

Onsite

ONTARIO ONSITE WASTEWATER ASSOCIATION NEWSLETTER

Education | Engagement | Leadership

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Ontario Onsite
Wastewater Association

Onsite Technology Applied to One of the Most Challenging Applications of all at L&M Meats Distributing Inc.

Dominic Mercier, P.Eng. M.A.Sc., Enviro-STEP Technologies (Eljen GSF)

Tracey Spragg, Eisses Brothers Excavating

When it comes to challenging wastewater applications, process wastewater from slaughterhouses and meat processing plants are amongst those where most engineering firms and technology suppliers try to stay away from, and for good reasons.

In typical onsite residential applications, the variability in the wastewater composition is relatively limited. Of course, there are exceptions, but most technologies incorporate sufficient safety factors to handle standard domestic strength variations. On the other hand, sewage from commercial or industrial operations must be approached from a totally different angle.

Aspects such as: variations in daily production activities, intense and short duration cleaning procedures, use of strong chemicals, unbalanced wastewater composition lacking some nutrients while other parameters are in excess concentrations, are just amongst some of the variables designers and technology suppliers must consider.

As if it was not already challenging, approaching a commercial or industrial client requires a great deal of tact and educational skills. It is not always obvious or sometimes well received by business owners to hear that their level of pollution may be equivalent to an entire residential development and major expenses are needed to protect the environment.

This case study discusses the wastewater project at L&M Meats Distributing inc., a family operated slaughterhouse and meat processing plant located in Gilford, ON.



L&M Meats needed to renovate their failing septic system. In 2017, they hired Gunnell Engineering to evaluate the situation and propose a solution to handle their existing needs as well as room for future expansion.

Story continues page 42...



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belm2@premiertech.com

www.premierrtechqua.com

Roddy Bolivar (Treasurer)*Makeway Environmental**Technologies*

roddy@makeway.ca

www.makeway.caa

Bill Dainty*Headwaters Construction*

bill@headwatersconstruction.ca

www.headwatersconstruction.ca

Anne Egan (Past President)*R.J. Burnside & Assoc.*

anne.egan@rjburnside.com

www.rjburnside.com

Ray Foster*ESSE Canada*

ray@essecanada.com

www.essecanada.com

Bill Goodale (Vice President)*Tatham Engineering Ltd.*

bgoodale@tathameng.com

www.tathameng.com

Bert Knip (Secretary)*Make-Way Environmental**Technologies*

bert@makeway.ca

www.makeway.ca

Jeremy Kraemer*Cambium Inc.*

jeremy.kraemer@cambium-inc.com

www.cambium-inc.com

Jami Quathamier*Brooklin Concrete Products*

jami.quathamier@brooklin.com

www.brooklin.com

Rob Sanna*Boyd Brothers*

rob@boydbrosconcrete.ca

www.boydbrosconcrete.ca

Brady Straw (President)*Waterloo Biofilter Systems*

brady@waterloo-biofilter.com

www.waterloo-biofilter.com

Kathleen Shepherd*Peterborough Public Health*

kshepherd@pcchu.ca

www.peterboroughpublichealth.ca

Tracey Spragg*Eisses Bros. Excavating*

traceys@eissesexcavating.com

www.eissesexcavating.com

Mac Taylor*Mac Taylor Corp*

mactaylor@mactaylor.com

www.mactaylor.com

Danielle Ward*Adams Brothers*

daniellew@adamsbros.ca

www.adamsbros.ca

President's Message & Convention Welcome

Throughout the COVID-19 pandemic, onsite wastewater professionals of all descriptions have proven to be essential workers providing important services to the construction industry and to rural property owners.

As the article from Onsite Installer Magazine in this newsletter outlines, COVID has helped spark a rural revolution. In Ontario, we are seeing an exodus from the GTA and other metropolitan areas to outlying communities as people seek larger and more functional properties. This trend has had its effects on the real estate market but also on the onsite sewage systems in our rural settings. With people spending more time at their homes and cottages, there has been an increased demand on their sewage systems and an increase in servicing, system upgrades, and new installations. Onsite sewage systems continue to play an even greater role in the overall wastewater infrastructure management across the province.

In these pages you will also find an annual report of OOWA's activities over the past year. One recent highlight is the External Relations Committee who have been participating in the MMAH's consultation process on transforming and modernizing the delivery of Ontario's building code services. The intent of these discussions has been to investigate the organizational framework of an administrative authority to deliver building regulatory services.

So far, much of the discussion has been at a high level with OOWA representatives

contributing perspective on issues that would affect our industry and how Part 8 would be managed. We will update the membership as this transformation process takes shape. To read more about other initiatives the association has been working on please check out the committee's reports in this newsletter and hear from the committee chairs at the Annual General Meeting on Monday, March 29th as part of our annual convention.

As you all know by now, our annual gathering has shifted to a virtual experience this year. Throughout our planning process a constant theme among the organizing committee was that, regardless of how exhausted we may be with Zoom meetings and are missing networking in person, OOWA needed to continue providing our members with value and with high-quality information sessions. It has been an interesting process planning this year's convention and I thank all members of the organizing group who didn't shy away from the challenge. Kelly has done an excellent job and shown a lot of patience in figuring out how to run our event on the Pheedloop platform. Once again, Mike has taken the lead to put together a great agenda. It has certainly been a steep learning curve for all of us and we hope our efforts pay off.

You can check out the agenda in the newsletter; we are sure you will find something that will interest you. We will miss the activity that usually takes place on the expo hall floor and hospitality suites, but this year's event promises to bring new benefits including the opportunity to re-watch the presentations on your own time after the convention.

Welcome to the OOWA 2021 Virtual Convention!

A handwritten signature in black ink that reads "Brady Straw".

Brady Straw, President

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Conference Speakers



James Arambarri

jarambar@uoguelph.ca

James Arambarri is a MASc candidate at the University of Guelph having received his Bachelor's in Environmental Engineering in 2018. In the last few years, James has become heavily involved in the application of electrokinetic technologies in the environmental field. His research experience in electrokinetics began during a summer investigation concerning the removal of Phosphorus and organics from wastewater using electrocoagulation. Later on, James worked for Electrokinetic Solutions (EKS), a startup company seeking to apply their technology for the dewatering of oil sands tailings (FFT). Currently, James has identified an innovative application of electrochemistry called Electroflotation that he believes could play a big role in the development of more sustainable and cost-effective on-site wastewater treatment systems. James will be defending his thesis in the upcoming weeks with a goal of transitioning immediately into the on-site wastewater industry with a particular interest in research and development of decentralized wastewater systems.



Dick Bachelder

richard@infiltratorwater.com

Mr. Maat is a recognized expert in the field of wastewater treatment and odour control and has over 45 years of professional engineering experience in this area. He has been involved in research and development, consulting, design, construction engineering, technology development for biological wastewater treatment and odour mitigation technology.



Madeline Carter

mcarter@cfcrozier.ca

Madeline Carter, P.Eng. is a Project Engineer with C.F. Crozier & Associates Inc. working in the Milton office. Madeline works in the land development department and supports all offices with assistance with onsite sewage system designs and rural servicing design.

Conference Speakers



Carolyn Chan

carolyn.chan@gmbblueplan.ca

Carolyn is a professional engineer co-leading the Water/Wastewater Small Systems group at GM BluePlan Engineering Limited. Carolyn has been working in research, design and inspection of small and decentralized water and wastewater systems since a summer student work term at the Ontario Rural Wastewater Centre in 2011. She holds a Bachelor of Engineering from McGill University and a Master of Applied Science from the University of Guelph, where her thesis project focused on the design of constructed wetlands for greywater treatment and reuse. She acts as Project Manager or Technical Lead for numerous onsite wastewater system projects, from the assessment/study phase through to design and construction



Greg Corman

greg@waterloo-biofilter.com

Greg is a graduate of McMaster University, with a bachelor's degree in Chemical Engineering and has over 10-years experience in the onsite wastewater industry. Greg works as the Operations Manager for Waterloo Biofilter, managing commercial clients and interdepartmental responsibilities.



Hank Dubee

dubee@start.ca

SGT Hank Dubee has been an Enforcement Officer for the Ministry of Transportation for 32 Years. Specializing in vehicle safety, traffic rules/regulations and the Transportation of Dangerous Goods. SGT Dubee is a Provincial trainer/instructor for both the MTO and OPP. He looks after multiple platoons for the area patrol and scale operations in Central Region, including York Region, Metro Toronto, Simcoe County and Caledon Region. SGT Dubee's dedication to the safety of Ontario highways shows by sharing his knowledge with the general public through discussions and public presentations.



Anne Egan

anne.egan@rjburnside.com

Anne Egan, M.Sc. (Eng.), P.Eng. is a Professional Engineer and Manager of Onsite Wastewater Services with R.J. Burnside & Associates Limited, where she leads a team of professionals specializing in onsite and decentralized wastewater management. The team services a broad client base with a variety of projects involving the assessment, design, approvals, construction and operation of onsite and decentralized wastewater treatment systems. Anne is a graduate of Queen's University, having earned both a Bachelor's and Master's degrees in Civil Engineering. She has served on the OOWA board of directors since 2014.

Conference Speakers



Sara Heger

sheger@umn.edu

Dr. Sara Heger is a researcher and instructor at the University of Minnesota in the Onsite Sewage Treatment Program in the Water Resources Center and is an Adjunct Assistant Professor in the Bioproducts and Biosystems Engineering Department. For over 20 years, she has been conducting research and providing education and technical assistance to homeowners, small communities, onsite professionals, and local units of government regarding onsite wastewater treatment. She has presented in over 30 different states and provinces in North America regarding the science of wastewater treatment including design, installation, and management. Sara is the president of the National Onsite Wastewater Recycling Association. Sara serves on the NSF International Committee on Wastewater Treatment Systems and chairs Minnesota's SSTS Advisory Committee. She has a BS in Biosystems & Agricultural Engineering and an MS and a Ph.D. in Water Resource Science.



Nancy Hood

Nancy is a Mental Health Works certified trainer at the Canadian Mental Health Association, Ontario. Nancy is a registered Social Worker who is a strong supporter, advocate, and champion for healthy communities built in partnership with their members. Over the last fourteen years, much of Nancy's career has been dedicated to creating and delivering programs to support youth and young adults living with mental health challenges.



Ian Hutcheson

ihutcheson@pinchin.com

Ian Hutcheson, P.Eng. is a Senior Project Manager with Pinchin Ltd. Ian has over 9 years of experience specializing in providing full range of services associated with the design, permitting and construction of Stormwater Management, Industrial Wastewater Treatment, and Advanced Treatment and Sub-surface Disposal Systems for a diverse spectrum of building types including residential, commercial and institutional. Overall project experience includes complete project delivery from inception and background data collection, design work and permitting, to serving as the Site supervisor (Pinchin as the General Contractor) for the turnkey supply and installation of equipment, mechanical and electrical services, earthworks, restoration and commissioning for both new and existing sites



Christopher Jowett

chris@waterloo-biofilter.com

Christopher Jowett is Head of Technology & Government Relations at Waterloo Biofilter Systems where he leads the development and commercialization of new innovative technologies that can help solve some of today's most pressing water quality issues. Christopher holds a BAsC in System Design Engineering from the University of Waterloo and an MBA from Wilfred Laurier University.

Conference Speakers



Jeremy Kraemer

jeremy.kraemer@cambium-inc.com

Jeremy is a Senior Project Manager at Cambium with 20 years' experience in wastewater treatment. He has a Ph.D. in Civil Environmental Engineering from the University of Toronto, is a licenced Professional Engineer, and Part 8 qualified designer.



John Levie

jlevie@clearford.com

John is the currently Vice President of Engineering with Clearford Water Systems. His experience in the water and wastewater field spans over 25 years and includes water and wastewater treatment plant design and construction, operations and maintenance support, and regulatory approvals, compliance and management. Clearford specializes in design/build/operate services for industrial, private and municipal water and wastewater treatment projects, and presently operates and manages over 180 facilities across Ontario.



Derk Maat

info@scicorp.net

Derk Maat is President & Chief Executive Officer of MAAT Environmental Engineering Corp and environmental engineering and consulting company and SCICORP International Corp. a company producing environmentally sustainable products to enhance wastewater treatment plant performance mitigate odors from a wide variety of organic sources.



Hamed Mahdavi

hamed@unitprecast.ca

Hamed received his PhD at the University of Alberta in 2013. He has more than 15 years of experience in detailed engineering design, research and development, evaluation of emerging water technology, troubleshooting and service, and project management in the field of treatment of residential, commercial, and industrial wastewater. Starting from June 2018, Hamed has joined the wastewater professional team at RH2O North America Inc. and Unit Precast Ltd, developing innovative design software to tailor and customize the treatment plants according to wastewater characteristics, objective/limits, and site specifications. In collaboration with RH2O team, Hamed has tested, validated, and implemented many emerging treatment technologies and equipment in our treatment systems to exceed the expectations of our clients.

Conference Speakers



Dominic Mercier

dmercier@enviro-step.ca

With a degree in Civil Engineering and a Master Degree in Environmental Engineering, Mr. Mercier has been working for more than 22 years in Onsite Wastewater Treatment design and product development. He is the founder and president of Enviro Neptune a firm dedicated to research and development of Onsite Technologies as well as Enviro-STEP Technologies a company distributing, manufacturing and commercializing wastewater treatment processes for the Canadian Onsite industry.



Alex Morales

amorales@precast.org

Alex Morales has been involved in concrete-related associations for 20 years and is currently the director of workforce development at that National Precast Concrete Association. Alex's primary responsibility is outreach to universities, technical schools and development of industry retention programs for industry personnel. Alex also provides responses to technical inquiries, represents NPCA and the industry at trade shows, exhibits, and conferences and coordinates the activities of committees. Alex writes and edits articles for Precast Inc. and Precast Solutions magazines. Alex holds a Bachelor of Science degree in Civil Engineering with a concentration in technical communications. He received his Master of Science degree in Adult Education from Indiana University.



Katherine Rentsch

Katherine is a Senior Project Manager at C.F. Crozier and Associates Inc. specializing in on-site sewage system design. Katherine oversees large multi-disciplinary land development projects in rural and unserved areas, assisting clients with the civil design of the site, including new and replacement sewage systems of all sizes. Katherine guides her clients through the permitting phases of the development project, from site plan approval to permitting and construction. Katherine's previous experience includes consulting and academia, including over 15 years of teaching experience at the Ontario Rural Wastewater Centre at the University of Guelph. Katherine continues to teach courses for the ORWC on an as needed basis. For the past five years she has been a panel member on the Building Code Commission as a Part 8 OBC specialist. She served on the board of the Ontario Onsite Wastewater Association for seven years and continues to be an active member on several committees.



Steve Ritsema

steve.ritsema@libertypumps.com

Liberty Pumps specializes in Waste-Water Pumps and Packaged Lift Stations. Whether Sump, Effluent, Sewage or Grinders - We have free design services for fast solutions. As a Liberty Pumps sales person, I love to work with Wholesalers, Contractors, and Engineers to provide wastewater pumping solutions.

Conference Speakers



Brady Straw

brady@waterloo-biofilter.com

Brady Straw is a graduate of the University of Guelph with a bachelor's degree in Environmental Science (Environmental Economics & Policy) and has been with Waterloo Biofilter for almost 15 years. An active OOWA and industry participant for most of those years, Brady is the current OOWA President, the association Membership Committee Co-Chair, and is an Onsite Designer in the OOWA In-Development Professional Program.



Eugene Trusler

eugene@hutch.com

Graduated from University of Toronto 1983 in Metallurgy and Materials Sciences and worked in the quality control lab space in the automotive industry before becoming a consultant to publically traded companies listed on the TSE and VSE Exchanges. In 2001, he was hired by Hutcheson Sand and Mixes to develop a new product for playground applications. CSA Compliant Granite Playground Sand was the result of a variety of scientific tests including Surface Impact and Standard Proctor Density determinations to provide Municipalities and Boards of Education with product performance assurances. Subsequently the Hospital for Sick Kids published a two year study that concluded that children falling into this protective surfacing are five times less likely to sustain injury compared to wood chip surfacing. He is the Director of the Playground Division at Hutcheson Sand and Mixes and is involved with the development of new products for other applications.



Jack Veitch

jveitch@ontario.cmha.ca

Jack Veitch is the Manager of Community Engagement and Education with the Canadian Mental Health Association, Haliburton, Kawartha, Pine Ridge Branch. Jack has worked with his local CMHA branch for over twelve years in a variety of roles including; Housing, Community Support, Intensive Case Management and Forensic Case Management. In his current role, Jack teaches a variety of certificate courses including safeTALK, Applied Suicide Intervention Skills Training, Mental Health Works, Mental Health First Aid and Living Life to the Full and is a Certified Psychological Health and Safety in the Workplace Advisor. Jack was a part of the team that helped to create the Ontario Hockey League/CMHA Ontario Talk Today program, in which he currently works as the Peterborough Petes Mental Health Coach.



Danielle Ward

daniellew@adamsbros.ca

Designer and installation co-ordinator for a large family owned business servicing the Parry Sound area. Specializing in installations of conventional systems and treatment units, sewage system inspections, general sewage system maintenance, third party design, troubleshooting and homeowner education.

Conference Speakers



Kevin Warner

kevin.warner@cambium-inc.com

Kevin manages the Water & Wastewater Group at Cambium. He holds degrees from the University of Waterloo (B.E.S Honours) and McMaster University (M.Sc.). Kevin has been practicing as a hydrogeologist and wastewater system designer since 2000 and is a registered geoscientist with the PGO and a qualified wastewater designer and inspector through Ministry of Municipal Affairs and Housing. He has managed and directed numerous hydrogeological assessments and impact studies for various residential, industrial, commercial and municipal developments with on-site servicing for water supply and/or wastewater disposal, and in experienced obtaining Permit To Take Water (PTTWs) for water takings for water supply or dewatering as well as Ontario Building Code or Environmental Compliance Approvals (ECA's) for wastewater systems.

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**9:00 am -
10:00 am**

● **Keynote Address: Sara Hager** (45 min presentation, 15 min Q&A)

Case Studies

▶ **MontHill Golf Club onsite sewage system**

Madeline Carter
GM Blueplan
Katherine Rentsch
C.F. Crozier

▶ **Quebec food processing plant: system design and performance review**

Dominic Mercier
Eljen

▶ **Design, challenges, and operation for a large manufacturing facility with enhanced nitrogen removal**

Greg Corman, Brady Straw
Waterloo Biofilter
Ian Hutcheson
Hutcheson Sand & Gravel

Technical Talks

▶ **How to properly size effluent pumps for septic tank effluent systems**

Steve Ritsema
Liberty Pumps

▶ **Innovative application of electroflotation technology for microbrewery wastewater treatment**

James Arambarri
ORWC/Guelph University

▶ **Nitrification, challenges and optimization for the onsite systems**

Hamed Mahdavi
RH2O

Workplace/Small Business Issues

▶ **Health Anxiety**

Jack Veitch
Mental Health Works
Nancy Hood
Mental Health Works

▶ **The workforce dilemma: attracting, training and retaining talent**

Alex Morales
National Precast Association

**10:00 am -
11:30 am**

● **MTO Regulatory updates**

Hank Dubee
MTO Safety & Enforcement

**10:00 am -
12:00 pm**

**12:00pm
- 12:30pm**

● **Case Studies Q&A**

with Madeline Carter, Katherine Rentsch, Dominic Mercier, Greg Corman, Brady Straw and Ian Hutcheson

● **Technical Talks Q&A**

with Steve Ritsema, James Arambarri and Hamed Mahdavi

● **Work Place/Small Business Issues Q&A**

with Alex Morales and Nancy Hood

5:00pm - 6:00pm Annual General Meeting

6:00pm - 7:00pm Social Hour

OOWA'S 2021 CONVENTION

Tuesday, March 30

9:00 am -
10:00 am

Part 8 Panel Discussion: Bill Goodale (*Tatham Engineering Ltd.*),
Danielle Ward (*Adams Brothers*), Kevin Warner (*Cambium Inc.*), Brad Smale (*Township of Norwich*)

Case Studies

► **RBC retrofits - two communities, two approaches**

Carolyn Chan
GM Blue Plan

► **Chicken farm system design case study and MOE approvals discussion/negotiations**

Derk Maat
Scicorp

► **Phosphorus removal from agricultural runoff**

Chris Jowett
Waterloo Biofilter

Technical Talks

► **Combined treatment and dispersal (CTD) systems: what, how and why**

Dick Bachelder
Infiltrator

► **OOWA best practice review**

Jeremy Kraemer
Cambium Inc
Kevin Warner
Cambium Inc

► **Helping regulators reconcile the specs of provided sand samples with what comes from the pit**

Eugene Trusler
Hutcheson Sand & Gravel

Decentralized Discussion

► **Peterborough area decentralized system case study**

John Levie
Clearford/ASI

► **Cradle to completion: Story of an 8 year process of negotiation, approval and completion**

Anne Egan
R.J. Burnside

10:00 am -
12:00 pm

12:00pm
- 12:30pm

Case Studies Q&A
with Carolyn Chan, Derk Maat and Chris Jowett

Technical Talks Q&A
with Dick Bachelder, Jeremy Kraemer, Kevin Warner, and Eugene Trusler

Decentralized Discussion Q&A
with John Levie and Anne Egan

** this agenda is subject to change*

► **PRE-RECORDED**

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Central Ontario – Graham 519.280.4487 graham@makeway.ca

SW and Northern Ontario – Bert 519.709.0681 bert@makeway.ca

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2021 OOWA Membership Benefits



entertainment, car rentals, hotel stays, electronics, flights, food, wellness and attractions. To sign up, visit www.perkopolis.com and use your OOWA Member ID to create an account.



Park N Fly is providing a **Corporate Discount** to OOWA Members (Toronto Self Park \$15.95 per day, \$59.95 weekly. Toronto Valet \$17.95 per day, \$79.95 weekly. More locations available) Call Krista for the special discount code. 1-888-905-6692 ext. 102



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



A **new** CAA Plus membership is reduced to \$99.00 for the first year (\$39.00 savings!) or a CAA Plus Associate Membership is reduced to \$75.00 for the first year. Contact CAA's Corporate Representative at 800-267-6394 ext. 6394 to sign up.



OOWA members save **10% at Mark's Work Warehouse** on the following items and more; Carhart merchandise, Dakota workwear, coveralls and overalls, casual wear, work gloves, and all CSA footwear. Present your card at any location to receive your discount.



Grand & Toy is your one stop shop for all your office needs including ergonomics, furniture, computer supplies, PPE, Janitorial/Sanitary. OOWA's partnership with G & T provides preferred pricing on 240 commonly consumed essentials, **plus 10% off market competitive web pricing**. Each member can add a customized price list of up to 25 items reflecting your business needs. Your savings could easily offset OOWA membership dues!



With access to over 250 Goodlife Fitness Clubs across Canada, OOWA Members can enjoy state-of-the-art equipment for less! **Receive up to 40% off an annual membership** for you and up to 4 additional family members. Benefits can include towel service, child minding, 24 hour locations, Goodlife Fitness Rewards Program, and world-renowned Group Fitness classes.



ALS Laboratory Group provides a **30% discount** on all your wastewater and soil testing needs. Contact Darlene Hoogenes-Stastny at 519-886-6910 or email at: Darlene.Stastny@ALSGlobal.com



Save 10% on any ORWC Course offering (cannot be used in conjunction with other discounts). See their course offerings at www.uoguelph.ca/orwc. Contact Bassim Abbassi at 519-824-4120 Ext. 52040 or via email at babbassi@uoguelph.ca



OOWA members get guaranteed and discounted rates on car and trunk rentals.



OOWA has redeveloped the **Registered Professional Program (RPP)** to include an 'In-Development Stream' that addresses the needs of ongoing training and continuing education demands from our members. OOWA Professional Designations include: Wastewater Service Technician, Designer, Installer, Private or Regulatory Inspector, Residuals Hauler, Project & Administrative Professional and Technical Sales Consultant. Go to www.oowa.org to see the new Find an Expert directory and to learn how you can enroll and get placed on the directory.



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



- **The Ontario Association of Septic Industry Service**
- **The Ontario Building Officials Association**
- **The Ontario Ground Water Association**

To get more information on these member benefits please visit our website at: www.oowa.org/about/join-oowa/

New & Renewed Members Listing

For the period of December 9, 2020 to March 10, 2021

NEW MEMBERS:

Angelo Avolio, Town of Amherstburg
Shashidhar Biradar, University of Ottawa
Avelino (Rex) Bondad, Gunnell Engineering Ltd.
Merlyn Browning, 135299543
Sam Buttle, Town of Petawawa
Nathan Chortos, CMT Engineering Inc.
Bailey Filatrault, ESSE Canada
Bev Fisher, Township of Southgate
Andrew Girouard, Greater Napanee
Stephanie Glover, Sons of Septic
Maggie Grierson, GM BluePlan
Alexander Leask, Alec Leask Earthmoving & Haulage
Adam Lohonyai, Eximius Engineering Ltd.
Frank Lopez, Waterloo Biofilter Systems Inc.
Crystal Nedow, Township of Central Frontenac
Dave O'Malley, Brooklin Concrete
Michael Purcell, 78160 4061
Sandra Reaume, Fleming College
Phil Schram, Township of Southgate
Graham Smith, Make-Way Environmental Technologies Inc
Chantal Stevens, Peterborough Public Health
Clayton Stokman, Township of Guelph/Eramosa
Ryan Strachan, Brooklin Concrete
Andrew Sumary, C.F Crozier & Associates
Dawn Talarico, Ontario Ministry of Environment, Conservation and Parks

RENEWED MEMBERS:

Bassim Abbassi, Ontario Rural Wastewater Centre
David Adams, Adams Brothers Construction
Debbie Anderson, Municipality Of Grey Highlands
Imad Aouli, WSP Canada Inc
James Arambarri, University of Guelph
Randy Armstrong, Armstrong Pumping Ltd
Lorne Bagshaw, Lorne Bagshaw Excavating
Clark Ballantyne, Corporation of the City Of London
Kevin Baltessen, Baltessen Excavating
James Barnes, Geo Barnes & Sons Ltd
Dominic Bauer, Gunnell Engineering Ltd.
Andy Bauman, FlowSpec Engineering Ltd
Jasper Belding, Waterloo Biofilter Systems Inc
Gord Bell, SiteEx Inc.
Dave Bell, B M Ross & Associates
Chris Bentham, Tyson Construction
Jeff Binnie, G.E. Binnie Haulage & Excavation Inc.
Bruce Blackburn, B. Blackburn Ltd
Jeff Blackburn, B. Blackburn Ltd.
Jamie Blakely, Blakely Property Services
Ryan Bos, Bos Engineering
Art Bos, Bos Engineering
Colin Bos, Waterloo Biofilter Systems Inc
Sandy Bos, Township Of Muskoka Lakes
Randy Bossence, Township of Centre Wellington
Anthony Boyko, City of Markham
Bruce Brisbois, Leroy Construction
Mark Brosowski, Weber Environmental Services
Jarett Brown, Southpaw Contracting
Paul Bruinsma, Bruinsma Excavating Ltd.
Teresa Buckman, MakeWay Environmental Technologies Inc.

Martin Burger, Groundwork Engineering Limited
Alex Campbell, Tekoa Environmental Ltd
Robin Charette, Biobite
Frank Charlebois, S Charlebois Haulage And Excavating LTD
Greg Cherniak, Municipality Of Dysart Et Al
Dorian Chlopas, Rowan Environmental Consulting Inc.
Stephen Cobean, Cobide Engineering Inc.
Howard Cook, Howard Cook Drainage
Greg Corman, Waterloo Biofilter Systems Inc.
Quinn Corvino, Weber Environmental Services
Dwayne Coulas, Town of Petawawa
Charles Courchesne, Guy Courchesne Excavation Ltd
Lisa Courtney, B M Ross & Associates
Ron Cousins, Cousins and Johnson Inc
Eric Cousins, Cousins and Johnson Inc
Dave Covill, Elmer's Construction
Elmer Covill, Elmer`s Construction
Hillary Craggs, Waterloo Biofilter Systems Inc.
Clay Crepin, Gerry Crepin Cartage
Brock Cross, Gunnell Engineering
Michelle Dada Ortiz, MNT Consulting Group Inc.
Terry Davidson, Ottawa Septic System Office
Anthony DeDominicis, Roswell Concrete Products
Larry E Dedrick, Dedrick Bros. Excavating Ltd.
David Denstedt, Muskoka Barging & Construction
Joe Dibbits, Dibbits Excavating
Bob Dickie, Flue To Footing Home Inspections
Adam Dillon, Ottawa Septic System Office
Tammy Dobie, Municipality of Meaford
Lisa Dolderman, Pioneer Septic Solutions Inc
Ryan Dolderman, Pioneer Septic Solutions Inc
Kevin Dolderman, Pioneer Septic Solutions Inc
Glenn Dryden, Dryden Excavation Inc
John Duffy, Van Harten Surveying Inc.
Kathryn Dukelow, Ricor Construction
Anne Egan, R.J. Burnside & Associates Limited
Mike Eisses, Eisses Bros. Excavating
Nick Eisses, Eisses Bros. Excavating
Anne Elmhirst, City Of Kawartha Lakes
Fritz Enzlin, Norfolk County
Rick Esselment, ESSE & Associates Inc
Marc Favaro, CMT Engineering Inc.
Brandon Figg, CMT Engineering Inc.
Bailey Filatrault, ESSE Canada
David Finch, Wes Finch & Sons Excavating
David Fondevilla III, FlowSpec Engineering Ltd
Ray Foster, ESSE & Associates Inc
Laura Freeland, Durham Region Health Department
Peter Froehlich, Brooklin Concrete Products
Mike Fulton, Near North Supply
Jameson Gallinger, Waterloo Biofilter Systems Inc.
Andrew Garland, B M Ross & Associates
Jason Ghawali, Gunnell Engineering
Nilou Ghazi, E3 Laboratories Inc.
Tarundeep Gill, Waterloo Biofilter Systems Inc.
Paolo Giust, Honeywell Works Inc
Julia Gobran, Waterloo Biofilter Systems Inc.
Doug Godin, Town of Huntsville
Bill Goodale, Tatham Engineering Ltd.
Caitlin Goodale, Niagara Region - Planning & Development

New & Renewed Members Listing

For the period of December 9, 2020 to March 10, 2021

Susan Gordon, Novatech Engineering
Roger Gostlin, R. Gostlin & Son Sand & Gravel
Rene Goulet, Goulet Septic Pumping & Design
Jessica Goulet, Goulet Septic Pumping & Design
Brent Green, Township of Centre Wellington
Steve Greer, GB Excavating
Stefan Gruescu, Claramy Designs Incorporated
Eric Gunnell, Gunnell Engineering Ltd.
Daniel Hagarty, Township of Centre Wellington
David Harsch, K Smart Associates Limited
Andrew Hartholt, Township of Centre Wellington
Irene Hassas, Aslan Technologies
Andrew Hellebust, Rivercourt Engineering Inc.
Darren Hewgill, The Hewgill Group Ltd
Bruce Hietkamp, Geo Kamp Limited
Cliff Hobbs, Can-Mech Agencies
Jordan Hoekstra, Dig'R Wright Excavating Inc
Karen Holt, Municipality Of Grey Highlands
Dwight Hordyk, Pinestone Engineering Ltd
Kurtis Horn, Haldimand County
David Hornblow, Township of North Kawartha
Rick Howden, Core Earthworks Limited
Evan Hughes, Evan Hughes Excavating
Jason Hutton, Ottawa Septic System Office
Warren Hyde, Haldimand County
Julie Ingram, Peterborough Public Health
Chris James, Waterloo Biofilter Systems Inc.
Patricia Johnson, Trish Johnson, Environmental Consulting
Denise Johnston, Township of Centre Wellington
Christopher Jowett, Waterloo Biofilter Systems Inc.
Keith Karl, Caledon Excavation & Grading
Thomas Keane, Gunnell Engineering
Dan Keeble, Septic Tertiary Systems Inc
Tim Kegel, Incinerating Toilets Inc.
Craig Kennedy, Newterra Ltd
Willis Kerr, Willis Kerr Contracting Ltd.
Tanya Killins, Niagara Region - Planning & Development
Josef Kloepper, Gunnell Engineering
Bert Knip, MakeWay Environmental Technologies Inc.
Gerry Knoop, Denby Environmental Services
Eric Kohlsmith, Ottawa Septic System Office
Simon Kola, County of Lambton
Douglas Krysko, Gunnell Engineering
Natasha Lacasse, Lafarge
Caitlin Larwa, WSP Canada Inc
Nathan Latchford, MacGregor Concrete Products
Paul Leahy, Leahy Excavation
Kevin Lehan, Town of Gravenhurst
Elizabeth Lew, Gunnell Engineering
Tyler Lodder, Lodder Brothers Limited
John MacGregor, MacGregor Concrete Products
Mat MacLean, Tatham Engineering Ltd.
Rob MacLellan, Moose Creek Cement Products
Kevin MacLellan, Moose Creek Cement Products
Andrew Maguire, L.M.Ent Water
Thomas Mahon, T.M. Mahon
Matthew Malloy, Pioneer Septic Solutions Inc
John (Curtis) Martin, Town of Huntsville
John Martin, Cromar Advanced Septic Systems
Justin McDonald, Van Harten Surveying

Paisley McDowell, WSP Canada Inc
Andrew McGarvey, B M Ross & Associates
Lynn McIlwaine, Gunnell Engineering
Richard McKee, Vacutru Ltd
Andy McKinlay, Waterloo Biofilter Systems Inc.
David McPherson, Haldimand County
Kim Millen, Norfolk County
Greg Miller, Town of Collingwood
Gerry Mitchell, Peto MacCallum Ltd
Adrian Molloy, Molloy Contracting Inc
John Moore, Town of Bradford West Gwillimbury
David Morlock, FlowSpec Engineering Ltd
Andre Moura, Tatham Engineering Limited
Bill Muirhead, Waterloo Biofilter Systems Inc.
Brett Murray, Metropolitan Pump Co. Limited
Caroline Newby, Caroline's Septic Designs
Justin Noort, Niagara Region - Planning & Development
Adrian North, Gemtec Consulting Engineers and Scientists
David Oliver, Concord Engineering
Steve Ott, Ottawa Valley Home Inspections
Matthew Parfitt, Glenvale PDC
Matthew Pearson, B M Ross & Associates
Gary Pearson, Pearson Engineering Ltd.
Stacey Pennington, Township of Centre Wellington
Duane Porter, J.A. Porter Holdings Ltd
Michelle Poulin, Tekoa Environmental Ltd
Marty Price, MacGregor Concrete Products
Jim Rabe, Municipality of Grey Highlands
Michael Rahme, Home Pro Central Ont. Inc
Matthew Rainville, Gemtec Consulting Engineers and Scientists
Doug Rankin, Slagter Construction
Greg Reimer, O'Hara Trucking & Excavating
Katherine Rentsch, Crozier Consulting Engineers
Scott Richardson, Township of Faraday
STEVE RITSEMA, Liberty Pumps
Scott Robinson, Unit Precast
Bill Robinson, SepticCheck.ca/Robinson Enterprises
Robert Robinson, Robinson Haulage Inc
Stephen Ropp, Percon Excavating Inc
Scott Roswell, Roswell Concrete Products
Eric Rozema, Rivercourt Engineering Inc.
Brian Rudak, Rudak Excavating Inc.
Robert Rudak, Rudak Excavating Inc.
David Ruppert, Ruppert Haulage Inc.
Tim Salter, CMT Engineering Inc.
Rob Sanna, Boyd Brothers Concrete
Pierre Savard, Dimensional Analysis
Stuart Saville, Zoeller Canada
Brad Schildroth, FlowSpec Engineering
Jason Schoenfeld, Boyd Brothers Concrete
Mark Schroeder, Twsp of Bonnechere Valley
Doug Schultz, Township of Whitewater Region
Dan Sharina, Township of Guelph/Eramosa
Pratima Sharma, Rivercourt Engineering Inc.
Glen Sharp, Francis Thomas Contracting Company Ltd
Wayne Shelly, Northern Project Services Inc.
Kathleen Shepherd, Peterborough Public Health
Charles Smith, Second to None Inspections Inc.
Edward Smith, Ted Smith Construction
Mike Smith, Smith Excavating, Grading & Septic Services

New & Renewed Members Listing

For the period of December 9, 2020 to March 10, 2021

David Smith, Herns Sand & Gravel
Nick Snyder, Township Of Muskoka Lakes
Ken Sommer, Shirecrest Homes Inc
Brigitte South, Pinestone Engineering Ltd.
Tracey Spragg, Eisses Bros. Excavating
Mathew St Denis, Peto MacCallum Ltd
Carmen Staunton, WSP Canada Inc
Brady Straw, Waterloo Biofilter Systems Inc.
Paul Studholme, Professional Home Inspections
Sandra Swanton, K Smart Associates Limited
Marilyn Taylor, Mac Taylor Corporation
Mac Taylor, Mac Taylor Corporation
John Teixeira, Teixeira Construction
Keith Thomas, Francis Thomas Contracting Company Ltd
Bob Thomson, Valley Sanitation Services
Don Thomson, Valley Sanitation Services
Telly Thomson, Valley Sanitation Services
Simon Thome, James Thome Construction Ltd
Barrett Tinney, Tinney's Septic Service And Construction
Michael Tinney, Tinney's Septic Service & Construction
Terry Tompkins, Township of Tay
Travis Toms, Township Of North Kawartha

Claus Trost, Laurentian Valley Twp.
Mark Van Alstine, Herns Sand & Gravel
John Vanden Hoven, JVH Consulting
Michael Varty, WSP Canada Inc
Joseph Voisin, Pinestone Engineering Ltd.
Sam Vreugdenhil, MakeWay Environmental Technologies Inc.
Steve Walmsley, Township Of Tay
Danielle Ward, Adams Brothers Construction
Eric Watkin, Tatham Engineering Ltd.
Kyle Wetherall, Waterloo Biofilter Systems Inc.
Shawn Wheatley, CMT Engineering Inc.
David White, Ken White Construction
Marianne Willson, Waterloo Biofilter Systems Inc.
Lindsay Wolfenberg, Clearford Water Systems Inc
Jazmyne Woolley, R.J. Burnside & Associates Limited
Bo Zhou, Peterborough Public Health
Jane Zima, ESSE Canada
Jennette Zimmer, Municipality of Huron East
Derek Zomer, Zomer Corporation
Geanine Zuliani, Waterloo Biofilter Systems Inc.
Ross Zwierschke, Zwierschke Bros. Ltd.

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- 1** Go to perkopolis.com and click Register in the top right corner.
- 2** Enter a valid email address. You will receive an email to complete your registration.
- 3** Enter "OOWA" + your member ID number (ex: OOWA12345).

//////////////////////////////////// You are now a Perkopolis member! Enjoy your perks! //////////////////////////////////////

*This program is exclusive to your company, not intended for the general public.
Once a member, you can login from any device at any time.



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TRAVEL PERKS



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A FEW OF OUR BRANDS



OOWA'S REGISTERED PROFESSIONAL PROGRAM (RPP)



What is it?

The RPP is OOWA's skills and professional development program available exclusively to our members. The RPP provides special designations that cover all job descriptions in the onsite and decentralized industry. Depending on your experience and aptitudes acquired through formal study and course completion, members can apply directly to get any one of these designations. Another pathway way to an RPP designation is by registering in the In-Development Program. This program gets you on our exclusive on-line 'Find an Expert' directory and gives you three years to take the courses you need to meet your chosen designation requirements.

What's in it for me?

We know that onsite system owners want to hire only the best people. Your RPP designation tells potential clients that you are a qualified professional, that your skills and knowledge are current and that you are engaged with and care about your industry.

An OOWA RPP designation also sets you apart from your competition and can serve as an effective marketing tool. Pursuing this designation also builds your career by positioning you as a desired individual for new opportunities.

What designations are available?

Below are the designations available through the RPP:

- Designer
- Installer
- Private Installer
- Project & Administrative Professional
- Regulatory Inspector
- Residuals Transporter
- Technical Sales Consultant
- Wastewater Service Technician

How do I enroll?

Go to OOWA's website and then find the 'Training' tab at the top of the home page. For the documents mentioned below, scroll down to the 'RPP Documents and Resources'

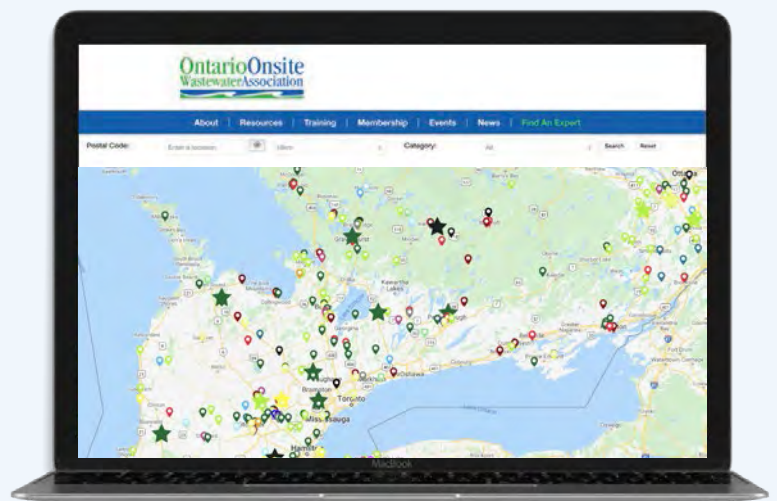
page where you can download them for your reference.

1. Review the RPP [How to Apply document](#).
2. Review the [RPP Background document](#).
3. Select one or more RPP designations that apply to you and review the [Aptitudes by Designation](#) document to see what courses/aptitudes you still need of if you can apply directly to your chosen designation.
4. Check out the [FAQ document](#) to help with some specific program requirements.
5. Download the [In-Development Registration Form](#) if you need to acquire more skills or courses to secure your desired designation.
6. Download the full [RPP Application Package](#).
7. Contact us with any questions at 1-855-905-6692 ext. 101 or via email at outreach@oowa.org.
8. Begin the process today!

OOWA'S "FIND A PROFESSIONAL" DIRECTORY

Where the Public Goes to find Dedicated Septic Professionals

One of the big benefits of being a participant in OOWA's 'In-Development Stream' of the Registered Professional Program is being featured on our website's interactive "Find an Expert" directory. This listing is separate and apart from our Membership Directory. All of our RPP graduates and 'In-Development' participants are highlighted here so that members of the public can find the onsite professionals who are committed to ongoing professional and skills development. Get more information about the 'In-Development Stream' of the RPP on our website under the 'Training' tab and set yourself apart from your competition!



MEMBER PROFILE

Kris Rivard

Name of Organization: North Bay-Mattawa Conservation Authority (NBMCA)

Owners: Governed by a 12 member Board of Directors appointed by the Councils of its 10 member municipalities

Services/Mandate: The NBMCA is a community-based not-for-profit organization mandated to conserve, restore, develop and manage renewable natural resources on a watershed basis. Core responsibilities are derived from the Ontario Conservation Authorities Act. Specialty roles have been delegated to NBMCA through other legislation including the Ontario Building Code and the Ontario Clean Water Act. NBMCA is 1 of 36 Conservation Authorities in Ontario and 1 of 5 located in Northern Ontario.

Service Area: NBMCA is designated under the OBC Part 8 to conduct inspections, issue sewage system permits, and investigate violations across the Parry Sound and Nipissing Districts, including unorganized territories within those districts and a large portion of Algonquin Park.

Number of Years in Role: 3+ years as On-Site Sewage System Inspector. The North Bay-Mattawa Conservation Authority (NBMCA) was founded in 1972 by the Province of Ontario and the NBMCA's 10 member municipalities.

What got you started in the onsite wastewater industry?

After graduating from Laurentian University I wanted a career involving the environment and planning but found few options available so I decided to pursue a post-graduate certificate in Environmental Management from Canadore College in North Bay. A placement with the North Bay-Mattawa Conservation Authority focusing on the Drinking Water Source Water Protection Program allowed me to meet the wonderful "Septic Crew" at NBMCA who informed me of an opening in the near future. I took the time to learn as much as I could and lucky for me, the interview went well. Now I have the privilege of protecting the environment while being involved with municipal planning.

Give us one reason/secret for your success.

I think of myself as being very diligent and detail oriented. When reviewing an application or evaluating a difficult situation, I ensure that everything has been considered and all information on the application has been filled out to avoid any delays. A complete and accurate application, that has taken all details into account, will expedite the permitting process. I also have to thank the professionals in the wastewater industry, my colleagues, installers and designers. We are all working together for the



KRIS RIVARD
On-Site Sewage System Inspector

health of the environment. They have been very easy to work with and we have learned from each other.

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

The most challenging onsite job I worked on involved a collapsing tank. The neighbouring properties were all bothered by strong smells of sewage however the homeowners had limited financial resources to afford a replacement tank. After working with the homeowners, the municipal government and a very generous contractor, we managed to rectify the issue and ultimately create a safer neighbourhood for everyone involved.

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

I would advocate for the provincial government to provide more support and grants to homeowners for replacing, fixing or upgrading current sewage system servicing their homes, just as they provide incentives to home owners to make their homes more energy efficient. NBMCA frequently receives inquiries from the public looking for grants or financial assistance to repair or upgrade their septic system. Some homeowners have very limited resources and delay replacing or upgrading their septic system, not understanding that such delays have an impact on their property value as well as the environment. Some homeowners try to install systems themselves due to affordability issues and run the risk of installing systems that do not meet the regulations. These support grants and incentives could in turn generate more business for installers and designers.

Where do you see the onsite industry going?

Further research and testing to understand the overall effects of human waste on the environment, coupled with advances in technologies will continue to change the onsite industry. In my short career I have already experienced the introduction of many new technologies and code amendments. Best practices continue to evolve, as does my understanding of them. Staying abreast of research, changing environmental needs and new technologies will further speed the advancement of the industry.

Annual Committee Report to the Membership

There's much work going on behind the scenes that our members seldom see or hear about. This report details the activities of OOWA's volunteer committee members for the year 2020/21. Get more specific details on our activities over the past year by attending our virtual AGM on Monday, March 29th from 5:00pm-6:00pm.

Communications Committee

The Communications Committee has continued its work in producing the three editions of our print newsletter, 'Onsite' (spring/convention, summer and fall/winter editions). The Committee also supported staff to produce the monthly e-bulletin 'OnTrack'. A decision was made this year to combine the Training Bulletin into the 'OnTrack' notice to streamline the number of emails going out to the membership. The Committee also worked with its sister association, Western Canada Onsite Wastewater Management Association to produce a number of education social media posts for Septic Sense week that took place during the week of September 14th -18th, 2020. The Committee is also continuing work on an introductory video to the association. With a number of testimonials and some great footage from the field, this video will be shared digitally to raise awareness about what OOWA does and why people should join. The video is expected to be finished in the early spring.

Events Committee

COVID 19 completely changed OOWA's events schedule for this year. As the pandemic wore on it became clear to the board and to the events committee that getting any number of people in room was not going to happen and as a result all of our regional round ups and burgers and beers events were cancelled. The events committee and staff turned their efforts into learning how to run a virtual convention. We hope you like what we've come up with! Stay tuned for details on our 2021 events schedule on our website and through our electronic communications.

External Relations Committee

The External Relations Committee continued to maintain relationships with the Ministry of Municipal Affairs, the Ministry of the Environment, Conservation and Parks (MECP), the Federation of Ontario Cottage Associations (FOCA), the Ontario Building Officials Association (OBOA), the Ontario Environment Industry Association (ONEIA) and the Ontario Association of Sewage Industry Services (OASIS). The ERC's dedicated Working Group held monthly calls focussed on improving the Environmental Compliance Approvals (ECA) process for communal systems and addressing OOWA's ongoing issues. The working group continued discussions on MRA issues and modernization of the D-5 Guidelines. The draft Frequently Asked Questions (FAQ) document still requires more dialogue and a refocus from the MECP, however with adjustments required by the pandemic and

departure or reassignment of the change in Minister of many MECP staff, dialogue with the MECP on the MRA and D-5 was suspended for 2020. The ERC has reengaged with the MECP and will resume the joint OOWA|MECP approvals working group in Q2 of 2021.

Finance Committee

In March and very soon after the conference it became evident there would be challenges to our members and the Association owing to the pandemic. In March there was significant uncertainty what those impacts might be and how long they would last. The Finance Committee immediately:

- Reviewed the budget and discussed all income and expenses. Alternatives to mitigate negative financial impacts were identified;
- Given uncertainty and recognizing that the Association was in a position to assist members the Committee recommended to the Board that operations continue through to September when there would be a reassessment;
- The Committee prepared detailed financial predictions based on past years income and expenses. The plan was prepared through to September and status was reported to the Board monthly;
- The Committee instructed staff to monitor all of the many financial support programs made available by the Provincial and Federal governments. With assistance from our accountants, we confirmed eligibility, applied and were successful receiving the Canada Emergency Wage Subsidy;
- The Committee reviewed the financial plan in September, again recommended to the Board that all operations continue and extended the financial predictions through to December
- Preparation of the 2021 budget included consideration of potential for impacts to both income and expenses arising from pandemic impacts to the Association's operations.
- The Finance Committee reviewed performance over 2020 and endorsed that Baker Tilley be retained as auditor for 2021 without competitive proposals

Governance Committee

2020 saw the Governance committee meeting several times. Basically, we reviewed the bylaws and made recommendations to the board for a few additions and changes to the OOWA organization. Some of the items that we introduced were developing a privacy policy, conflict resolution, speaker agreement and we made changes to the verbiage for some of the bylaws.

Also, during our meetings, we continue to review the Strategic Plan. Understanding the value in an established strategic plan the Board of Directors added 'Strategic Planning' as a standing item on our meeting agenda.

Membership Committee

- 1)** Early in the COVID-19 pandemic focused on providing members with relevant health & safety and essential business information. Continue to update membership on changes relevant to our industry and members.
- 2)** Provided an 8-week extension to all members who were up for renewal in the immediate onset of COVID-19.
- 3)** Planned Initiative – Review and investigate new member benefits.
 - a.** Investigated membership in CFIB for OOWA members although initiative did not come to fruition.
 - b.** Provided online access to Onsite Installer magazine for all OOWA members.
- 4)** Planned Initiative – Develop an awareness campaign to inform the general public and promote OOWA and its members.
 - a.** Initiated property owner social media awareness campaign being implemented by the Communications Committee.
- 5)** Planned Initiative – Increase OOWA attendance at industry training events and meetings to share information that educates and promotes best practices.
 - a.** Connected with OBOA chapter groups to initiate an online presentation on the Filter Bed best practice document being delivered by the Onsite Technical Committee.
- 6)** Planned Initiative – Collaborate with other industry associations, groups, and individuals to increase OOWA exposure.
 - a.** Exhibited at virtual OBOA conference and recruited a member to deliver a presentation on soils to building officials on behalf of OOWA.
 - b.** Developing presentation for local real estate board on the importance of and details of a sewage system inspection during a real estate transaction.
 - c.** Reached out to two Ontario homebuilder associations to make them aware of our Associate member category.
- 7)** Delivered a survey to the membership asking various questions centered around member satisfaction and, from our members perspective, OOWA's strengths and weaknesses.
 - a.** As we have seen in past surveys and regular questionnaires the top three reasons why our members join is to access technical and training resources, OOWA's communication products and for the opportunity to network with likeminded individuals. What we learned from this survey is that although OOWA currently provides great opportunity and access, there is more we could be doing.

- b.** The survey identified regulatory inconsistency as a major issue across the province, so the committee contacted individuals who responded to get more specifics on the issues they are seeing.

i. This led to the creation and delivery of the online Filter Bed best practice presentation being delivered by the Onsite Technical Committee to OBOA chapters.

Online Resources Committee

OOWA's Online Resources Committee was struck by the Board of Directors in July of 2020. The Board wanted the committee to focus on digital/virtual content including training, webinars, events, and the like. Since then, the committee has met a handful of times and worked on the following initiatives:

- 1.** Developed a mandate for the committee.
- 2.** With staff and volunteer support retained Birchbark media to create an Introduction to OOWA video.
- 3.** Created a pre-recorded presentation based on the filter bed best practice document. This is used as a basis for presenting to user groups such as local chapters of the Ontario Building Officials Association.
- 4.** Discussed the development of advertising packages for the OOWA website.
- 5.** Created a video contest for members that highlights the positive aspects of the wastewater industry.

Onsite Technical Committee

- 1.** The primary focus of the OTC has been the ongoing development of OOWA's Best Practice documents. OTC Task Groups have been working on the Flow Distribution and Site Evaluation best practice documents.
- 2.** Participated in a number of stakeholder consultation sessions by MMAH to discuss potential changes to the delivery of building code services.

Professional Development Committee

The PD Committee has been focussing its efforts on developing a number of short information sessions focussed on the permitting process for onsite systems. This initiative has been identified as one that would have significant interest amongst our regulator members and that also addresses a gap in the course offerings that are required for our RPP program. The committee has broken down the process into three steps and three individual webinars: 1) accepting a permit 2) plans review and 3) permit issuance. The Committee also checks in with our training partners to monitor the industry-specific course being offered and has worked with other committees to identify educational opportunities like the sand filter bed presentation being provided to OBOA chapters being delivered at their monthly meetings.

Re-inspection Program Process

Eric Kohlsmith

Septic Inspector, Mississippi Rideau Septic System Office

Many re-inspections started as site surveys, basic questionnaires and sketches, completed by summer students going door-to-door asking people about their sewage systems. Some of these programs progressed into voluntary re-inspections in the 2000's, followed by the Mandatory and Discretionary (with mandatory inspections) maintenance inspection programs implemented in 2012 through the Ontario Building Code (OBC) (O.Reg.350/06 as amended).

All Re-inspection programs, voluntary or mandatory, have at least two things in common:

- The goal of protecting our environment and human health through the assessment of existing onsite sewage systems, and
- The re-inspection framework is developed by local stakeholders where programs exist.

The Ministry of Municipal Affairs and Housing (MMAH) (to my knowledge) has produced two documents as guidelines for sewage system re-inspections – “Septic System Re-Inspections” (published around 2000?) and “On-site Sewage System Maintenance Inspections” (March 2011). What MMAH has not done, is regulate the re-inspection process. MMAH has provided 4 pages in Division C, 1.10. Sewage System Maintenance Inspection Programs (three and a half pages of which deal with requirements developed by source water protection).

Subsection 1.10.1, Div.C, provides the legal framework for discretionary programs:

- How to establish a program,
- What shall be inspected,
- Who can and cannot inspect.

What is not regulated in Section 1.10 Div.C of the OBC, or anywhere else in the code, is the inspection process. There are No Level 1,2,3 or 4, inspections regulated by the OBC. This provision has been left up to local stakeholders; the individuals or groups that petitioned municipal councils to implement programs, those that administer programs, that conduct inspections, that conduct enforcement. In some cases, these local stakeholders reached out to industry professionals

(i.e. sewage system inspections for property re-sale) already conducting similar inspections for guidance or even “borrow” inspection processes. Regardless of how the inspection process was developed or what is involved in the process, the reason why it was developed is the same across the province and that is to protect our environment and human health.

Through OOWA's Onsite Technical Committee, seven guidance/best practice documents have been produced including Inspection of existing systems. As members, we all have the opportunity to help create or provide input or feedback for these documents and as members we can take these documents and promote them regionally to local stakeholders to encourage consistency in our practices and professionalism in our industry.



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Tips to manage mental health during COVID-19

In the wake of COVID-19, Canadians are facing a new reality of social distancing, self-quarantining and isolation in order to protect public health and safety. These new circumstances may lead individuals with mental health concerns into heightened symptoms of anxiety and depression.

In what may be a difficult time for many, the Canadian Mental Health Association (CMHA) is offering some basic tips to help people remain calm and balanced as this public health situation unfolds.

- Considering the level of attention and seriousness being paid to COVID-19, it's normal to feel anxious. Try not to avoid, ignore or suppress anxious thoughts. Instead, be aware of your anxiety and accept that you're feeling anxious in this situation. Try to keep things in perspective; notice and challenge your thoughts that may be extreme or unhelpful.
- Self-care is critically important at this time, as worries can be made worse if we aren't taking care of ourselves. Lean on social supports, try to get enough sleep, eat healthy, exercise and engage in enjoyable activities. Do the things you would typically do to support your health, and be sure to use caution and follow health and safety guidelines while doing them.
- Seek information from reliable news sources only. Limit checking in on the latest news to short, defined periods, and refrain from setting related push notifications on your device. Appropriate information consumption may be calming and can lessen the sense of danger.
- Take the recommended precautions as outlined by Health Canada and other credible health agencies. Remain focused on the factors within your control, such as washing hands, covering your mouth during coughs and sneezes, avoiding non-essential travel, etc.
- If you're noticing that your symptoms of anxiety (in association with COVID-19 or otherwise) are causing you significant distress or are interfering with your ability to function normally, reach out for formal mental health supports from a recognized agency, such as CMHA.

CMHA Ontario and branches around the province provide programs and services to support your mental wellness, such as BounceBack, walk-in counselling, information on stress management, and much more. Learn more and find a local branch at ontario.cmha.ca.

www.mhworks.ca



**Canadian Mental
Health Association**
Ontario

**Association canadienne
pour la santé mentale**
Ontario

CONTRACTOR PROFILE

Eisses Brothers Excavating

Founders: Ed Eisses & Carl Eisses

Current Owners: Mike Eisses, Darren Eisses & Nick Eisses

Services: Excavating & Grading, Septic System Design & Install, Site Servicing & Demolition.

Service Area: Barrie & Surrounding Simcoe County area.

Years in Operation: Our company has been in operation since 1973.

What got you started in the onsite wastewater industry?

At a very young age (teenage years) we helped our dads with many parts of the business. Mostly on septic systems, from carrying in pipe, levelling the stone and rolling out the paper to cover the stone area. We learned to operate all the equipment from Excavators, Backhoes, Skid steers and Dump Trucks. Our dads started in the Onsite Wastewater Industry 48 years ago with a Backhoe and Dump Truck.

Give us one reason/secret for your success.

Mike Eisses says; I believe our business is successful because of our honest, straight-forward approach with our customers. We give them the valuable information they need to make an informed decision on their septic system, while offering our advice based on past experiences. We don't try to upsell them on a system that they don't need. We provide a great value to our customers with the knowledge and history to back it up. Nick Eisses says; I would have to say that one reason that we have been successful in this industry is the significant growth in our region (Simcoe County) and the need for onsite systems in a variety of different applications. Eisses Brothers Excavating has also been fortunate to work along side many supporting businesses within our industry, keeping us relevant and up to date with new and everchanging technologies.

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

Mike & Nick: One of the most challenging onsite wastewater jobs Eisses has been involved in recently was the L & M Meat Processing Plant. Working in coordination with Enviro-STEP (Eljen System), our task was to repair and upgrade a completely failed septic system while the plant was still in operation. The onsite environmental conditions were challenging to work in. The extremely muddy conditions and very strong odours made this install difficult. Nick and his crew had a good planning schedule and worked steady with the plant owner to successfully complete the installation.



MIKE AND DARREN EISSES
Excavating & Grading, Septic System Design & Install

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

Mike says; I am not sure that I could get this one passed, but here goes: I think that it would be a great opportunity if all Septic Designers had to have onsite sewage system installation experience. I don't mean an entire career in installation before becoming a designer, but some practical installation experience. I say this because we see some designs that are more difficult or impractical to install (at a cost to the homeowner) than they need to be, in my opinion. Many times, we see that simpler is better, and will likely be better in the future for operation and maintenance as well.

Nick says; One thing that I have observed in the years of working in this industry is the lack of knowledge and understanding by the general public about onsite wastewater. Many people that I come in contact with on a daily basis on the jobsite have very little to no understanding of a basic system, or how they should manage or maintain their system properly. I believe that our industry could benefit tremendously from educating and informing our communities better about onsite wastewater.

Where do you see the onsite industry going?

Mike says; I see the onsite industry continuing to grow as a sustainable solution. Existing homes will continue to need replacement systems due to failures or to support renovations. I believe that the demands for rural living is not going away, and we have the opportunity to provide excellent solutions using onsite wastewater treatments. Our company has been a member of OOWA since the early days and we continue to look to the Association as a voice for the Onsite Wastewater Industry.

Nick says; In recent years I have seen the onsite industry take a significant shift towards treatment systems. With larger daily flows on smaller footprints becoming the norm, it seems, treatment systems are the key. Also having installed new and upgraded systems located in close proximity to Lake Simcoe, it is only natural that we keep striving to provide the best options for our customers as well as the environment.

Are You Prepared for the Rural Revolution?

A workforce free to move about will be singing “Take Me Home, Country Roads,” and demanding more from onsite installers in the coming years

Onsite Installer Magazine

By Jim Kneiszel

Triggered by the COVID-19 pandemic and 21st century technology advances, huge lifestyle changes will be coming fast and furiously in the coming years. The work-at-home revolution. A desire by folks to live wherever they choose. Spreading out. Downsizing. Saving money. Seeking peace and quiet. Returning to our agrarian roots.

Whatever the motivation, a movement is starting with city dwellers migrating to the country and building a future in new homes on larger plots of land or re-inhabiting farmhouses and long-forgotten rural homesteads. And these new-age country folks are bringing certain quality-of-life expectations along with them.

They want the level of infrastructure city services to continue out in the middle of nowhere. They also want to live a greener lifestyle, with a concern for clean water, renewable energy and construction best practices. And because they are relocating with the resources of the big-city jobs they have held for years, the telecommuters will have the funds to realize these objectives.

Where you come in

Enter the professional onsite installer. You can provide this new breed of customer with wastewater systems that will handle spiking flows, treat their waste effectively and efficiently, and provide systems that will satisfy stringent environmental expectations. Homeowners and the commercial businesses that follow them into rural towns will demand water reuse for irrigation purposes, recharging of the aquifer right at home, and capacity for potential wastewater service expansion in the future.

And you and your crews will give it all to them.

But let's backtrack a little bit. How do I know this rural renaissance is going to happen? That's a fair question. Especially since if what I say is true, many of you will have to reevaluate your business plans to meet this rising demand. Looking ahead, you may want to hire and train new crews, buy equipment that allows you to work faster and more efficiently, overall invest a lot more money in what has been a lean and successful installing business.

So consider a few of these trends I'm seeing, and experiencing, and maybe you'll agree with my premise:

The pandemic pushed many employers to a radical new human resources model.

Many millions of people used to trudge to large office complexes every workday. This necessitated people living near to their jobs or making very long commutes to work. Suddenly that's no longer the case. Many employees were asked to work from home when the pandemic hit last year, and when telecommuting worked out fine, their employers encouraged them to stay home.

This happened in my family. My wife's employer decided to allow anyone to work from home permanently, and a vast majority of the staff took them up on the offer. This meant the company could save money by consolidating its owned or rented office space and my wife and I could live anywhere we wanted to from now on. This outcome would have been unimaginable if not for something like the deadly coronavirus. And I doubt we will return to the centralized work model when the pandemic eases.

My wife grew up on a farm and moved around to several cities to follow her career. Now her career path likely will no longer dictate where she lives. So will she move back to the country and the rural lifestyle she had before? We're not sure about that yet, but think of the millions like her who can now live in the country if they want to, and be nearer their extended families.

After living in the “rat race,” people yearn for the peace and quiet of small towns.

Let's face it. Most folks associate big cities with noise, pollution, traffic and crime. If they don't prefer the big-city amenities, many people would be happy to walk out their back doors and see farmland, quiet woods, or a lake or river. Seems like that is the retirement dream of many people already — why wouldn't they make that dream a reality before collecting the gold watch and signing up for Social Security benefits?

Are You Prepared for the Rural Revolution?

People seek a lower cost of living and less regulatory hassles in their day-to-day lives.

Over the past century, people have migrated into cities because that's where the work was and because fewer and fewer people could make a living off the land. That has caused the downfall of so many rural areas across the country. They have become ghost towns with empty houses and deserted Main Streets. Consequently, there is now a cost disparity between the crowded cities and suburbs and rural towns and villages.

Families can sell their homes in the city and buy houses with larger properties in the country for less money. Or they may buy vacant land and build a new house. There are fewer regulations over home construction and remodeling in rural towns and counties, so they are more often free to do as they please with a dwelling.

Neglected houses, new builds will require extensive wastewater infrastructure.

The repopulation of rural regions will bring along the need for untold numbers of septic system upgrades and new system installs. While municipal wastewater treatment systems, or the "big pipe," cover most of the urban wastewater users, a great majority of homes and businesses

in rural areas and small towns will require decentralized wastewater service.

That means a huge demand is coming at the same time installing companies are already busy and concerned about the future workforce. Installers frequently report to me that they look around at their competitors and see an undeniable graying of the industry. More installers are contemplating retiring than hiring a new generation of workers. Installers face the same challenges to attract workers as all the other trades needed to rebuild this country. So those who can make the argument that this should be an attractive career path will benefit the most.

Be prepared

As winter melts into spring, I ask you to think about the massive work and lifestyle changes that will forever alter the path of onsite installers. Consider the evolving health concerns and technological revolution that will let people migrate to live wherever they choose.

In the past year, installers have let me know their phones are ringing more with customers wanting to repair or install onsite systems. I'm convinced this will only intensify in the years ahead, with the growth of the installing community limited only by the added labor and energy at the working end of the shovel and excavator.

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Demystifying the Shallow Buried Trench

By Marie-Christine Bélanger & Pablo Kaiser, Premier Tech Water and Environment

When it's time to choose an on-site wastewater treatment system, there are numerous elements to take into consideration.

Bear in mind that homeowners may have limited knowledge of septic systems and the variety of options available. Often, when professionals choose which solutions to present to clients, their proposals are largely based on upfront costs.

Homeowners should be given a full range of options for their septic system. This is the best way to help them make an informed decision. In addition to upfront costs and the presence or absence of mechanical components, homeowners should consider other factors, including:

- maximizing yard usage
- aesthetics
- sustainability
- simplicity

In many cases, the first solution offered to a homeowner is not always the one that is best suited to their unique needs and perspectives.



THE SHALLOW BURIED TRENCH: AN OVERLOOKED OPTION

We believe it is time to demystify the shallow buried trench (SBT) and change the perception that it is a complex and costly solution that should only be presented to homeowners as a last resort. When all factors are considered, the strengths of the SBT are likely to make it a desirable and sustainable alternative for many homeowners.



FIGURE 1: SBT INSTALLED DOWNSTREAM FROM AN ECOFLO STB-650BRA

Required surface

The total system footprint of an SBT must be explained to homeowners. It is important to take into consideration not only the compactness of the tertiary treatment unit, but also the space required for the treated effluent dispersal area.

In Ontario, three types of dispersal components are allowed downstream from a tertiary treatment unit: a Type A or Type B dispersal bed, or an SBT. Normally, the selection is based on soil and site conditions and the available area. Though it may appear more complex than Type A and Type B dispersal beds, the SBT offers a considerable advantage when it comes to the infiltration surface required.

As an example, let's compare the infiltration surface areas required for a Type A dispersal bed and an SBT system. We will assume a typical four-bedroom installation designed for 2,200 L/d and a soil percolation rate of 30 min/cm.

According to the Ontario Building Code, both the Type A dispersal bed and the SBT can be used in conjunction with certified tertiary treatment units.

Under the soil conditions in this example, the Type A dispersal bed is designed as follows:

- stone layer surface: Q/75
- sand layer surface: QT/400
- sand layer shall extend 15 m from the limit of the stone layer (mantel)

The surface required for the Type A dispersal bed is 165 m². This total does not account for backfill slopes (berms), which depend on site conditions. The final implementation footprint will vary with the backfill slope required.

Under the same soil conditions, the SBT length is calculated as Q/50. Assuming two runs, the total surface required is 96 m². That is 42% less than the Type A dispersal bed. With a smaller total surface area, the SBT allows the property owner to maximize the use of their yard. Additionally, the smaller total surface area of the SBT directly translates into less material required, less transportation, and less impact on the environment.

SBT systems can only be used with certified tertiary treatment units. Although the SBT has been traditionally used for low-permeability soil and very tight lots, nothing prevents it from being used to minimize the total footprint of an on-site system. An SBT must be time-dosed over a 24-hour period. A dosing tank may therefore be required, depending on the tertiary treatment unit used. This factor may contribute to the perceived complexity of an SBT, but it is easily overcome with the simple installation and unique versatility of the Ecoflo biofilter from Premier Tech. That is because the Ecoflo system provides the required dosing capacity internally.



FIGURE 2: ECOFLO STB-840BRA INSTALLED WITH AN SBT

Maximizing usable yard space

Value is added to a property when yard space is optimized. Of course, property owners can maximize usable yard space by choosing a septic system that requires the smallest amount of total area. Usable yard space can also have a profound effect on the quality of life of the people who live on the property. Current trends clearly show that, more and more, homeowners are investing large sums of money to transform their yards into a living space. Septic system design should be factored into this equation. As such, homeowners should be asked about future landscaping projects before the design for their septic system is finalized.

Protecting a homeowner's investment should be a priority in our industry. Design proposals should therefore promote permanent septic solutions. Permanent systems eliminate the need for major property work or re-landscaping, unlike other options that must be excavated at the end of their useful life.

A system is considered permanent when access is provided to main components for regular preventive maintenance and troubleshooting that ensures long-term and sustainable system performance.

The Ecoflo biofilter checks these boxes. In addition, the advantage of this system is that its filtering medium acts as an energy-free physical barrier that protects dispersal components from partially treated or untreated effluent that could lead to premature clogging and threaten the environment.

Good-quality sand is a rare commodity

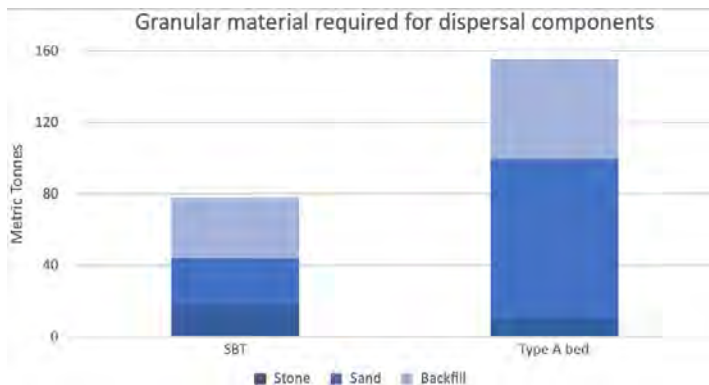
Despite the vast array of treatment solutions available, a large proportion (more than 80%) of on-site systems are still soil or sand based. This category includes conventional trench beds, sand mounds, sand filter beds, and others.

In North America, hundreds of millions of tonnes of sand are extracted and used for on-site wastewater treatment each year. Sand is second only to water as the most consumed natural resource on the planet. Its extraction rates now outpace natural replenishment rates, making good-quality sand increasingly scarce and more expensive.

Due to its scarcity, good-quality sand must be used wisely. For residential septic systems, that means choosing technologies that use little to no sand for treatment or final dispersal. We must all rise to the challenge of protecting this commodity, even if people mistakenly believe it remains in abundant supply.

Demystifying the Shallow Buried Trench

The use of an SBT is one way to limit the use of sand. On average, an SBT uses less than half of the aggregates and sand required for a Type A dispersal bed. The figure below shows the quantities of granular material required for an SBT compared to a Type A dispersal bed. The example assumes a typical four-bedroom installation designed for 2,200 L/d and a soil percolation rate of 30 min/cm.



Sand transport and greenhouse gas emissions

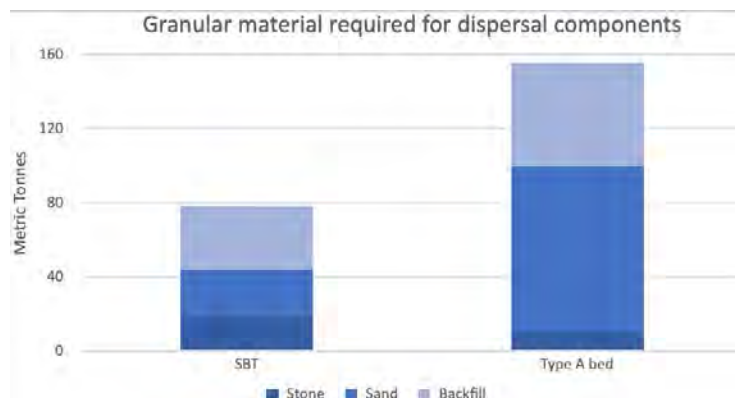
Another concern over the use of sand involves the transportation of materials to job sites.

The demand for good-quality sand is mirrored across countless industries that, at least for now, have yet to find an affordable substitute. Competition for this resource has a significant impact on areas without immediate access to good-quality sand. Longer transportation routes to these areas increase costs for homeowners. Just as importantly, they increase greenhouse gas (GHG) emissions, with predictable consequences for the environment.

The relatively small area required for an SBT reduces the amount of granular material needed for the dispersal of treated effluent. This, in turn, reduces the number of trucks needed for transport.

Even if sand is locally sourced, its density, combined with the large quantities required for wastewater treatment or

dispersal, mean that any advantage gained by proximity is negated. This is illustrated in the figure below.



A holistic approach includes SBT options

This is simply an overview of some reasons that may motivate people to use an SBT. As part of a holistic, customer-first approach, homeowners should always be at the centre of the final decision. To do that, they need to be well-informed about the options available and the total cost of ownership.

The public is increasingly aware of various environmental issues, especially topics related to sustainable development and the use of renewable resources. It is becoming more and more apparent that the things we do and the choices we make affect the world we live in — and the world we leave to others!

Many governments, industries, and companies are acting to reduce the environmental damage associated with material and product manufacturing and processing. Natural resource consumption and GHG emissions are now being closely monitored in many sectors. Our industry is no exception.

Now is the time to work together to make a difference.



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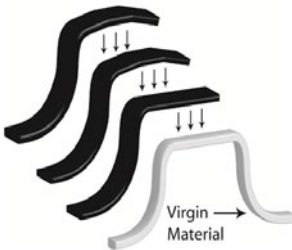
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Design and Installation of an Onsite Sewage Tertiary System with Phosphorous Removal for a Sensitive Watershed

Matt Parfitt P.Eng., Glenvale Property Development

Introduction

The city of North Bay's drinking water is sourced from Trout Lake on the east side of the city. Correspondingly, the city of North Bay has put in place measures to limit and/or control development within the Trout Lake watershed. One such measure is to prevent severing of new lots which touch any tributary flowing into Trout Lake. One rural estate lot subdivision was recently approved on Four Mile Lake, which flows into Trout Lake, through the OMB process. In order to gain the subdivision approval, the onsite sewage systems were required to meet the following criteria:

1. An approved tertiary treatment system must be used.
2. The field bed must be 300 m from the lakeshore.
3. The system must employ an approved phosphate removal system.
4. The effluent from the field bed must be sampled for 5 years to show that the phosphorous removal system is removing 95% of the phosphorous leaving the septic tank.

The first onsite sewage system in the subdivision was completed in 2020 for a new home. This article provides a case history of the design process and construction program that was started in late 2019 and completed by mid-2020.

Lot and System Layout

The lot in question has a long and narrow shape having a length of approximately 500 m, 30.48 m of road frontage and 62.08 m of frontage on Four Mile Lake. A plan of the lot site control plan and constructed features is shown on Figure 1. The onsite sewage system includes the following components:

1. A standard 4500 litre Brooklyn concrete septic tank adjacent to the house.
2. A 680 litre Brooklyn concrete pumping chamber fitted with a Liberty FL 290 series effluent pump and standard alarm system.
3. A 900 ft long buried 1.5 in diameter polyethylene pipe. A 1000 ft m roll of municipal service line with a 200 psi pressure rating was used so no connections or joints were required. The line was buried to a minimum of 6 ft or bedrock with a continuous 2 ft wide by 2 in thick rigid styrofoam insulation placed a few inches above the

pipe. A second layer of insulation was added where the pipe crossed under trafficked areas.

4. For the tertiary treatment, the Enviroseptic passive pipe system was chosen. The area where the bed was installed consisted of clean sand with a trace of gravel, so the bed size was based on an estimated T-time of 10 minutes. The bed was 6.8 m long by 4.6 m wide with 5 runs of Enviroseptic Pipe spaced 0.9 m apart.
5. For Phosphorous removal, a layer of B-horizon soil was placed below the Enviroseptic bed. The ability of such soils to chemically absorb phosphorous has been studied and well documented over the past 25+ years. B-horizon soils include reactive aluminum and iron ions that react with the phosphorous to form insoluble phosphate compounds. The B-horizon soil was sourced from a local pit after being tested and shown to be suitable for phosphorus retention.
6. For effluent sampling, two Enviroseptic sampling devices were installed, one below the system sand as standard for all Enviroseptic system sampling, and a second below the B-Horizon Soil layer to document the amount of total phosphorus removal as required by the city of North Bay.

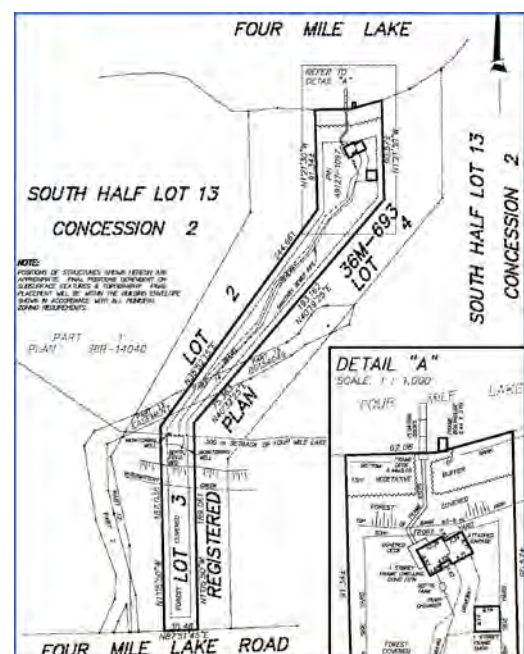


FIGURE 1 – SITE PLAN

System Design Considerations

In order to maintain gravity flow to the septic tank from the basement sanitary, the tank depth was beyond Brooklyn's standard 3 ft maximum burial depth (from top of tank). Various alternatives were considered including placement of rigid Styrofoam above the tank to minimize load on the tank top (See Figure 2). After consultation with Brooklyn, the Styrofoam option was ruled out as it did not alleviate the added soil pressure on the tank sides and bottom, only on the top. Brooklyn was then asked to analyze if the proposed burial depth would be okay based on the actual soil conditions at site. Results of this analyses were not positive, so in discussion with the owner, the grade of the yard was excavated to satisfy the original maximum burial depth of the tank.

As noted above, the pressure line from the pump chamber to the field bed was 900 feet. In order to minimize potential problems with the line, it was decided that connections were not wanted. After checking with various suppliers and what options were available, a 1000 ft roll of 1.5 in diameter Polyethylene pipe (200 psi Municipal Service Line) was selected based on performance, price and delivery time. As standard clamped fittings cannot be used with service pipe, two push on fittings were used at each end to convert to standard pipe thread for connections.

Proper pump selection was a crucial aspect due to the length of the line. Prior to selecting a pipe size, an estimate of line losses and Total Dynamic Head (TDH) was estimated to make sure that the size of line was suitable for available pumps. The initial analyses indicated that a 1.5 in diameter line would require a pump capable of generating approximately 75 psi of head or a total head of 32.5 ft. Due to the increased thickness of the 200 psi service line selected, the inside diameter was 1.263 in. This resulted in a higher estimated pressure head (95 psi) for a flow rate of 50 litres per minute for the selected Liberty FL-290 ¾ hp pump. Due to the lower pump rate, the pump chamber was increased to a 680 litre size (1.16 x 1.16 m square basin) so the pump does not cycle as much during high sanitary inflow. Based on an on/off level change during pumping of 20 cm, the pump should run for about 5 to 6 minutes to drain the sump.

As shown on Figure 3, the bed is a standard Enviroseptic system with a 300 mm layer of B-Horizon soil below the system sand. B-horizon soil is typically referred to as the subsoil layer below the organics. It is rich in minerals that have leached from above and due to oxidation of iron from being above the water table, it normally has a reddish brown colour.

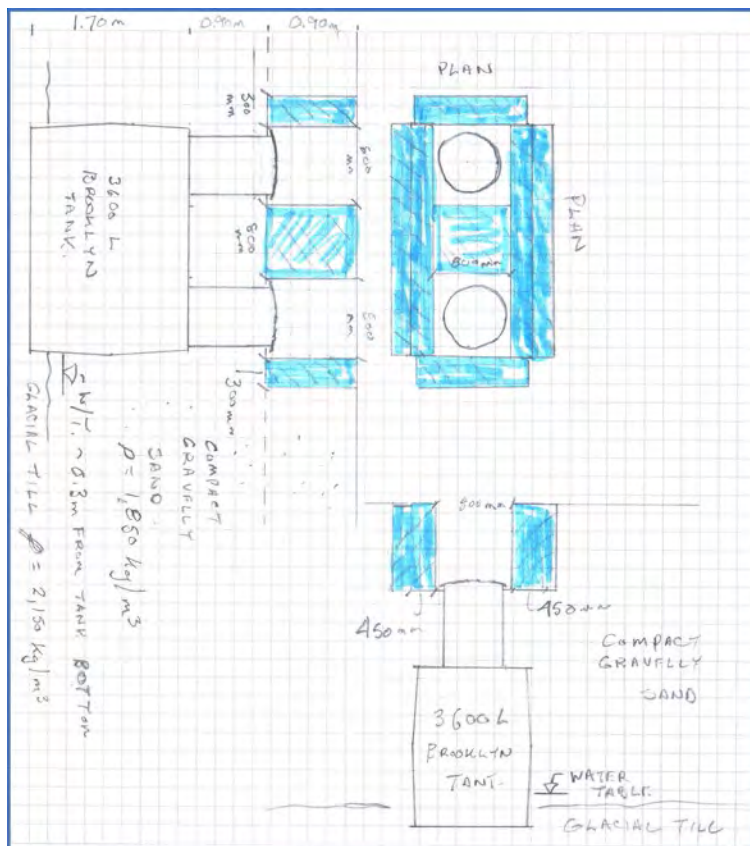


FIGURE 2 – PROPOSED TANK BURIAL DETAIL

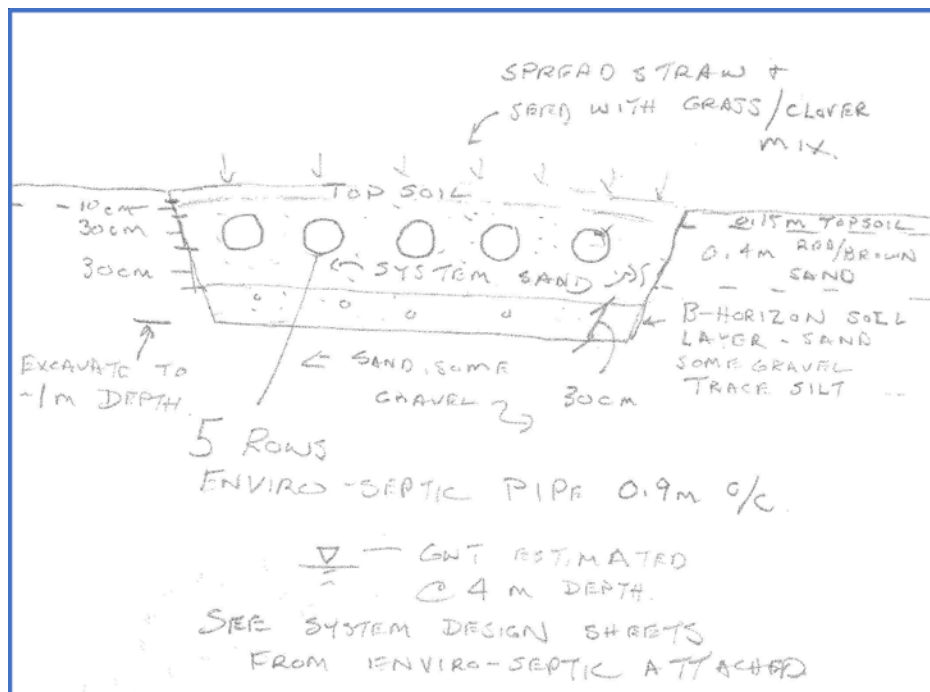


FIGURE 3 – BED CROSS SECTION

Based on the test results for the B-horizon soil used, the estimated time for the B-horizon layer to become fully saturated with phosphate is 50 years.

System Construction Review

As noted above, the project was started in the late 2019. As shown on Photo 1, winter had set in when the tank and pump chamber had been initially set in place. Due to cold weather and the snow being cleared by the builder around the house, a hydraulic hammer had to be brought in to break through up to 18 inches of frost to install the hook from the house to the tank (Photo 2). Once the tank had been set, excavation of the pipe trench was started followed by laying of the pipe and rigid insulation (Photos 3,4 and 5). The work was somewhat hampered by winter conditions. Additional frost breaking was required in areas where the line crossed the plowed driveway. Most of the line excavation was completed along the edge of the driveway where frost penetration was minimal due to snow cover. Backfilling of the trench was completed sequentially behind the excavation and pipe laying (Photo 6) as quickly as possible to minimize snow removal and mixture of snow with the fill. Backfilling of the trench was done in two passes as the electrical service cable was placed in the upper part of the trench. The initial 750 ft of trench was done during winter conditions to primarily meet schedule for the electrical service connection.



Photo 1: Tank and Pump Chamber Placement



Photo 2: Frost Breaking for House to Tank Connection



Photo 3: Initial Pipe Trench Excavation



Photo 4: Laying Pipe and Insulation



Photo 5: Pipe Roll for Laying Pipe



Photo 6: Trenching and Backfilling Operations



Photo 7: Spring 2020 Pipe and Insulation Installation



Photo 8: Bed Area Excavation with Initial B-Horizon Soil Placed

Due to slower than anticipated progress on the house build it was decided to hold off on finishing the system until the spring of 2020 for economical reasons. The work was restarted following spring melt by first completing the trenching, pipe and insulation laying (Photo 7). Following clearing and topsoil stripping, the excavation depth for the bottom of the bed was determined by maintaining 2 ft of burial depth over the D-box. Construction of the bed involved the following sequence of activities.

1. Initial placement of B-horizon soil layer on bottom of excavation (Photo 8).
2. Installation of the Sample Device at bottom of B-horizon soil layer (Photo 9).
3. Completion of B-horizon soil layer and installation of Sample Device at bottom of System Sand layer (Photo 10).
4. Placement of System Sand Layer and Enviroseptic pipes, distribution pipework and vent pipework (Photo 11).
5. Completion of System Sand layer over Enviroseptic pipes (following inspection) (Photo 12).
6. Completion of Pressure Pipe hook-up to D-Box, Pump testing and D-Box flow equalization, and final backfilling and insulation (Photos 13 and 14).
7. Final backfilling, topsoil placement, grading and hydroseeding.

To date this is the most complicated and expensive residential onsite sewage system that the author has completed. Two previous systems with B-horizon soils have been completed within the last 4 years and test results to date for both of these systems has been positive by meeting the city of North Bay's phosphorous removal criteria.



Photo 9: Sample Device Under B-Horizon Soil Layer



Photo 12: Final Graded System Sand Before Covering With Backfill



Photo 10: Sample Device for Enviroseptic Bed and Start of System Sand Fill



Photo 13: Pressure Pipe Connection to D-Box and Distribution to Bed



Photo 11: Enviroseptic Bed with Pipe, Connections to D-Box and Sample Tubes and Vents



Photo 14: Backfill and Insulation Over Pipe at D-Box Prior to Final Cover

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Biohaven Floating Treatment Wetlands Remove Nutrients and Help Wastewater Facility Achieve Compliance

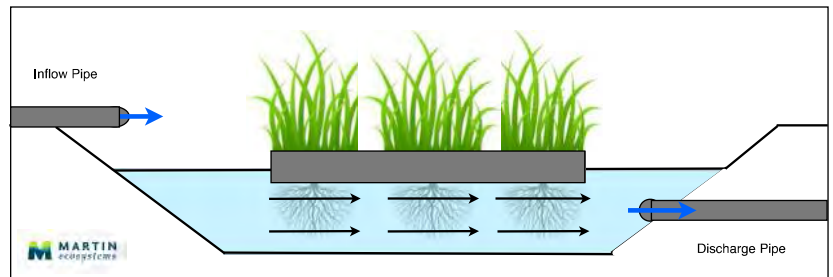
Project Location: Elayn Hunt Correctional Facility, St. Gabriel, Louisiana

Scientific Summary

BioHaven® Floating Treatment Wetland (BFTW) Technology is designed around the same principles as a wetland. They are man-made floating islands that provide an optimal habitat for microbial and plant species. See Figure 1. Similar to a wetland, the plants and microbes improve water quality; however BFTWs enhance microbial growth by expanding available underwater surface area; i.e. microbial habitat.

In fact, an eight-inch thick island covering one square foot of water surface contains 124 cubic feet of surface area. This phenomenon is created through patented island design. The result is a new and strategic means to achieve a concentrated wetland effect. Along with the nutrient removal processes, BFTWs also provide ancillary benefits for water treatment when launched into a water body. They immediately increase retention time as the flow of water is “redirected” through or around the BFTWs. The physical embodiment of the BFTWs also physically traps solids in the water body.

Figure 1



Facility Background



The Elayn Hunt Correctional Facility has struggled meeting discharge compliance. Parameters of concern have been elevated levels of Biological Oxygen Demand (BOD), Total Suspended Solids (TSS), and Fecal Coliform. Secondly, sludge accumulation in the pond has limited the ability for the pond to provide effective treatment. Remediation of this problem would have required extensive dredging of the pond and would have placed a high financial burden on the Department of Corrections at a time when budgets were decreasing.

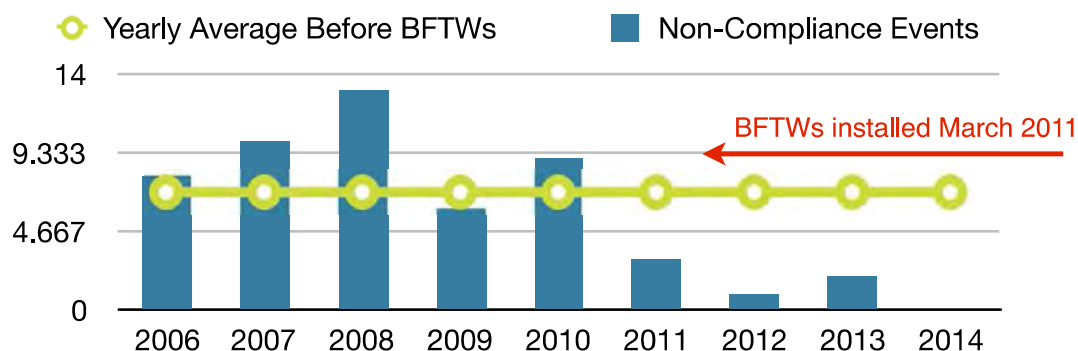
Installation Data

Location	St. Gabriel, Louisiana
Parameters Studied	Biological Oxygen Demand (BOD), Total Suspended Solids (TSS), Fecal Coliform, Chemical Oxidation Demand (COD), Phosphorus, Ammonia, Dissolved Oxygen
System Type	BioHaven® Floating Treatment Wetland
Total FTW Size	1560 ft ² , 8 inches thick
Installation Date	March 2011
Flow Rate	Approximately 300 MGD Average
Water Body Depth	3 Feet
Water Body Area	5.1 Acre Pond
Percentage Coverage	0.7% of Pond covered with BFTWs

The **Primary goal** for this project was to find out if the BFTWs could help the facility achieve and maintain compliance by removing unwanted nutrients. The BFTWs were installed strategically in front of the in flow pipe to have the greatest amount of inflow water passing through the Island matrix and to slow the water as it entered the pond ultimately increasing retention time. This installation location allowed for the greatest amount of treatment opportunity. The three plant species included: Common Rush (*Juncus effusus*), Pickerelweed (*Pontederia cordata*), and Arrowhead/Lanceleaf (*Sagittaria lancifolia*).

Results

At the start of this project enhancing facility compliance was a primary goal. The data suggests that the Islands have met this objective. The average of non compliance events exceeded 5 and sometimes 10 per year in the 5 years before the installation of BioHaven® Floating Treatment Wetlands. Since the installation of BFTWs in March of 2011, there have been only 6 noncompliance events through May 2014, all due to faulty facility equipment.



* Noncompliance reports based on Elayn Hunt Correctional DMR Maximum Concentration Measurements.

Table 1 shows concentrations of the three parameters of concern before and after the BFTW installation. “Before” data were taken in January and March 2011, while “after” data are the averages of monthly data from April 2011 through December 2012. It is assumed that the higher nutrient concentrations seen post-BFTW were also seen periodically before BFTW installation.

Table 1. Contaminant Concentrations

Parameter	Before BFTW		After BFTW	
	In	Out	In	Out
COD	242	190	586	151
Ammonia	14.1	12	15.5	10
Phosphate	13.9	11.1	14.5	10.5

(Mg/L)

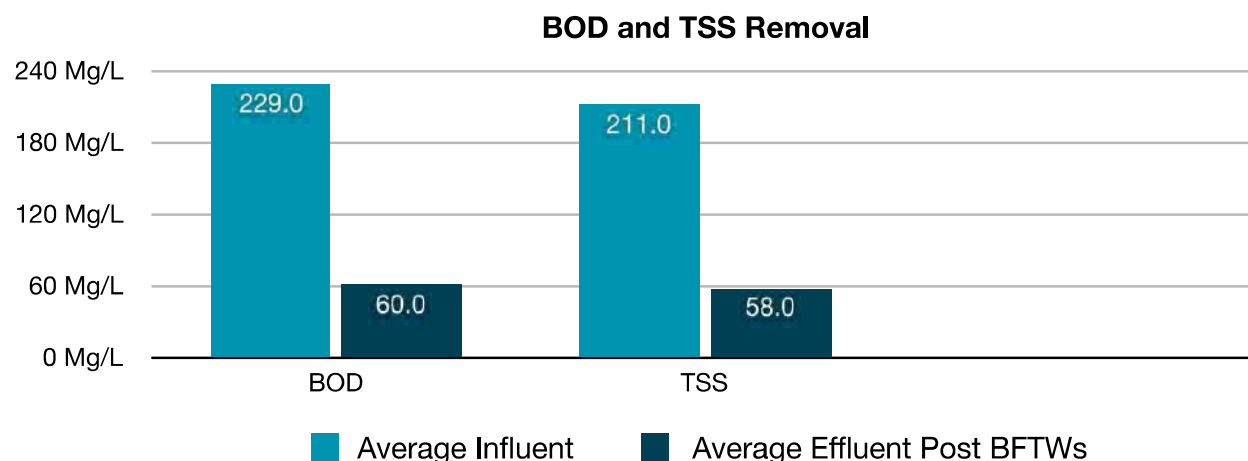
After BFTW installation, the average percentage removal has been 74%, 35%, and 29% for COD, Ammonia, and Phosphate, respectively. This is significantly better than without the FTWs. The BFTW removal rates are substantial and are even higher than those measured in other case studies. Considering these rates, BFTWs can be sized to remove a given contaminant load (concentration and flow).

Conclusions

The total cost of this project was \$38,017.61. This included the BioHaven® Floating Treatment Wetlands, installation, plants, and monitoring for one year. Dredging the pond would have had a much higher ticket price estimated at over \$1,000,000.00. BioHaven® Floating Treatment Wetlands were installed for 3.8% of that cost; demonstrating their ability to help communities as well as, public & private industry achieve and maintain consistent compliance in a very cost effective manner.

Project Addendum:

In December of 2012, the BFTWs were completely removed from the wastewater pond. All prior vegetation was removed. The BFTWs were re-planted with Vetiver Grass and re-installed in January 2013. This was done in anticipation of a new study with LSU AgCenter. The chart below shows the Average BOD and TSS removal rates from January 2013 to October 2014. The reduction of BOD and TSS has been an average of 73% for BOD and 72% for TSS over the 22 month period.



In June 2013, Louisiana State University AgCenter began monitoring this project for water treatment and nutrient removal. They will continue to do so for two (2) years.

Project Note:



Martin Ecosystems won the 2013 LA DEQ Environmental Leadership Award for the Elayn Hunt Correctional Project.



Martin Ecosystems won second place for the 2013 EPA/Gulf Guardian Award for the Elayn Hunt Correctional Project.

Onsite Technologies Applied to One of the Most Challenging Applications of all at L&M Meats Distributing Inc.

Story continued from cover...

The design flow for future needs has been established at 9500 liters per day while BOD of raw sewage was expected to be up to 2000 mg/l.

The initial proposal to the client was for a treatment unit followed by a Type A dispersal bed. A reservoir was required as a dead-end tank for storing blood discharges.

A permit was obtained in 2018 from the Town of Innisfil and Eisses Brothers got involved as the installer chosen by L&M Meats.

At the time of the initial design 2017, the ELJEN GSF combined treatment and dispersal system was rather new in Ontario and Enviro-STEP Technologies complete line of Onsite Treatment solutions was still getting introduced to consulting firms. Eisses Brothers quickly became a frequent user of the ELJEN GSF system for typical residential applications and from attending Enviro-STEP annual training seminar, they became aware of the entire portfolio of products including high strength wastewater solutions. Eisses Brothers requested a proposal from Enviro-STEP Technologies for an alternative to the L&M Meat project.

The solution proposed consisted of a high strength reduction unit followed by an ELJEN GSF dispersal bed as well as the dead-end tank for blood residues. The solution was submitted and reviewed by Gunnell Engineering which confirmed its validity, and a new permit was obtained in 2019. The BIO-REDOX pre-treatment unit combined with the ELJEN GSF System was considered one of the most simple and affordable treatment trains for addressing high strength applications.

The high strength portion of the wastewater was being diverted to a 6 000 liters grease interceptor equipped with an effluent filter and a clogging alarm. Effluent from the grease interceptor flows towards a 2700 liters equalization tank having the role of accumulating process water peaks and discharging them at a controlled pace to the high strength reduction unit. This process, called BIO-REDOX, is a completely mixed biological reactor without sludge recirculation. It provides the required oxygen and retention time to reduce BOD and COD to domestic concentration which is between 175 and 200 mg/l. The BIO-REDOX is designed to handle BOD between 1000 and 2000 mg/l achieving 90% removal. The pretreated process wastewater then flows toward a 30 000 liters septic tank where it mixes with domestic wastewater from the restrooms. That tank is also equipped with a 0.8 mm orifices effluent filter. The septic tank effluent is discharged to the final equalization tank which is a 11500 liters tank equipped with a duplex pump system on a time dosing panel. A key feature of this equalization tank is its adjustable recirculation loop providing the capacity to send effluent back to the BIO-REDOX unit for further treatment.

Domestic sewage recirculation also helps in providing alkalinity and additional nutrients essential for optimal operation of the BIO-REDOX. No other nutrient addition or pH adjustment is required. The recirculation ratio is set to 1:1 meaning that 50% of the effluent is recirculated to the BIO-REDOX and the other 50% is sent to the ELJEN GSF combined treatment and dispersal bed. The recirculation ratio can be changed manually to adjust for increased loading or flow in the future in order to always achieve optimal pre-treatment prior to discharging to the ELJEN GSF system.



Construction was completed in December 2020 by Eisses Brothers and Enviro-STEP Technologies. Eljen GSF biofiltration modules were supplied by CROMAR Advanced Treatment Systems and concrete reservoirs came from Newmarket Precast. Site supervision and commissioning was done by CROMAR and Gunnell Engineering under the guidance of Enviro-STEP Technologies.

Enviro-STEP Technologies has installed many BIO-REDOX high strength reduction units in various applications from restaurants, food courts, sugar shacks, microbreweries, and meat processing plants where removal of BOD of 90% and above are obtained.

Enviro-STEP Technologies want to thank L&M Meats Distributing inc. as well as all partners involved in this successful project.



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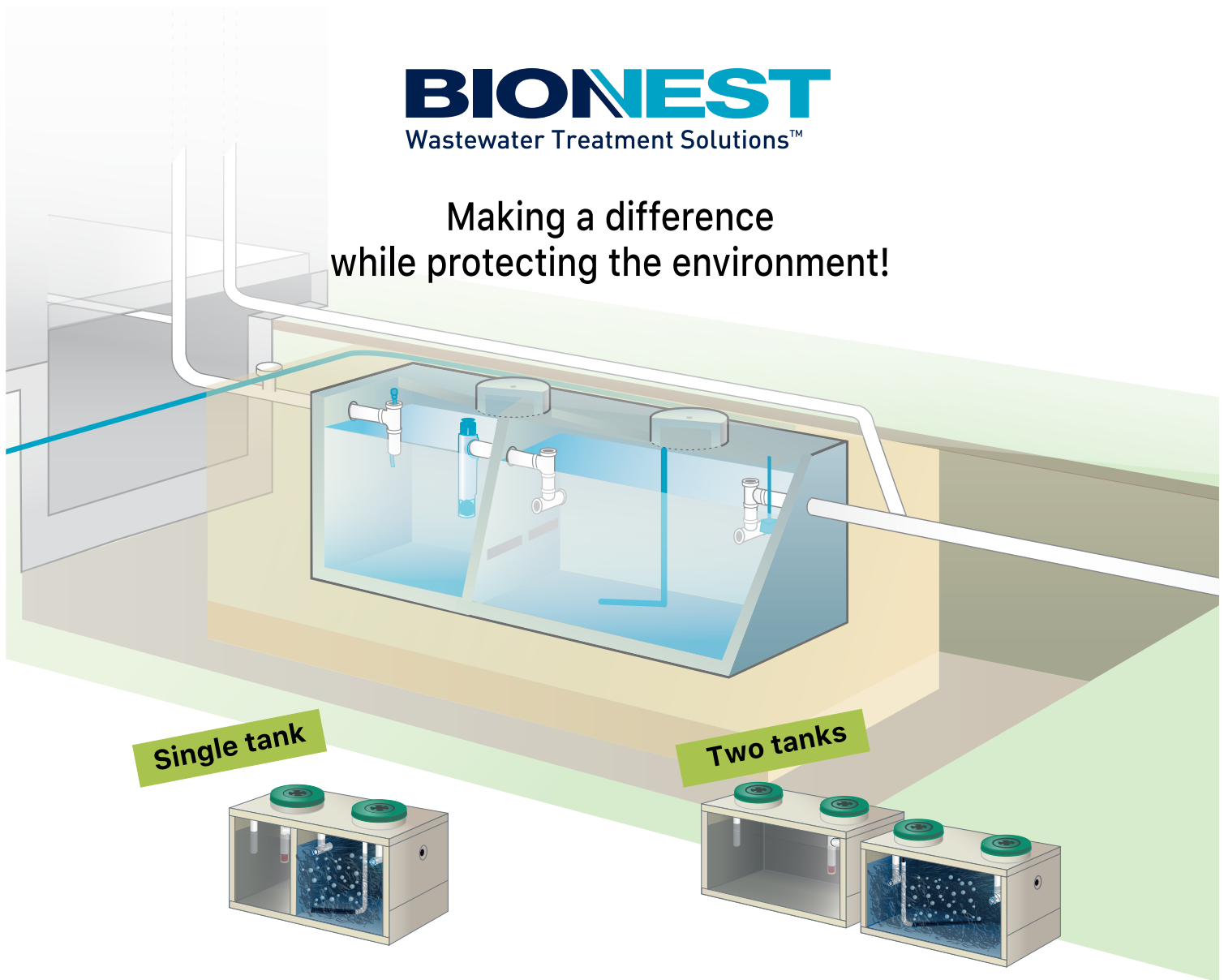
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MEMBER PROFILE

Thomas Keane

Name of Business: Gunnell Engineering Ltd.

Owners: Eric Gunnell, P.Eng.

Services: On-Site Sewage System Engineering and Design

Service Area: Central and Southern Ontario

Number of Years in Role: 2009 – Present (11 years)

What got you started in the onsite wastewater industry?

I started my work at Gunnell Engineering in April 2009, where I was initially hired as a student out of Georgian College in Barrie, Ontario. After completing my co-op terms with Gunnell Engineering, I started full-time in 2011, as a sewage system designer. Through my early experience designing sewage systems and inspecting sewage system installations, I learned a lot about the industry in general and the requirements for completing engineered sewage system designs. I have always enjoyed the unique challenges that come with providing design solutions for our clients and therefore, decided to pursue a career in the industry.

Give us one reason/secret for your success.

I think that there are a variety of reasons that have contributed to my development working in the on-site wastewater industry. It is important to keep an open mind and be patient, taking the time to review all aspects of a project to provide the optimum design solution (especially for challenging projects). When designing sewage systems for challenging sites, it can often be a process, taking time to work through options with clients to find an option that will ultimately work. Taking this time with our clients can often be rewarding, as not only do we learn a lot that can be applied to future projects, we also educate others on the sewage system industry. Both as an individual and as a company, we take pride in finding design solutions for our clients and helping them achieve their development goals, which is often recognized and contributes to our success.

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

It is common for us to work on projects where the building(s) and supplementary features, such as landscaping, use up the majority of space on a property. We are often in a scenario where we need to design a system where there is limited area available, and as a result we have a system that fitted tightly



THOMAS KEANE
On-Site Sewage System Engineering and Design

into a small space, while meeting the necessary requirements and regulations. Accommodating a variety of site features can lead to additional adjustments during the system installation, requiring the engineer to work with the installer (and all parties involved), to find a viable solution when unforeseen challenges occur.

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

As the industry grows and adapts to changes in policies and regulations that have an effect on how we approach sewage system design solutions, inevitably on-site sewage system designs will become more complex. As a result, the demand for more trained professionals in the on-site wastewater industry will increase. I think that universities and colleges across the province could adapt more detailed on-site / decentralized wastewater design programs, in an effort to prepare individuals and educate them on our industry before they enter into the workforce.

Where do you see the onsite industry going?

Having worked in the on-site sewage system industry for many years, I have witnessed different changes pertaining to how sewage systems are designed and installed. There have been changes that range from the technologies we use for on-site wastewater treatment to the regulations that we must follow for engineered sewage system designs. As rural development will continue to increase throughout Ontario, I believe there will be more environmental requirements that need to be accommodated, which could lead to the increased use of advanced treatment technologies and the development of new technologies and products that will become available in the future.

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- ☐ 1-5 ☐ 6-10 ☐ 11-15 ☐ 16-20 ☐ 21+

HOW MANY PIECES OF EXCAVATION EQUIPMENT DO YOU HAVE IN SERVICE?

- ☐ 1-3 ☐ 4-5 ☐ 6-7 ☐ 8-9 ☐ 10+

WHAT IS YOUR PRIMARY SOURCE FOR LEARNING ABOUT NEW PRODUCTS AND INNOVATIONS IN THE ONSITE INDUSTRY?

- ☐ Engineers ☐ Industry Trade Shows
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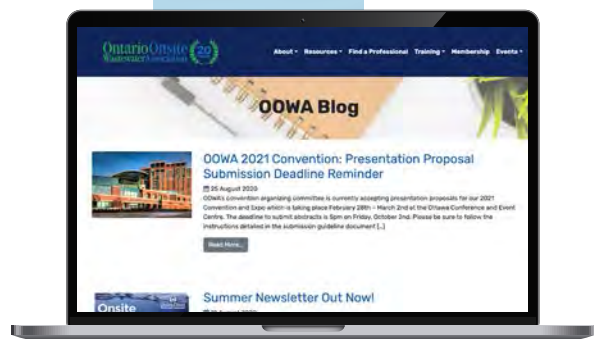
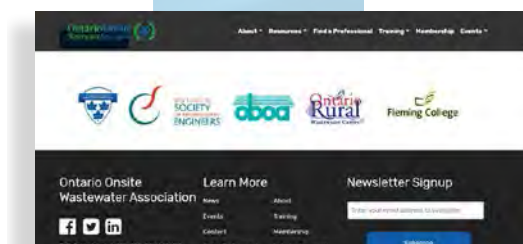
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