



Onsite

NEWSLETTER

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The Test Pit Was Perfect. The Title Wasn’t.

When Private Conservation Agreements Sneak Into
Your Septic Project

By Brad Shadlock

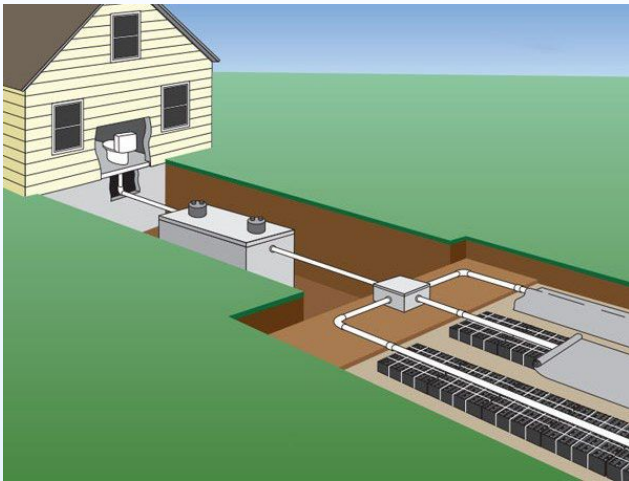
If you’ve ever lined up a test pit on a crisp Ontario morning, Double Double still steaming in your hand while the excavator idles in that familiar low rumble, you know the quiet optimism of those first few scoops. The operator eases the bucket in, everyone leans just a little closer, and for a brief moment you let yourself believe this might actually be a straightforward site. Then it happens. That unmistakable sound of steel on Canadian Shield snaps you out of your morning optimism faster than the lid on the Tims coffee you’re still holding decides to leak down your glove... even though you clicked it twice. It’s a small, soggy reminder that some sites just have rules of their own.

As anyone on the municipal side knows, those “rules” aren’t always geology. Sometimes they’re tucked into a registered agreement from decades ago, sitting quietly on title until a building permit application brings them back to life. This is the story of one of those moments. A septic system inspection that looked routine on paper, checked every box in the Ontario Building Code (OBC), and still managed to leave everyone involved scratching their heads.



Continued on page 18

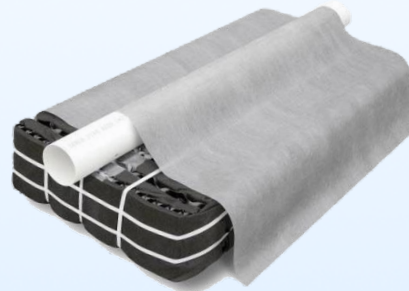
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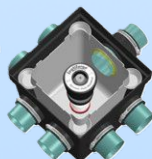


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President's Message



Welcome to the 2026 Ontario Onsite Wastewater Association Annual Convention and Expo. This year, we are excited to gather in the iconic city of **Niagara Falls**, a destination known worldwide for its natural beauty, innovation, and ability to bring people together.

As I reflect on my own journey in the onsite wastewater industry, it's remarkable to see how far both I and this association have come. Like many of you, I started out learning, listening, and occasionally feeling overwhelmed by the responsibility that comes with protecting public health and the environment. To now serve as President of OOWA, surrounded by such a knowledgeable, passionate, and dedicated membership, is something I do not take for granted.

I would like to take a moment to recognize and celebrate the collective achievements of our members. Each of you plays an important role in advancing the onsite wastewater industry in Ontario. Whether through design, installation, inspection, maintenance, manufacturing, education, or advocacy, your commitment strengthens our profession. Over the next few days, let's take pride in what we have built together and look ahead to what's next.

The past year has been one of continued growth, challenge, and accomplishment for OOWA. Some highlights include:

- Continued development and release of communication resources, including videos, newsletters, and guidance materials
- Delivery of training sessions and meaningful member engagement opportunities
- Strengthened collaboration with partner organizations both within Ontario and beyond
- Ongoing engagement with provincial regulators on issues impacting our industry
- Development of our new strategic plan

Looking ahead to the year to come, OOWA has an ambitious and exciting agenda, including:

- Continued advancement of our initiatives that are already underway
- Finalize our strategic plan and put it into action
- Expanding and strengthening membership services
- Enhancing our communication tools and outreach
- Developing and delivering new and relevant training programs

These lists only scratch the surface. The scope of work being done by OOWA on behalf of its members is extensive, and I can confidently say that the Board, committees, staff, and volunteers remain committed to making OOWA the go-to source for onsite wastewater knowledge and leadership in Ontario.

I cannot conclude without expressing my sincere thanks to the many people who make this convention possible. To our sponsors, exhibitors, speakers, volunteers, attendees, and dedicated staff, thank you for your time, energy, and support. Your contributions are what make this event successful year after year.

Enjoy the convention, enjoy Niagara Falls, and thank you for being part of OOWA.

Bill Goodale, President



Ontario Onsite Wastewater Association
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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.

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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CONVENTION SCHEDULE - DAY 1

Sunday, March 08, 2026

11:00 am - 12:00 pm	OOWA Board Meeting	Upper Fallsview B
12:00 pm - 4:00 pm	Registration Desk Open	Pre Function Space Great B
12:00 pm - 6:00 pm	Exhibitor Set-Up	Great AB
1:00 pm - 4:00 pm	Training Sessions	See Right
4:15 pm - 5:30 pm	Annual General Meeting	Strategy 2
6:00 pm - 9:00 pm	Welcome Reception: Light dinner, Trivia, Games	Great AB
9:00 pm Onwards	Hospitality Suites	

CONVENTION SCHEDULE - DAY 2

Monday, March 09, 2026

7:30 am - 8:45 am	Networking Breakfast	Great AB
8:45 am - 9:00 am	Welcome and Opening Remarks	Great C
9:00 am - 10:00 am	KEYNOTE ADDRESS PFAS, Microplastics, and Emerging Contaminants: Treatment and Mitigation Strategies, Best Practices, and Changing Regulations for Onsite Wastewater Systems. Banu Örmeci, Carleton University	Great C Keynote session will not be recorded.
10:00 am - 10:30 am	Networking Break and Exhibit Hall	Great AB

	Strategy 1	Strategy 3
10:30 am - 11:00 am	Session 1A: 50m3 /day Onsite Installations: Lessons from the Field Andy Bauman, Ian Robinson Bergmann North America	Session 1B: Groundwater Mounding: The Unseen Factor Mike Varty EnVision Consultants
11:10 am - 11:40 am	Session 2A: When Field Conditions Dictate Design Adjustments on a Complex Commercial System Installation Jazmyne Woolley, Chris James R.J. Burnside, Waterloo Biofilter Systems Inc.	Session 2B: Experimental Testing of Gravity Distribution Methods Dominic Mercier Enviro-STEP Technologies
11:50 am - 12:35 pm	Session 3A: Applying Part 8 in Remote or Unincorporated Areas Bill Potruff Thunder Bay District Health Unit	Session 3B: MTO/CVOR Updates Hank Dubee NBS Traffic Law
12:35 pm - 1:35 pm	Equipment Rodeo, Networking Lunch and Exhibit Hall	Great AB
1:35 pm - 2:05 pm	Session 4A: Supporting Housing Supply Through ADUs: Engineering and Planning Implications for Private Servicing Chris Gerrits, Jessica Doherty Crozier Consulting Engineers	Session 4B: Reading the Code - Defined Terms, And's and Or's, Except as, to within, etc. Brad Smale Smale Consulting Services
2:15pm - 3:15 pm	Session 5: Ask the Expert Panel Discussion; Moderated by Rick Esselment, ESSE Canada Panelists: Katherine Rentsch, Matt Wesley, Brock Peel Crozier Consulting, Munc. of Trent Lakes, Canadian Sanitation	Great C
3:25pm - 4:25 pm	Session 6: Update from the Ministry of Municipal Affairs & Housing James Ross MMAH - To be confirmed	Great C
4:25 pm - 5:00 pm	Equipment Rodeo, Networking Break and Exhibit Hall	Great AB
5:00 pm - 6:00 pm	No scheduled events	
6:00pm - 7:00 pm	Pre-Banquet Reception	Pre Function Great C
7:00pm - 11:00 pm	Annual Awards Dinner & Networking	Great C
11:00 pm Onwards	Hospitality Suites	

TRAINING SESSIONS

Sunday, March 08, 2026
1:00 pm to 4:00 pm

** Training sessions run concurrently and therefore you can only attend one session. **These sessions will not be recorded.**

TRAINING SESSION # 1

Design Workshop

*this workshop has limited capacity and will require registration in advance.

Anne Egan
R.J. Burnside & Associates

Strategy 1

TRAINING SESSION # 2

Part 8 Permit Application Review - Condensed

Eric Kohlsmith
Rideau Valley Conservation Authority

Strategy 3

CONVENTION SCHEDULE - DAY 3

Tuesday, March 10, 2026

7:30 am - 8:45 am	Networking Breakfast	Great AB
8:45 am - 9:00 am	Welcome and Opening Remarks	Great C
9:00 am - 10:00 am	KEYNOTE ADDRESS Build It Anyway: Lessons in Resilience, Vision, and Rebuilding from the Ground Up Kate Campbell, "Kate Builds"	Great C Keynote session will not be recorded.
10:00 am - 10:30 am	Networking Break and Exhibit Hall	Great AB
Strategy 1 Strategy 3		
10:30 am - 11:15 am	Session 1A: A Service-Corporation Model for Communal Water and Wastewater: Lessons from Frontenac County Tyler Lalonde, John Levie Frontenac Municipal Services, Clearford Water Systems	Session 1A: Insights into onsite wastewater system regulations (Part 7) Rainier Blundell George Brown College
11:25 am - 11:55 pm	Session 2A:How Nova Scotia is Using Communal Wastewater Systems to Enable Housing Development Andre Veinotte Able Engineering	Session 2B: Navigating Rural Development and Part 8 Sewage Systems Permitting Approval Processes in Ontario Trevor Imhoff T.I. Services
11:55 am - 12:55 pm	Equipment Rodeo, Networking Lunch and Exhibit Hall	Great AB
12:55 pm - 1:55 pm	Session 3A: Ultra-Low Nitrogen Treatment: Science, Technology, and Practical Application Paisley McDowell, Miles MacCormack EnVision Consultants, Bergmann North America	Session 3B: Combined Treatment and Dispersal Systems (CTDS): Regulation and Practices Across Canadian Provinces Miguel Almasy DBO Expert
2:05 pm - 2:50 pm	Session 4A: Multi-tracer approach for assessing wastewater pollutant inputs to streams from onsite wastewater treatment systems Clare Robinson Western University	Session 4B: Riding the Treatment Train Practical Soil Concepts and Design Strategies CeCe Rudnicki The Septic Gal
3:00 pm - 3:45 pm	Session 5: The Value of Embracing Joy Becca Partington Faculty, Durham College	Great C
3:45 pm - 4:00 pm	Closing Remarks, Prize Giveaways/Pick Up and Final Announcements	Great AB

***IMPORTANT NOTE: The Convention Agenda is subject to change at any time leading up to, and throughout the course of the event.**

If you have any questions regarding the agenda please reach out to Kelly at executivedirector@oowa.org

2026 Exhibitors

Exhibitors: Registered as of our publication deadline





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Keynote Speakers



Tuesday, March 9th
9AM – 10AM

Prof. Banu Örmeci, Jarislowsky Chair in Water and Health, Department of Civil and Environmental Engineering, Carleton University, Ottawa, ON

Presentation Topic:

PFAS, Microplastics, and Emerging Contaminants: Treatment and Mitigation Strategies, Best Practices, and Changing Regulations for Onsite Wastewater Systems

Dr. Banu Örmeci received her MS and PhD degrees from the Department of Civil and Environmental Engineering at Duke University (USA). She is the Jarislowsky Chair in Water and Health and the Director of the Global Water Institute at Carleton University. She leads an internationally recognized research program on wastewater and biosolids treatment. Her collaborative research with the wastewater industry has resulted in several patents and led to new technologies. Dr. Örmeci serves on the board of the Canadian Association on Water Quality (WEAO) and is a member of the Water Environment Association of Ontario (WEAO) Residuals and Biosolids Committee. She also works closely with the International Water Association (IWA) and the Inter-American Network of Academies of Science (IANAS) Water Program. She has received more than 25 national and international research, teaching and mentoring awards.



Tuesday, March 10th
9AM – 10AM

Kate Campbell, “Kate Builds”

Presentation Topic:

Build It Anyway: Lessons in Resilience, Vision, and Rebuilding from the Ground Up

Kate Campbell entered the skilled trades in 2005 after completing a Women in Skilled Trades Enhanced General Carpentry program. Since then, she has built a career shaped by hands-on construction and hard-earned experience, becoming a familiar face in the home renovation industry.

Kate has worked on numerous HGTV shows, including Holmes on Homes, Holmes in New Orleans, Holmes Inspection, Decked Out, and Deck Wars. She also served as a host on HGTV’s Custom Built and most recently appeared on HGTV Canada’s hit series Home to Win and Family Home Overhaul.

Outside of television, Kate owns and operates Kate’s Contracting Inc., where she specializes in rehabilitating run-down and neglected properties. With nearly two decades in the trades, she is committed to changing the face of the construction industry by advocating for women in skilled trades.

Kate’s mission is rooted in lived experience: to use her story, skills, and platform to empower women to enter the trades, take up space in male-dominated industries, and build confidence.

2026 Convention & Expo Presenters

Information as of our publication deadline



Miguel Almassy - Miguel Almassy is a Biotechnology Engineer who graduated with a focus on wastewater treatment. He has been with DBO Expert for 7 years, which specializes in on-site wastewater treatment, where he currently serves as the Technical Director. Beyond his role in regulatory compliance, Miguel deeply contributes to Research and Development and ensuring DBO Expert's solutions are appropriately adapted to meet on-site wastewater treatment standards across Canada. Miguel actively participates in technical committees, including those for the CAN/BNQ 3680-600 Standard and Ontario Building Code Part 8.



Andy Bauman - Andy Bauman is a Sales and Project Manager with Bergmann North America (BNA), specializing in onsite and decentralized wastewater treatment solutions. With over 15 years of experience across equipment supply, engineering consulting, and MBBR system design/construction, Andy brings a broad, practical perspective to the industry. He has worked closely with engineers, installers, regulators, and system owners on a wide range of residential and commercial applications, with a particular focus on advanced treatment technologies, system optimization, and long-term performance. Andy currently serves on the Board of Directors for the Ontario Onsite Wastewater Association (OOWA) and is passionate about knowledge transfer, practical problem-solving, and advancing best practices within the industry.



Rainier Blundell- Rainier Bratsch-Blundell, Professor, Plumbing Programs Coordinator, Professor, Plumbing Programs Coordinator. Mr. Rainier Blundell developed an interest in the trades while working for his family's construction company from a young age. At age 15 he started working with a plumber doing maintenance for a restaurant chain, working up to Assistant General Manager of the Empire Group of Restaurants. At the age of 20 he left the restaurant business to take the opportunity to become a Plumbing apprenticeship in Toronto. Mr. Blundell completed the in school portion of his apprenticeship training at George Brown in 1987 and 1989 and was licensed in 1989. He now has over 30 years' experience in his trade. In 1999 he decided to share this experience with others by joining the team at George Brown College. Since then he has genuinely enjoyed working with the other Professors to provide the best experience possible for their students.



Jessica Doherty - Jessica Doherty, P.Eng., is a Project Manager with C.F. Crozier & Associates, where she specializes in the design and approval of private sewage systems throughout Ontario. Her experience includes capacity assessments, Water Resources Impact Assessments, Environmental Compliance Approvals, and developing servicing strategies to support development and redevelopment projects. She regularly collaborates with municipal reviewers, regulators, and contractors to advance projects from concept through construction.

2026 Convention & Expo Presenters



Hank Dubee - With over 35 years of experience as an MTO Enforcement Supervisor, Hank brings unparalleled expertise in vehicle safety and traffic regulations. His impressive credentials include roles as a Provincial Trainer for both MTO and OPP, Dangerous Goods Instructor, Cargo Tank Instructor, CVSA Inspector, and a Lidar Certified Officer. Hank's dedication to highway safety has made him a trusted voice in Ontario, and now he's sharing his knowledge through public presentations and discussions. Don't miss this opportunity to gain insights from a seasoned expert in the field!



Chris Gerrits - Chris joined Crozier in October 2019 and manages our hydrogeology team. Chris brings over 20 years of experience in hydrogeological engineering focusing extensively on communal groundwater supply exploration and testing in Ontario and Manitoba for municipal and First Nation clients. Following undergraduate and graduate degrees in Water Resource Engineering at the University of Guelph, Chris spent some time in engineering consulting before owning and operating one of the largest groundwater exploration and testing contractors in Ontario where he completed the installation of hundreds of municipal water supply production and monitoring wells providing millions of residents with safe reliable groundwater all across the province of Ontario.



Trevor Imhoff - Trevor is a municipal and sustainability expert with over 12 years of professional experience working on complex multi-disciplinary projects. He has been at the forefront of municipal climate action and sustainability and currently is the owner of T.I Services, a boutique wastewater design and project management consulting firm. In addition, Trevor works for the City of Hamilton's Office of Climate Change Initiatives, and routinely provides guest lectures to McMaster University. Trevor's work experience spans private engineering and all levels of government that provides him unique and practical expertise in helping clients sustainably develop across southwestern Ontario. Trevor has been nationally recognized through the Federation of Canadian Municipalities Top 10 Innovative Municipal Leaders Cohort in 2018 and was nominated twice for the University of Waterloo's Young Alumni Inspiration Award in 2019 and 2022. Trevor received his Honours Bachelors Degree in Environment and Resource Studies, with a Minor in Biology and a Diploma in Ecological Restoration and Remediation from the University of Waterloo. He continues his learning journey focusing on executive leadership, with a strong commitment to equity and diversity.



Christopher James - Chris James is an onsite wastewater professional with over 20 years of experience specializing in commercial wastewater treatment systems. In his role with Waterloo Biofilter Systems, Chris works closely with engineers, designers, installers, and regulators to deliver practical solutions for commercial projects.

His experience includes supporting system selection, budgeting, tendering, construction coordination and long-term operational requirements. Chris is particularly focused on bridging the gap between design intent and field execution, helping project teams avoid common pitfalls that can impact performance, cost, and approvals.

2026 Convention & Expo Presenters



Eric Kohlsmith - Eric has been a Part 8 Building Official for the Rideau Valley Conservation Authority since 2008 working in Tay Valley Township in eastern Ontario. Over the last 10 years he has administered sewage system re-inspections programs in up to 5 local municipalities, and is a member of the OBOA Golden Triangle Chapter Part 8 Committee. Eric was instrumental in developing OOWA's regional meeting template and was part of the initial organizing committee. Eric is also an instructor with the Ontario Rural Wastewater Centre delivering courses related to onsite sewage systems and is also a member of the Technical Advisory Committee for the last round of proposed code changes for Part 8.



Tyler Lalonde - Tyler Lalonde is the Administrative Coordinator of Frontenac Municipal Services. Since 2023, he has supported governance, regulatory submissions, and technical workplans to advance scalable communal water and wastewater solutions in rural communities. Tyler holds a Bachelor's Degree in Business Administration from Laurentian University and focuses on aligning policy, risk management, and stakeholder engagement to enable new housing through communal systems.



John Levie - John Levie is a seasoned engineering professional with over 29 years of experience in water and wastewater operations, industrial water systems, and environmental solutions. As Clearford's VP of Engineering, he leads a specialized team focused on supporting decentralized water treatment systems across Ontario and has been instrumental in advancing solutions that improve water management and sustainability.

Mr. Levie's career began in plastics and polymer processing before transitioning to reactor safety at Bruce Power. He later earned his Master of Engineering (Chemical) degree and gained hands-on experience in membrane production at ZENON Environmental, contributing to R&D, product design, and plant commissioning.

In 2000, he joined ASI Water, where he played a key role in engineering design, regulatory approvals, and operational support for water and wastewater systems. Following the Clearford-ASI Water acquisition in 2020, John continues to apply his expertise to site-specific treatment solutions, guiding projects from design through long-term operation. His focus on decentralized systems aligns with the growing demand for sustainable water infrastructure in expanding rural communities.

John remains committed to advancing water treatment technologies, ensuring regulatory compliance, and delivering innovative solutions that protect public health and promote environmental sustainability.



Paisley McDowell - Paisley is a Water Resources Engineer, specializing in onsite sewage works, at EnVision Consultants Ltd. Paisley's experience includes design, permitting, and construction supervision of onsite sewage servicing and disposal systems for large and small residential, commercial and institutional developments. Paisley has extensive experience executing Sewage System Maintenance Inspection Programs, working with thirteen Municipalities and over 10,000 properties. She is a board member of the Ontario Onsite Wastewater Association and collaborates with Association members on the Onsite Technical Committee.

2026 Convention & Expo Presenters



Miles MacCormack - Miles MacCormack is the Co-Founder and President of Bergmann North America Inc. (BNA). BNA is a company created to offer innovative environmental solutions with a focus on decentralized wastewater treatment and controls with remote management. Miles specializes in water and wastewater treatment, having over 20 years of experience in the evaluation, design, installation, and operation of wastewater, water, and industrial treatment systems. Furthermore, he has a wide variety of expertise in regulatory compliance, environmental assessment, monitoring, analysis, and reporting. This experience has been developed over a wide variety of sectors and projects including, municipal, residential, parks, commercial, and industrial from ultra-pure and drinking water to process and wastewater applications. Miles' passion is designing and implementing high quality, cost effective, and ecologically sound wastewater treatment systems using state-of-the-art and emerging technologies. Prior starting BNA, Miles worked in various roles starting out as a brewer at Sleeman brewing and progressing through several water related engineering positions including 10 years in consulting on rural servicing projects. Miles has been an OOWA member since 2004.



Dominic Mercier - With a degree in Civil Engineering and a master's degree in Environmental Engineering, I have worked for 30 years in the Onsite Wastewater Industry. I have designed thousand of residential systems and hundreds of various types of commercial, institutional, industrial and communal applications. I was involved in the development, certification and commercialization of many treatment technologies used today in Canada. I am the founder and president of Enviro Neptune, a research and development company dedicated to Onsite Wastewater Research as well as founder and president of Enviro-STEP Technologies, a company developing, manufacturing and distributing Onsite wastewater treatment technologies for the Canadian market.



Becca Partington - Becca Partington, B.A. is a long standing faculty member at Durham College in the Faculty of Social and Community Services, where she teaches and works to equip aspiring social service workers with the tools to be present for others. After years of front line work, Becca's role shifted to 'Caring for the Carers,' as conference hosting and workshop development became the core of her work prior to Covid. As such, she is now the Team Member Wellness Consultant for Schlegel Villages, an organization that runs 19 long term care and retirement homes where she runs various groups exploring grief and loss, how conflict and communication impact team dynamics, the value of embracing Psychological Safety in the workplace, and how through balanced self care, finding joy in our work and lives, can benefit us and all those we care for.



William Pottruff - Bill Pottruff is a Public Health Inspector with the Thunder Bay District Health unit with 21 years of experience and is currently serving as the Chief Building Official for Part 8 of the Ontario Building Code. Bill holds a Bachelor of Technology and a Master's Degree in Disaster and Emergency Management and has invested significant effort into developing a remote inspection program for the unorganized territory of Ontario focusing on a collaborative and balanced approach to septic system compliance. Outside of work, Bill enjoys any opportunity to paddle a canoe, Nordic skiing and fishing.

2026 Convention & Expo Presenters



Clare Robinson - Clare Robinson is the Canada Research Chair in Water Quality and a Professor and Department Chair of Civil and Environmental Engineering at Western University. Before joining Western in 2009, Dr. Robinson received her B.Eng and Ph.D. in Environmental Engineering from the University of Queensland, Australia, and completed a post-doctoral fellowship at Ecole Polytechnique du Lausanne, Switzerland. She co-directs the RESTORE research group which conducts innovative research aimed at addressing the sustainable management of our water resources and training the next generation with skills needed to address pertinent water resource and water quality challenges. Dr. Robinson is an expert at combining field investigations with data analysis techniques to understand the sources and transport of contaminants in natural and engineered systems. Dr. Robinson received an Early Research Award from the Ontario Government in 2012 and was a member of the International Joint Commission Great Lakes Science Advisory Board (2014 to 2019).



Ian Robinson - Bio Not Provided



CeCe Rudnicki - CeCe Rudnicki has been involved in the onsite wastewater industry in Wisconsin since 1995. Over the years, she has worked as a licensed soil tester, designer, installer, pumper, county regulator and state regulator. She is currently the owner and operator of The Septic Gal - doing soil testing and septic design and specializing in industry training. CeCe is a lifelong learner and loves to share her passion of finding solutions to onsite wastewater issues with others. She holds licenses in Wisconsin as a Master Plumber-Restricted Service, Certified Soil Tester, POWTS Inspector and Designer of Engineering Systems. Her contact information can be found at www.thesepticgal.com



Mike Varty - Michael Varty is a Director at EnVision Consultants focused on rural servicing and development. He brings 20+ years of experience designing and reviewing on site and communal wastewater systems across Ontario for private developers, municipalities, and provincial clients such as Ontario Parks. A long time OOWA member, contributor, and presenter, he advances training and standards to deliver resilient solutions that protect groundwater and surface water.

2026 Convention & Expo Presenters



Andre Veinotte - Andre Veinotte is one of Nova Scotia's most experienced onsite wastewater designers, having completed over 10,000 onsite sewage system designs across the province. He currently designs more than 25% of all onsite sewage systems approved annually in Nova Scotia, giving him a unique, province-wide perspective on regulatory practices, soil conditions, design challenges, and emerging trends.

Andre has taught the On-Site Sewage System Design Course for Professional Engineers in partnership with Dalhousie University, helping train new engineers entering the field. He is a former board member of Wastewater Nova Scotia and a past President of Engineers Nova Scotia.

In addition to his engineering work, Andre is active in land development and housing projects, integrating decentralized and communal wastewater systems into multi-unit residential designs. His experience spans regulatory engagement, system design, subdivision layout, and practical application of communal servicing in support of Nova Scotia's housing needs.



Jazmyne Woolley - Jazmyne Woolley, B.Sc., C.E.T. is a Project Manager with R.J. Burnside & Associates Limited in the Onsite Wastewater group, where she has been providing design solutions for Burnside's private and public sector clients since 2017. Her experience includes a variety of sewage system types and sizes, from conventional to advanced treatment for residential, commercial and institutional applications, with a particular focus on large and complex systems. Jazmyne has a Bachelor of Science from Laurentian University, a diploma in Environmental Technology from Georgian College, and is a Certified Engineering Technologist with the Ontario Association of Certified Engineering Technicians and Technologists.

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BIONEST



The Test Pit Was Perfect. The Title Wasn't.

Continued From Cover

Routine Septic Plans that Start to Back Up

When planning a new septic system, I'm guessing a lot of you can recite the process in our sleep.

- You confirm the design flows.
- You check the zoning.
- You pull the survey.
- You dig the test pits.
- You prepare the drawings.
- You submit the permit.

The municipality reviews everything under the OBC. They check the applicable law. They inspect the installation. They sign off and you're off to the races... or at least the municipal interpretation of racing.

Which is exactly why this file caught everyone off guard. It wasn't an OBC issue, it wasn't zoning, and it wasn't a standard condition. It was tied to something I had only ever heard about in passing but never actually encountered in the wild. A private agreement between a previous owner and a conservation organization restricted any form of construction, including the installation of a septic system, to only a few designated areas of the property. In other words, a conservation agreement held by a "Protected Land Trust."

The Invisible Roommate Who Already Picked Their Side Of The Yard

If you haven't crossed paths with one before, you're in good company. Protected Land Trusts sit in that strange corner of land ownership where conservation, private property, and long-term agreements all shake hands. At their core, they're charitable organizations that work with willing landowners to protect certain parts of a property for the long haul. The owner keeps the land and the title, but a conservation agreement limits what can be built or disturbed in the protected areas under the Conservation Land Act. And when the property changes hands, whether once or three times, those restrictions stay exactly where they were written.

Most of the time these agreements sit quietly in the background, doing their job without anyone noticing, until a new owner arrives with a perfectly reasonable plan for where their future washroom should drain... only to discover the agreement has a completely different opinion.



The Blind Spot Your Municipal Side Mirrors Don't Cover

"But Municipal Building Inspector Shadlock... you're the government. Aren't you supposed to know everything? How does something like this NOT show up when I apply for a permit?"

Fair question.

If municipalities had a nickel for every time someone assumed we had a secret master file of All Things Ever Done On Every Property, we could probably pave a few more roads.

Here's the bit they don't put in the brochure.

Protected Land Trust agreements aren't government documents. They're private, voluntary contracts between a past property owner and a conservation organization. They don't get filed with the municipality, they don't get uploaded to any magical central database, and they don't show up in the zoning map, the OBC, or the usual "applicable law" checks we run during a permit review.

They live on title.

Quietly.

Patiently.

Like a polite but firm roommate who doesn't say much until you try to move their stuff.

So, when a new owner arrives with a septic design that checks every municipal box, the municipality sees exactly what the law tells us to see. The OBC lays out what must be reviewed during a permit application, and a title search simply isn't part of that process.

Private agreements don't get filed with the municipality. They aren't even public documents. Only the property owner (or their lawyer) sees them unless they choose to share them, which leaves a pretty significant blind spot for everyone else trying to keep the project on the rails.

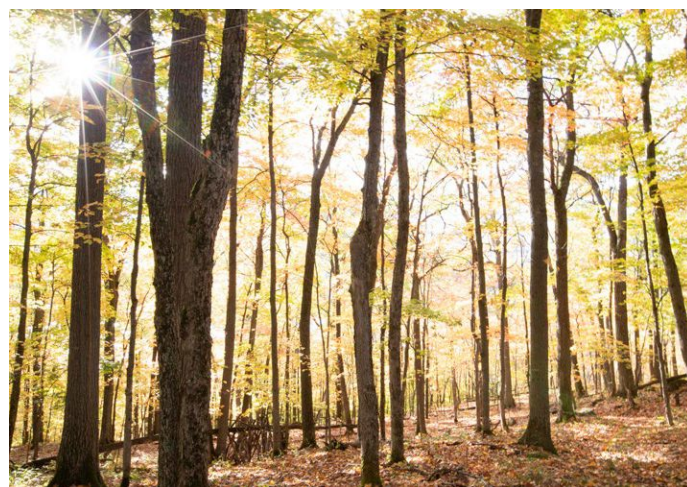
At The End of The Pipe

And that's the twist most people never see coming. A septic system can be designed by the book, reviewed by the municipality, installed to the letter of the OBC, and still collide with a private conservation agreement nobody knew existed. That's the vulnerability, a rulebook that lives in a place only the property owner can see.

Building Officials can't enforce these agreements, interpret them, or go looking for them. But they're still legally binding on the property, and they can reshape a septic design just as decisively as a setback, a test pit, or a stubborn slab of Canadian Shield.

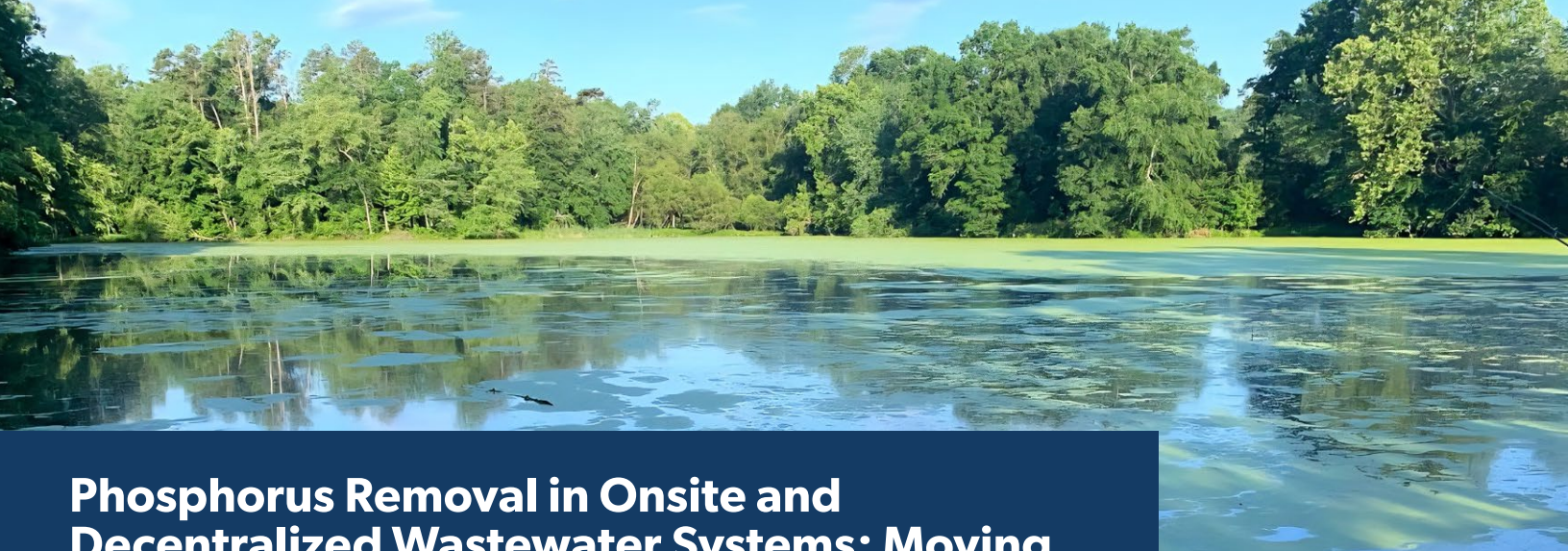
Which is why **it's best practice for homeowners, designers, and installers to check for these agreements early** and share them with the municipality if they exist. Even though they sit outside the OBC, giving your Building Official the full picture helps everyone understand the constraints you're working within and supports you in designing and installing the best system possible for your site.

Because at the end of the day, the goal is simple: **no surprises.** Especially not halfway through a septic install.



ABOUT THE AUTHOR

Brad Shadlock is a Building Official with the Township of Lake of Bays and has 15 years of combined experience in construction and municipal work. His background includes building, design, and inspection across residential, commercial, and industrial projects, and he now helps people navigate permits, codes, and the occasional mystery buried in a cottage country test pit.



Phosphorus Removal in Onsite and Decentralized Wastewater Systems: Moving from Concept to Continuous Treatment

By Bassim Abbassi and James Hayden

Across many rural and peri-urban communities, onsite wastewater treatment systems such as septic tanks remain the backbone of sanitation infrastructure. These systems were never designed to address modern environmental challenges such as nutrient pollution. Among these nutrients, phosphorus is of particular concern. When discharged to groundwater or nearby surface waters, phosphorus can accelerate eutrophication, promote harmful algal blooms, and degrade aquatic ecosystems. In regions with high densities of septic systems or environmentally sensitive watersheds, phosphorus loading from on-site wastewater treatment has become an increasingly visible and pressing issue.

Conventional septic tanks and many tertiary treatment systems are effective at removing settleable solids and reducing organic matter, but they provide little to no removal of dissolved phosphorus. As a result, most phosphorus leaves these systems in soluble form as septic tank or tertiary treatment effluent and enters soil-based treatment units, where phosphorus retention capacity is limited and highly site-specific. Once soils become saturated or conditions favor transport, phosphorus can migrate to groundwater and surface waters. As regulatory agencies and watershed managers seek to reduce nutrient inputs, attention has increasingly focused on treatment technologies that can remove phosphorus directly from septic tank and tertiary treatment effluent before it reaches the subsurface environment.

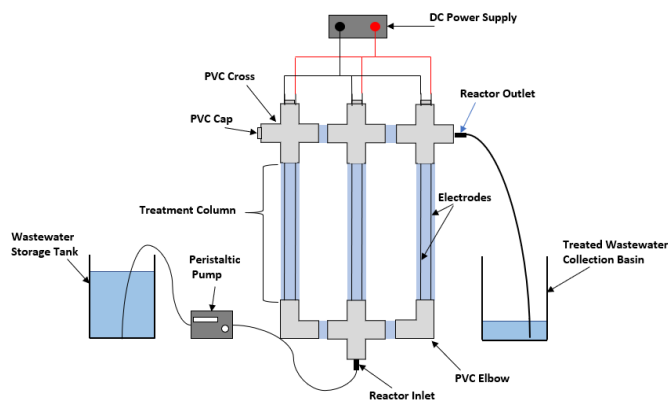
Electrocoagulation has emerged as a promising alternative to traditional chemical and biological phosphorus removal methods. The process relies on electrochemical dissolution of sacrificial metal electrodes, typically aluminum or iron, to generate coagulants in situ. When an electric current is applied, metal ions are released from the electrodes and rapidly form metal hydroxides. These hydroxides bind with phosphate through adsorption and precipitation, producing

flocs that can be separated from the treated water. Unlike conventional chemical dosing, electrocoagulation eliminates the need for bulk chemical storage and precise chemical feed systems, making it particularly attractive for onsite and decentralized applications.

Many studies have shown high phosphorus removal efficiencies using batch electrocoagulation reactors, however, batch operation does not reflect the continuous nature of real-world wastewater flows. Septic systems operate continuously, with changing flow rates and pollutant loads throughout the day and across seasons. Translating laboratory-scale success into practical on-site treatment therefore requires continuous flow systems that are compact, robust, and able to perform reliably under realistic operating conditions.

Our recent research has demonstrated the potential of a continuous flow electrocoagulation system specifically designed for treating septic tank and tertiary treatment effluent. The system consists of a series of vertical treatment columns equipped with rectangular aluminum electrodes arranged in a monopolar-parallel configuration. Wastewater flowed upward through the reactor at controlled flow rates, and a direct current power supply was used to regulate the applied current. Synthetic wastewater was used to represent septic tank and tertiary treatment effluent, with phosphorus concentrations ranging from 10 to 75 mg/L.

The results demonstrated that continuous flow electrocoagulation can achieve highly effective phosphorus removal. Under optimized operating conditions, orthophosphate concentrations were reduced to near or below detection limits, corresponding to removal efficiencies exceeding 95% under a short hydraulic retention time (less than 15 minutes). Total phosphorus removal was also substantial, indicating that both reactive and polyphosphate fractions were effectively captured by the electrochemically



Schematic diagram of the continuous EC system

generated flocs. These levels of performance are noteworthy, as they exceed those achieved by much more complex and costly centralized treatment processes.

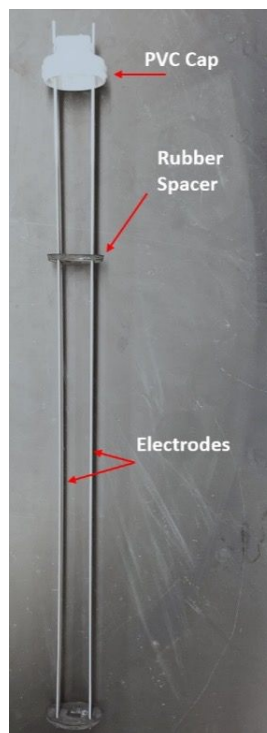
In addition to phosphorus removal, the system demonstrated stable operation with respect to pH and residual aluminum concentrations. Effluent pH remained within a range suitable for discharge to downstream treatment or soil systems, and dissolved aluminum concentrations were low, indicating minimal risk of secondary contamination. The electrocoagulation process generated solids rich in aluminum-phosphate complexes, which could be managed through periodic removal in a manner similar to conventional onsite systems' maintenance practices.

Energy consumption is a critical consideration for on-site wastewater treatment technologies, particularly in rural and remote settings where operating costs and power availability can be limiting factors. Under optimized operating conditions, the continuous flow electrocoagulation system exhibited a modest energy demand, corresponding to a low treatment cost per unit volume of wastewater. For an average household in Ontario, the electricity required to operate the system is estimated to be approximately 3.3 kWh per day, a level comparable to the energy use of common household appliances. When weighed against the environmental and economic consequences of uncontrolled phosphorus discharge and downstream eutrophication, the energy input required for effective phosphorus removal appears both reasonable and well justified.

This work is important for on-site wastewater management because it shows that electrocoagulation can operate effectively in a continuous flow system, not just in the laboratory. This helps move the technology closer to real-world use. The modular design also allows the system to be adapted for single homes, small communities, or institutions, making it suitable for different on-site treatment needs. Moreover, removing phosphorus directly at the source represents a major change in how nutrients are managed in on-site and decentralized systems. Instead of depending on soil processes that are limited and unpredictable, electrocoagulation offers a controlled and reliable way to remove phosphorus. This approach can greatly reduce phosphorus releases to sensitive water bodies, especially in areas where septic systems are a main source of pollution.

Further work is still needed to evaluate long-term operation, electrode lifespan, and performance under changing field conditions; however, continuous flow electrocoagulation represents a strong step forward. Current investigations are now focused on developing a full-scale electrocoagulation system to be retrofitted into a real on-site wastewater

treatment system to assess performance under everyday operating conditions. As regulatory expectations continue to evolve and the need to protect water resources grows, treatment technologies that are effective, simple, and affordable will be increasingly important. Continuous flow electrocoagulation demonstrates how practical engineering solutions can significantly improve the environmental performance of on-site and decentralized wastewater treatment systems without adding unnecessary complexity.



Monopolar aluminum electrodes



ABOUT THE AUTHORS

Bassim E. Abbassi, PhD., P.Eng., Director of the Ontario Rural Wastewater Centre, College of Engineering, University of Guelph.

James Hayden, MSc., P.Eng., Former graduate student at the College of Engineering, University of Guelph. Currently, Project Engineer at RWDI.

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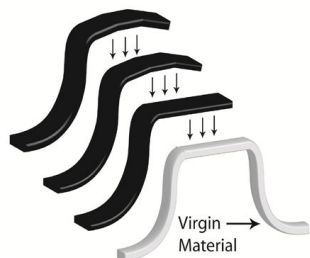
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Scarification is the process of preparing the underlying soil to receive and disperse effluent, and basically consists of roughing or loosening the upper layer of the soil. This is especially important for leaching beds constructed using imported sand fill. Proper scarification of the underlying soil creates the necessary transition zone between the imported material and the underlying soil, allowing the effluent to percolate into the subsurface. This is critical for effluent dispersal and infiltration, and the long-term function and performance of the bed.

*Example of
Uneven Scarification*



Improper or insufficient scarification can lead to:

- Short-circuiting or creation of preferential effluent flow pathways,
- Effluent breakout
- Ineffective utilization of the entire bed area for dispersal of effluent

After removal of any topsoil and organic material, scarification of the subsoil should be:

- Completed during dry conditions to prevent smearing
- Done using the teeth of the bucket, ripper, or other method to penetrate the top 150 to 200 mm of soil.
- Uniform and even over the surface with no large depression areas and no large clumps of soil.
- Keep equipment off the scarified area until fill material is placed.



Example of Even Scarification in Silty Soil



Example of Even Scarification in Silty Soil



Compliance in a Wilderness Called the Little North

By Bill Pottruff, Public Health Inspector, Thunder Bay District Health Unit

Public Health in Northern Ontario is a vast and complex field. This is especially true for Health Units that are responsible for the administration of Part 8 of the Ontario Building Code. I have worked for the Thunder Bay District Health Unit (TBDHU) for more than 20 years and currently serve as the Chief Building Official and Public Health Inspector for the Land Development Program. The jurisdiction of TBDHU takes in a vast area from English River in the West, White River in the East, the north shore of Lake Superior to the South and James Bay / Hudson Bay to the North. Travel is extensive and often logistically problematic to service this enormous area of Northern Ontario.

My path into public health is somewhat different than most of my colleagues. My career started in forestry and commercial fishing in British Columbia. I have always been drawn to the outdoors for recreation activities. Years ago, I submitted a proposal and cost analysis to TBDHU to incorporate water craft, such as power boats and canoes into our inspection programs as a way of gaining easier and cost effective access to more of the off-grid premises in our jurisdiction and to reduce the costs associated with flying to most of our fishing lodges and outpost camps within the district. While the cost analysis of travel by boat vs plane turned out to be a wash with only very minimal savings, the proposal was accepted due to increased access to more remote locations and a reduced carbon footprint associated with canoe compared to aircraft. Over the last 12 years, TBDHU has supported an average of 10-12 canoe days each summer to paddle many of the major rivers and drainages flowing North to Hudson Bay within the District of Thunder Bay to meet this innovative approach for inspection activities. Many of the regulatory issues I encountered focused on Part 8 compliance and regulation of the Small Drinking Water Systems serving the recreational premises, such as fishing lodges and outpost camps, as well as industrial sites (e.g. mining camps).

Paddling the river systems within TBDHU's service area is no small undertaking. In their book, *Canoe Atlas of the Little North* (2007), Jonathan Berger and Thomas Terry, who paddled this area for more than five decades, describe it as a vast area encompassing more than 1,295,000 square kilometers but an area of "complete connection," which was vital to the early fur trade. First Nations refer to this area as the Nishnawbe-Aski, or the land of the original people. From a modern Public Health perspective, this area represents one of the last (mostly) pristine and primarily untouched areas of the province, with vast resource reserves of minerals and biodiversity. I have always believed that there is a direct link between the health and welfare of these ecosystems and environmental health for all people in Ontario. This link however, although obvious to some, is difficult to define and even more so to articulate.



Bill's travelling group included two professional guides (Tim Wheeler and Myles Goodman), and a communications specialist to document the trip (Hugh Mullally).

When considering a paddling inspection trip into the Little North, the logistics start with safety. This includes safety gear, boating laws and best practices. If a TBDHU Inspector is to enter a canoe for work related activities a qualified and professional guide is required.

Tim Wheeler has been the primary guide for TBDHU since the beginning, around 2012. He has worked for Black Feather Wilderness Adventures and Lakehead University for many years. Tim is a true professional in his field and shares a love of the outdoors and seeing the applicable laws and regulations enforced in an appropriate manner with conservation an embedded and foundational priority.



Within minutes of getting to shore after a long paddle in the rain, the kitchen tarp was up.

Safety includes a safety plan and Emergency Response Plan to be developed for each trip. These plans include provisions for proper personal equipment and tripping packs, access to potable drinking water, a means of cooking other than campfires in case of burning restrictions, maps with an appropriate level of detail, canoe trip notes if available, proper clothing for both cold and hot environments, proper lifejackets and safety equipment, communication and check in ability and adequate nonperishable food.

In addition to proper gear, a successful canoe-based inspection trip requires significant personal skills and abilities. Canoeists consistently say that you cannot paddle water that you are not prepared to swim. Swimming in moving water requires specific training and practice. I am neither a professional paddler or a swimmer. I have acquired basic skills by attending several swift water rescue courses and

simple practice, supervised by qualified people, and in due course, a few unplanned swims! The most important concept however is recognizing potentially dangerous situations in moving water for swimmers and making a conscious decision, based on hazard recognition and the resulting risk assessment process, to portage around a hazardous area rather than attempt to paddle through it.

The previous 12 years have resulted in several lessons learned and a few recommendations to improve regulatory oversight of this truly amazing area within our province. In their book, one of the conclusions that Jonathan Berger and Thomas Terry came to was that within and outside of the area of the Little North, "the nature, even the existence, of the ubiquitous connection....goes unrecognized and unappreciated by resource managers, resource developers, visitors and residents." While this statement remains true today in my opinion, there are tremendous opportunities available for various agencies to cooperate with respect to data collection, enforcement activities and remote travel. As an example, several Ministries charter remote flights into this area in order to meet their various mandates. Using these flights jointly creates the opportunity for increased enforcement oversight while reducing costs. Access to map and occupancy data is often problematic. TBDHU has received amazing help over the years from the Ministry of Natural Resources and Forestry in Thunder Bay to provide detailed maps and Land Use Permit data within this vast and remote area. There is potential for this type of cooperation to become more common across Ontario through efforts to formalize relations with Letters of Understanding between Enforcement Ministry partners.

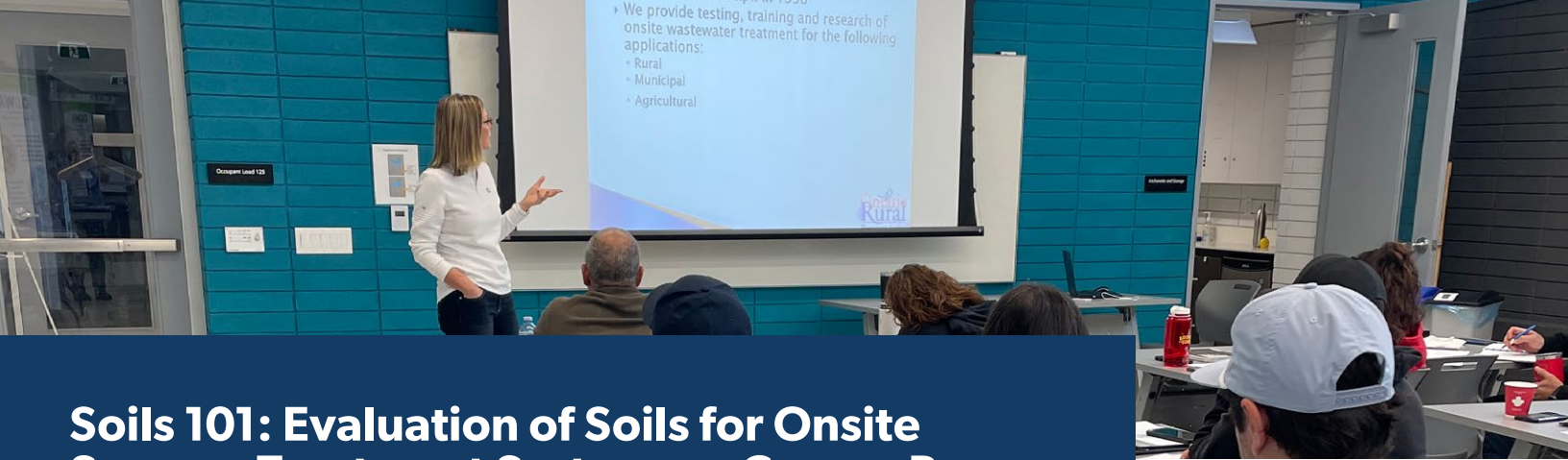
Requirements of Part 8 need to be evaluated with respect to class II sewage systems for remote locations. For example, the current loading rate requirements are not practical for a remote outpost camp used for 2 months of the year. Often, it is not possible to install a class II system sized by the loading rate calculation due to site specific limitations (area, soil type and annual usage). However, the equivalent of a five-gallon plastic pail, which is often in use due to the lack of regulatory oversight, is not adequate to protect the environment. Implementing a more balanced approach to class II sewage systems in these remote situations would increase stakeholder buy-in and compliance with the Ontario Building Code.

Learn more at Bill's presentation on March 09 at 11:50 am



ABOUT THE AUTHOR

Bill Pottruff is a Public Health Inspector with the Thunder Bay District Health unit with 21 years of experience and is currently serving as the Chief Building Official for Part 8 of the Ontario Building Code. Bill holds a Bachelor of Technology and a Master's Degree in Disaster and Emergency Management and has invested significant effort into developing a remote inspection program for the unorganized territory of Ontario focusing on a collaborative and balanced approach to septic system compliance. Outside of work, Bill enjoys any opportunity to paddle a canoe, Nordic skiing and fishing.



Soils 101: Evaluation of Soils for Onsite Sewage Treatment Systems — Course Recap

OOWA hosted the one-day Soils 101 training this fall, bringing together members for a practical, field-focused introduction to soil evaluation for onsite sewage systems. The course was led by Katherine Rentsch, Crozier Consulting Engineers, whose extensive field experience and clear instructional style were highlighted repeatedly in participant feedback.

The session introduced the fundamentals of soil assessment, including how soil texture, colour, structure, and consistence influence onsite system design and performance. Participants learned how to properly collect soil samples using test pits, corers, and augers, and practiced hands-on techniques with real soil trays—an element many attendees found especially valuable for building confidence in identifying soil types. The course also covered percolation testing methods, determining the seasonally high groundwater table, and applying field findings to select an appropriate system design.

Attendees praised the balance of theory and practical application, noting that the opportunity to handle different soils and compare characteristics side-by-side made the material easier to understand and retain. One participant shared that the hands-on components “helped with retention of the material,” while another appreciated the “theory and practical applications” and the chance to discuss real-world examples throughout the day.

Katherine received consistent recognition for her depth of knowledge and engaging delivery, described as very knowledgeable, clear, and a subject matter expert. Participants noted that she was “very knowledgeable and easy to follow along with” and that she “delivered the material in a way that was engaging.” OOWA staff were also acknowledged for keeping the day running smoothly and creating a well-organized learning environment, with one attendee commenting that staff were pleasant and helpful throughout the session.

OOWA thanks Katherine Rentsch for her instruction and all participants for their engagement. We remain committed to offering practical, hands-on training that strengthens technical skills and supports Ontario’s onsite wastewater professionals.

“ Participants thoughts on the instruction

Katherine was “very knowledgeable and easy to follow along with”

She “delivered the material in a way that was engaging.”

“ Participants thoughts on the course

“[Hands-on components] helped with retention of the material”

“[I appreciated the] theory and practical applications & the discussion of real-world examples”

“ Participants thoughts on the staff

OOWA Staff “[kept] the day running smoothly and [created] a well-organized learning environment”

Staff were pleasant and helpful throughout the session.

Out and About With OOWA



Executive Director, Kelly Andrews, winning the Christmas Sweater Contest

Peterborough & Kawartha Chamber of Commerce – Jolly Chamber AM

OOWA staff attended the Peterborough & Kawartha Chamber of Commerce Jolly Chamber AM, joining local businesses and community partners for a festive morning of networking ahead of the holiday season. The event offered a warm and energetic atmosphere, giving attendees the chance to connect, share updates, and celebrate the close of another busy year.

Our Executive Director, Kelly Andrews, also won the event's Christmas Sweater Contest, adding a touch of festive fun to the morning. Her seasonal sweater fit right in with the event's cheerful atmosphere.

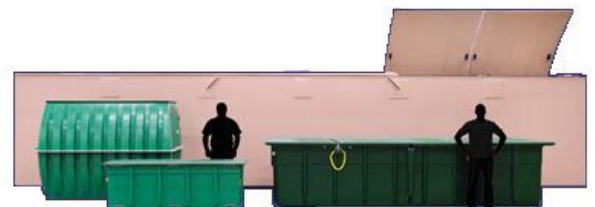
OOWA was pleased to participate in this community-focused gathering and appreciated the opportunity to strengthen relationships across the region. We look forward to continuing these connections into the new year.

OOWA Members – have you recently attended a similar event?

We would love to highlight what our members have been doing to spread the word about the benefits of onsite and decentralized wastewater management.

Send us a brief description of the event, accompanied by a few photos, and we will feature it in a future newsletter!

Send to info@oowa.org



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Throwback Article

A Look Back

This article was originally published in Volume 17 Issue 2

A Cost-Effective Onsite Wastewater Treatment System for Craft Breweries

Project: Cartwright Springs Brewery, Pakenham, Ontario

Open in July 2015, Cartwright Springs Brewery is located in the small town of Pakenham, west of Ottawa, and is Mississippi Mills' first brewery. The company features a lineup of craft beers made using locally sourced products – including their beers' main ingredient: natural spring water.

Facts

In recent years, the number of small craft breweries has greatly increased and so has the wastewater generated by brewers. As for all other food and beverage sectors, effluents from microbreweries are regulated and required to meet the wastewater discharge compliances. In terms of treatment efficiency, footprint and cost, very few wastewater treatment technologies proved to be up to the challenge, which in part explains why most microbreweries discharge raw effluent to a municipal wastewater treatment plant (WWTP) instead of having a dedicated onsite treatment system.

Challenges

In April 2015, the Cartwright Springs Brewery, together with its representative Fieldstone Engineering, was looking for a solution for treating wastewater generated by its newly constructed microbrewery, located in a rural zone of Pakenham, Ontario. The brewery production capacity was limited to 2,000 L/week, which suggested that wastewater generation would approximately be around 10,000 L/week. The wastewater to be treated was a combination of all the streams: the yeast dump and mash dump (i.e. high strength, low pH), wash water (i.e. low strength, high pH) and domestic wastewater from the pub (950 L/day). The combined flow after 7 days of equalization was estimated to be 2,380 L/day.

Solution

After an extensive sampling campaign performed by the engineering firm on similar installations, the Ecoprocess™ MBBR from Premier Tech Aqua (PTA)

revealed to be the best technology available to treat that type of wastewater. In compliance with the Ontario Building Code (OBC), the objective-based design suggested that the combined streams be pretreated with Ecoprocess™ MBBR to primary domestic effluent (i.e. BOD: 100 mg/L to 180 mg/L) and then discharged by gravity to a leaching bed. The chain of treatment therefore included a balancing tank, septic tank, MBBR units (two stages), final clarifier with sludge management and leaching bed. To benefit from lower electricity rates, the treatment unit integrated a smart control strategy that was offering the possibility of operating mainly at night, whenever the incoming wastewater flow is lower than the one set for the design.

Results

The system was put in operation in July 2015 and has performed extremely well since then. BOD concentration at the inlet varies between 1500 and 2500 mg/L and the laboratory results show a steady removal rate of 99%.

The Moving Bed Biofilm Reactor is a compact and high-performance treatment system available as a ready-to-use solution or in cast-on-site concrete basin. It applies to a host of commercial, institutional and municipal projects, including those to increase the performances of aerated lagoons. It was developed thanks to the vast expertise of PTA in the design of ready-to-use Ecoprocess™ treatment systems, its know-how in packaged solutions and the exceptional efficiency of the proven media.

- Ideal for restaurants, recreation and tourism facilities
- Compact and ready-to-use system
- Applicable to a multitude of projects



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Marc Favaro

MEMBER Profile Questionnaire

Marc Favaro

CMT Engineering Inc.

Name of Organization: CMT Engineering Inc.

Owners: Tim Salter and Dale Bender

Services/Mandate: Geotechnical Engineering Services, Construction and Material Testing, On-Site Wastewater Treatment Systems, Retaining Wall Designs, Manure Storage Investigations, Project Management

Service Area: Based in St. Clements, Ontario. We offer geotechnical engineering services throughout Southwestern Ontario.

Number of Years in Role: 9 Years

What got you started in the onsite wastewater industry?

As a University of Guelph graduate in Earth Science focusing in geology and hydrology, I was acutely aware that water was one of the most important resources of the future, and that was at the forefront of my mind when entering the workforce. My love of construction lead me to working for multiple geotechnical engineering firms which then exposed me to septic system design. It was a great match for my interests, with on-site wastewater treatment systems being an integral part of the construction industry and also such an important part to the protection of our most precious resource, our drinking water.

What is one reason/secret for your success?

In this industry, success comes from the relationships you build and the reputation you carry. Customer service is extremely important and making sure clients needs are met promptly and reliably are big parts of the success of our company. Strong relationships with clients, installation contractors, and other industry professionals helps not only to generate business but also to be successful in the service you provide.

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

All jobs pose challenges, but the jobs I find most challenging are the ones where there are unrealistic expectations from clients, typically because they don't know what an onsite sewage disposal system is or what it does. They can understand that sewage is disposed in the ground, but they don't understand the processes that treats the sewage, which sometimes requires large, raised leaching beds or even advanced treatment systems to protect their property and our shared groundwater resource. Managing the expectations of clients while still working together to produce the best possible solution that satisfies all parties involved is a rewarding challenge.

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

Having everyone involved in this industry doing more to promote the education and awareness of what the on-site wastewater industry is. As I mentioned, most people don't understand what septic systems are or what they do. If all of us, as industry professionals, can increase public awareness and educate owners how onsite systems operate and the care required to operate them, it would be critical to ensure we are protecting water quality and allowing sustainable development to happen.

Where do you see the onsite industry going?

I see the industry growing, with the migration of residents from urban to rural living, and specifically growing within the advanced treatment space. We are seeing smaller lots with larger dwellings, specifically multi-residential properties, which require larger sewage volumes to be treated in smaller areas. As well, a large number of older systems are reaching the end of their service life, many of which were not designed to the standards of today, and now requiring an alternate solution such as an advanced treatment system. We have been designing more and more advanced treatment systems every year and I expect that trend to continue.

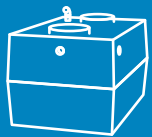
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SUPPLIER SHOWCASE

ENEREAU



Name:

Craig Hotchkies

Name of your business:

Enereau Systems Group Inc.

What is your title:

Chief Operating Officer (COO)

Enereau began with the goal to make high-quality wastewater treatment easy to deploy anywhere. What started as a small team designing compact systems for remote sites has grown into a company supplying modular nrPUR™ MBR systems across North America, the Caribbean, and the U.K. Today, Enereau helps land developers, brewers, and small communities treat and reuse water sustainably — without the complexity of big-plant infrastructure.





What products or services do you offer to the onsite wastewater industry?



We provide modular wastewater treatment systems and retrofit solutions for onsite and decentralized applications. Our nrPUR™ MBR systems combine biological treatment and membrane filtration to deliver high-quality effluent for safe discharge or reuse. We also supply pretreatment and polishing modules — like screening, pH control, UV, carbon, and nutrient removal — along with support for membrane replacements and system upgrades on existing plants.

What geographic areas do you serve?



We serve clients across North America, the Caribbean, and the U.K. Our modular systems are designed for easy transport and installation, allowing us to support projects anywhere.

What is one thing you want our members to know about your company?

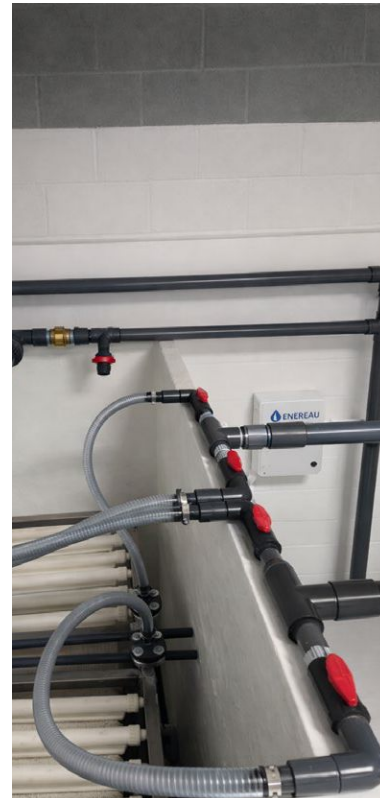
Enereau specializes in practical, modular wastewater solutions that make advanced treatment achievable for any site. Whether it's a small communal development, hotel/resort, or commercial/industrial, our nrPUR™ MBR systems deliver big-plant performance in a compact, easy-to-manage package helping projects meet strict effluent targets.

How do you support your community? (Sponsorships, donations, volunteering, collaborations, etc.)

We support the community by sharing expertise and promoting education around sustainable wastewater treatment. We've participated in expert panels, spoken at conferences, hosted webinars to help raise awareness about decentralized treatment solutions, and are part of several industry associations.

Do you have any exciting new projects, products, or events coming up?

We will soon be offering membrane samples on our website and expanding the membrane replacement side of our business to help more operators upgrade existing MBR systems. We have a strong project pipeline, with several new installations expected to begin shortly in both the residential and food & beverage segments in the U.S.A and Canada. Follow us on linked in to be updated on our latest projects.



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Ryan Thomas

What got you started in the onsite wastewater industry?

My start in the industry began with my education in Environmental Studies at Carleton University, where I developed a keen interest in sustainable wastewater infrastructure. This led me to become an owner of Muskoka Septic Services. It was in this hands-on role that I quickly became acutely aware of the high number of failing onsite systems throughout the region. Seeing the direct threat these failures posed to the local lakes and groundwater turned a professional interest into a personal mission. I realized the urgent need for compliant, professional management to protect Muskoka's vital water resources.

What is one reason/secret for your success?

The secret to my success is a focus on proactive quality control. In the advanced wastewater sector, the System O)) is an innovative tool, but its performance hinges entirely on a perfect installation. I believe success isn't just selling a great product; it's ensuring it works flawlessly for decades. My role training installers is the key leverage point: I ensure they understand the science and the critical details of installation. This dedication to setting a higher standard of execution across the industry is what truly defines my professional success.

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

The most challenging jobs always involve sites with difficult terrain: bedrock, high water table, steep hillsides, or island properties demanding a minimal footprint. These complex environments test an installer's skills to the limit. My most memorable jobs required meticulous design to manage the site constraints while protecting sensitive lake water. The ability of the System O)) septic system to be configured for these tight, rocky spaces is the solution. My success lies in transferring that expertise—teaching installers how to leverage the system's versatility to confidently conquer the impossible sites.

MEMBER **Profile** **Questionnaire**

Ryan Thomas

Make-Way Environmental Technologies - System O))

Name of Organization: Make-Way Environmental Technologies - System O))

Owners: Bert Knip

Services/Mandate: System O)) septic systems, Stormwater management

Service Area: Near North

Number of Years in Role: 4 Years

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

If I could change one thing, it would be to dramatically elevate public awareness and education about the importance of onsite wastewater management. Despite our best efforts as professionals and trainers, the vast majority of system failures stem from homeowner neglect, often rooted in an 'out of sight, out of mind' mentality. I would institute a mandatory, standardized curriculum for all new system owners and create consistent, high-impact public service campaigns. By transforming system owners into educated stewards of their environment, we can ensure that proper installation is matched by proper maintenance, protecting our shared water resources for the long term.

Where do you see the onsite industry going?

I see the onsite industry evolving toward advanced technology that prioritizes simplicity and reliability. The future is moving away from complex, failure-prone designs toward sophisticated, yet user-friendly, solutions. Technology, exemplified by the System O)), proves that systems can be highly effective without being complicated—it's easy, it's simple, it works. The industry will increasingly adopt technologies that offer superior performance and versatility for difficult sites, while simultaneously reducing the burden of maintenance and oversight. This ensures greater compliance and makes long-term environmental protection more accessible for everyone.



Residential Occupant Load in the Design of On-site Sewage Systems

By Matthew Wesley, CBCO, Municipality of Trent Lakes

On-site sewage system designers and installers who design the systems they install are familiar that the number of bedrooms in a house determines the sizing of the system. Daily design flows for residential occupancies come from 8.2.1.3 (1) – Division B and its corresponding table 8.2.3.1.A. To ensure that the daily flow is accurate, especially in this age of Short-Term Rentals and multi-family cottage properties, it is important to understand the intended **occupant load** in this table, which comes from Part 3 – Division B of the OBC, which on-site sewage designer/installers may not be familiar with.

Note (1) to Table 8.2.3.1.A advises that occupant load shall be calculated using subsection 3.1.17. While it does not seem to apply to dwellings, as note (1) does not appear in the table beside Dwelling, 3.1.17, is the OBC section which clarifies that residential occupant load in **dwelling units** is "2 persons per sleeping room in a **dwelling unit**" - 3.1.17.1(b).

Occupant load means the number of persons for which a **building** or part thereof is designed. – 1.4.1.2(1)(c) – Division A

The house is a **building**, but so is the on-site sewage system which is defined as a building in the Building Code Act.

If you have designed the on-site sewage system for three bedrooms, but two of those bedrooms sleep four people, the occupant load is in fact equal to that of a five-bedroom house and the on-site sewage system should be sized accordingly.

Additionally, person is not defined in the OBC. I am sure that I am not the only regulator who has been presented with the argument that children don't count as full persons as justification for a reduced daily flow – usually by the homeowner or applicant for a short-term rental license. Children grow up, and last time I checked, the same amount of water goes down the toilet regardless of the age of the flusher.

Asking how the house is used and how many people the house accommodates, not just how many bedrooms are in the house, will ensure that the system is designed appropriately for the true **occupant load** and doesn't fail prematurely from overuse.

Hear more from Matt our "Ask the Expert" panel discussion on Monday, March 09 at 2:15 pm



ABOUT THE AUTHOR

Matthew has been a Building Official for ten years and has been the point person for Part 8 in each municipality where he has worked. Currently, the Deputy CBO for Trent Lakes, Matthew took the lead in bringing the Part 8 program in-house when the local Health Unit divested it in 2024, ensured the transition was relatively seamless for municipal staff and installers, and also assisted other local building officials who were new to Part 8. He was a vocal supporter of the benefits of having Part 8 come in-house, while also recognizing the good work that Health Unit staff had done prior to divestment. He is a big supporter of continuing education and professional development for all sewage professionals, and views a large part of his role as a Building Official as educating owners and contractors on how and why OBC requirements apply to projects. He is an active OOWA and OBOA member, is a contributor for the Onsite newsletter and the OBOA Journal, and serves as Vice-chair for the OBOA Liftlock Chapter. Matthew is also a Red Seal Carpenter, with over 15 years of experience in the ICI and residential construction sectors prior to his role as a regulator, and regularly advocates for the Building Official career path through the trades.



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Opportunities for Future Standardization

Beyond application forms themselves, there are additional areas where standardization should be considered in the future. One example is the requirement for native soil percolation (T-time) testing at the time of application. Some jurisdictions require this information upfront, while others do not request this information at all and base it on estimates by designers / installers and site inspections of regulators after applications are submitted.

Identifying core requirements that can be applied consistently across jurisdictions would improve clarity and reduce confusion. Establishing a baseline provincial standard with clearly defined optional or supplemental requirements could strike a balance between consistency and local flexibility.

Conclusion

Standardizing sewage system application forms under Part 8 of the Ontario Building Code would provide definite benefits to all stakeholders: designers, installers, regulators, municipalities/other regulatory bodies and homeowners. It would reduce administrative inefficiencies, minimize errors, improve review timelines and better support professionals who work across jurisdictional boundaries.

Having seen the system from both the regulatory and design business perspectives, I believe that standardization is not only achievable but necessary, particularly as Ontario prepares for potential shifts in Part 8 governance. This collaborative action now could significantly strengthen the administration of on-site sewage systems across the province for years to come.



ABOUT THE AUTHOR

Ella Bird is a third party sewage system designer predominantly working in the area of West Parry Sound, Muskoka region and the Highway 69 corridor up to Greater Sudbury. She is entering her second year in the business of design. Her professional experience includes ten years as a regulator with the North Bay–Mattawa Conservation Authority (NBMCA), where she served as a Sewage System Inspector, Deputy Chief Building Official and Interim Program Manager, specializing in Part 8 (Sewage Systems) of the Ontario Building Code. Ella has been a member of OOWA since entering the on site waste water industry and is currently a member of the communications committee.

OOWA releases Draft Standardized Forms

When applying for an Ontario Building Code (OBC) sewage system permit, the OBC prescribed application forms satisfy regulatory requirements, but they do not capture the detailed technical information required to properly document and review a proposed sewage system.

To address this gap, sewage system regulators across the province have developed their own methods for collecting additional information ranging from simple checklists to multi-page prescriptive forms. This has resulted in significant inconsistency in the application process from one jurisdiction to another, a challenge that many of our members have identified through their feedback.

One of the Association's roles is to listen to our members and work collaboratively to improve industry practices. In response to this feedback, the Onsite Technical Committee established a task group to develop a standardized sewage system application form. The result is a comprehensive sewage system form intended to be used by, or as a guide for, regulators on the key design information required to properly assess a sewage system design, to supplement the OBC prescribed forms, while promoting consistency across the province.

This form is intended to be a living document, and we welcome ongoing feedback on how it can be improved. Our hope is that regulators will adopt this form as presented, helping to create a more consistent, transparent, and efficient application process for our industry.

[See next page for form](#)



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Form Title Here

Subject Land Information

Permit Application Number:	*Grey Section For Use by Principal Authority	Date Received:	Date Submitted:

Municipal Address:

Lot and Concession:

Sublot:

Roll Number:

Register Plan:

Application Screening Checklist

	Yes	No
1) Is/was zoning required to permit the proposed construction or land use to which this proposed sewage system will serve?	☐	☐
2) Is/was a minor variance required to permit the proposed structure or land use to which the sewage system will serve?	☐	☐
3) Does this property require a site plan approval?	☐	☐
4) Is the proposed sewage system located in an area of the property that is regulated by a Conservation Authority?	☐	☐
5) Are there any overhead power lines located either above or within (add local authority distance) metres of the proposed sewage system location?	☐	☐
6) Is the property adjacent a highway?	☐	☐
7) Does the property fall within a source water protection area?	☐	☐

The above questions are intended to assist the applicant from submitting an application in contravention of applicable law. It is the responsibility of the applicant to submit any required accompanying supporting documentation/permit(s).

The applicant is responsible for providing accurate information.

Application Checklist

Floor Plans	☐	Applicable law supporting information i.e. conservation authority permit	☐
Schedule 1: Designer Information	☐	Proposed Sewage System Layout/Lot Diagram	☐
Schedule 2: Sewage System Installer Information	☐	Sewage System Cross Section Diagram	☐
Application for a Permit to Construct or Demolish (2 Pages)	☐	Owner Authorization	☐
Plan of Survey	☐	Application Fee	☐
Lot Grading/Drainage Plan	☐	Other:	☐
Note: Not all may apply to the jurisdiction		Describe "Other":	

Site Information

Water Supply:	Existing:	Proposed:	Date of Assessment:	Depth (metres)	Soil Type/Description	Percolation Rate (min/cm)
Municipal:	☐	☐	_____	m		
Bored/Dug Well:	☐	☐	Depth to High Groundwater (metres): _____	m		
Drilled Well:	☐	☐		m		
Surface Water:	☐	☐	Depth to Bedrock (metres): _____	m		
Other:	☐	☐		m		
Casing Length (m) (if applicable):	_____			m		
Describe "Other"	_____			m		

Note: Inspector may request sieve results for native and/or imported material.

Note: Provide percolation rate of sewage system receiving soil.

Note: Minimum of two test holes a minimum of 1.8 metres deep or limiting bedrock/groundwater excavated in the proposed leaching bed area.

Note: Test holes must be protected until they are inspected, then backfilled.

Note: Depths based on existing ground elevations, proposed revised elevations must be depicted on the design drawings.

This form was developed by the Ontario Onsite Wastewater Association

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Form Title Here

Calculation of Residential Design Flow

Fixture Unit Calculation

Fixture Unit Type	Principal Dwelling				Secondary Dwelling				=	Total Fixtures	X	Fixture Units	Total Fixture Unit Value
	No. of Existing	+	No. of Proposed	+	No. of Existing	+	No. of Propose						
Bathroom Group		+		+		+		=		X		6	
Water Closet		+		+		+		=		X		4	
Lavatory		+		+		+		=		X		1.5	
Bathtub or Shower		+		+		+		=		X		1.5	
Sink(s)		+		+		+		=		X		1.5	
Dishwasher*		+		+		+		=		X		1.0	
Clothes Washer		+		+		+		=		X		1.5	
Other:		+		+		+		=		X			
Other:		+		+		+		=		X			
Other:		+		+		+		=		X			
Totals (sum above in blue boxes)												Total Fixture Unit Value:	

Is there a water softener or filter that backwashes to the sanitary plumbing:

Are there any floor drains connected to the sanitary plumbing:

Is there a sink garbage grinder (garburator) connected to the sanitary plumbing:

*If dishwasher is directly connected to kitchen drain then fixture unit is 0

Yes

No

☐

☐

☐

☐

☐

☐

	Principle Dwelling	Subtotal Principle daily design flow(L/Day)	Secondary Dwelling	Subtotal Secondary daily design flow(L/Day)	Total
No. of Bedrooms:					
Finished Floor Area (m ²):					
Total Fixture Unit Value:					

Total Daily Design Flow (L/Day):

Calculation of "Other Occupancies" Design Flow

Fill Out The Table Below With Establishment And Associated Unit Flow As Per Table 8.2.1.3.B

Table 8.2.1.3.B	Establishment		Unit Volume	X	No. of Units	Daily Flow	Space For Additional Calculation/Notes
	a)			X			
	b)			X			
	c)			X			
	d)			X			
	e)			X			
Total Daily Design Flow (L):							

Note: The occupant load shall be calculated using OBC Div. B subsection 3.1.17.
Note: Where the occupancy is not listed in Table 8.2.1.3.B., consult with the regulator regarding metred flow data or approved equivalent occupancies.

Design Flow Calculation Summary "Q" - Other Occupancies

Total Daily Sewage Flow (L/day):

Sewage System Class

Check appropriate box below:

Class 2

☐

Class 3

☐

Class 4

☐

Class 5

☐

Your
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Form Title Here

Class 2 Greywater System Design Details				Class 3 Cesspool System Design Details			
Dimensions:	Length (m)		Proposed Sidewall Area m ²	Please provide a description of the proposed cesspool design, describe sewage source and attach layout and cross section drawings.			
	Width (m)						
	Depth (m)						
Describe Sidewall Structure Material:							
Describe Imported Material Including Percolation Rate as Necessary:							

Class 4 Leaching Bed Systems

Septic Tank Size (L working capacity):	
--	--

Conventional Absorption Trench

Total Length of Distribution Pipe:	Minimum:		m	Proposed:		m	Configured as:		runs	at		m, each
Total Length of Distribution Pipe with Advanced Treatment Unit or Type II Leaching Chamber:	Minimum:		m	Proposed:		m	Configured as:		runs	at		m, each
Loading Area:	Minimum:		m ²	Proposed:		m ²	Configured as:		m	X		m
Provide Leaching Chamber Type (If Required):												
Provide Percolation Rate of Imported Fill (If Required):								min/cm				
If Raised, Provide Height Above Existing Grade to Bottom of Trench or Chamber:								m				

Filter Bed

Filter Bed Area:	Minimum:		m ²	Proposed:		m ²	Configured as:		m	X		m
Base of Filter Medium:	Minimum:		m ²	Proposed:		m ²	Configured as:		m	X		m
Loading Area:	Minimum:		m ²	Proposed:		m ²	Configured as:		m	X		m
Length of Pipe/Chamber:			m	Configured as:		runs	at		m, each			
If Raised, Provide Height Above Existing Grade to Bottom of Distribution Area (Stone) or Leaching Chamber:									m			

Advanced (Level IV) Treatment Unit/System

Manufacturer:		BMEC/BNQ No.		Attach advanced treatment system supporting approval information and signed maintenance agreement
Model:		Rated Capacity (L/day)		

Use the following space for calculations including system sand area calculation, module/treatment unit calculations etc.

Type A Dispersal Bed

Dispersal/Stone Area:	Minimum:		m ²	Proposed:		m ²	Configured as:		m	X		m
Sand Area:	Minimum:		m ²	Proposed:		m ²	Configured as:		m	X		m
Length of Pipe/Leaching Chamber:			m	Configured as:		runs	at		m, each			
If Raised, Provide Height Above Existing Grade to Bottom of Dispersal/Leaching Chamber:									m			

Type B Dispersal Bed

Dispersal/Stone Area:	Minimum:		m ²	Proposed:		m ²	Configured as:		m	X		m
Linear Loading Rate:	Minimum:		m			m						
If Raised, Provide Height Above Existing Grade to Bottom of Chamber:								m				

Shallow Buried Trench Dispersal Bed

Length of Pipe/Leaching Chamber:			m	Configured as:		runs	at		m, each			
If Raised, Provide Height Above Existing Grade to Bottom of Chamber:								m				

Method of Distribution Line Detection

Magnetic Means:		Specify:	
Tracer Wire:		(14 gauge TW solid copper light coloured plastic coated)	
Other:		Specify:	

Tracer wire to be accessible above grade to connect locator device

Pump Chamber Information

Minimum Pump Chamber Full Capacity (L):
Dose Volume (L):
Demand or Timed Dose:
If Timed Dose, Provide Number of Doses/Day:
Control Panel Type:

Raw (Y/N): ☐ Effluent (Y/N): ☐

Grinder pump (Y/N): ☐



Installers Corner

Emily Keown and Tom Keown (Brother & Sister), Fivepoint Landscaping
Serving: Muskoka and North of Huntsville ON

In your opinion, what do you see as the three most challenging technical issues faced by septic system installers today?

One of the biggest challenges for installers today is the inconsistency between townships in how septic systems are interpreted, inspected, and approved. While we all work under the same Ontario Building Code, requirements, inspection processes, and expectations can vary significantly from one municipality to the next. This creates added complexity for installers, increases the risk of delays, and often requires additional time on site to meet differing interpretations rather than focusing solely on best installation practices.

Briefly, how might these be addressed?

Greater consistency and clearer communication between municipalities would go a long way. Standardized inspection checklists, clearer interpretation of OBC requirements, and improved dialogue between inspectors, designers, and installers would help reduce confusion and delays. Ongoing joint training and collaboration through organizations like OOWA can also support a more consistent, practical approach across jurisdictions while maintaining public health and environmental protection.





What advice would you give to contractors wanting to make a go of installing septic systems?

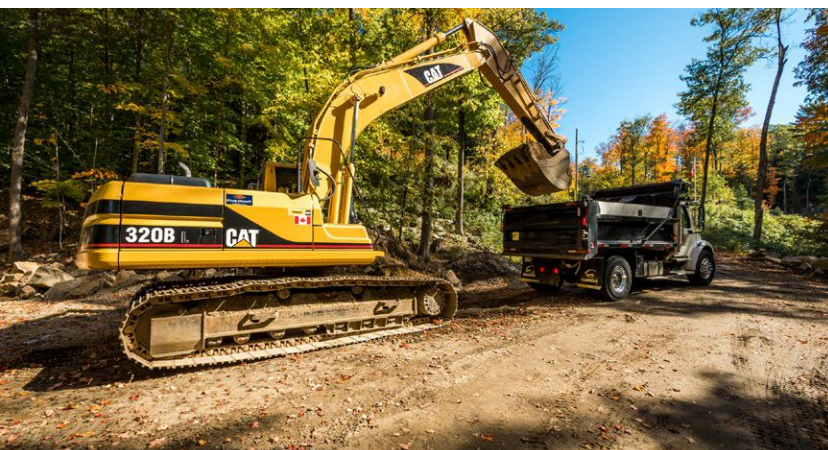
Invest in education, relationships, and quality from day one. Take the time to truly understand the Ontario Building Code, soil conditions, and system designs—not just how to install, but why systems are built the way they are. Build respectful working relationships with designers, inspectors, and municipalities, and don't cut corners to save time or money. Septic systems are long-term infrastructure, and your reputation is built on how those systems perform years down the road.

What would be the most impactful thing that OOWA could do to improve the industry?

The most impactful thing OOWA could do is help drive consistency and collaboration across the industry. Acting as a bridge between installers, designers, regulators, and municipalities—through standardized guidance, shared best practices, and joint training—would help reduce inconsistencies in interpretation and inspections. This would support higher-quality installations, improve efficiency on site, and strengthen confidence in the onsite wastewater industry as a whole.

How do you communicate homeowner operation and maintenance responsibilities to your clients when the install is complete?

We place a strong emphasis on homeowner education at the completion of every install. We take the time to explain how the system works, what proper use and care look like, and what to watch for over time. We've found that Waterloo Biofilter does an excellent job providing clear, homeowner-friendly operation and maintenance materials, which is one of the reasons we use their systems so often. When appropriate, we also provide clients with a copy of Living in Cottage Country by the Muskoka Watershed Council, which includes an excellent, easy-to-understand section on septic systems and long-term stewardship.





Septic Systems are Biological Systems. A Look at Microbial Activity in Septic Tanks

By Mike Gibbs, OOWA Membership & Outreach Coordinator

When explaining how a septic system functions to clients of our inspection services, I always start by telling them that septic systems are -first and foremost- biological systems. For this critical infrastructure to perform as they are intended and designed to, the conditions for healthy microbial growth must be provided and sustained through proper operation and maintenance. The second thing I stress to our clients is that they are “systems” with more elements than just the tank. But because the tank gets most of the attention through pumping requirements and those green lids, the tank is generally the feature that they are most focussed on or aware of. So, lets take a closer look at the septic tank and its’ role in the septic system’s biologically based treatment chain.

Septic tanks are anaerobic digesters, relying on this microbial activity to process household wastewater. This biological process involves the decomposition of organic matter in an oxygen-deprived environment, transforming solid waste into more manageable forms such as sludge, liquid effluent, and gases.

Though I generally spare our clients this level of detail (but happily share with those who are interested), let’s take a deep dive here into the key aspects of this microbial activity which include the types of microorganisms involved, the biochemical processes, influencing factors, and implications for system maintenance such as pumping and refilling.

Types of Microorganisms

The primary microorganisms in septic tanks are anaerobic bacteria, which thrive in low-oxygen conditions within the tank. These bacteria are essential for breaking down organic waste, including human waste, food particles, and other solids. In addition to bacteria, enzymes produced by these microbes facilitate the liquefaction of waste. Protozoa, such as ciliates and amoebae, also play a supportive role by consuming harmful bacteria that may enter the system through wastewater, thereby helping to maintain a balanced

microbial ecosystem. Microbial communities vary across different parts of the system; for instance, those in the septic tank effluent differ from those in the leaching field where aerobic processes occur.

Biochemical Processes

Microbial activity in septic tanks occurs through a series of anaerobic digestion stages:

Hydrolysis: Enzymes from bacteria break down complex organic compounds (e.g., proteins, carbohydrates, and fats) into simpler soluble molecules.

Acidogenesis: These simpler molecules are fermented into volatile fatty acids, alcohols, hydrogen, and carbon dioxide.

Acetogenesis: The products from acidogenesis are further converted into acetic acid, hydrogen, and carbon dioxide.

Methanogenesis: Methanogenic archaea (a type of microorganism related to bacteria) utilize these intermediates to produce methane gas and carbon dioxide, which are released as biogas.

This multi-stage process reduces the volume of solids by converting them into sludge that settles at the bottom, liquid effluent that flows to the drain field, and gases that vent out. Overall, bacteria and associated microbes convert complex waste into simpler substances, preventing blockages and promoting system efficiency.

Factors Influencing Microbial Activity

Several environmental factors affect the efficiency of microbial processes in septic tanks:

Oxygen Levels: The anaerobic environment is critical; excessive oxygen can inhibit anaerobic bacteria.

pH and Temperature: Optimal pH ranges from 6.5 to 7.5, and temperatures between 20°C and 35°C support robust bacterial growth. Extremes can slow decomposition.

Nutrient Balance: A steady influx of organic waste provides necessary substrates, but imbalances (e.g., from excessive chemicals or antibiotics) can disrupt populations.

Toxins and Inhibitors: Household cleaners, grease, or non-biodegradable materials can harm microbes, reducing their activity.

Implications for Maintenance Practices

During septic tank pumping, which removes accumulated solids, a portion of the microbial population is also extracted, temporarily reducing decomposition capacity. Refilling the tank with water post-pumping may dilute the remaining bacteria, potentially delaying the restoration of full microbial activity until new wastewater introduces fresh microbes and nutrients. Conversely, allowing the tank to refill naturally with sewage may preserve and gradually rebuild the microbial community without dilution. Regular servicing, includes cleaning effluent filters annually, measuring solids

accumulation & pumping when the solids (both sludge and scum layer) occupy more than 33% of the tank’s operating capacity. The generalized time frame for pumping is every 3–5 years based on tank size and loading of organics and non- degradable materials. Rule of thumb - measure twice pump once.

To summarize, microbial activity is the basis of proper septic tank functionality, driven by anaerobic bacteria and supporting organisms that efficiently degrade solid waste. Proper management of environmental factors in addition to sound operational and maintenance practices ensures sustained performance, minimizing risks and extending a system’s functional life.



ABOUT THE AUTHOR

Mike Gibbs has worked for OOWA as their Membership and Outreach Coordinator and now leads ESSE Canada’s Peterborough hub, as well as serves on the Board of Directors for OOWA.



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The Towns That Run on 100% Onsite Wastewater Treatment

This article first appeared online at [OnsiteInstaller.com](https://www.onsiteinstaller.com) on March 2025, published by COLE Publishing, Eagle River, Wis. It is reprinted by permission.

[See original article](#)

In communities across the U.S., centralized sewer systems are the norm. But in some towns, an entirely different approach is working — one where every home and business relies on onsite wastewater treatment systems. These towns are thriving without the burden of a traditional sewage treatment plant, showing that decentralized solutions can be both effective and sustainable.

1. Self-Sufficiency Through Onsite Systems

Towns like this have embraced the power of onsite wastewater treatment systems, such as septic tanks and alternative treatment technologies. Instead of relying on miles of underground pipes to transport waste, each property handles its own wastewater. This decentralized approach reduces the need for costly infrastructure.

2. State-of-the-Art Septic Systems

Many homes and businesses in these towns have updated their traditional septic systems with advanced treatment technologies. From aerobic treatment units to sand filters and mound systems, these modern solutions provide higher levels of treatment.

3. Environmental Benefits

One of the primary advantages of relying on onsite systems is the reduced strain on local ecosystems. With each property responsible for its own wastewater treatment, the burden on local rivers, lakes, and groundwater is minimized.

4. Challenges of Decentralized Treatment

While onsite systems offer many benefits, they are not without their challenges. Property owners must stay on top of regular maintenance, including pump-outs, inspections, and system repairs.

5. A Growing Trend

As more municipalities face the high costs of installing and maintaining centralized sewer systems, the idea of running a town entirely on onsite wastewater treatment is becoming more appealing. Advances in septic technology, combined with a growing awareness of environmental impacts are making decentralized solutions a viable option for communities.

Conclusion

Running a town on 100% onsite wastewater treatment may not be the easiest route, but for some communities, it's a sustainable, environmentally friendly, and cost-effective solution. By embracing the power of decentralized systems, they are proving that with the right technology and maintenance, onsite wastewater treatment can be a successful model for the future.

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Short-Term Rentals and Their Negative Effects on Septic Systems

By Barbara Waldron, CBCO, Building Official

Short-term rentals have been around for decades. But as the COVID-19 pandemic spurred on the need for many to distance and isolate, the popularity of these rentals increased and the term “short-term rental” (STR) became a buzzword. Many STRs are located in the rural and cottage areas around the province. As long as people could access the internet, many people worked from these remote locations to minimize contact with the public. Quickly, the STR phenomenon resulted in individuals and companies buying up these properties (many unseen at the time of purchase) to create a business where the owner was often making money hand over fist.

The issue with STRs in rural and cottage areas is that these types of properties are served by a septic system and a well. These two very important systems are often not well understood by the new homeowners, especially those who have never dealt with owning a property with a septic system. Many people do not understand how a septic system is designed, how it operates and the hazardous impacts of overloading it.

A septic system is defined as a “building” by the Ontario’s Building Code Act. It hides beneath the ground and is not thought of often, until it is pumped occasionally. Many STRs are being advertised for accommodation for large numbers (16 to 25 people, in some cases), with the average listing for 8 to 10 persons. This is usually a higher occupancy than the designed system can accommodate.

For building officials in rural municipalities, this issue constantly rears its head — usually first through complaints about noise or the number of vehicles parked on the property or the road, bringing attention to the STR. This, in turn, brings the attention of the building department to the overloading of the septic system.

Because many STR owners advertise that they have more occupancy than the septic system was designed for, many

systems are being abused and can be considered as essentially in a state of failure with a high probability of effluent leaving the system that has not been fully treated and impacting the surrounding area, such as the well and any adjacent water sources (lakes, ponds, reservoirs, rivers, springs, streams, and drainage ditches leading to waterbodies).

A typical scenario would be a cottage used seasonally by a single family that has three bedrooms, a three-piece bathroom and an unfinished basement. The cottage becomes an STR advertised for 12 persons, and additional bedrooms and a second bathroom have been installed in the basement without a permit or approval. Now, more than twice as much sewage is being forced through the septic system at a faster rate than what the design allowed for. Often, we hear, “Well, we don’t rent the building in the winter so that should make the use of the system at other times okay, because there really is not much in the tank.” This statement alone very quickly identifies that this individual does not understand how a septic system operates and is not concerned at all about the hazard that is being created.

Part 8 of the Ontario Building Code (OBC) addresses many different options for sewage treatment systems and the information about how to size the system properly. Subsection 8.9.2 speaks to the operation of the system, and Article 8.9.2.2 states:

8.9.2.2 (2) Every sewage system shall be operated in accordance with,

(a) the basis on which the construction and use of the sewage system was approved or required under the Act or predecessor legislation, as the case may be,

and

(b) the requirements of the manufacturer of the sewage system.

Further to this, Subsection 8.9.3 speaks to maintenance of the system, and Article 8.9.3.2 states the following:

- (1) Every sewage system shall be maintained so that,
 - (a) The construction of the sewage system remains in accordance with,
 - (i) The basis on which the construction and use of the sewage system was approved or required under the Act or predecessor legislation, as the case may be, and
 - (ii) The requirements of the manufacturer of the sewage systems, and
 - (b) All components of the sewage system function in their intended manner.
- (2) The land in the vicinity of the sewage system shall be maintained in a condition that will not cause damage to, or impair the functioning of, the sewage system.

These two articles basically state that the system is to be designed to meet the requirements of the dwelling and shall be maintained in a safe manner as per how the system was designed.

The other argument that would be put forward is the number of persons the bedroom was designed for. It is not based on how many beds can be placed into the room; it is based on occupancy of two persons per bedroom. This occupancy number comes from OBC Article 3.1.17.1 (1)(b):

The occupant load of a floor area or part of a floor area, or of a building or part of a building not having a floor area, shall be based on,

- (b) Two persons per sleeping room or sleeping area in a dwelling unit or suite.

Building officials are very aware of architectural designers using the room descriptions “office” or “storage room” as code words for future bedrooms. Often, the homeowner has been told the capacity of the existing system or the maximum capacity for a new system based on lot features minimizing the septic design — but they still need those extra bedrooms, so why not call them an office to get around this little wrinkle? When a building official is conducting an inspection and sees an “office” now equipped with a closet and a hard-wired smoke alarm, there is no question what this room is intended to be. The homeowner will then be sent back to the designer to reassess the system design to see if it is large enough to accommodate the additional bedroom. When it is not, this is where major and costly issues occur.

So why is operating a sewage system beyond the designed capacity a hazard? It comes down to protection of human health and the environment. Many municipalities have dwellings and cottages on properties that front on a lake or other body of water. When a system is not operating properly as designed, the sewage has only two directions to go: forced out into the bed or backed up into the building.

Untreated effluent will not be clear and clean to enter the surrounding soil without being a hazard because too much sewage was forced through the system quickly.

Given that many northern municipalities have an abundance of cottage country, these homes are a major part of the municipality that contribute financially through taxes and support of local businesses through tourism and seasonal use by homeowners. The population of the municipality can easily double in the warmer months. If the environment is not protected, waterbodies become contaminated, more algae is created, more weed growth occurs, drinking water can become unsafe, and the value of the property can be affected. Many cottage owners take water from the lake to serve the plumbing system, and some drink this water.

What can designers and installers do?

These professionals are boots on the ground at the front lines. They are often contacted at the beginning of the process and can easily educate their clients. Many designers are also installers who have dealt with failed systems, and they can share these experiences with clients to highlight the importance of installing and designing a system properly.

Designers should be asking questions to truly find out how the building will be used to ensure the design meets the requirements of the OBC and, if this building is intended to be used as an STR, to obtain the occupancy number the homeowner intends to advertise for. At this juncture, designers can also explain to their clients the importance of designing the system to meet code and the possible negative outcomes if the system fails environmentally and financially — most of the time, it is the monetary part of the discussion that drives a point home.

Installers can further educate their clients through discussion at the first site visit to determine where a septic system can be located, while pointing out features on the property that need to be protected and the importance of doing so. Everyone just wants to know the “why.” “Why do I have to do that? I want to put my pool there. Why can’t I have the septic system closer to the lake to make room for my pool?” Once the “why” is explained in terms that they can understand, it typically puts things into perspective for them.

Reinforce the importance of meeting the minimum requirements of the OBC and the importance of protecting the environment, their own and their neighbours’ drinking water supply, and the beautiful shoreline they own, as well as contributing to keep the waterbodies clean. Become familiar with the municipal STR by-law (if they have one) so that you can help the client through the process, because many people have trouble with starting to fill the application out.

What can owners do?

Simply put, be responsible. Be responsible for ensuring that, if you choose to operate an STR business, check with the building department and ask questions about the septic system. When purchasing the property, verify through a compliance letter if there are any open permits or orders on the property before you purchase. Do your due diligence to investigate what the sewage system was designed for; this information can be found at the municipality or any other agencies that handle issuance of septic permits. Seek out an experienced designer and installer to work with to help you through the building permit process. Be responsible for our environment, as everyone wants to enjoy the property and waterbodies safely.

To close, when a new building is being constructed, or an existing one is being renovated, for personal use or as an STR, that owner is focused on how the building will look when it is done and how fast they can get occupancy. The septic system is one of the most important systems servicing the building — but let's be real, it is one of the ugly parts of the construction, beneath the ground and forgotten by the owner until it fails and they cannot flush that toilet anymore. I have respect for the professionals that design and install these very important systems. The combination of the experience, the education obtained, and the opportunity to educate the public through design and installation shows not only the professionalism of these individuals, but their respect for the safety of people and the environment.



ABOUT THE AUTHOR

Barbara is a 25-year experienced building official in the role of Chief Building Official in rural municipalities. An experienced architectural designer with 39 years of experience in the industry and 26 of those years as sole proprietor of a private design business in addition to being a Chief Building Official. Former Director at Large for the Ontario Building Officials Association.



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OOWA's Burgers & Beers Evening at ESSE Canada

OOWA recently hosted its Burgers & Beers gathering at ESSE Canada, bringing members together for an evening of conversation, connection, and industry insight. Attendees arrived hoping for networking and left feeling their expectations were fully met, with one participant sharing that they came "to enjoy some good conversation and make some new business connections," and the event delivered exactly that.

Rick Esselment of ESSE Canada helped spark thoughtful dialogue throughout the night. His presentation was described as good and conversation-driving, offering direct and concise content that encouraged attendees to reflect, respond, and share openly. Members appreciated the high-level ideas that "got people thinking and talking," creating a natural flow that suited the informal setting.

Much of the discussion centred on key industry priorities, including the importance of sampling for the viability of decentralized systems and the need to raise standards for conventional systems to ensure consistent performance across the province. Attendees also explored the role of septic system records, the idea of pumpers contributing data to a centralized system, and the value of identifying funding opportunities within the TCRC proposal. Interest in learning more about CSA B65 highlighted the group's commitment to ongoing professional development.

The welcoming atmosphere was felt throughout the evening, with several attendees describing the OOWA team as supportive, engaging, and "always inviting." Comments such as "Kelly, Krista and Tiffany are awesome" reflected the appreciation for the team's presence and the comfortable environment they helped create.

As the night wrapped up, the feedback was overwhelmingly positive. One attendee captured the spirit of the event with a simple message: "Keep up the awesome work." The gathering reinforced the value of bringing members together in informal settings where conversation, learning, and community can thrive.

“ Participants thoughts on the staff

The OOWA team is supportive, engaging, and "always inviting."

"Kelly, Krista and Tiffany are awesome"

"Keep up the awesome work."



2026 Events

OOWA is gearing up for an exciting year ahead, and we're already building momentum for 2026. Our upcoming calendar will feature expanded training sessions, hands on learning opportunities, member networking events, and continued advocacy for Ontario's onsite wastewater sector. We're also planning a couple of social events to help our community connect on a more personal level and to have some fun.

There's lots to look forward to, and we can't wait to share more details soon.

Training

April:

Pumps & Controls – Greater Golden Horseshoe
Part 8 Permit Application Review – Near North & Muskoka

May:

Wastewater Basics and Biological Health & Safety – Eastern Ontario
In-Field Training – Central Ontario

June:

Advanced Design – GTA

September:

In-Field Training – Eastern Ontario

October:

Advanced Design – Peterborough
Soils 101 – Peterborough

November:

Intro to Design – Greater Golden Horseshoe
Large Sewage Systems – Central Ontario





Social

July:

Summer Social Event

October:

Golf Tournament – Eastern Ontario



Networking

April:

Burgers and Beers – Central Ontario

November:

Christmas Burgers and Beer – Greater Golden Horseshoe

Advocacy

Ongoing:

Decentralized Symposium Series

September:

Septic Awareness Week



OOWA Members Who Joined or Renewed Their Membership

Between the Dates of October 31, 2025 and January 26, 2026

New Members

- Laura Adams, Seguin Township
- Emily Ainsworth
- Anik Archambault
- Cirilo Azucena
- Joseph Baldwin-Wilmot
- Allison Bennett, Clearford Water Systems
- Diego Bernal, Seguin Township
- Ray Boyd, Premier Tech Aqua
- Amit Chaudhary, Toronto Metropolitan University
- Sidney Copegog
- Donald Davis
- Luisa DiBernardo
- Dylan Duyck, Duyck Excavation Inc
- Soheil Fatehi, Clearford Water Systems
- Chris Finlay, ClearFlow Inc.
- Adrian Flynn
- Kyle Francis, Onsite Septic Solutions
- Brad Gaffney, Newterra
- Tim Garrard, Portable Toilet Rentals Inc
- Ann Gibson
- Rachel Hepburn, MECP
- Greg Hillis, Make-Way Environmental Technologies Inc
- Stephen Holt
- Brad Hoover, SciCorp International Corp
- Nada Hosni, Toronto Metropolitan University
- Mohammed Mahfuz Hossain, MND6 Inc.
- Amr Ismail, Toronto Metropolitan University
- Amelia Jones, Brock University
- Domantas Kaciuska
- Ali Karim
- Matt Kean, Seguin Township
- Clayton King
- Dan Leduc, Township of South West Oxford
- Raymond Leffler
- Curtis Livingstone, Seguin Township
- Thorntin Macdonald
- Megan MacLellan, Concrete Precasters Association of Ontario
- Rani Madi, Paterson Group
- Michael McFarlane, City of Peterborough
- Melanie Melo, Northeastern University
- Dominic Nadeau, Granby Composites
- Paul Nickerson, Town of Grimsby
- Rachel Nixon
- Kevin Norlock, Township of South Frontenac
- Matt Panciuk, Rideau Valley Conservation Authority
- Braeden Payne, Thunder Bay District Health Unit
- Alexandria Peavoy
- Courtney Pilkington, GEI Consultants Canada Inc.
- Christopher Raffy, Municipality of Grey Highlands
- Anthony Ramacieri
- Chloe Rands
- Ryan Reimer
- Anthony Rotella, Town of Grimsby
- Jaclyn Roulston
- Arielle Santos, Western University
- William Saroyan
- Kelsey Sbergio
- Elaf Seif, McMaster University
- Kirk Self, Fitzmaurice Bros. Carpentry
- Dan Sharina, Township of Woolwich
- Aaron Shimkofsky, Trent University
- Zackary Stacey
- Taylor van Boekel, Van Boekel Landworks Ltd.
- Anna van Milligen
- Rob Vanoverbeke, City of London
- Christian VÉZINA, Christian VÉZINA inc.
- Dean Vuyk, Landforge
- Michael Wallace
- Christopher Ward, 1000384200 Ontario Inc.
- Daniel Weerdenburg, Brooklin Concrete
- Riley Williamson
- Chad Winger, Encore Insurance Services Inc
- Ty Zanetti

Renewed Members

- Bassim Abbassi, Ontario Rural Wastewater Centre
- Nick Acchione, Allto Construction Services Ltd.
- Larry Acchione, Allto Construction Services Ltd.
- David Adams, Adams Brothers Construction
- Derek Airdrie, North Bay-Mattawa Conservation Authority
- Matthew Aldom, Township of North Kawartha
- Charles Alexander, C & A Custom Designs Inc.
- Quentin Allen, Mohawk College
- Miguel Almassy, DBO Expert
- Domenic Ambrosetti, Ferdom Construction
- Alexandra Anderson, Camping In Ontario/OPCA
- Greg Annis, Durham Regional Health Department
- Randy Armstrong, Armstrong Pumping Ltd
- J.P. Babineau, Allto Construction Services Ltd.
- Brock Bartel, Extreme Excavating Meaford Inc
- Paul Bates, Allto Construction Services Ltd.
- Sydney Beatty, Groundwork Engineering Limited
- Gord Bell, SiteEx Inc.
- Allison Bennett, Clearford Water Systems
- Gaurav Bhardwaj, York University
- Doug Bingham, Newmarket Precast Concrete Products Ltd.
- Jeff Binnie, G.E. Binnie Haulage & Excavation Inc.
- Bruce Blackburn, B. Blackburn Ltd
- Jeff Blackburn, B. Blackburn Ltd
- Jamie Blakely, Blakely Property Services
- Niraj Bohora, Everest Drain & Plumbing Inc.
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- Ryan Bos, Bos Engineering & Environmental Services Inc.
- Randy Bossence, Township of Centre Wellington

- Ray Boyd, Premier Tech Aqua
- Terry Bradshaw, Bioflow Septic Solutions
- Mark Brosowski, Weber Environmental Services
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- Curtis Livingstone, Seguin Township
- Adam Lohonyai, OCI Group Canada Inc.
- Frank Lopez, Waterloo Biofilter Systems Inc

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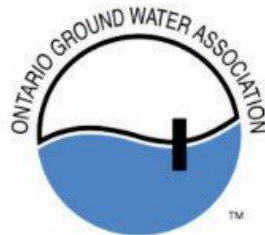
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- Michael Rahme, Home Pro Central Ont. Inc
- Jason Rail, The Septic Store
- Richard Raison, R R Equipment Rental
- Doug Rankin, Slagter Construction
- Terry Rees, Terry Rees Consulting
- Peter Reinhardt, Pentair Canada, Inc.
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- Scott Robinson, Unit Precast
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- Glen Sharp, Francis Thomas Contracting Company Ltd
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- Tyler Sheppard, Township of Muskoka Lakes
- Tom Sibbald, Siteworks Construction
- Brad Smale, SCS (Smale Consulting Services)
- Mark Smith, Woodland Excavation
- Edward Smith, Ted Smith Construction
- Robin Smith, Robin Smith Engineering
- Nick Snyder, Township of Muskoka Lakes
- Ken Sommer, Shirecrest Homes Inc/Advanced Excavating
- Lauren Spivak, Lauren Spivak - Architectural Designer
- Michael Stevens, 1000025248 Ontario Inc o/a GB Excavating
- Martina Stevens, GB Excavating
- Brady Straw, Waterloo Biofilter Systems Inc
- Andre Subron, Waterloo Biofilter Systems Inc
- Paul Susi, ESSE Canada
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Secure the Tank

and Protect What Matters

The Infiltrator Guardian™ protects against unauthorized entry of septic tanks while also improving waste haulers' speed and ease when servicing tanks.

Join the effort to make safety the industry's top priority by using the Infiltrator Guardian™ on your next job and reset the standard for septic system safety.

Regulatory Requirement:

Per CSA Standard B66-2021 referenced in table 1.3.1.2 of the OBC, it is a mandatory requirement for all access openings of prefabricated septic tank to have secondary safety screens. Effective January 1, 2025

 **Infiltrator**
Water Technologies
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