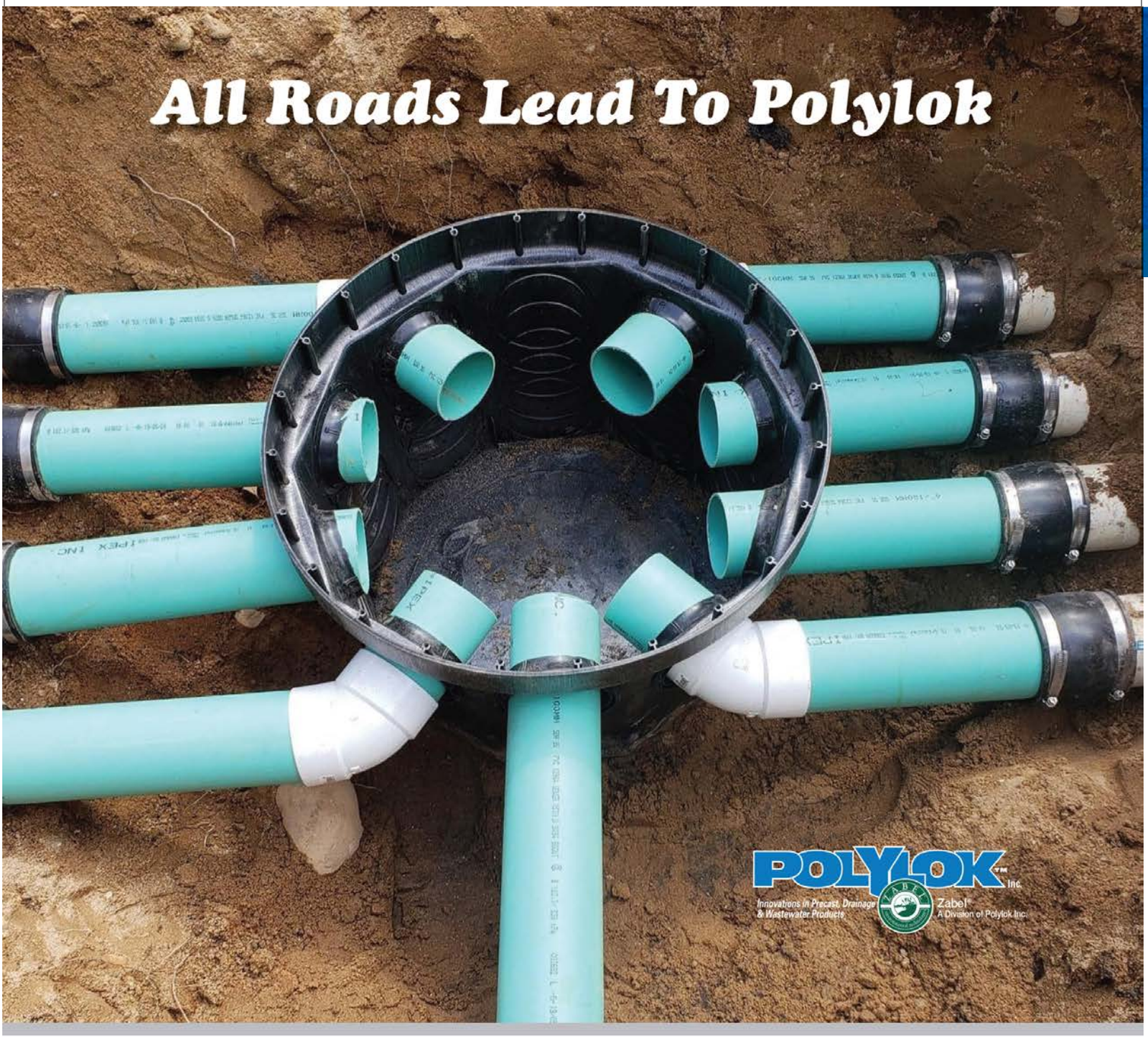
In September OOWA had an exhibit booth at the Ontario Building Officials Association Annual Meeting and Training Sessions. We used this opportunity to provide information to regulatory authorities about our available resources for those working in the industry and their local residents. We promoted our members and the use of our Find A Professional directory as a resource when regulators are inevitably asked "do you have any recommendations for who I can hire?" The engagement was plentiful and we are grateful for the chance to showcase our Association and its members.

We tried something different for our members this year. We organized a "Jays Social" and invited members and their friends & family to cheer on the Blue Jays September 16th. We reserved 50 seats and the event was one ticket shy of selling out. Those in attendance had a great time networking with fellow professionals in a fun environment. We hope to provide similar opportunities in the future.

Thank you for an incredible year OOWA members, volunteers and staff. We wish everyone a safe and fun holiday break full of family connection and cheer.



Brady Straw, President



Polylok 24” Rhino (10 Hole) Distribution Box

The Polylok 24" Rhino Box makes even the toughest applications a breeze with its strength and versatility. The Rhino Box has ten potential openings making it great for any drain field application. Polylok’s 24” stackable riser system can be used to easily bring the Rhino Box to grade. The Rhino Box will accept 2”, 3”, 4” & 6” pipe.

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Meet the Staff

Claire Johnston

Programs and Outreach Coordinator

Job Duties Summary:

I joined OOWA in October and have been trying to absorb as much information as possible. I am still adapting and learning the role, but I am grateful for a fantastic turnover and many helping hands along the way. My role at the association includes communication, outreach, events, and membership. This may look like newsletters, Ontrack email communications, social media, in-person events/meetings and membership management. I have enjoyed connecting with you at our Part 8 Regional Meetings and I look forward to making further connections at our upcoming annual convention. I am brand new to the industry but look forward to expanding my knowledge on wastewater systems and getting the opportunity to pick your brains!

Past Experience:

I grew up in Garden Hill where my family owned and operated the local general store. I spent my summers playing baseball which eventually led me to play at the collegiate level in Pennsylvania. I earned a Bachelor of Science degree from Edinboro University concentrating my studies in Health Promotion. This led me to work for multiple health and post-secondary education organizations where I worked on stewardship, events, marketing, and fundraising teams. My longest tenure was working with Sunnybrook Foundation on their events team. I worked with the RBC Race for the Kids where we raised $1.5 million annually for childhood mental illness programs across the province. Most recently, I took on an operations manager role within my family's business. This included purchasing, accounting, retail operations and administrative operations, too. I am confident my experience will transition smoothly to the Wastewater world.

How did you get to OOWA:

I found an online posting for the Programs and Outreach Coordinator position and really liked the idea of a career that encompassed my favourite aspects of all my past roles. I was a little hesitant to apply to a new industry, but I was confident that my past skills were transferrable. After my initial interview, I was excited to learn about the wastewater industry and I knew I would have a great team to encourage me and support the transition. I look forward to working and connecting with you all while I apply my experience, education, and passion of learning to a new industry.

What do you do outside of work:

Outside of work you can find me at the baseball diamond, dog park or in my flower field! I spend my weekends designing wedding florals and tending to my field of cut flowers. I grow a variety of blooms like zinnias, cosmos, dahlias, astilbe, sunflowers and more. This started as a hobby and quickly transformed into my own small business. Aside from work and side business, I hang out with my niece and nephews as much as I can, spending time outdoors and playing/watching sports. I grew up in a house full of sisters, four to be precise, so family is a central part of my time off. We love to gather. My partner and I spend our off time playing baseball and wrangling our 6-month-old Chocolate Lab, Dallas.

How Being Too Busy Can Be Bad Business

Standard thinking is that busy equates to success, but it can actually be detrimental to your company's long-term prospects

By Carter Harkins and Taylor Hill

Carter Harkins and Taylor Hill

Having a busy business schedule is often seen as a badge of success. According to a study conducted by the Journal of Consumer Research, workers who talk about how hard they work are communicating that they are valued members of a business.

But being overworked doesn't necessarily equate to progress. It simply means that your schedule is full of activities. Those activities may not be contributing to your overall growth. About 46% of owners and workers report going through burnout, which can cost a business in the long run. Stressed owners or workers may produce subpar projects, fail to meet deadlines, or place the business under a threat of liability.

How exactly can being busy be such a bad thing for business when it's the exact reason why profits roll in? Here are indicators that you're working too hard and why it's hurting your company:

Lowers the quality of your work

Taking too much work at the same time spreads you too thin. The typical effect would be spending less time per project, which can cause you to miss problems or inconsistencies that you would normally spot with enough time on your hands. With no break in between, the quality of your work can continue to decline, leading to missed deadlines, poor workmanship, errors, and dissatisfied customers.

Creates poor customer relations

Being too busy causes you to miss out on all the small and subtle touches that make your customers feel special. Creating a distinction between your business and others requires an approach that your customers will appreciate and remember. This might include things like a thank-you note after a job is completed or one-on-one chats with clients. A busy schedule means you'll just be jumping from one client to the next without really thinking about creating a memorable experience for them.

This can be destructive to your overall reputation. Remember that no matter what product or service you provide, there's someone out there who is willing to offer the same thing. What sets you apart — and what makes you memorable to clients — are the small things that help forge a professional relationship.

Leads to poor health

A busy schedule can cause you to quickly lose sight of health goals. You'll start eating for convenience instead of for nourishment. You might also miss out on your daily exercises or fail to get a full eight hours of sleep. Even with a team that takes care of your day-to-day operations, you remain the head of the business. Everyone reports to you and with poor health, you'll have a hard time making sure that everyone is moving forward according to the long-term goals of the company. You need to constantly steer the business in the direction you want it to go and having poor health will make this incredibly difficult for you.

Busy can lead to burnout

Burnout can be the kiss of death for many workers. This is described as extreme exhaustion resulting from prolonged exposure to stress, anxiety, and physical and emotional strain.

Recovering from burnout can be tough because the hardship is both in the body and mind. You always feel tired, have zero enthusiasm for your job, and are unable to fully perform your responsibilities. It can take approximately 11 weeks to recover from burnout, and without properly taking steps toward recovery, burnout can spiral toward depression. Imagine needing to take a break from work for 11 straight weeks just to recover from burnout. That's 11 weeks of zero productivity. Within that period, your customers can find other companies or service providers. Demand doesn't stop just because you're not capable of providing the supply, and with prolonged zero operation, customers can quickly forget about the service you offer.

Busy makes you miss opportunities

Being too busy can cause you to miss out on opportunities that would otherwise help with the growth of your business. This could include pursuing new clients, extending your service capabilities, hiring better people, or training the ones you have to perform better with respect to their responsibilities.

While there might be many profitable jobs on the table, these jobs may be small-fry and not really give your business the opportunity to grow and start being a massive source of income. With a schedule that lets you

take a breath every now and then, however, you are in the position to reassess your situation and find the best path to make the most out of your business.

Busy scrambles your priorities

A jam-packed schedule can quickly turn your priorities around. You might find yourself consistently adding something to your to-do list so that you're always unsure of what deserves your attention most. You might find yourself reaching for a specific goal only to find out that you completely missed out on another one. You can also lose sight of the small things that actually contribute to a larger whole. For example, being too busy makes you overly reliant on third-party service providers like your accountant, your suppliers, etc. If this happens, you might have a hard time following up with vital information or fail to make sure that they're doing their jobs. At the end of the day, this might have huge repercussions on the business.

Busy can quickly decrease team morale

Don't forget that you're not the only person keeping the business alive. Your staff also contributes to making sure that you meet long-term company goals. However, pushing them to consistently work hard means they don't have time for themselves. You're vulnerable to stress and burnout and so are they. All of the negative things that could occur due to extreme stress can happen to them, too. They may lose enthusiasm for the job or fail to meet quality requirements. Worse, a poor working environment can develop tension among the team which can cause hostility among your people. That only adds to the negative emotions and can quickly cause your business to spiral as people refuse to work together.

Solving the "busy" problem

How do you stop yourself from being too busy in business? There are ways to get this done, but the most important thing is to first recognize the symptoms of an excessively busy lifestyle. If you find yourself constantly tired with no time for sleep or personal rejuvenation, this is the time to step up and give your body the break it deserves.

Here are some tips:

- Start by having a hard limit for your work hours. Your weekends or at least Sundays should be a time you dedicate to yourself. This should be a time for you to relax, unplug from work, and just lull your mind into a meditative state.
- Start saying "no" to people. While welcoming any and all business through your door helps guarantee profits, it might not serve you well in the long run. Learn to decline certain projects and prioritize the ones that would give you better returns without pushing your body toward the brink of exhaustion.
- Train and delegate. It helps to have people you trust to keep certain aspects of the business going while you take some of the pressure off your shoulders. You can have these people do weekly reports to make sure they're still on track. While your input is still necessary, you'll only have a supervisory role in the process which severely limits the amount of work you have to go through.
- Encourage team-building exercises. Your staff can heavily influence the trajectory of the business. It's important that they maintain good relations amongst themselves so all business operations move smoothly. You'll find that a happy staff can go a long way toward creating a productive business.
- Get help from tech tools. Modern life has paved the way toward creating an easier system for tracking, updating, and collecting information. You can download free software on your phone, tablet, or laptop to remind you of projects, automate certain aspects of the business, or maintain a database that everyone can access. By doing this, you'll be in the position to focus on other things while decreasing the amount of work you have to do.
- Focus on the things you want to accomplish instead of just having a to-do list. An accomplishment goal tends to focus on the bigger picture and helps keep you on track for meeting long-term objectives.
- Dedicate a time specifically for reassessing your position in the business. This helps you recalculate goals and figure out if you're still on the right trajectory.

There's nothing wrong with being busy but you have to know exactly which things deserve your full attention. If you view everything as important and deserving of your time, then you'll never have time to rest and relax. Remember that your business depends heavily on your input and if you're not at your best, then everything else can quickly spiral downward.

This article first appeared online at OnsiteInstaller.com on February 27, 2023, published by COLE Publishing, Three Lakes, Wis. It is reprinted by permission.

A Closer Look at Onsite System Control Boxes

By Sara Heger, Ph.D.

Outdoor equipment used in residential wiring must be weatherproof. The two most common types of weatherproof equipment are driptight and watertight.

- Driptight equipment seals against water falling vertically. Driptight boxes are usually made of painted sheet metal and have shrouds or shields that deflect rain falling from above. These boxes are not waterproof and should not be used where water can spray or splash on the unit. Driptight boxes are usually used for control or circuit breaker panels.
- Watertight boxes seal against water coming from any direction. Individual junction boxes, switch boxes and receptacle boxes will usually be of the watertight type. Watertight boxes are designed to withstand temporary immersion or spray streams from any direction. They are commonly made of cast aluminum, zinc-dipped iron, bronze or heavy plastic, and have threaded entries for watertight fittings and covers sealed by gaskets.

In all cases, electrical components and connections must be properly protected from the elements and from the corrosive environment of the dosing tank. Ideally, this is achieved through use of a National Electrical Manufacturers Association rated box with properly sealed connections. NEMA ratings are standards that are useful in defining the types of environments in which an electrical enclosure can be used. The NEMA rating system is defined by the National Electrical Manufacturer Association, and frequently signifies a fixed enclosure's ability to withstand certain environmental conditions.

In nonhazardous locations, there are several different NEMA ratings for specific enclosure "types," their applications, and the environmental conditions they are designed to protect against, when completely and properly installed. The following provides an overview of the NEMA types. For complete definitions, descriptions and test criteria, see the NEMA Standards Publication No. 250.

NEMA Type	Application
NEMA type 1	Type 1 enclosures are intended for indoor use, primarily to provide a degree of protection against contact with the enclosed equipment in locations where unusual service conditions do not exist.
NEMA type 3R	Type 3 enclosures are intended for outdoor use, primarily to provide a degree of protection against windblown dust, rain, sleet and external ice formation.
NEMA type 4	Type 4 enclosures are intended for indoor or outdoor use, primarily to provide a degree of protection against windblown dust and rain, splashing water, and hose directed water and external ice formation.
NEMA type 4X non-metallic, corrosion-resistant	Type 4X enclosures are intended for indoor or outdoor use primarily to provide a degree of protection against corrosion, windblown dust, and rain, splashing water, and hose-directed water. Enclosure is manufactured with a synthetic rubber gasket between cover and base. This is ideal for such industries as chemical plants, paper mills and septic systems.

NEMA 4 or 4X with properly sealed connections are the most referenced types in septic system installation.

This article first appeared online at OnsiteInstaller.com on Nov 07, 2022, published by COLE Publishing, Three Lakes, Wis. It is reprinted by permission.

Author's note: *Be sure all electrical work is done by the appropriately licensed professional required in your jurisdiction. Often septic system installers must work with electricians to understand the needs of the system being installed.*

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OOWA's Frequently Asked Questions Series

From Inspectors on Key Inspection Points

Produced by the OOWA Onsite Technical Committee

Overview

This Frequently Asked Questions (FAQ's) document has been prepared to provide some information and clarification of the intent of the OBC regarding some common questions that have been brought forward by our members. These questions are primarily from building inspectors and relate to key inspection points during the installation process. We hope this document provides some clarity and consistency on these items.

Question

Is tertiary equivalent to Level IV treatment?

Discussion

The OBC Table 8.6.2.2. requires sewage treatment units other than a septic tank to produce Level II, Level III, or Level IV effluent quality. One way to demonstrate compliance with Table 8.6.2.2. is through certification to the CAN/BNQ 3680-600 Standard. The CAN/BNQ 3680-600 Standard is a rigorous, yearlong certification completed in a cold climate representative of Ontario. If treatment units are not CAN/BNQ 3680-600 certified, they may follow an alternate process to demonstrating equivalence as identified in Appendix A-8.6.2.2. of the OBC. Prior to 2017, Table 8.6.2.2 referred to effluent quality as either "secondary" or "tertiary". At that time, the OBC included Supplementary Standard SB-5 which listed "secondary" and "tertiary" effluent quality sewage treatment units approved for use in Ontario. Supplementary Standard SB-5 was removed from the OBC when it was updated on January 1, 2017. The terms secondary and tertiary effluent quality no longer have any meaning in relation to the OBC or residential sewage treatment in Ontario. Building Materials Evaluation Commission (BMEC) systems are approved outside of the OBC. BMEC systems are not necessarily CAN/BNQ 3680-600 certified treatment units. Technologies that are certified to CAN/BNQ 3680-600 and are approved for use in Ontario are listed on the BNQ website: https://www.bnq.qc.ca/en/certification/environment/onsite-residential-wastewater-treatment-technologies.html

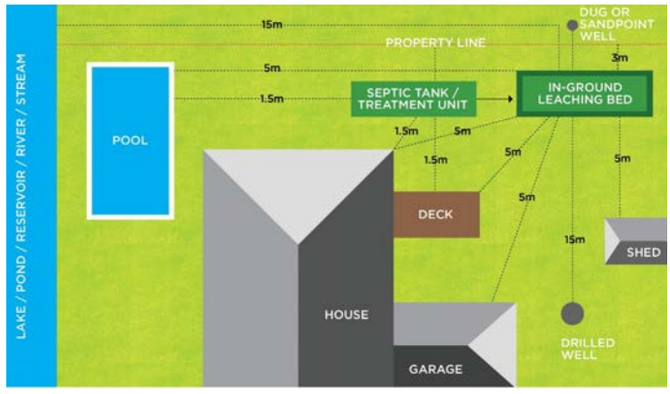
If you feel a Guidance Document on a particular topic would be beneficial for the industry, please contact us to submit your idea.

Question:

Does the forcemain from a sewage lift station (pump tank) need to meet the clearance to the property line or dwelling? For example, in the scenario where the tanks are on the opposite side of the dwelling from the sewer discharge.

Answer:

The OBC does not identify any minimum mandatory clearance distances for forcemains or gravity sewers connecting buildings to tanks or tanks to other sewage system components. Part 8 of the OBC does identify clearance distances for septic tanks, holding tanks and distribution piping. Distribution piping is a defined term and only refers to the perforated or open jointed pipe installed in the leaching bed. It does not refer to the forcemain or gravity sewer connecting the tank to the leaching bed. Where possible forcemains and gravity sewers should be kept as far as possible from any water source and appropriate pipe and bedding should be used to minimize the risk of leaks and failure. Part 7 (Plumbing) of the OBC should be consulted for best practices regarding pipe type (Subsection 7.2.5.) and spatial separation from water service lines (Article 7.3.5.7.) and piping and venting arrangements within the sewage lift station (Article 7.4.6.3.). If the sewage lift station is installed before the septic tank, it would be considered part of the "plumbing" system and should be designed in accordance with Article 7.4.6.3. of the OBC.



You can access the complete guidance document on OOWA's website here: https://www.oowa.org/industry-resources/guidance-documents/

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Engaging the Next Generation - Addressing Workforce Needs

Rosie Hessian
Director, Jill of All Trades
Chair, School of Interdisciplinary Studies
Conestoga College

What is it? The Story of Jill of All Trades™

The Canadian workforce is changing dramatically because of several demographic factors. The aging of the 'baby boom' generation will see a dramatic increase in retirements over the next few decades. Lower birthrates have contributed to the reality there will not be enough workers to fill these skills gaps. Booming construction, technology, energy, manufacturing and trades fields will be in desperate need of skilled workers.

The flow of immigrant and temporary workers into Canada has not kept pace with these shortages and employers are recognizing the need to recruit and retain employees from currently under-represented groups, including women, to meet this growing demand. Canadian women have played an increasingly important role in the fabric of Canadian workplaces. Today, women make up almost 50 per cent of the workforce, but in Canada, less than four per cent of people employed in the trades are women.

There is still work to be done to address this demographic and we look forward to engaging industry to help address the labour market shortages in the skilled trades in the Onsite Wastewater industry.

Jill of All Trades™ - Awareness, Experience and Opportunity

Conestoga College Institute of Technology & Advanced Learning has delivered a Jill of All Trades™ event annually since 2014. The event provides a safe and engaging learning environment where female mentors, industry partners, faculty and students engage young women in grades 9 to 12 in hands-on skilled trades workshops and encourage them to consider the opportunities and benefits of a future in skilled trades and technologies. Students leave with a better understanding of prospective careers so they can determine their secondary school course selection for future post-secondary education.

Jill of All Trades™ – A Consistent Message

As the founding institution of Jill of All Trades™, Conestoga is excited to partner with educational and industry leaders to deliver events across North America. By introducing young women to non-traditional trades, this joint endeavour will allow us to send a consistent message to young women; increase college post- secondary enrolment; retain females in non- traditional trades sectors; grow capacity and address gender diversity.

Conestoga is a leader in skilled trades training in Canada. School boards, school districts and colleges in other jurisdictions are excited to replicate this trademarked event in their vicinity. By sharing our proven and successful model will allow consistent program content and delivery.

Since 2022, Conestoga engaged with other host colleges across the country to deliver this experience in their regional areas. Over the coming years, we plan to continue to expand our reach across North America with a goal of expanding the footprint of Jill of All Trades globally.

Where are we going…

By 2026, we plan to deliver 123 events at 45 colleges with over 50,000 participants. Our future for Jill of All Trades™ is to expand globally. We value our relationships with our industry partners and look forward to the opportunity to work with member companies as we expand our reach. The involvement of your employees at local events will be very rewarding for them and we look forward to their mentorship and guidance for these young women.

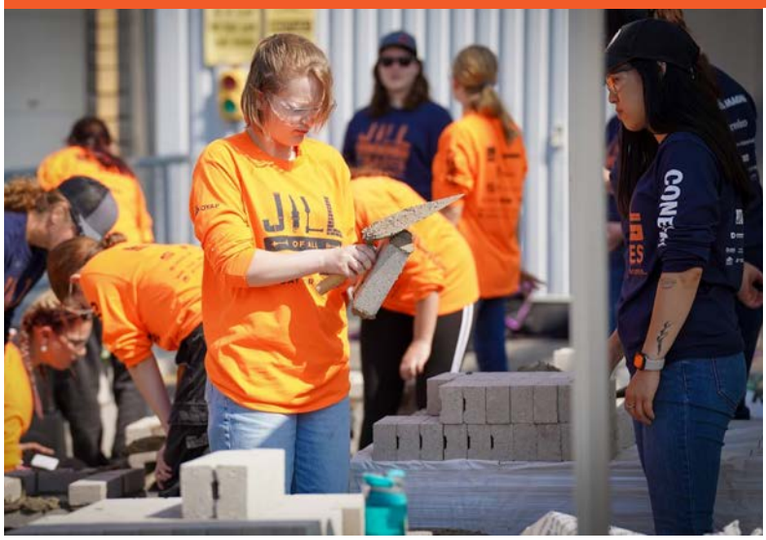
As part of the Jill of All Trades program delivery, young women are mentored through hands-on experiences led by female industry mentors, volunteer apprentices and college faculty. Apprenticeship post-secondary trades education pathways are discussed and having the presence of local employer booths, volunteers and mentors at events promotes local employment opportunities and apprenticeship pathways. High school teachers and guidance counsellors attend the event and can have the opportunity to learn first-hand about opportunities in the skilled trades, technology, and apprenticeship.

Investment of time and financial resources

As the founding institution of Jill of All Trades ™, Conestoga is excited to partner with provincial, national, and North American sponsors while leading the delivery of events globally.

The value of industry mentors at the Jill of All Trades™ events is essential, and business has a vested interest in the success of this venture. Investment and support will benefit young women and help them understand the value of pursuing a career in the skilled trades and address future workforce needs. All sponsorships will receive an appropriate level of recognition. We are confident that Jill of All Trades™ will build on its past success.

For more information, visit www.jillofalltrades.college



Announcing the Keynote Speakers for Our Annual Convention in March 2024

OOWA's Annual Convention Task Group has been planning our Annual Convention, which will be held from March 03-05, 2024 at Deerhurst Resort in Huntsville. We have been accepting presentation proposals from OOWA members and other organizations, and we are working towards finalizing the agenda soon. In the meantime, we have our two keynote speakers confirmed, who are the following. We are excited to welcome them to our annual event, and learn from their expertise!

MONDAY, MARCH 03
TIME TBD

Dr. Robyne Hanley-Dafoe

Expert on Resiliency and Workplace Wellness

Described as one of the most sought-after, engaging, thought-provoking, and truly transformative speakers and scholars in her field, Dr. Robyne Hanley-Dafoe is a multi-award-winning education and psychology instructor. She specializes in resiliency, navigating stress and change, wellness in the workplace, and optimal performance both at home and work. Her keynotes, grounding in global research, share accessible and practical strategies that help foster resiliency and wellness within ourselves and others.

Hanley-Dafoe's work is inspired by personal experience. She learned resiliency from the ground up as someone who has experienced significant obstacles throughout her life. This, combined with more than 18 years of university teaching and research experience, makes Hanley-Dafoe's work both accessible and relatable while providing realistic and sustainable strategies for understanding and practicing everyday resiliency and wellness.

Hanley-Dafoe is the bestselling author of two books: Calm Within the Storm, which won a 2022 Silver Nautilus Award, and her most recent, Stress Wisely: How to Be Well in an Unwell World.

TUESDAY, MARCH 04
TIME TBD

Barbara Robinson

M.A.Sc., P.Eng., President of Norton Engineering

Barbara Robinson, M.A.Sc., P.Eng., is the president and founder of Norton Engineering Inc., established 9 years ago. Norton Engineering is dedicated to making sewers better across Canada, for all residents. Norton works across Canada, helping municipal, provincial and federal governments and agencies with the catastrophe of leaking sewers. Norton conceived of, wrote and brought to fruition the first ever national sewer documents in Canada, "Reducing the Risk of I/I in New Construction" (2019) and "Developing an Efficient and Cost-Effective I/I Program" (2021), by Standards Council of Canada. Norton also works with the National Research Council on sewer standards issues (particularly as related to the building codes). Barbara is constantly solicited to author, contribute to, or review most national I/I and urban flood protection documents and regulations.

Norton has delivered dozens of guidelines, papers, presentations, etc. on all aspects of the design, construction, testing, acceptance and operation of sewer systems to technical audiences. More importantly, Barbara has been speaking widely to lay audiences for the past five years, teaching the public about their sewer and how to operate and maintain it, to rave reviews. She is an acknowledged public intellectual and is regularly published in print, radio and TV, sharing the essential message about sewers and climate change. She is Canada's national sewer expert.

Opt in

to OOWA emails

Why?

OOWA is a registered non-profit association in Ontario, and the rules for Ontario non-profits are changing. The Ontario Not-for-profit Corporations Act (ONCA), requires that non-profit organizations obtain explicit consent to email their members. All non-profit organizations must be fully in compliance with the Act by October 19, 2024.

How?

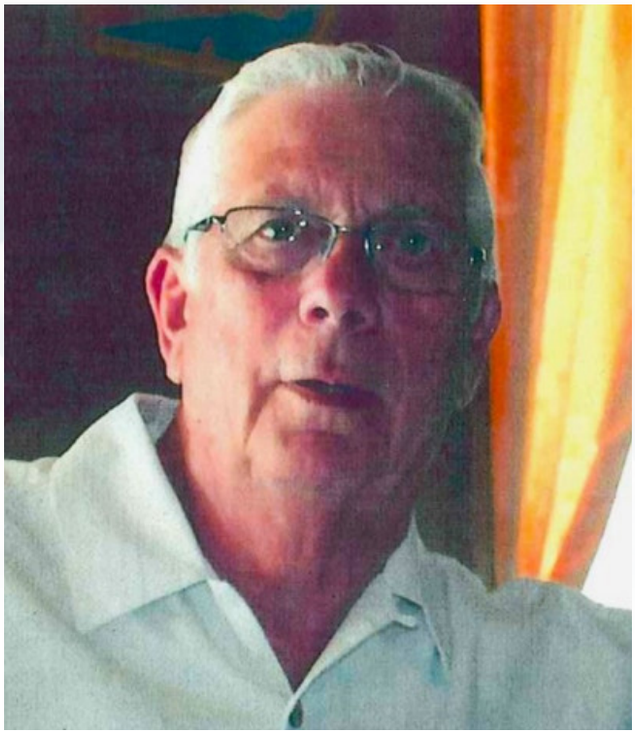
Log in at oowa.org/membership Select "Edit Profile" > Email subscriptions > Update your preferences > Click "Save"

Questions?

1-855-905-6692 X 102
op-coordinator@oowa.org

Brian Howden

(Howdey)



FAREWELL TO A CHAMP

On September 25, we lost a great friend and an industry ambassador.

Brian Howden played a big part in making OOWA what it is today. He sat on the Board of Directors for many years and was Chairman of the Conference Committee for the 2012 Conference. His good humour and experienced insight were welcomed by all of us younger members of the Board of Directors.

Brian had a long career with the Ministry of the Environment after which he entered into private practice in the design and service business. Always approachable and affable, Brian was quick to share his experiences with respect to important issues and those issues which were maybe not so important.

My relationship with Brian began purely professionally but grew into a great friendship over time. Quick to respond to a call, happy to participate in a game of golf, or just general camaraderie, you could always count on Brian.

Brian is survived by his wife, Janice, of 58 years and his two daughters, Deborah and Suzanne, as well as many friends and family. I am honoured to write this short tribute on behalf of his friends in the association.

- John Doner

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Member PROFILE

Morgan Crane
Design Engineer, Municipal Engineering

Name of Business/Organization: MTE Consultants

Owners: Employee Owned

Service Mandate: With a hands-on approach and open and clear communication, we help our clients discover the potential of their infrastructure. Our comprehensive range of services encompasses consultation, design, inspection, and engineering for onsite wastewater systems. We also offer geotechnical services, hydrogeological investigations and assessments, survey services, civil and structural engineering, environmental science, building science, and Ontario Land Survey services to support your diverse infrastructure needs. MTE is your trusted partner in infrastructure development, dedicated to delivering comprehensive solutions while navigating the complexities of regulations and environmental considerations.

Service Area: Founded in 1985, we're proud to have helped shape the regions in which we work and live for over three decades. Our footprint extends across Southwestern Ontario, with a network of five strategically located offices in Burlington, Kitchener, London, Stratford, and Toronto. Our team offers our services to clients both within the immediate vicinity of our offices and across the entirety of Canada.

Number of Years in Operation/Role: 5 years

What got you started in the onsite wastewater industry?

My boss at MTE (Thanks Dave)! When I started at MTE, I had little knowledge about the onsite wastewater industry despite growing up on a conventional septic system. Through my time at MTE and as a OOWA member, I've learned a lot about the industry. I have throughly enjoyed the unique challenges that come with providing onsite wastewater solutions. It has been exciting to see clients realize their development goals and gain a better understanding of their onsite wastewater system.

Morgan Crane
Design Engineer, Municipal Engineering

Give us one reason/secret for your success.

Although there are a variety of reasons to my development in the industry, the biggest factor has been the openness of others in the industry. Whether it is other designers, suppliers, installers, haulers, regulators, etc. everyone has been more than willing to assist and share their experience and expertise in the industry. Through this shared knowledge, I've been able to grow and increase my own skill set to provide better designs but also begin to share my experiences with the industry.

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

One of our most challenging jobs was a poultry processing plant where MTE was retained to design a replacement onsite wastewater system for the plant's wash water. The previous onsite wastewater system servicing the plant had failed and a new onsite system was required for continued operation.

MTE determined the effluent treatment requirements and designed a new onsite wastewater system in coordination with a treatment supplier. The client was issued an ECA for the system and MTE inspected the system through construction and commissioning. Some of the challenges on this project included the tight

native soils, variability in the wash water strength and flow depending on the operation of the processing plant and poultry species and required effluent treatment.

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

The pace of public education on appropriate domestic sewage. This is an issue that extends outside of the onsite/decentralized industry and arguably would also benefit municipal systems. However, with the onsite/ decentralized services there are usually direct repercussions to the mismanagement of the system. Wipes, grease, or other foreign objects continue to be found in onsite systems. We can empower owners to think about their actions and impacts to their system through education and outreach. From my experience, this education usually occurs after issues arise rather than as a preventative action. The outreach and education through OOWA and its members is absolutely required, I just wish that there was more done to speed up this owner empowerment.

Where do you see the onsite industry going?

I see the onsite industry playing a larger role in the development of Ontario as the population continues to increase. Whether this be with supporting development in more rural areas or allowing development prior to the extension (or creation) of municipal services, the onsite industry will continue to play a role in development across Ontario.

I also see the onsite wastewater industry adapting to stronger residential sewage. As low flow fixtures continue to dominate the market, the strength of residential wastewater is increasing. As a result of this, I can see additional treatment requirements on both new and replacement onsite systems.

Chambers vs. Leaching Chambers for use in Shallow Buried Trench Leaching Beds

By: Kyle Wetherall, B.Sc.
Engineering Department
Waterloo Biofilter

On January 1, 2018, *leaching chambers* were introduced to Part 8 of the Ontario Building Code (OBC) as an alternative to stone and distribution pipe. *Leaching chambers* are formed structures with open bottoms and permeable sidewalls installed in a leaching bed to distribute effluent to the soil or leaching bed (see OBC Article 1.4.1.2. Defined Terms). Leaching chambers can be used with absorption trenches, filter beds, or type A dispersal beds, and have specific dimension, material performance testing, and marking requirements (see OBC Sentences 8.7.2.3.(1), (2), and (3)).

Chambers have long been in the OBC and are structures with open bottoms and contain a pressurized distribution pipe. Chambers are used exclusively with shallow buried trench leaching beds (see OBC Article 1.4.1.2. Defined Terms), and do not have specific dimensions or material requirements.

The similarity in name has resulted in confusion between *chambers* and *leaching chambers* and how the specific requirements of each are applied. A common misinterpretation involves their uses with a shallow buried trench leaching bed. A *leaching chamber* can be utilized with a shallow buried trench as a *chamber* and not be required to conform to the *leaching chamber* requirements. When used in shallow buried trench applications, the requirement for shallow buried trenches override any specific leaching chamber requirements that apply to other types of beds where leaching chambers are used in place of distribution piping and stone.

When a *leaching chamber* is used with a shallow buried trench leaching bed, the pressurized distribution pipe requirements specific to shallow buried trench are applied. Clauses 8.7.3.3.(4)(a) and (b) describe the requirements for pressurized distribution pipe within leaching beds. These are the requirements for pressurized distribution pipe in a shallow buried trench leaching bed, where either *chambers* or *leaching chambers* can be used.

> 8.7.3.3.(4)(a) Every pressurized distribution pipe shall be not less than 1 inch in trade size.
>
> 8.7.3.3.(4)(b) Every pressurized distribution pipe shall have orifices at least 3 mm in diameter, spaced equally along the length of the pipe to provide even distribution of the effluent.

Clauses 8.7.4.3.(3)(b) and (c) describe the requirements for pressurized distribution pipe within a *leaching chamber*. These are the requirements for pressurized distribution pipe in an absorption trench, filter bed, or Type A dispersal bed, where only *leaching chambers* can be used.

> 8.7.3.4.(3)(b) Every pressurized distribution pipe within a leaching chamber shall be not less than 1.5 inch in trade size.
>
> 8.7.3.4.(3)(c) Every pressurized distribution pipe within a leaching chamber shall have orifices at least 6 mm in diameter, spaced equally along the length of the pipe to provide even distribution of the effluent.

In practical terms, it makes sense for the orifices to be at least 3 mm in diameter in a shallow buried trench because larger diameter orifices, such as 6 mm, would make meeting the 600 mm pressure head required by OBC Sentence 8.7.6.1.(2), very difficult with typical 1/3 to 1/2 HP effluent pumps.

To summarize, a structure that meets the definitions of a *leaching chamber* can be utilized with a shallow buried trench as a *chamber* and not be required to conform to the *leaching chamber* requirements, which include Clauses 8.7.4.3.(3)(b) and (c). When a *leaching chamber* is used with a shallow buried trench leaching bed as a *chamber*, the pressurized distribution pipe requirements specific to shallow buried trench are applied, which include Clauses 8.7.3.3.(4)(a) and (b).

To the left is a table that breaks down the different requirements for *leaching chambers* and *chambers*.

	Leaching Chambers	Chambers Used in Shallow Buried Trenches
Construction	IAPMO PS 63, "Plastic Leaching Chambers"	No Requirements
Materials	IAPMO PS 63, "Plastic Leaching Chambers"	No Requirements
Dimensions	Type I – Width 380 mm to 410 mm; Height 280 mm to 305 mm Type II – Width 555 mm to 575 mm; Height 300 mm to 320 mm	No Requirements
Application	Absorption Trench, Filter Bed, Type A Dispersal Bed	Shallow Buried Trench
Pressurized Pipe	Not less than 1.5"Ø, with orifices at least 6 mmØ	Not less than 1"Ø, with orifices at least 3 mmØ

Figure 1 Chambers used in a shallow buried trench

Figure 2 Leaching chambers used in a shallow buried trench

New & Renewed Members Listing

For the period of June 01, 2023 to October 20, 2023

New Members

Ryan Acheson, Greenleaf Excavation
Quentin Allen, Mohawk College
Sydney Beatty, Groundwork Engineering Limited
Valyn Bernard, Halton Region
Gaurav Bhardwaj, York University
Etienne Boutet, Bionest Technologies Inc.
Elizabeth Burley, Ricor Construction
Carolyn Chan, J.L. Richards & Associates Limited
Pierre-Yves Charette, Bionest
Luke Giroux, Lakehead University
Jonathan Grant, Durham College
Jordan Hastings, Dal Hastings Haulage & Ex. Inc.
Christopher Jobity, Western University
Chris Kinsley, University of Ottawa
John Lavoie, Fusion Septic
Bob Macklin, Northumberland County
Samantha Martin, Cromar Environmental
Juviya Mathew, York University
Lucas McCallum, Groundwork Engineering Limited
George McGonigal, Solid Foundations Home Inspections
Bill Millar, Summit Aggregates KW Inc.
Alyssa Minassian, Durham College
Matthew Moore, Birchview Landscaping Ltd
Josh Munro, Cambium Inc
Adam Nayler, Northumberland County
Ayobami Elisha Oseyemi, York University
Kyle Phillips, Township of Cavan Monaghan
Norm Roney, The Rideau Group
Graham Shaw, Taylor Farm Sand and Gravel
Liam Swann, Durham College
Darshankumar Tanchak, Student
Aiden Vincent, Waterloo Biofilter Systems Inc
Kyle Whiteway, Whiteway Design & Build
Matthew Whyte, J.H. Cohoon Engineering Ltd.
Seth Yates, Grade "A" Landscpaing (GSBN inc)
Shane Young, SludgeHammer Canada

Renewed Members

Robin Allen, North Bay-Mattawa Conservation Authority
Felipe Araque, BNA Inc (Bergmann North America)
Sarah Baltare, Municipality of Chatham-Kent
Kyle Bambury, Paterson Group Inc
Mark Barber, BSI Septic Solutions
Richard Barg, Xylem Canada LP
Chris Beeg, Township of South Frontenac
Lars Bergmann, BNA Inc (Bergmann North America)
Ella Bird, North Bay-Mattawa Conservation Authority
Etienne Boutet, Bionest Technologies Inc.
Brent Bunker, AAAA Sanitation
Elizabeth Burley, Ricor Construction
Christian Burrows, Yetti Construction LTD.
Gary Cameron, Waste Water Nova Scotia
Nancy Carpenter, Leeds, Grenville & Lanark Health Unit
Carolyn Chan, J.L. Richards & Associates Limited
Pierre-Yves Charette, Bionest
Meghan Clutterbuck, R.J. Burnside & Associates Limited
Steven Coad, Union Supply Co.
Brad Code, Lockwood Brothers Construction
Michael Codner, Michael Codner
Aaron Corbiere, E. Corbiere and Sons Contracting
Arnie Coulson, Coulson Bros Scow Service
Morgan Crane, MTE Consultants Inc
Suzanne Cwalino, E. Corbiere and Sons Contracting
Robert DeAcetis, Deson Construction
Anthony DeDominicis, Roswell Concrete Products
Jacob Detlor, Township of Stone Mills
Dave Dobinson, Dave Dobinson Excavating Inc
Stewart Dolstra, Cambium Inc
Matt Doyle, Township of South Frontenac
Bill Drury, Drumax Construction
Phil Erb, The Rideau Group
David Falkanger, Town of Caledon, Building Services Division
Graham Fisher, Haddad Geotechnical
Jillian Fitzmaurice, Township of Muskoka Lakes
Sasha Fredette, North Bay-Mattawa Conservation Authority
Dan Friesen, ESI Group
Bob Garner, R.J. Burnside & Associates Limited
Carl Gauthier, Bionest Technologies Inc.
Mike Gibbs, ESSE Canada
Michael Gooch, Muskoka Part 8
Devon Haluka, Niagara Region
Andrew Hartholt, Township of Puslinch
Brian Hartin, Township of Stone Mills
Gary Hendy, GAMAN Consultants Inc.
Robert Hodgins, Environmental Wastewater systems
James Hotchkies, Enereau Systems Group Inc.
Ben House, ESSE Canada
Ben Hyland, Strik Baldinelli Moniz Ltd
Glenn Imrie, Imrie Group
Paul Imrie, Imrie Group
Jamie Inkster, Minixrental
Kirk Johnstone, Northumberland County
Daniel Kern, HomeWorks Inspection Services
Dean Kerr, Willis Kerr Contracting
Michael Killam, Paterson Group Inc
Chris Kinsley, University of Ottawa
Simon Kola, County of Lambton
Nathan Latchford, MacGregor Concrete Products
Peter Libicz, Home Inspection Right Away
Jeremy Lightheart, WMI & Associates
Corey Lockwood, Lockwood Brothers Construction
Miles MacCormack, BNA Inc (Bergmann North America)
John MacGregor, MacGregor Concrete Products
Tom MacIntyre, Thunderbolt Contracting Ltd.
Tom Matthews, Northumberland County
Stefan Mayirou,
Scott McMullen, Verge Insurance Group (OOWA Insurance)
Dominic Mercier, Enviro-Step Technologies
Wayne Moore, Cottage Country Environmental Services
Dave Parent, Septic Consulting & Design Services
Grant Parkinson, GM BluePlan Engineering
Nick Preikschas, GRIT Engineering Inc
Marty Price, MacGregor Concrete Products
Jami Quathamer, Brooklin Concrete Products
Laura Reavie, Skootamatta Environmental Consulting Inc
Jonathan Renaud, Renaud Construction
Kris Rivard, North Bay-Mattawa Conservation Authority
Norman Rivington, N.S. Rivington Cartage Ltd
Darryl Robins, Darryl M. Robins Consulting Inc.
Ian Robinson, BNA Inc (Bergmann North America)
Nick Romero, MTE Consultants Inc
Norm Roney, The Rideau Group
Scott Roswell, Roswell Concrete Products
Rebecca Roy, Township of South Frontenac
Monique Sauve, South Nation Conservation
Amanda Savage, North Bay-Mattawa Conservation Authority
Trae Scott, Scott's Excavating & Landscapes
Pratima Sharma, R.J. Burnside & Associates Limited
Brad Smale, Township of Norwich
Glenn Snow, Snow Brothers Contracting
Kathryn Stasiuk-Riddell, Cambium Inc
Jeremy Tracey, Cambium Inc
Hendrik Van de Glind, Paterson Group Inc
Peter Vanderboom, Alpha Excavation
Marcel Veillette, E. Corbiere and Sons Contracting
Paul Villeneuve, Kollaard Associates
Rebecca Walker, LDS Consultants Inc.
Kevin Warner, Cambium Inc
Dave Whidden, Waubaushene Septic & Landscaping
Matthew Whyte, J.H. Cohoon Engineering Ltd.
Robert Whyte, EcoMetrix Incorporated
Angie Zmija, Township of Puslinch

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2023 FALL REGIONAL MEETING SERIES

OOWA conducted 6 Regional Meetings across Ontario. Meetings were held in Near North/Muskoka, Peterborough, South Western Ontario, Greater Golden Horseshoe, Eastern Ontario and Central Ontario. During these meetings, local industry members formed a panel to discuss local issues that are faced regarding Part 8 of the building code. In each prospective region, industry members are invited to join our panelists to discuss topics they face everyday in the onsite sewage industry. Below are the topics that were covered in our 2023 Regional Meeting series. You are invited to continue the conversation by visiting our member forum to post your thoughts.

Part 8 Panel Discussion Topics

- What are the legal and moral responsibilities involved when dealing with an onsite sewage system that is not up to standard?
- What is the responsibility of the inspector for enforcement of systems once there is a failure or when not to code?
- What kind of alternative solutions are possible for small lots?
- Do you see tank decay as a major issue?
- What is a typical application of a shallow buried trench?
- How do you inspect a system on behalf of the home seller to avoid poor outcomes?
- How do you check the onsite sewage system when buying a new house, or working for a buyer?
- How do separation distances between Part 8 and spatial separation requirements in Part 7 apply to water service lines?
- Blasting- what design and approval considerations are required when a system includes blasting?

HOW DO I GET INVOLVED?

Contact Claire Johnston at outreach@oowa.org to volunteer as panelist or if you have topic suggestions for 2024

Part 8 Panel Discussion Topics

- BNQ standard vs. BMEC Authorizations: What is the difference? How are regulators enforcing them?
- Can additions to dwelling units have separate sewage systems or does it need to be a separate dwelling unit? Does it matter if the addition is attached or something separate like a garden suite?
- Separation distances to water service lines, where to measure, how separation distances between Part 8 and spatial separation requirements apply. Specifically, sentences 7.3.5.7.(1) & (4) in the OBC?
- When working in regulated areas, when do you need to consult conservation authorities?

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HOW DO I BECOME AN EVENT SPONSOR?

Contact Claire Johnston at outreach@oowa.org to sponsor our 2024 Regional Meeting Series

Continued from Front Cover

Water softener acts as a polishing step prior to water entering the boiler, while a media filter focuses on the removal of iron and manganese from the well water, and a boiler blowdown removes accumulation from the boiler to improve efficiency of the steam generation process. All of which have been optimized to reduce water consumption.

The process wastewater is combined in a settling tank before draining into a stormwater management pond, and then discharges to the Conestogo River. The settling tank serves to reduce the total suspended solids (TSS) and temperature of the process water prior to being conveyed to the stormwater management pond, which serves to treat the runoff on the property in addition to mitigating the effects of the raw process waters.

Challenges Characterizing Wastewater

Our team began the ECA application process by characterizing the wastewater. The discharges from the system are intermittent and variable in nature, which presented challenges during our sampling program. Due to the combination of runoff from the site, our team also had to consider the chloride concentration in the runoff during winter months and the possibility that chloride could be retained within the reservoir into the spring months. While WFS is mindful of the quantity and frequency of its winter salting operations, the feed trucks it operates can bring additional salt onto the property. To solve this, our team sampled the stormwater management pond throughout the year to determine maximum concentration and impacts of the interactions of the stormwater runoff through the winter months.

Our sampling solution involved collecting samples from the individual process streams in addition to combined samples throughout the process. Additional samples were collected with an autosampler to create a representative sample. Once characterized, it was determined that the process water had elevated levels of metals, chloride, sulphate, and formaldehydes, as well as Biological Oxygen Demand (BOD).

High BOD from Feed Dust

Due to the nature of the mill operations, dust from the processing of the feed is deposited over the property. This dust is collected in the storm sewer system before entering the stormwater management pond, resulting in elevated BOD concentrations in the runoff. The ensuing organic loading will be reduced through settling, separation and filtration in the treatment system. However, there is minimal guidance for BOD accumulation within existing guidelines. As such, a series of samples were collected from the pond and used as a basis for the expected BOD concentrations for the purpose of sizing the treatment system. The sampling results also showed that the site's runoff to be impacted by toluene, metals and TSS.

ECA Discharge Criteria

Once the process water was characterized, we held a pre-consultation meeting with the Ministry of the Environment, Conservation and Parks (MECP) to set a series of acceptable discharge criteria. Objective and limit concentrations for metals, TSS, and BOD were determined using published discharge criteria. However, it was difficult to establish acceptable discharge criteria for the sulphate and chloride that would be realistic and attainable on a year-round basis. The raw well water contains sulphate concentrations in excess of the allowable discharge criteria. Additionally, the combination of process water and stormwater resulted in increased chloride loading during winter months when salt is applied to the parking lots and roads on which the WFS trucks travel. As a result, there were a number of factors outside of WFS's control that led to increased chloride concentrations.

Our team joined forces with Hutchison Environmental to complete a series of toxicity tests to establish a safe discharge concentration for sulphate and chloride. Hutchinson also conducted an assimilative capacity study of the downstream receiver to ensure that the proposed discharge criteria would not cause harmful effects within the Conestoga River.

The toxicity testing resulted in a number of interesting findings. It confirmed that the effects of sulphate and chloride were additive. The combination of both parameters resulted in more toxic water and individual constituents. It also showed that the high hardness of the effluent had a buffering effect on the elevated chloride and sulphate concentrations. As a result, a series of toxicity tests were conducted with effluent from the settling tank and pond. Composite samples were used to obtain samples that would be representative of the process water.

Ultimately, the MECP accepted the results of the toxicity testing for guidance of the objective and limit concentrations for sulphate and chloride. A chloride limit was established at 640 mg/L for the summer and fall months, and 640 mg/L for the winter and spring months. These concentrations match the published discharge criteria. A year-round sulphate objective of 3,855 mg/L and a limit of 5,140 mg/L was established based on the results of the toxicity testing and assimilative capacity study.

Reservoir and Treatment Plant Design

Based on our findings, we determined that a reservoir was required to collect process and stormwater and pump it to a treatment system. The size of the reservoir was selected based on its ability to connect to the expanded internal storm sewer network and provide retention of a five-year storm event. Additional sizing considerations included being able to store over 30 days of process water discharges prior to overflow. The reservoir is hydraulically connected to an adjacent lift station via a 300-mm diameter storm sewer.

We worked with H2Flow to design a treatment system with the ability to treat the wide variety of parameters in the process waters and runoff. The lift station discharges directly into the treatment plant which will only function when the lift station is operating.

The treatment system will consist of coagulation, flocculation, clarification, macrolite media filtration and activated carbon adsorption. These processes serve to remove the parameters of concern prior to discharge. The team determined that formaldehyde could be treated to acceptable levels through extended detention times within the reservoir. Chloride and sulphate are also monitored to ensure compliance with the proposed objectives and limits. The ECA included two online chloride analyzers; one at the settling tank and one immediately prior to discharge. These analyzers will be able to detect abnormal changes in the process water chloride concentration.

In addition to the compliance limit and objective concentrations dictated by the ECA, MTE and the MECP agreed to additional sampling along the treatment process to guide the operation and compliance of the system.

Current Status

Our team continues to collect samples from the stormwater management pond to determine the historic seasonal patterns in the chloride and sulphate concentrations. Having received ECA approval, this project is currently under construction and it is expected to be fully operational for WFS in the spring of 2023.

Update on Current Status – November 10, 2023

The project has been constructed and is currently undergoing startup and commissioning.

Learn more about the author, Morgan Crane, on Page 18.

Thank you!

OOWA Board, Volunteers, and staff have been making great efforts to enhance the association and its value to the membership. We've worked diligently to create new resources, increase awareness both within the industry and to the general public, provide networking opportunities and protect the integrity of the Association for years to come. We've summarized below only a few of the things we've accomplished this year, and are working toward in 2024. A big thank you goes out to the volunteers for their efforts. OOWA exists for our members, and because of them, but we can't do any of it without our board and committees.

If you have any feedback on ways OOWA could be serving its members, please reach out to us – or better yet, become a volunteer!

Completed **Pending**

Communications Committee

- ✓ Basic Installation Video
- ✓ Septic Awareness Week
- ✓ Increased followers on socials

- … Webinar on the different types of toilet paper and how they can affect a sewage system – a good homeowner resource to share with your clients

Events Committee

- ✓ Back to in-person Convention & Expo
- ✓ In-person Regional Meeting Series
- ✓ Blue Jays Social

- … New ideas are trickling in for our 2024 events line up!

External Relations Committee

- ✓ OBOA Journal publication
- ✓ Exhibiting at the OBOA Convention
- ✓ Attending the NOWRA conference
- ✓ New OBOA partnership agreement

- … Regularly meet with the MECP to discuss improving the Environmental Compliance Act approval process
- … Develop an FAQ to help mitigate concerns around Municipal Responsibility Agreements

Finance Committee

- Continuously streamlining OOWA's financial processes
- Closely monitor OOWA's expenditures and revenues
- Looking at ways of recognizing your commitment to the organization through new projects and development of resources

Governance Committee

- Investing in legal and cyber security advice to protect the Association that serves you
- Ontario Not-for-Profit Corporations Act compliance includes a complete revision of our by-laws which we will be presenting at the 2024 AGM

Membership Committee

- Created and maintain the Member Forum
- Continuing the successful endeavour of Promotional Memberships to Part 8 course participants
- Secured a new member benefit with NAPA Autoparts
- Actively pursuing new member benefit partners

OTC

- Finalizing three Guidance documents
- Continuously working on Guidance Documents and other helpful resources

Prof. Development Committee

- ORWC training course partnership enabled us to provide three training courses that have been in high demand
- Working toward a webinar series geared to Regulators
- Continuously reviewing and improving our RPP program

Ontario Onsite Wastewater Association

Throwback Article

Volume 18 Issue 3, Fall/Winter 2017

MITIGATING THE EFFECTS OF CHEMOTHERAPY DRUGS IN A LARGE ON-SITE WASTEWATER TREATMENT AND DISPOSAL SYSTEM

By Michael Varty, P.Eng., WSP Canada Inc.

After finishing up the base cut inspection for the new sewage disposal system at Camp Oochigaes (Ooch) in October 2015, the Director for Site Expansion at the Camp looked at me and said "This better work"; my response was that if it didn't, I was moving to Costa Rica. A fairly lighthearted response, but truthfully the stories I had heard in my previous 15 years of engineering about sites like this gave me reason to take extra care and consideration through this project's life cycle.

Camp Ooch isn't a regular children's camp, far from it. It is one of the most important Camp facilities that we have in Ontario, but not likely one that many people know much about. Camp Ooch is a privately funded, volunteer-based, facility that exclusively serves children with cancer.

Camp Oochigaes surrounds Lily Lake, near Rosseau, ON

In late 2013, WSP was tasked with designing both a remedial and expansion wastewater treatment system to service the Camp. The Camp's historic wastewater systems had failed, while at the same time the Camp was embarking on an ambitious expansion that would take their peak daily design sewage flows from 40,000 L/day to 80,000 L/day. Outside of the regular challenges associated with a large design of this nature, in a rugged area of Ontario such as Rosseau, was the unique concern that many of the children who would attend the Camp would be on active rounds of chemotherapy medications. Having only heard stories of the negative effects of chemotherapy medications on on-site (septic) systems, we knew that this site needed to be carefully engineered. Chemotherapy medications have toxic effects on cells or cell growth, which can include inhibiting DNA synthesis or disrupting the mitotic spindle assembly to prevent mitosis (cell-division); thus the potential for negative effects on the wastewater treatment system, which would rely on a healthy microbiological population, was evident.

In order to design a system capable of handling this unique wastewater stream, WSP needed to first understand what medications the Camp administered on a routine basis. Camp Ooch works closely with The Hospital for Sick Children in Toronto, which also became a great resource for this portion of the study. Through consultation with both the Camp and the hospital, the predominate medications were noted to be:

- Mercaptopurine (Oral)
- Methotrexate (Oral)
- Vincristine (Intravenous)
- Vinblastine (Intravenous)

WSP's goal was to create the simplest treatment design possible for the reduction/elimination of the medications and decided to explore the idea of using the half-life for the medications as a starting point. We had successfully implemented a similar half-life based design solution at a micro-scale for embalming wastewater from funeral homes in 2012 and were hopeful that something as simple as adequate holding capacity could work here as well.

Of the medications administered at the Camp, the oral medications (Mercaptopurine and Methotrexate) had relatively short half-lives of approximately 2 hours and 15 hours. These medications were also the ones that were most regularly being used at the Camp. In order to get to about 95 to 99% removal we needed about 5 or 6 half-life cycles to occur; meaning that for the oral medications we would need to supply a minimum of 3 days of flow equalization and storage prior to the wastewater treatment system.

The intravenous medications (Vinblastine and Vincristine) had longer half-lives of 1 day and 3 days (average), respectively. In order to supply 5 half-life cycles for these drugs to achieve approximately 95% removal the system would need to incorporate about 15 days of flow equalization and storage prior to the wastewater treatment system. At a flow rate of 80,000 L/day this would be about 1.2 million litres of equalization; which would be neither practical nor cost effective.

WSP had an additional consultation with The Hospital for Sick Children to determine the frequency that these intravenous medications would be administered. This was to understand the risk that the medications may pose to the wastewater treatment system if they were not highly removed prior to entering the wastewater treatment process. Unlike the oral medications which were frequently administered, the direction given from the hospital was to assume that a maximum of 5 doses in any given week would be administered of the intravenous drugs.

As these drugs were administered on an infrequent basis versus the number of children who attend the camp (up to 400 people present at any given time), a risk based approach to the design related to the intravenous medications was taken. WSP designed the system so that it would have approximately 3.5 days of sewage retention time within the sewage collection, equalization, and primary clarification tanks. With approximately one half-life of the intravenous medications complete within that tankage volume, and conservatively a 400:1 dilution rate from the sewage produced elsewhere on the site (400 campers versus 1 intravenous dose), the risk associated with these drugs affecting the performance of the on-site sewage treatment system was deemed to be acceptable.

With over 95% reduction in the more common oral medications, and the risk of the intravenous medications deemed acceptable, WSP was then able to work with traditional wastewater treatment suppliers to determine the optimal packaged treatment plant for the Camp.

Ultimately the wastewater treatment system designed by WSP, and approved by the MOECC, included a Moving Bed Bioreactor (MBBR) system supplied by RH2O North America. The Wirbel-Schewebebett Biofilmverfahren (WSB) Clean Pro tertiary treatment system was designed to treat the sewage to Ontario Building Code (OBC) Level IV standards, with additional phosphorus removal by chemical precipitation. The system was successfully installed between the close of camp in 2015 and camp opening in 2016.

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Additional pre-treatment tanks being installed prior to the sewage treatment system

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WSP has completed the sampling program required by the MOECC throughout 2016 and 2017, the results of the sampling program are noted in the table below:

PARAMETERS			TREATED EFFLUENT (MG/L)			
Sampling Event	**EFFLUENT OBJECTIVE**	**RAW SEWAGE**	**July 2016**	**August 2016**	**June 2017**	**August 2017**
$CBOD_5$	10	270	6	<2	<2	<3
TSS	10	99	5	6	16	28.6
TKN	-	121	28	39	5	7
Ammonia-N	-	86	25	39	6	5
Nitrite	-	<0.10	1.3	13.5	3.4	0.1
Nitrate	-	<0.20	36.8	46.5	54.5	43.0
Alkalinity (as CaCO3)	-	486	14	<1	<1	<10
pH	-	7.45	6.84	4.68	5.06	4.27

2016 and 2017 Sampling Results

There are some modifications to be made to the treatment system, specifically due to the higher than expected raw TKN values leading to an alkalinity deficiency in the wastewater; however, based on the sampling results to date it appears that the design has been successful in mitigating the effects of the chemotherapy drugs on the wastewater treatment system.

The design provided by WSP has demonstrated to be an effective solution to working with the complex wastewater stream found at Camp Ooch; which for me means that I'll be shoveling snow this winter, rather than hiding away on a beach in Costa Rica.

Founded in 1983 and 1984 respectively, Camp Ooch & Camp Trillium, combined their strengths with a merger in 2020, followed by a rebrand to Campfire Circle in 2022.

What began as two humble summer camps for kids with cancer and their families offers healing through happiness year-long in hospitals, in the community and at overnight camp, all across Ontario.

To learn more visit: https://campfirecircle.org/about-campfire-circle/our-history/

CAMPFIRE CIRCLE
FORMERLY CAMP OOCH & CAMP TRILLIUM

This Throwback Article was originally published in the fall/winter 2017 edition of the Onsite newsletter, Volume 18, Issue 3. You can access OOWA's archived newsletters here.

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Change in Water Management

Where does our industry fit?

By: Roddy Bolivar, P. Eng., Stormwater Solutions Lead, Makeway Environmental Technologies Inc. & Lars Bergman, Dipl.-Kfm, Co-Founder & CEO, BNA Inc (Bergmann North America)

Water as a resource is the basis of all life. Safeguarding water through proper wastewater management is the main task of our industry. Many others including the drinking water industry and the rainwater management industry and, increasingly, the water reuse industry have similar underlying goals to protect water resources and sustain the natural resource, public health and economic functions of water.

Water resources and water resource management are undergoing change and facing challenges. Historical records indicate an increasing frequency and intensity of severe climate events. And while intense rainfalls and associated flooding are in the news, in some areas drought and supply may be a challenge. Water bodies are at risk of pollution and depletion from many sources. Groundwater resources are also at risk from long term reduction of recharge, depletion from over use and pollution. All these changes and challenges relate either directly or indirectly to OOWA members and our businesses.

Today's challenges may require a transformation in how water resources are planned, used and managed. Governments at all levels, water businesses, individual industry professionals, water advocates and the general public are aware and acting on a need for change. Individual onsite professionals and our industry association can prepare for change, implement change and perhaps even lead change. We can play a role … but what is that role?

Other Industry Associations are Changing

The German Association for Water Management, Sewage and Waste (DWA www.dwa.de) and the Helmholtz-Centre for Environmental Research (UFZ www.ufz.de) are leading change in Germany through research, advocacy, training and support for change activities. One activity is surveys of industry professionals and industry associations with a goal to identify challenges to change and chart pathways to address those challenges.

Those surveys have identified: a need for political, legal, financial and administrative frameworks for change; administrative support for local government in the initial development of strategies in particular for small municipalities; fragmentation and lack of transparency of the existing public funding guidelines as well as bureaucratic and uncertain funding conditions; means to overcome fragmented responsibilities; a need for political prioritization with explicit objectives and a need for long(er)-term planning at all levels of government administration and budgets.

In response to the challenges, the DWA and the UFZ have developed analysis, programs and tools to assist industry professionals and water management and advocacy agencies including municipalities to both comply with requirements and lead change. Initiatives have included: surveys and expert interviews to identify needs; identification of resources and knowledge sharing opportunities; creation of a "competence network"; training programs with a goal of establishing "know-how" carriers within municipal governments, associations, and companies; conceived and launched a "competence network" to provide independent strategic and organisational advice; support for preparation of water strategies and implementation plans. The DWA and the UFZ are also undertaking action to address the challenge of talent deficit through organization of training courses.

The US Water Environment Federation sponsored Distributed Water Infrastructure Task Force (DWITF DWITF WEFTEC) is made up of a cross section organizations in the broad water sector. The group has come together only over the past eight months with a goal to characterize a distinction between centralized and decentralized water infrastructure and promote distributed water infrastructure as a model best suited to more integrated management of water resources. **Continues on next page**

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In the distributed model, the focus is on management of all water resources and related infrastructure – water bodies, rainwater, stormwater, drinking water and wastewater – as one resource. A key element of the distributed water model is that infrastructure, regardless of which water, are owned or managed by one professional management entity.

Similar to the identification of barriers by DWA and UFZ, the task force's early goal is research among members to define the current reality, consider how to address regulatory and fiduciary barriers, and present possibilities for implementing the newest and best water resource management practices and infrastructure.

Parallels in Ontario

In Ontario there is a host of legislation and regulation governing the management and planning of water resources. Those range from the federal Canada Water Act to provincial regulations such as D-5-4 nitrate regulation to conservation authority watershed plans to the many municipalities who have initiated their own locally sensitive water management requirements.

Municipal and regulator OOWA members along with other members may, if asked, comment that some of the water management challenges identified by DWA and UFZ in Germany are alive and well in Ontario. As each level of government acts on change, OOWA members may see both opportunities and challenges.

The Ontario Onsite Wastewater Association provides value to members. The Association is already active in many of the areas identified by the DWA, UFZ and DWITF initiatives. Member surveys and action on those, information in OnTrack and other communication tools, content at regional events and the annual conference, professional development courses and the work programs of OOWA committees often have a focus on the challenges and opportunities of member businesses and the industry as a whole.

Centralized, Decentralized and Distributed – An Early OOWA Opportunity

DWA, UFZ and the DWITF, in considering challenges and opportunities, have decided to promote a "distributed" approach to water management and developing understanding of how all sectors including wastewater fit. Such a focus is perhaps relevant in Ontario where integration is already being seen in the wastewater sector. Examples include news reports that wastewater is being repurposed (including as source water to make beer!) and provincial promotion of infiltration to reduce stormwater runoff is being considered in approving nitrate dilution for OOWA member onsite solutions.

Some OOWA members will be familiar with the centralized vs. decentralized impact on our industry. "Baked-in" development policies, regulations and provincial design manuals all support centralized services and provincial policy has historically placed onsite and communal servicing as second and third choices behind central services. A "distributed" model of water management provides equity to consideration of servicing solutions and would give a higher profile to the environmental, water resource and infrastructure affordability benefits of onsite and communal servicing.

OOWA Next Steps?

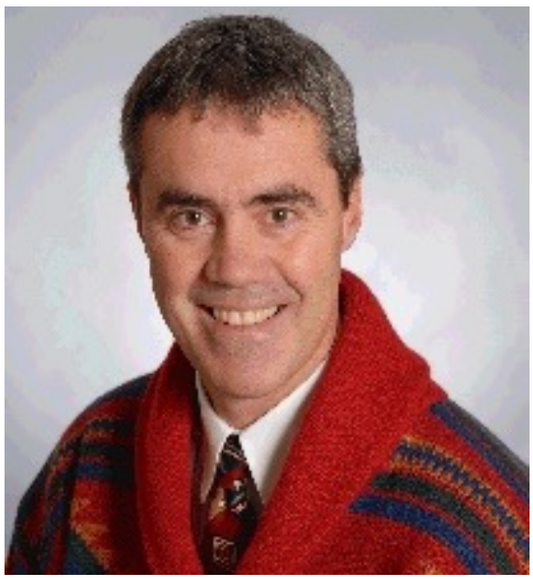
The DWA, UFZ and DWITF are perhaps ahead of Ontario's wastewater industry professionals and water sector associations by bringing a strong focus to identifying, considering, predicting, and preparing for how change is and will land on our industry – both as challenges and opportunities. OOWA can draw from the experience and the action decisions of other industry associations as a short circuit to opportunities for OOWA activities which will provide benefit to members:

- OOWA may consider and act on a "change challenges and opportunities" lens across all exiting activities and identify possible new research, industry promotion and Committee activities;
- OOWA may consider and act on taking a leadership role through outreach to other water sector associations;
- OOWA may consider and act on the opportunity for membership growth which may arise from research, promotion and Committee work to frame the wastewater sector and the activities of our members withing the broader water sector.

About the Authors

Lars Bergman

Lars is the Co-Owner and CEO of Bergmann North America Inc. Being in the onsite industry for 20 years, he developed and promoted wastewater products and services in 28 countries. Working with international and multicultural teams in Germany, in Eastern European countries, Scandinavia, Asia and North America, Lars was able to learn about alternative approaches, local conditions and requirements regarding water and wastewater management. In October 2022 he was approached by the Helmholtz Centre for Environmental Research to take over the project lead to develop an "Institute for Distributed and Resilient Infrastructure" in Germany.



Roddy Bolivar

Roddy is the Make-Way Environmental Technologies Customer Service representative in Eastern Ontario. Starting his career with undergraduate degrees in both Biology and Engineering, Roddy has kept the environmental impacts and benefits of the onsite industry foremost in his work. With over 30 years of professional practice, Roddy's experience includes design and supervision of onsite and communal systems installations, regional planning for wastewater.

Ontario Onsite Wastewater Association

The holiday season is the perfect time to express our gratitude for your continued commitment to your professional Association.

HAPPY HOLIDAYS

to you and yours

From all of us at OOWA, we thank you for your support and dedication to improving our industry.