Thames – Sydenham and Region Source Protection Committee

Meeting Notice

Please be advised that a meeting of the Thames-Sydenham and Region Source Protection Committee has been called for the following time. Please confirm attendance with Deb Kirk at 519-451-2800 x256.

Meeting Date: June 15, 2018

Meeting Time: 10:00 am -1:30 p.m.

Meeting Location: **St. Clair Conservation Authority Board Room**

Proposed Agenda

1	**Chair's Welcome and Introductions (new members)**	10:00
2	**Adoption of the Agenda**	
3	**Approval of March 23, 2018 SPC minutes** **Approval of April 5, 2018 SPC teleconference minutes**	
4	**Delegations** *(none scheduled)*	
5	**Declaration of Conflict of Interest**	
6	**Business arising from the minutes**	10:15-10:20
7	**Business**	
7a	Wind Turbines and Private Wells (60 min)	10:20-11:20
7b	Section 36 Workplan Content (40 min)	11:20-12:00
	Break for Lunch	
7d	Section 36 Workplan Consultation (20 min)	12:30 -12:50
7e	SPC Communications Plan Update (10 min)	12:50 -1:00
7f	Outgoing SPC Member Presentation (5 min)	1:00 -1:05
8	**Information**	1:05
8a	OOWA/FOCA's joint ECO Request for Review	
8b	Source Protection Implementation Article in Ontario Farmer	
9	**In Camera Session** (not planned)	
10	**Other Business**	1:15
11	**MOE Liaison report**	
12	**Member Reports**	
13	**Adjournment**	1:30
	Next Meeting: Friday, October 19, 2018 (St. Clair Conservation Authority)	

Thames – Sydenham and Region Drinking Water Source Protection

Source Protection Committee Discussion Paper

Report to	Chair and members Thames – Sydenham and Region Source Protection Committee	**Agenda #**	2018.06.15 7a
Cc	SP Management Committee	**Date**	June 15th, 2018
Prepared By	Jenna Allain, Source Protection Coordinator		
Re:	Wind Turbines and Private Wells		

Background

- Wallaceburg Wind Concern group provides delegation at March 23rd SPC meeting to express their concerns about the potential for the proposed Otter Creek Wind Turbine project to negatively impact the water quality of private wells in the vicinity of the turbine project area. They cite water quality problems experienced in private wells near the North Kent wind project as the basis for their concern, since they share the same geology and aquifer.
- Source Protection Committee holds a teleconference on April 5th to discuss the concerns presented by the delegation.
- The Committee discussed the limitations of the Clean Water Act with respect to taking action to try and address the concerns raised by the delegation. The two main barriers to addressing the concerns are:
    - The *Clean Water Act* focuses on the protection of municipal drinking water sources only. Prior to the approval of the *Clean Water Act*, there was significant consultation on which drinking water systems should be included. At the time, consideration was being given to the protection of all drinking water systems in the Province. However, there was significant opposition from farm and rural communities to the inclusion of farm and domestic wells. This ultimately led to exclusion of these systems from the program and the focus shifting to only municipal drinking water systems when the *Act* was passed. **It should be noted that the program can be expanded to include private wells but only if direction to do so is provided by municipalities through a council resolution, or by the Minister of the Environment and Climate Change.**
    - Wind Turbines are not identified as one of the 21 prescribed threats to drinking water. Source Protection Committees must focus source protection plan policies on addressing prescribed drinking water threats. **It should be noted that Source Protection Committees may request the addition of local drinking water threats which requires MOECC approval.**
- Several Committee members expressed their concerns about the water quality issues presented by the delegation, and there interest in pursuing any actions the Committee could take to help resolve it.
- The Committee considers the Source Protection Plan a “living document” that should be updated to reflect local changes, including the identification of any new local threats to drinking water.
- The Committee was not clear on the consideration the Ministry has given to drinking water source protection when reviewing and approving wind projects that are located in areas designated as Highly Vulnerable Aquifers and Significant Groundwater Recharge Areas.
- The Committee agreed that a letter should be sent to the Minister of the Environment and Climate Change regarding this issue (see letter attached to this report as Appendix A).

- A response letter from the Minister was received on April 30th (see response letter attached as Appendix B).

Discussion

Recent Developments

- A letter dated April 19th from St. Clair Township was sent to the Minister of the Environment and Climate Change indicating the Township's recognition of the Otter Creek Wind Farm as a threat to the private wells that border the proposed wind farm project area. They also requested that the private wells in the 4 most southerly concessions of the Township be included in the next update to the Assessment Report (see the letter attached as Appendix C).
- A letter dated May 2nd, 2018 from Wallaceburg Area Wind Concerns was sent to the Minister of the Environment and Climate Change expressing their concerns regarding the proposed Otter Creek Wind Project. They also indicate their interest in broadening the Thames-Sydenham Source Protection Plan to include private wells (see the letter attached as Appendix D).
- Although it was requested that MOECC staff involved in the review and approval of the Otter Creek Wind Project attend the June SPC meeting to provide the Committee with information about what considerations MOECC is giving to private well water quality concerns and source protection vulnerable areas, MOECC could not meet that request at this time.
- Staff have reviewed the mapping for the proposed Otter Creek Wind project, and although portions of the project area are designated as an Event Based Area, Highly Vulnerable Aquifers and/or Significant Groundwater Recharge Areas, none of the 12 proposed turbines are to be located within designated vulnerable areas (see mapping attached as Appendix E).

Potential Source Protection Committee Actions to Address the Issue

Currently the concerns raised about the wind turbines and their impact on private wells in the Thames-Sydenham and Region are outside of the scope of the Clean Water Act and the mandate of the Source Protection Committee. There are options to overcome the barriers that were outlined in the background section of this report (above) which include elevating private wells into the program and identifying wind turbines as a local threat to drinking water.

Clean Water Act – Addition of Other Drinking Water Systems

Municipalities may identify any well, or cluster of wells, other than a municipal drinking water system, that they want to include within the local Assessment Report and Source Protection Plan by passing a council resolution to bring the desired additional systems in. No council resolutions regarding the addition of other systems have been received other than the St. Clair Township resolution.

In order to add any new systems into the program, technical work would be required to delineate the vulnerable areas around the new systems, identify potential drinking water threats to those systems, and write applicable policy. Direction on the next steps for the St. Clair Township wells that were included through council resolution is still pending from MOECC.

The Source Protection Committee must accept any council resolutions that have been passed and should plan to include the work required to add new systems into the Section 36 Workplan which will lay out the aspects of the Assessment Reports and Source Protection Plan that need to be reviewed and updated. The Section 36 Workplan is due on November 30th 2018.

Technical Rules Regarding the Addition of a Local Threat

Under the Clean Water Act, Source Protection Committees may add locally identified threats to the list of provincially prescribed drinking water threats. These 'local' or 'non-prescribed'

threats can either be a completely new threat or they can be a new subcategory of an already prescribed threat.
As per Technical Rule 119, the threat cannot be added unless the hazard rating of the activity is >4 and the Director under the Act has provided approval.

Rule 119. In addition to activities prescribed to be drinking water threats……an activity shall be listed as a drinking water threat for a vulnerable area if,

1. the activity has been identified by the source protection committee as an activity that may be a drinking water threat; and
2. information provided by the Director indicates that,
    a. the chemical hazard rating of the activity is greater than 4; or
    b. the pathogen hazard rating of the activity is greater than 4.

For example, in 2011 the Thames Sydenham Source Protection Region made application to the Director to add local drinking water threats under Technical Rule 119, in vulnerable areas of the St. Clair Region Source Protection Area (SCRSPA).
These local threats were identified as follows:

- Transportation of fuel and fertilizer along provincial highways, county and local roads, railways and waterways along corridors passing through the various vulnerable in the SCRSPA; and
- Transportation of liquid petroleum products through pipelines that cross the St. Clair Region Source Protection Area and spill into the St. Clair River

In this case, both fuel and fertilizer were identified as a chemical threat and hazard rating scores were assigned.

Based on the Technical Rules under the Clean Water Act, it will be difficult for wind turbines to be identified as a local threat since they do not present either a chemical or pathogen hazard.

Recommendation

That the Thames-Sydenham and Region Source Protection Committee accept the St. Clair Township resolution and identify the private systems included in the resolution as systems to be added to the Assessment Report and Source Protection Plan within the Section 36 workplan.

That the Thames-Sydenham Source Protection Committee wait for further information about the hazard that wind turbines present to drinking water before requesting that they be added as a local threat. This could be identified in the Section 36 workplan as an area that requires further review.

Appendix A

Thames – Sydenham and Region
c/o Upper Thames River Conservation Authority
1424 Clarke Road, London, ON, N5V 5B9

April 10th, 2018

The Honourable Chris Ballard
Minister of Environment & Climate Change
Ferguson Block 11th Floor, 77 Wellesley St. W.
Toronto, ON
M7A 2T5

Dear Minister;

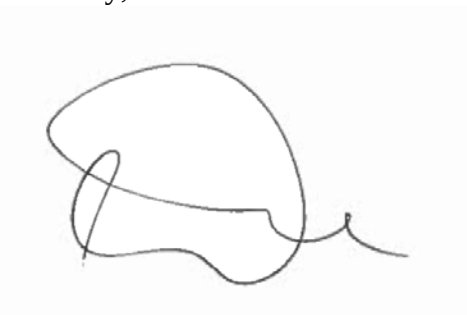
On behalf of the Thames Sydenham and Region Source Protection Committee we are sending this letter to highlight the Committee's concerns about the deterioration of water quality in private wells in the Municipality of Chatham-Kent within our Source Protection Region. The Committee was made aware of these concerns by way of a delegation at our March 23rd meeting by the Wallaceburg Area Wind Concerns group. The information presented by the delegation indicated an increase in shale particles and sediments in private wells located within the area of the North-Kent Wind Project. The delegation attributed this recent decrease in water quality to the pile driving associated with the construction of wind turbines. The delegation also expressed their fears about the same water quality issues arising should the Otter Creek Wind Project be approved, as the area shares the same aquifer and has the same geology.

We are aware that the Ministry maintains the regulatory oversight for these projects, and has been looking into the water quality complaints raised in association with the North Kent Wind Project. We are unclear on the consideration the Ministry has given to source water protection. In particular, to areas located within highly vulnerable aquifers and significant groundwater recharge areas, when approving these types of projects. We write this letter urging the Ministry to consider the principles of the *Clean Water Act* and source protection planning when reviewing and approving any new wind projects.

While the mandate of this Committee is the protection of municipal sources of drinking water, and does not include the protection of private systems, the Committee wants to ensure that there are safe and reliable sources of water for all users in the Thames-Sydenham and Region. The Committee takes the concerns of the Wallaceburg Area Wind Concerns group very seriously, and we are currently exploring actions we may take to address these concerns.

The Source Protection Committee recognizes the Source Protection Plan as a living document which will need to be updated from time to time to reflect any changes that may be required. In particular, updates to the local Plan should include any new threats to drinking water or other drinking water issues as they may arise. The Committee welcomes feedback from the Ministry as to how these new water quality concerns may be addressed in the next update to the Thames-Sydenham and Region Source Protection Plan.

Sincerely,



Dean Edwardson
Chair, Thames-Sydenham and Region Source Protection Committee

CC: Heather Malcolmson, Director, Source Protection Programs Branch, MOECC
Michael Moroney, Manager, Sarnia District Office, MOECC
Teri Gilbert, Issues Project Coordinator, Windsor Area Office, MOECC
Mohsen Keyvani, Supervisor, Environmental Assessment & Permissions Branch, MOECC
Kathleen O'Neill, Director, Environmental Assessment & Permissions Branch, MOECC
Don Shropshire, Chief Administrative Officer, Municipality of Chatham-Kent
Violet Towell, Wallaceburg Area Wind Concerns
Denise Shephard, Wallaceburg Area Wind Concerns

Ministry of the Environment and Climate Change

Office of the Minister

77 Wellesley Street West
11th Floor, Ferguson Block
Toronto ON M7A 2T5
Tel.: 416-314-6790
Fax: 416-314-6748

Ministère de l'Environnement et de l'Action en matière de changement climatique

Bureau du ministre

77, rue Wellesley Ouest
11e étage, édifice Ferguson
Toronto ON M7A 2T5
Tél. : 416-314-6790
Téléc. : 416-314-6748

Ontario

ENV1283MC-2018-722

APR 30 2018

Dean Edwardson
Chair
Thames-Sydenham and Region Source Protection Committee
c/o Upper Thames River Conservation Authority
1424 Clarke Road
London ON N5V 5B9

Dear Chair Edwardson:

Thank you for your April 10, 2018 letter about water quality in private wells in the North Kent area of the Municipality of Chatham-Kent. I appreciate the opportunity to provide an update on work undertaken by the ministry and address your concerns.

Ontario's Renewable Energy Approval (REA) process ensures that the environment and human health are protected and that developers conduct extensive municipal, Indigenous and public consultation. The ministry's role is to maintain regulatory oversight of the project and to hold the proponent accountable for any negative impacts on the environment. The ministry takes concerns about groundwater quality very seriously and has actively held North Kent Wind accountable for addressing complaints related to changes in well water quality and/or quantity.

The combined groundwater and ground-borne vibration monitoring requirement specified in the North Kent Wind Project REA is the first of its kind for a wind facility in Ontario. As part of the REA, the company was required to conduct ground-borne vibration monitoring during pile driving. Data collected from the testing of pile driving helped the ministry make the informed decision to allow the company to proceed to the construction phase of the project. The company continued to monitor vibrations during construction and will continue to do so during the operational phase of the project, in accordance with ministry-approved vibration monitoring plans.

The ministry considered source protection as part of the review of the North Kent Wind Project. There are no surface water or groundwater takings for municipal purposes within the project area and there are no Well Head Protection Areas and/or Intake Protection Zones that extend within the project area.

The ministry used a science-based approach to evaluate the well interference claims related to the North Kent Wind 1 project, considering four primary lines of evidence:

- baseline and complaint response water sampling
- timing of water quality complaints
- vibration monitoring
- enhanced turbidity monitoring

...2

There are approximately 200 private wells located in the project area, and baseline samples were collected from 179 well locations prior to construction. Of all these wells, the ministry received complaints about 16 wells. Of these 16 complainants, 15 gave permission to have their information forwarded to the company for follow-up. Ministry staff ensured that the company responded to each of the complainant locations, as required under its REA, to assess the condition of the well and to collect well water samples. Ministry staff also attended some of the locations to confirm information being reported by the complainant, and to collect water samples to be analyzed for general chemistry parameters, including turbidity.

The company supplied the ministry with assessment reports for all 15 complaint locations. Ministry hydrogeologists and staff with vibration monitoring expertise have reviewed those reports, along with the vibration and water quality test data, to confirm whether pile driving may have impacted nearby water well quality. The ministry's analysis of the results showed no evidence of any ongoing or permanent impact to water quality related to vibration from off-site pile-driving activities. Ministry staff with vibration monitoring expertise concluded that any pile-driving-induced vibrations that may have reached residents' wells would be significantly less than common day-to-day activities, such as nearby vehicle traffic and well pumps.

This suggests that other factors could be contributing to a water quality issue. We have provided information to the residents, explaining the types of factors that need to be considered, and how a licensed well contractor can aid in identifying the well problem. For example, problems with elevated turbidity or suspended sediment in wells are commonly related to construction deficiencies or integrity issues with the annular seal, filter pack, casing and/or screen. Inadequate well maintenance can also contribute to elevated turbidity if mineral scale or biofilms are allowed to build up in the well and/or plumbing.

The ministry will continue to hold the company accountable for addressing any complaints received during the operational phase of the project. They are responsible for addressing complaints by ensuring they retain a consultant to attend the site, collect samples, and submit reports to the ministry on whether the results demonstrate that vibration from operation of the turbines resulted in impacts on the well or well water at that location. If the assessment confirms impacts on water quality as a result of vibrations due to wind turbine operation, the company would be required to provide an alternate water supply at that time.

Ministry staff have heard the concerns of residents regarding potential risks to human health from rock particles in well water, and have worked closely with the Chatham-Kent Medical Officer of Health throughout the project. Well water quality testing, prior to wind turbine construction, showed that a number of wells in the area had elevated turbidity associated with naturally occurring groundwater conditions. The groundwater in this area has historically flowed through an aquifer made up, in part, of Kettle Point shale granules, and private water wells in the area rest on this bedrock.

After discussion with the Medical Officer of Health, the ministry agreed to undertake additional sampling, beyond the typical general chemistry analysis, at two well locations. At these two locations, samples were also collected for dissolved metals analysis. The purpose of sampling for dissolved metals was to improve the dataset available to the Medical Officer of Health. Although historical information for the area had not identified any concerns with metals in the groundwater aquifer, these samples provided additional information on metals in groundwater following wind turbine construction. The Medical Officer of Health was provided with all relevant sampling results and has informed the ministry that, in the absence of bacterial contamination, there is no health hazard from undissolved particles in water. Since turbid water can also be caused by bacterial contamination or harbor bacterial contamination, the local health unit recommends testing well water three times per year and this testing, including sample bottles, can be obtained from the Chatham-Kent Health Unit at no cost.

The ministry is currently undertaking a technical review of the REA application for the proposed Otter Creek Wind Farm. Source protection is being considered as part of this review.

I assure you that our ministry is taking the concerns of residents seriously and we will continue to work with the Medical Officer of Health, the local municipality, and North Kent Wind 1 to address community concerns. Please contact Michael Moroney, District Manager in the ministry's Sarnia-Windsor District, at 519-383-3780 or at michael.moroney@ontario.ca with any further questions you may have.

Again, thank you for bringing your concerns to my attention.

Sincerely,

Chris Ballard
Minister

c: Michael Moroney, District Manager
Sarnia-Windsor District Office, MOECC

Township of St. Clair

Chief Administrative Officer	519-867-2021
Administration / Clerks Dept.	519-867-2021
Finance & Treasury Dept.	519-867-2024
Water Dept.	519-867-2128
Engineering Dept.	519-867-2125
Public Works Dept.	519-867-2993
Fire Dept. Administration	519-481-0111

April 19, 2018

The Honourable Chris Ballard
Minister of Environment & Climate Change
Ferguson Block 11th Floor, 77 Wellesley St. W.
Toronto, ON
M7A 2T5

Dear Minister,

The Township of St. Clair would like to echo the concerns identified by our local Conservation Authority's and SourceWater Protection Committees as they relate to risks stemming from proposed wind turbines over a vulnerable aquifer. Many township residents rely on water from this aquifer through private wells and the risk of contamination resulting from the development of wind turbines is a real and concerning one.

On April 16, 2018, Township Council passed the following motion:

*"**Motion #9** Be it resolved that St Clair Township Council recognizes the Otter Creek Wind Farm just south of our border as a threat to private well water systems. As such we request the Thames Sydenham Source Water Protection Committee and the Ministry of Environment and Climate Change to elevate status of the private wells in the 4 most southerly concessions of the township as a cluster and include them in the next round of the Assessment Report.*

CARRIED"

The Township appreciates your attention to this matter and welcomes any information on how this concerning issue will be addressed.

Kind Regards,

Jeff Baranek, RPP
Clerk/Deputy CAO

Wallaceburg Area Wind Concerns
294 East River Road, Wallaceburg, On. N8A 4L2

May 2, 2018

The Honourable Chris Ballard
Minister of the Environment and Climate Change
11th Floor, Ferguson Block
77 Wellesley Street West
Toronto, Ontario M7A 2T5

Dear Hon. Chris Ballard:

Re: Otter Creek Wind Power Project:

We are writing to you about our grave concerns regarding the Otter Creek Wind Power Project. Our group recently made presentations to both our local Source Protection Committee, Thames-Sydenham and Region Source Protection Committee (March 23), and St. Clair Township (April 16) to enlist their support regarding the imminent danger to local wells from the Otter Creek Wind Farm project.

In our presentations, we cited several documents including the Clean Water Act (CWA) and our local Source Protection Plan. As you know, the legislation and the supporting plans came into effect and were intended to protect the sources of drinking water in Ontario to avoid disasters like the Walkerton tragedy. We need to broaden the existing Source Protection Plan to include protection for private wells, and identify the turbines as threats, so that we can avoid the fate that our neighbours to the south are experiencing. In the area of the North Kent 1 Wind Farm, 20 wells have gone bad in direct correlation with the turbine construction and operation of the North Kent 1 Wind Farm. We share the same geology and the same vulnerable aquifer with them and will ultimately share the same fate if the Otter Creek Project is approved.

We are attaching the letters from the Source Protection Committee (April 10) and from the Township of St. Clair (April 19) to your office. We reiterate the statement included in the letter from the Source Protection Committee in "urging the Ministry to consider the principles of the *Clean Water Act* and source protection planning when reviewing and approving any new wind project." Further to the direction given to us by members of the Source Protection Committee, we addressed St. Clair Township and received their support through a motion at their meeting on April 16. Their motion identifies the Otter Creek Wind Farm as a threat to private well systems and requests both the Source Water Protection Committee and the Ministry of the Environment and Climate Change to include protection of private wells in the plan.

Pile-driving down to bedrock has been implicated in the damage to the vulnerable aquifer and subsequently to the wells in our area, as acknowledged by the decision made by Hydro One and EBS Geostructural, with MOECC approval, to forgo the use of driven piles in favour of micro piles for Hydro One's foundation infrastructure in the North Kent project.

Your office has repeatedly told us about your concern for our residents and their water supply. We ask that you demonstrate this concern by completing a thorough investigation of the damaged wells in North Kent 1, and putting on hold the approval of the Otter Creek pending such an investigation.

Source Protection Plans are living documents and were intended to be updated to reflect changes that may be required. We are currently in a situation that requires such a change to protect the water sources in our area. We appeal to you to utilize the precautionary principle in issuing a moratorium on the Otter Creek Wind Farm project to protect the local citizenry and their water.

Sincerely,

Violet Towell

On behalf of

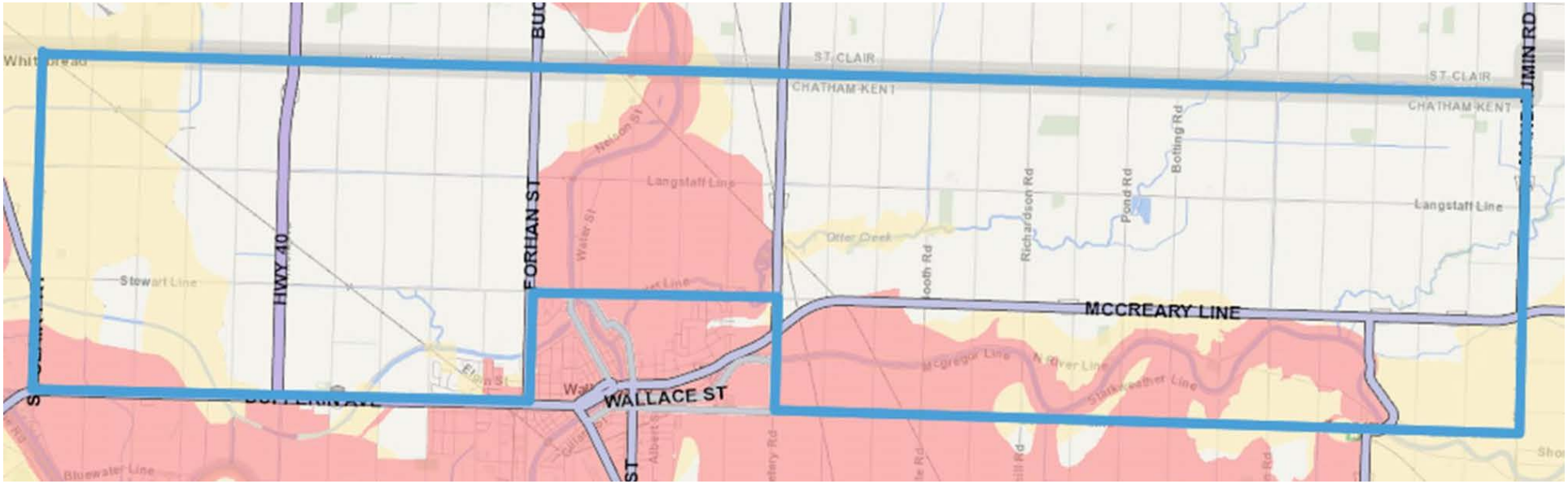
Wallaceburg Area Wind Concerns

cc: Hon. Kathleen Wynne, Premier of Ontario
Thames-Sydenham and Region Source Protection Committee
St Clair Township
Clerk, Municipality of Chatham-Kent
Mohsen Keyvani, Supervisor, Environmental Assessment & Permissions Branch, MOECC

Appendix E – Proposed Otter Creek Wind Turbine Locations and Designated Vulnerable Areas

Map 1. Proposed Wind Turbine Locations

Map 2. Designated Vulnerable Areas



Thames – Sydenham and Region Drinking Water Source Protection

Source Protection Committee Discussion Paper

Report to	Chair and members Thames – Sydenham and Region Source Protection Committee	**Agenda #**	2018.06.15 7b
Cc	SP Management Committee	**Date**	June 15th, 2018
Prepared By	Jenna Allain, Source Protection Coordinator		
Re:	Section 36 Workplan Content		

Background

The Section 36 (S. 36) of the Clean Water Act is intended to ensure that assessment reports (ARs) and source protection plans (SPPs) undergo a comprehensive review and update on a periodic basis.

An order was issued under Section 36 of the Clean Water Act to the Upper Thames River Source Protection Authority (SPA) by the Minister of the Environment and Climate Change (MOECC) on September 17th, 2015. The Section 36 order issued by the Minister specified that the lead SPA prepare and submit a workplan to the MOECC by November 30th, 2018. The order required that the workplan include detailed steps for the comprehensive review and update of the Assessment Reports and Source Protection Plan. The order also required that the information gained from implementing the SPP and from the first annual progress report (2017) be taken into consideration in preparation of the workplan.

The three main components of the S. 36 process that lead to workplan submission by source protection authorities are:

- Preliminary analysis of the following factors:
  - Results of environmental monitoring programs
  - Growth and infrastructure changes
  - Council resolutions
  - Policy effectiveness
  - Implementation challenges
  - Technical rule changes
  - Impacts of prohibition policies on the agricultural community
  - Specific directions in some source protection plan approval letters
  - Other local considerations.
- Consultation and stakeholder engagement
- Workplan

Discussion

The proposed review and any necessary updates to the ARs and SPP will represent current and future status of the local scientific information and policy implementation, as it relates to ensuring the protection of municipal drinking water sources per the Clean Water Act, 2006. Currently, the reviews and updates proposed (or being considered) for inclusion in the Section 36 workplan are summarized in the **Table** below.

Update No.	Description of Proposed Review and Update	Applicable Document	Implementer of Relevant SPP Policy
1	New wellhead protection area mapping and vulnerability scores for a new groundwater well at the existing Shakespeare drinking water system, including assessing if current policies in the plan will be appropriate in the new WHPA or if modifications to the policies will be necessary.	AR for mapping; SPP for policy changes	Municipality of Perth East, Risk Management Official
2	New wellhead protection area mapping, vulnerability scores, and threats assessment for private well water systems in St. Clair Township as requested through council resolution. This will include assessing if current policies in the plan will be appropriate in the new WHPAs or if modifications to the policies will be necessary.	AR for mapping and threats assessment; SPP for policy changes	St. Clair Township, Risk Management Official
3	Assess the new prescribed threat per Clean Water Act O. Reg. 287/07 - liquid hydrocarbon pipeline and determine if policies should be added or amended to the SPP considering the current policy that exists for liquid hydrocarbon pipelines as a local threat.	AR for assessment of pipeline risk; SPP for any policies	Municipalities
4	Assess and make appropriate updates to align with the March 2017 Technical Rule changes including the Tables of Drinking Water Threats that are mandatory to apply: • Reflect that above grade fuel storage poses a significant risk in IPZs and WHPA-E scoring 9 or higher; • Update the significant groundwater recharge area vulnerability scoring.	AR for assessment; SPP for any policies	Municipalities, Risk Management Officials
5	Further assess and make appropriate updates to align with the March 2017 Technical Rule changes including the Tables of Drinking Water Threats that are enabling provisions. • Great Lakes/connecting channel surface water intake vulnerability assessment of all surface water drinking water systems in the Thames-Sydenham and Region. • Reducing setbacks from watercourses based on local conditions • Aligning policy wording with updated ‘short names’ in the Tables of Contents of the Tables of Drinking Water threats.	AR for assessment; SPP for any policies	Municipalities, Risk Management Officials
6	Review agricultural application policies to consider the intent of using the Risk Management Tool to align with Nutrient Management Act prohibitions.	SPP	Risk Management Officials
7	Review of information relevant to the local impacts of wind turbine and wind turbine construction on private well water quality for possible inclusion of a new local threat.	AR for any threats updates; SPP for any policies	Municipalities, Risk Management Officials

Update No.	Description of Proposed Review and Update	Applicable Document	Implementer of Relevant SPP Policy
8	Consider change in timeline of Part IV, S. 58 Risk Management Plan Policies	SPP	Risk Management Officials
9	Review all agricultural policies for the Town of St. Marys to consider local RMO decisions based on the sensitivity of the vulnerable area.	SPP	Town of St. Marys, Risk Management Officials

Recommendation

That the Thames-Sydenham and Region Source Protection Committee endorse the list of proposed updates to the Assessment Reports and Source Protection Plan to go out for consultation with municipalities.

Thames – Sydenham and Region Drinking Water Source Protection

Source Protection Committee Discussion Paper

Report to	Chair and members Thames – Sydenham and Region Source Protection Committee	**Agenda #**	2018.06.15 7d
Cc	SP Management Committee	**Date**	June 15th, 2018
Prepared By	Jenna Allain, Source Protection Coordinator		
Re:	Section 36 Workplan Consultation		

Background

The Section 36 order issued by the Minister of the Environment and Climate Change on September 17th, 2015, required that a workplan be developed outlining the steps for the comprehensive review and update of the Assessment Reports and Source Protection Plan. The S. 36 order also requires that the workplan be developed in consultation with the Thames-Sydenham and Region Source Protection Committee (SPC), participating municipalities of the Source Protection Authorities, and the MOECC. The purpose of the consultation is to discuss the proposed workplan and receive comments and feedback.

Discussion

The following table outlines the proposed consultation schedule:

No.	Date	Consultation Details
3	May-July 2018	Consultation with MOECC on workplan content (phone calls, emails)
4	June 15, 2018	The SPC reviewed a listing of identified SPP (including ARs) issues, challenges and limitations. This was in preparation of the workshops to consult with municipalities. Workshop materials were further revised following this meeting.
5	June 25, 26, and 28th, 2018	Three municipal consultation workshops were held for municipalities. The purpose is to: • Recommend areas of the SPP incl. ARs, to be updated (with rationale) • Obtain feedback and comments regarding the proposed updates.
6	June and July 2018	Some individual communications were conducted for stakeholders unable to attend the workshops.
7	Aug. 2018	Draft workplan for S. 36 updates circulated for consultation and comment
8	Sept 14, 2018	Stakeholder comments on Draft workplan for S. 36 updates due
9	Oct. 19, 2018	An SPC meeting to discuss the draft workplan and receive comments.
10	Nov. 2018	SPA meetings to approve the proposed workplan.
11	Nov. 30, 2018	The proposed S. 36 workplan gets submitted electronically to MOECC.

Recommendation

That the Thames-Sydenham and Region Source Protection Committee endorse the proposed consultation schedule for the submission of the Section 36 workplan.

1. b) Applicant Number Two

Last Name	First Name	Initial

Address		Apartment

City	ONTARIO Province	Postal Code

( )	( )
Residence Telephone	Business Telephone

Declaration of Ontario Residency:

I _____ am an Ontario resident and have been since _____
(Print Name) (Month, Year)

_____
Signature Date

1. c) Corporate Applicant

Ontario Onsite Wastewater Association	President
Name of Corporation	Name of Position of Corporate Officer

P.O. Box 2336	Peterborough	ONTARIO
Address	City	Province

K9H 7Y8	855-905-6692
Postal Code	Business Telephone

Declaration of Incorporation in Ontario:

The Ontario Onsite Wastewater Association is an Ontario or Canadian Federal Corporation, carrying on
(Name of Corporation)

business with its head office in Ontario, established by articles of incorporation in November 15th, 2001
(Month, Year)

February 15th, 2018	Anne Egan , President
Date	Name of Officer and Position

867325714	Anne Egan
Company Number	Signature

1. b) Applicant Number Two

Last Name	First Name	Initial

Address		Apartment

City	ONTARIO Province	Postal Code

( )	( )
Residence Telephone	Business Telephone

Declaration of Ontario Residency:

I _____ am an Ontario resident and have been since _____
(Print Name) (Month, Year)

_____
Signature Date

1. c) Corporate Applicant

FEDERATION OF ONTARIO COTTAGERS' ASSOCIATION (FOCA)	EXECUTIVE DIRECTOR
Name of Corporation	Name of Position of Corporate Officer

#201 - 159 KING ST.	PETERBOROUGH	ONTARIO
Address	City	Province

K9J2R8	(705) 749-3622.
Postal Code	Business Telephone

Declaration of Incorporation in Ontario:

The FOCA. is an Ontario or Canadian Federal Corporation, carrying on
(Name of Corporation)
business with its head office in Ontario, established by articles of incorporation in JUNE 1974
(Month, Year)

FEB 15, 2018	TERRY REES, EXECUTIVE DIRECTOR
Date	Name of Officer and Position

283934	Terry Rees.
Company Number	Signature

2. Request for Application for Review

We request that the Ministry of Municipal Affairs and Housing review an existing Regulation: O Reg 332/12 (Building Code), Division B, Part 8, Section 8.9 (Operation and Maintenance), made under the *Building Code Act, 1992*.

We request that the Ministry of Environment and Climate Change review the need for new provisions and/or Regulation under *the Ontario Water Resources Act* to govern the operation and maintenance of onsite septic systems.

3. We believe that the ministry should undertake our Review to protect the environment because:

We are requesting that this review, including an assessment of the appropriateness of moving responsibility for oversight to the Ministry of the Environment and Climate Change (MOECC), because we are concerned about the capacity and effectiveness of the Ministry of Municipal Affairs (MMA) in administering the operation and maintenance of onsite septic systems. Moving responsibility to MOECC would utilize its resources and expertise to ensure ongoing functional and performance verification of all wastewater treatment systems.

Onsite septic systems and decentralized wastewater treatment systems remain the best available infrastructure solution in many areas of Ontario where centralized systems are impractical due to geographic, technical or financial circumstances. These systems have evolved well beyond the "disposal" systems of days gone by. Today's onsite wastewater treatment systems provide dramatically improved treatment and effluent quality, with smaller footprints and minimal resource requirements. However, the current regulatory framework for operation and maintenance management under Section 8.9 of the Ontario Building Code (OBC), does not effectively provide clear management requirements for the responsible and cohesive system that is required to protect the environment and public health and make evidence based decisions for sustainable infrastructure investments.

In a recent communication issued on May 12, 2017 presented in Appendix 4, the current Minister of Municipal Affairs, Bill Mauro stated that "*I have always felt that there are sufficient protections in place to mitigate against septic system failures. Since 1997, there has been a requirement for owners of septic tanks and treatment units to clean out their systems when the working capacity is one-third full. This will continue to be in effect.*" (Bill Mauro, Minister of Municipal Affairs, e-mail communication issued to all heads of council: May 2017). This statement from the Minister clearly identifies the view that the building code and its effectiveness are sufficient enough to protect the natural environment and public health. Information from industry stakeholders and citizens provides evidence to the contrary.

An estimated 1.4 million households use onsite or decentralized wastewater systems in Ontario. "These systems treat approximately 800 million liters of wastewater per day, and approximately 10-20% of these systems experience malfunctions every year; and 70% of systems are failing between 7 to 15 years; 55% of these failures are related to poor maintenance and management." (Marie-Christine Belanger, Premier Tech Aqua, "Onsite Wastewater Treatment System's Relationship to Job Creation": 2012).

In a speech given at Ontario Onsite Wastewater Association's Annual General Meeting in 2010, Gord Miller, then Environmental Commissioner of Ontario, provided an estimate from 1998 that there were 1.2 million septic systems in Ontario. It is clear that the exact number of systems in the province is presently not being tracked and the systems are not being managed proactively. As with any piece of built infrastructure, these systems have a predictable life expectancy based on recommended maintenance and widely accepted best practices. However, in the absence of accurate or current data we do not know the state of existing systems, the level of maintenance that existing systems have undergone, or the related functionality or performance. Mr. Miller added in his speech to the Ontario Onsite Wastewater Association, that of those estimated 1.2 million systems present in Ontario in 1998, 30-50% of those systems would fail or reach the end of their functional life expectancy between 2013 and 2015. In 2017, we can now safely assume that a significant number of existing systems in Ontario are nearing the end of their functional life expectancy or have failed due to age or insufficient maintenance. Yet in the Province of Ontario we have no stated plan to proactively address this predicted risk to human health and the environment.

Septic systems have been regulated by permits issued under Part 8 of the Ontario Building Code since 1997. Prior to that, permits were administered primarily through the local Health Units. There are many systems for which permit records are no longer available, or never existed in the first place. There is a strong correlation between a lack of records and system age, i.e. systems older than approximately 20 years tend to be more likely to lack appropriate records and documentation. In findings of supporting documents 1 and 2 (Appendices 1 and 2 respectively) it was found that only 25% of the systems inspected had permit documentation available, and the remaining 75% of systems have no records of what is installed and when it was installed. Given that the functional life of a septic system is typically in the rage of 25 to 40 years (depending on use and maintenance practices), these statistics are a strong indicator of the general age of the existing systems in Ontario, that they are potentially approaching, or exceeding their expected functional life. Case studies found in Appendix 3 of this document help to support these findings.

Considering outside figures, estimates of failure rates from the US are equally alarming. Of 109 million housing units throughout the US, 25% of them are serviced by onsite systems. Of these housing units, there were 2.5 million septic system failures in 1995 alone. By 2025, it is projected that 40 million housing units will be serviced by onsite systems. Findings from research predict 4 million failures in these 40 million units by 2025. ("Septic Stats, an Overview" 1999, G.Knowles, Nat. Small Flows Clearinghouse (1995 Am. Hsg Survey data))

The potential environmental and public health impacts due to the lack of attention being paid to critical decentralized service areas are just as pressing to Ontarians as the current challenges facing urban municipalities and their water utilities. By not addressing the identified structural failings of the existing regulatory regime, the province is not adequately addressing our responsibility for protection of the environment and public health.

We believe that it is critically important for the ministries to review the current legal framework that regulates operation and maintenance management of onsite septic systems in Ontario. The Ontario Onsite Wastewater Association has been working proactively to educate industry professionals to ensure that onsite and decentralized systems continue to serve communities effectively and safely.

Unfortunately, the regulatory regime under the purview of MMA and the OBC, does not adequately verify the essential function or performance of these systems through maintenance verification, tracking and information management.

This is further evidenced by the implications and structure of Ontario's Environmental Bill of Rights (EBR). The EBR's intent is to provide protection to the environment, ensure the environment's sustainability and to protect Ontarian's the right to a healthy environment. It has assigned mandates to each provincial ministry to ensure these provisions are carried out. The MAH (today the MMA) had been assigned areas of responsibility for policy and regulatory frameworks for land use planning, building regulation, and affordable housing amongst others. Alternatively, MOECC's mandate is centered on the implementation of environmental legislation, regulations, guidelines and reporting programs. MOECC is to support these responsibilities through research, monitoring, inspection, investigations and enforcement activities. In this context, MOECC's mandates and programs do appear more appropriately suited to carry out the performance and maintenance verification of onsite systems.

By providing the ministries with a summary of the regulatory history and the current regulatory regime we hope to connect the MOECC's long history with onsite sewage management, and to illustrate the current challenges that have resulted from the downloading of responsibility and fragmentation of management. By being critical, we hope to highlight the positive changes that are possible, and the opportunities for the province to protect the environment and to ensure thriving and healthy communities.

Regulatory history of onsite wastewater treatment systems

In the 1980s the Ontario Ministry of the Environment (MOE, now MOECC) had responsibilities for both the approval of new residential development and the construction standards for onsite systems. In 1982, the MOECC issued the Manual of Policy, Procedures and Guidelines for Private Sewage Disposal Systems. This provided guidance for fulfilling legal requirements of Ontario Regulation 374/81 under Part VII of the *Environmental Protection Act*, as it existed at that time.

The manual outlined the design requirements for septic tank treatment (Class 4) and for the approval of proprietary aerobic treatment units (Class 6) for which a Certificate of Approval was required. It also provided basic design guidance for in-ground trench disposal beds, sand filled raised beds, and filter beds. Design considerations included: site soils, water table depth and separation distances to wells, surface water and property lines.

The actual onsite inspection and permitting was done for the MOECC by regional and county Health Units. Health Units developed in-house experience with onsite systems, although not all units followed the design methods outlined by the MOECC manual for single-family homes.

The MOECC also reviewed applications for proposed residential developments to be serviced by onsite systems. Subdivision applications included assessments of the soil suitability for septic systems. MOECC regional hydro-geologists and the regional or county health units reviewed these reports. The 1980s saw significant residential development in southern Ontario, especially in York Region north of Toronto. High densities of onsite systems became a concern at the MOECC Central Region and the York Region Health Unit. The main concern was the potential for nitrate contamination of groundwater, particularly when development occurred around an existing village or hamlet using shallow private wells for drinking water. Evaluating the nitrogen impact of a proposed development became part of the approval process. Nitrogen impact evaluation eventually lead to the development of Procedure D-5-4, Technical Guideline for Individual On-Site Sewage Systems: Water Quality Risk Assessment. First produced in 1992, last revised in 1996, this guideline sets out the steps to determine the appropriate density and scale of development to prevent degradation of groundwater resources.

Through these guidelines, developers and consultants worked with the MOECC regional offices to address groundwater quality concerns based on the geological conditions at the sites. Procedure D-5-4 allowed a standardized approach to development across the province.

Current regulatory framework

In 1996, the enactment of the *Land Use and Planning Protection Act* removed the involvement of the MOECC from the planning process and shifted the environmental responsibility to the individual municipalities. The province still plays a role, as municipalities must make decisions consistent with the Provincial Policy Statement, but nitrate impact assessment studies are now undertaken at the discretion of the municipality. Study reports, previously reviewed by MOECC hydrogeologists, are now reviewed by in-house municipal staff, by outside agencies such as Conservation Authorities and Health Units, or by peer reviewers.

There is inconsistency amongst municipalities in how rural development applications are reviewed. Some municipalities are relying on Procedure D-5-4 while some have developed more specific local guidelines, and others use ad hoc strategies. Currently, there is no province-wide standard for assessing the risk of onsite sewage systems to water supply sources.

A further change occurred in 1998, when the design, approval, construction, and inspection of sewage systems with flows less than 10,000 L/day was made the responsibility of the Ministry of Municipal Affairs and Housing (MMA). Small onsite sewage systems are now regulated by Part 8 of the Ontario Building Code. The training, examination and licensing of designers and installers are regulated by the MMA. Although there is a province wide code, each municipality (township, town, city) is responsible for permits and construction inspections. This is carried out either in-house by the Chief Building Official or by outside agencies such as County or Regional Health Units and Conservation Authorities.

Systems are not differentiated by the nature or strength of sewage to be treated, but only by their design flow volume. Systems for houses, car washes, laundromats or restaurants are all handled by the municipality if the design flow is less than 10,000 liters per day. All systems with design flows over 10,000 litres per day are the responsibility of the MOECC and must meet Reasonable Use Policies for approval. Once approved, the systems operate under an Environmental Compliance Approval.

Critique of current state of regulatory framework/barriers to getting to a performance based approach

The OBC regulatory process essentially ends with the permit-related inspection at the completion of an installation. The only tool for ensuring proper future performance to date has been limited to septic re-inspection programs. Currently these programs are not uniformly offered across the province, and are carried out with highly variable delivery methodologies and results. The other triggers for detecting performance inadequacies are during property transfer inspections or when systems fail or cause noticeable and negative impacts to properties, ground water and surface waters.

Conversely, the MOECC's risk mitigation and approvals process for flow rates over 10,000 L/day is inclusive of a professional design, regulatory approval of design, professional installation (with as built drawings), and operational requirements with ongoing reporting of operation, maintenance and performance of the system. This process ensures correct application of a design or technology, and also requires ongoing verification of proper operation and maintenance and periodic reporting to the MOECC about the systems function and performance.

Increasing Building Code Complexity

The design and construction requirements for onsite septic systems have changed and improved under the OBC. This includes the MMA's adoption of the certification standard CAN/BNQ 3680-600 for advanced treatment systems. The Ontario Onsite Wastewater Association officially supported this and other recent changes as a good first step to moving the Code towards a performance based approach that includes maintenance verification and also allows for certification of treatment for nutrients and disinfection.

Although positive, these changes have created a perceived increase in the complexity of interpreting and administering the OBC. As a result, we can predict that the tracking and enforcement of operations and maintenance verification will become a more significant burden on the local regulatory resources. Rural municipalities are already challenged by the costs to provide inspection and permitting programs for the systems they approve, and will be looking to the Province for additional support.

Getting to mandatory maintenance and improved management

A rigorous structure that allows better tracking and management of wastewater treatment systems already exists at the MOECC. We advocate for the use of the same general structure for all wastewater treatment systems (conventional systems as well as treatment technologies) currently governed by the MMA. The OBC can continue to be used as an effective design and construction permitting process.

The change we are seeking for consideration would add to the existing permitting process by requiring permits and operations plans to be registered with MOECC, through the principal authority, for tracking and verification of system function and maintenance by the MOECC.

Ontario Onsite Wastewater Association forecasts that over time, Provincial tracking of permits will result in better management of septic systems and a clear reduction in unidentified system failure or malfunction. Municipalities could then focus their resources to the permitting process under the OBC so that site conditions will be better assessed and system installation will be better controlled. Under the MOECC oversight, verification of system operation and maintenance can be managed, and system owners will also be more aware of their responsibility for protecting the province's shared water resources.

The MMA has adequately managed the continuing development of the OBC when working collaboratively with MOECC to interpret or clarify technical or environmentally sensitive issues. This includes matters pertaining to the installation, servicing, remediation and inspection of onsite systems.

The MMA, through the principal authority, does not seem to have the capacity or mandate under the OBC to effectively manage onsite septic systems after the permit and construction process is complete.

Note that an estimated 80-90% of the onsite systems presently in service in Ontario are conventional leaching beds or sand filter beds; this means that they are not regulated by any form of maintenance or management reporting requirements. This represents a significant number of systems that escape any evaluation or reporting. This is a critically large gap in the current regulatory framework for environmental and public health protection.

We recommend that under the MOECC, there be a provision for the creation and maintenance of a central database and registry of all onsite septic system records in the province. The administration of a database registry would serve to manage records for provincial decision-making purposes, as well as provide the verification of compliance with the registered permits and approvals. We are prepared to provide further and ongoing stakeholder input and support for the development of the proposed database.

One of the primary challenges of transitioning to improved operation of onsite septic systems is that this decentralized network of wastewater treatment infrastructure is privately owned and does not fall under the direct purview or management of any one regulatory body. Although municipalities permit and inspect the installation of septic systems, they cannot reasonably be expected to take on the added responsibility for the costs of repair or replacement of privately owned septic systems with current funding programs.

To date, a relatively small number of municipalities have implemented mandatory septic re-inspection programs. In municipalities that have undertaken programs, the approach to inspections has been highly variable from a technical standpoint, based on costs and political dynamics. As a result, the programs do not reliably capture the systems that are vulnerable to failure or have failed. As there are no established standards by which these programs are delivered, or in how the information is collected and shared, these programs are not providing the accurate status of these systems provincially. The municipalities are not required to upload any information gathered from their re-inspection programs to the province. As a result, the opportunity to formulate an improved province-wide assessment and inventory is being missed. Ontario's water well database is a good example that could be the basis for such a data management approach.

We recognize that through the Clean Water Act and the Source Water Protection Program, the province has taken appropriate measures to protect municipal sources of drinking water by implementing mandatory re-inspections of systems within protection zones of municipal well heads and surface water intakes. The Environmental Commissioner's Annual Report (2011/2012) recommends expansion of mandatory source water protection septic system re-inspection programs as follows:

> *The ECO urges the Ontario government to expand the reach of the septic systems re-inspection program to areas that are ecologically vulnerable to loadings of nutrients, especially phosphorus. Such areas might include heavily developed cottage lakes and oligotrophic watersheds. Both Conservation Ontario in 2010 and the Advisory Panel on Ontario's Drinking Water Stewardship Program in 2007 recommended expanding efforts beyond municipal wellhead areas.*

We agree with the ECO's assessment in expanding mandatory re-inspections to additional areas, but we believe that still more needs to be done. By limiting the mandatory inspections to the specified

areas at the outset of new programming, the province has improved the knowledge base of affected municipalities and system owners about the impacts of system operation and maintenance. This represents just a small fraction of the systems in the province, and we need to ensure that the Source Water Protection Program (SWPP) is not sending a confusing message that it is only systems in these areas that need to be of concern. We support the goals and the efforts of source water protection and the Lake Simcoe Protection Act, and identify that it was an adequate starting point for introducing maintenance inspection criteria and programs for Ontario. The mandatory re-inspection programs do not represent a provincial management structure for all onsite systems. We believe that the opportunity to set a clear path for sustainable proactive maintenance verification is still critically required.

These substantial efforts are justified by the importance of protection of our environment and public health. Ontario deserves policy and regulation that protects our most precious natural resources and is able to manage our built infrastructure across the province irrespective of the scale of the systems. If the Ministry of Transportation can manage roads, licensing of all drivers and vehicles for public safety, surely we can collaborate to help the MMA and MOECC register and manage onsite septic systems for public safety and environmental protection.

The requested review is consistent with the ministries' Statements of Environmental Values

Our request for review is consistent with the MMA's Statement of Environmental Values (SEV). MMA's SEV states:

> *"Promoting Building Safety, Accessibility and Energy Efficiency: The Ministry of Municipal Affairs and Housing, through the Building Code Act, 1992 and the Building Code, will support a regulatory system that enhances environmental integrity and resource conservation."* https://www.ebr.gov.on.ca/ERS-WEB-External/content/sev.jsp?pageName=sevList&subPageName=10006

Ensuring adequate oversight of operation and maintenance of onsite septic systems is important to a regulatory system that enhances environmental integrity. In particular, assessing whether another ministry is better suited to such oversight falls directly under MMA's SEV in this regard.

Our request for review is consistent with MOECC's SEV, which includes commitments to: adopting an ecosystem approach, consideration of cumulative effects, using a precautionary, science-based approach, and placing priority on preventing pollution and minimizing the creation of pollutants that can adversely affect the environment. Further, the MOECC's SEV commits to striving for continuous improvement and effectiveness through adaptive management in planning and management for environmental protection. https://www.ebr.gov.on.ca/ERS-WEBExternal/content/sev.jsp?pageName=sevList&subPageName=10001

The requested review will not require significant ministerial resources

The requested review will not require significant ministerial resources.
We believe that a review directed at considering whether and how to transfer oversight of the operation and maintenance of onsite septic systems from MMA to MOECC will not require significant commitment of ministerial resources.

The requested review was considered in the 2012 Building Code Review

Although the Building Code is regularly reviewed in Ontario, during the last review the issue of operation and maintenance of onsite septic systems was discussed and endorsed by the Technical Advisory Committee, but was declined by MMA. This resulted in the letter previously referenced from Minister Bill Mauro, which stated that he has "always felt that there are sufficient protections in place to mitigate against septic system failures". As indicated above, the potential harm that will result from a failure to consider a comprehensive maintenance management strategy of onsite septic systems warrants consideration of a shift in oversight from MMA to MOECC at this time.

APPENDIX 1:

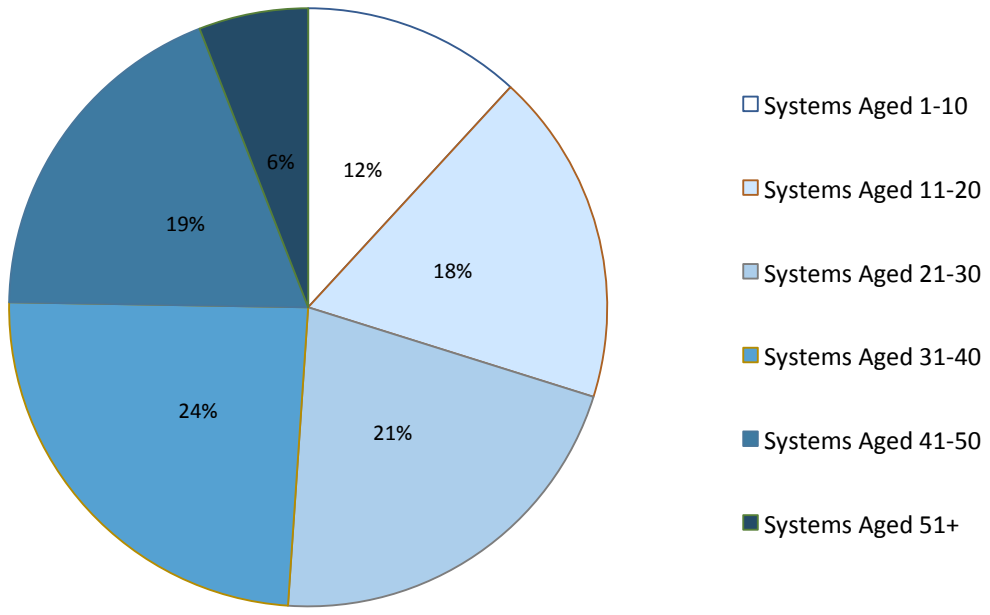
ESSE INSPECTIONS DATABASE ANALYSIS

The following analysis and findings are based on a data set provided by ESSE Canada. The data set represents inspections conducted in a one-time fee-for-service arrangement with over 370 clients between 2015 through to 2017. ESSE Canada has no vested interest in the outcomes of this analysis, other than to provide relevant and recent septic system condition information in the province of Ontario.

GENERAL OVERVIEW OF FINDINGS

In order to better understand the age profile of septic systems in Ontario, 6 age categories were established. The systems within the ESSE Canada data set were then categorized accordingly.

SYSTEM AGE PROFILES



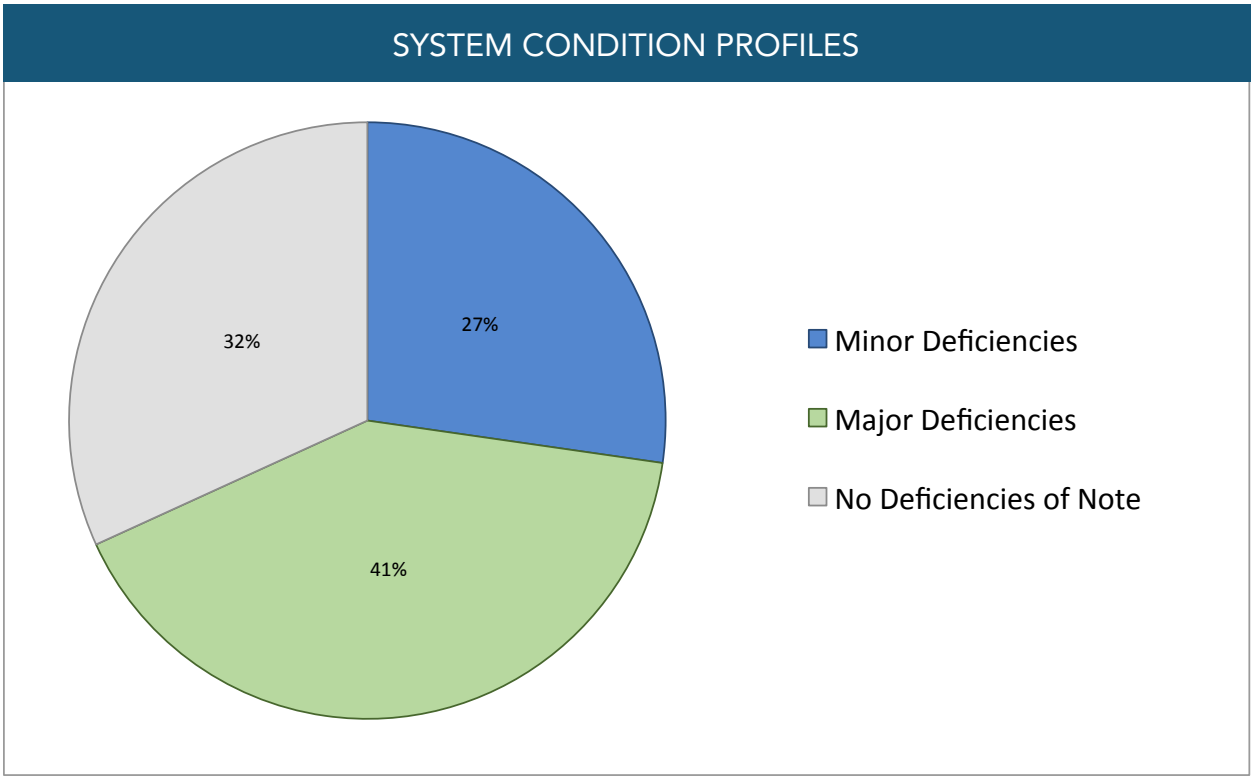
Category 1	1-10 Years
Category 2	11-20 Years
Category 3	21-30 Years

Category 4	31-40 Years
Category 5	41-50 Years
Category 6	51+ Years

It was determined that a vital portion of the interpretation of this data would require an assessment of system condition and performance deficiencies. Deficiencies were categorized according to severity into two defined groups, minor deficiencies and major deficiencies. A third category for system conditions representative of those in good repair was also included.

SYSTEM CONDITIONS ASSESSMENT

Of the 373 independent condition inspections, it was found that 68% of systems had either minor or major deficiencies. The remaining 32% were found in good repair with no deficiencies of note.



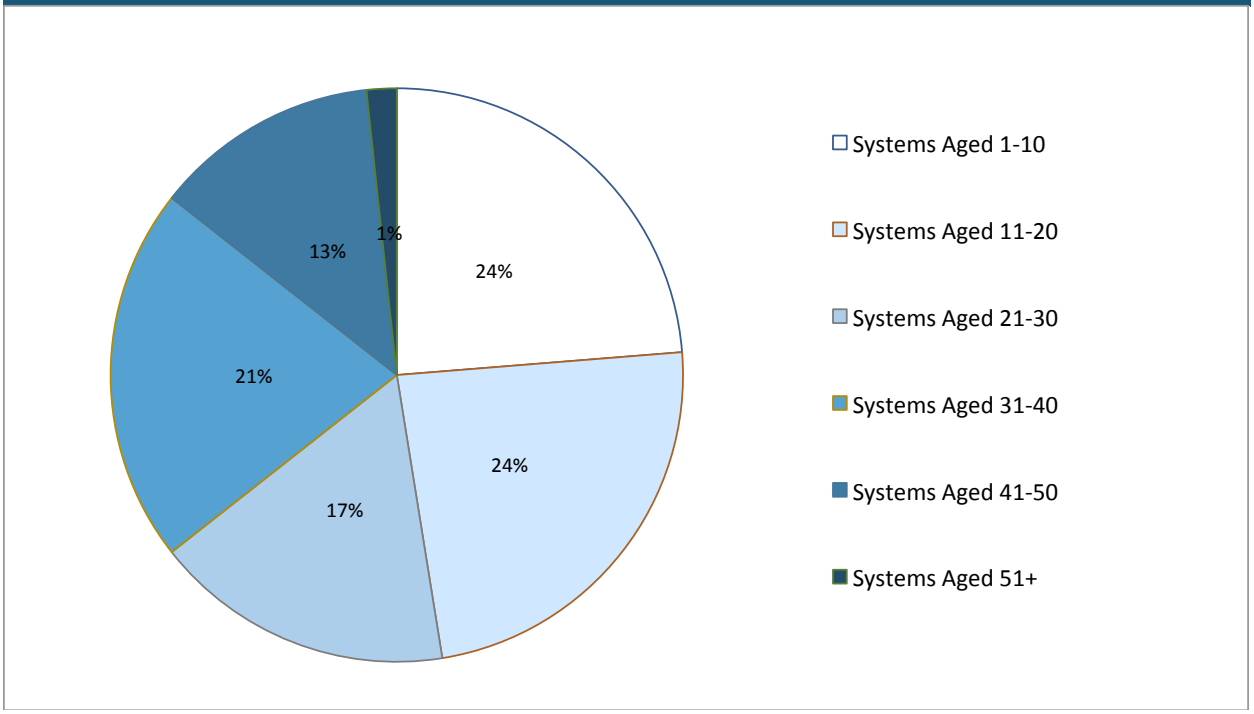
Category 1	**No Deficiencies of Note:** No impediments to function or performance at the time of assessment
Category 2	**Minor Deficiencies:** Functional but required repairs or upgrades in order to ensure performance
Category 3	**Major Deficiencies:** Deficient in significant or extreme ways, impeding function and performance

Roughly one-third (32%) of the systems inspected were found to be in good repair with no deficiencies of note, with no impediments to function or performance at the time of assessment.

ASSESSMENT OF SYSTEMS WITH NO DEFICIENCIES NOTED

Of the 119 independent condition inspections, it was found that only 1% of systems were found to be older than 51 years. A substantial portion of the remaining systems in good repair were found to be less than 20 years old.

AGE PROFILES FOR SYSTEMS WITH NO DEFICIENCIES OF NOTE



Category 1	1-10 Years
Category 2	11-20 Years
Category 3	21-30 Years

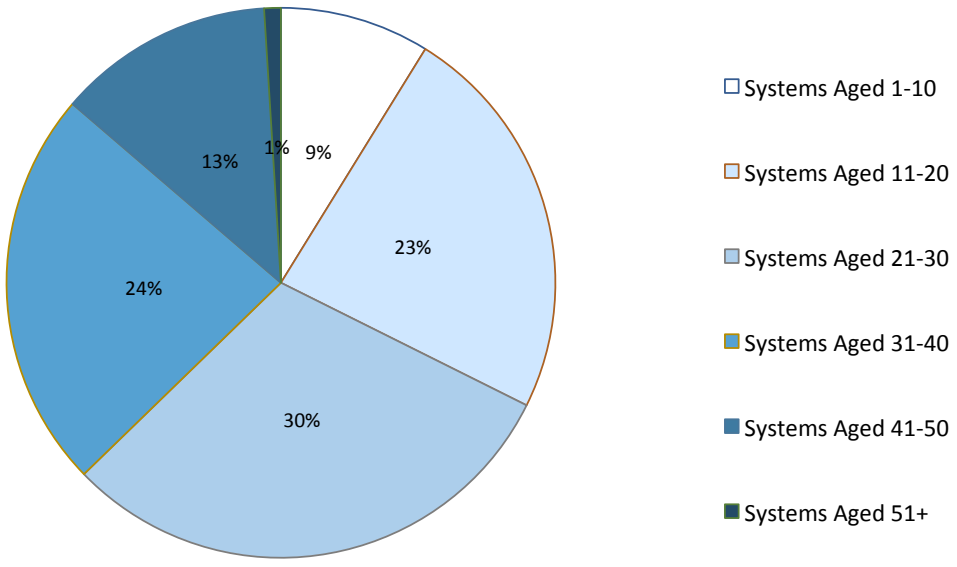
Category 4	31-40 Years
Category 5	41-50 Years
Category 6	51+ Years

Just under one-third (27%) of the systems inspected were found to have minor deficiencies. These septic systems were found to be functional, however required repairs or upgrades in order to ensure performance and prevent unnecessary damage or deterioration.

ASSESSMENT OF SYSTEMS WITH MINOR DEFICIENCIES

Of the 102 independent condition inspections, it was again found that only 1% of systems were found to be older than 51 years. Over 50% of the remaining systems with minor deficiencies were found to be between 11-30 years old.

AGE PROFILES FOR SYSTEMS WITH MINOR DEFICIENCIES



Category 1	1-10 Years
Category 2	11-20 Years
Category 3	21-30 Years

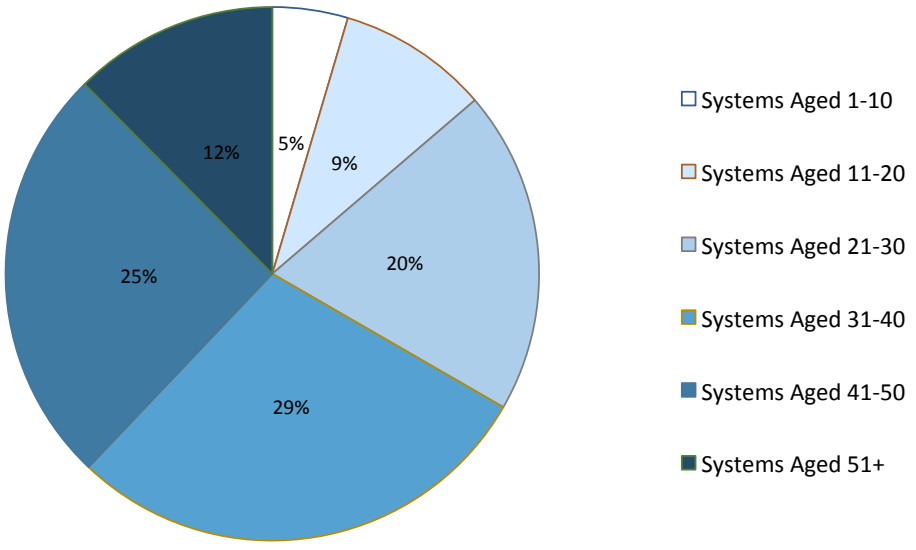
Category 4	31-40 Years
Category 5	41-50 Years
Category 6	51+ Years

Under half (41%) of the systems inspected were found to have major deficiencies. These septic systems were found to be deficient in significant or extreme ways, impeding their function and performance. System replacement was typically recommended to the client.

ASSESSMENT OF SYSTEMS WITH MAJOR DEFICIENCIES

Of the 153 independent condition inspections, only 5% of systems were found to be less than 10 years old. Over 65% of the remaining systems with major deficiencies were found to be older than 31 years.

AGE PROFILES FOR SYSTEMS WITH MAJOR DEFICIENCIES



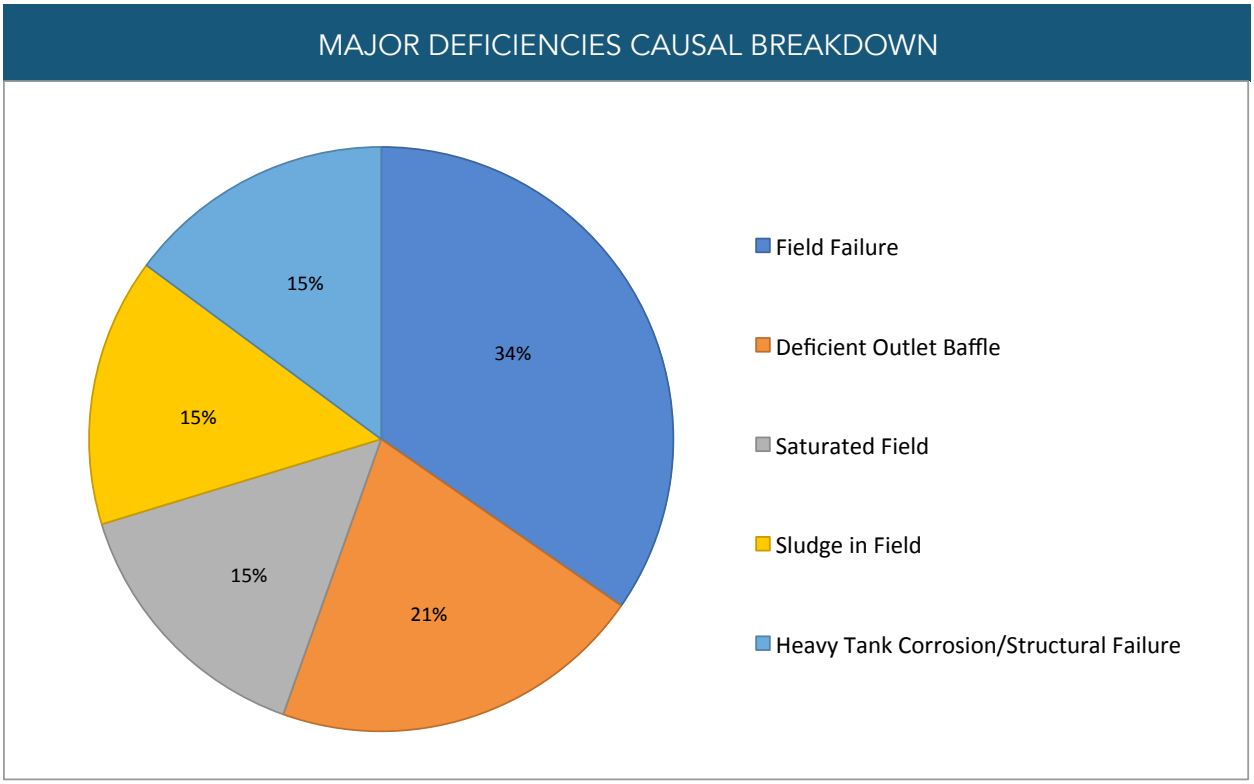
Category 1	1-10 Years
Category 2	11-20 Years
Category 3	21-30 Years

Category 4	31-40 Years
Category 5	41-50 Years
Category 6	51+ Years

Under half (41%) of the systems inspected were found to have major deficiencies. These septic systems were found to be deficient in significant or extreme ways, impeding their function and performance. For remedial action, system replacement was typically recommended to the client.

ASSESSMENT OF SYSTEMS WITH MAJOR DEFICIENCIES

Of the 153 independent condition inspections, only 5% of systems were found to be less than 10 years old. Over 65% of the remaining systems with major deficiencies were found to be older than 31 years. In the chart below, the top 5 major deficiency types are identified.



Category 1	Field Failure (34%)
Category 2	Deficient Outlet Baffle (21%)
Category 3	Saturated System Fileld (15%)
Category 4	Sludge in System Field (15%)
Category 5	Heavy Tank Corrosion and/or Structural Failure (15%)

APPENDIX 2:

WSP INSPECTIONS DATABASE ANALYSIS

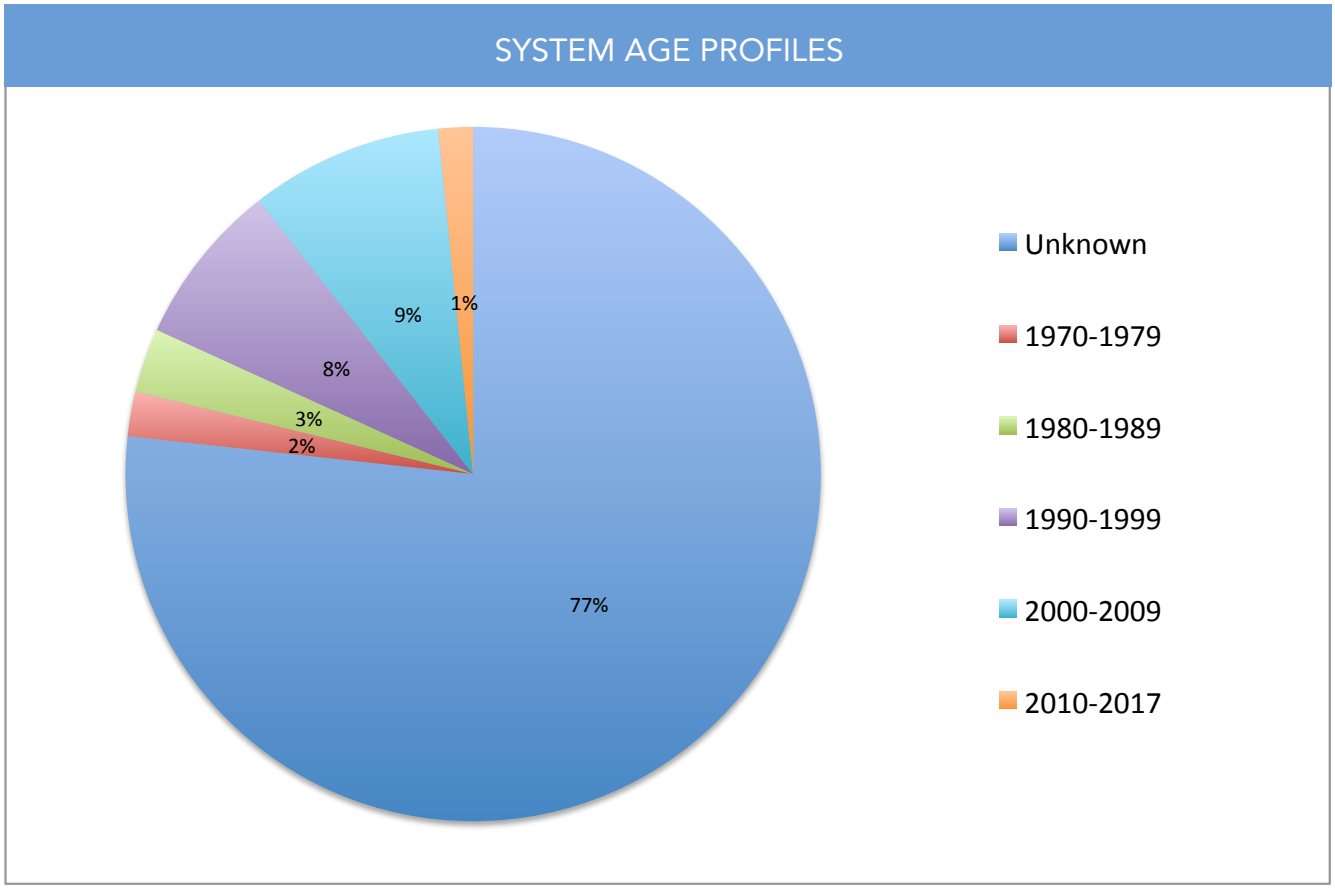
WSP INPSECTIONS DATABASE ANALYSIS

FEBRUARY 2018

The following analysis and findings are based on a data set provided by WSP. The data set represents re-inspection programs at various townships at conducted at approximately 7667 individual properties, between 2013 through to 2017. WSP has administered Sewage System Maintenance Inspection Programs on behalf of the Townships requesting the program, either through the requirements of the mandatory inspection programs (every 5 years) or through a discretionary program. Townships provide WSP with the available permit records at the outset of the program to support the inspection process, and WSP conducted an on-site inspection of each of the properties included in this data summary. WSP has no vested interest in the outcomes of this analysis, other than to provide relevant and recent septic system condition information in the province of Ontario.

GENERAL OVERVIEW OF FINDINGS

In order to better understand the age profile of septic systems in Ontario, age categories were established based on the information collected in scope of the program.



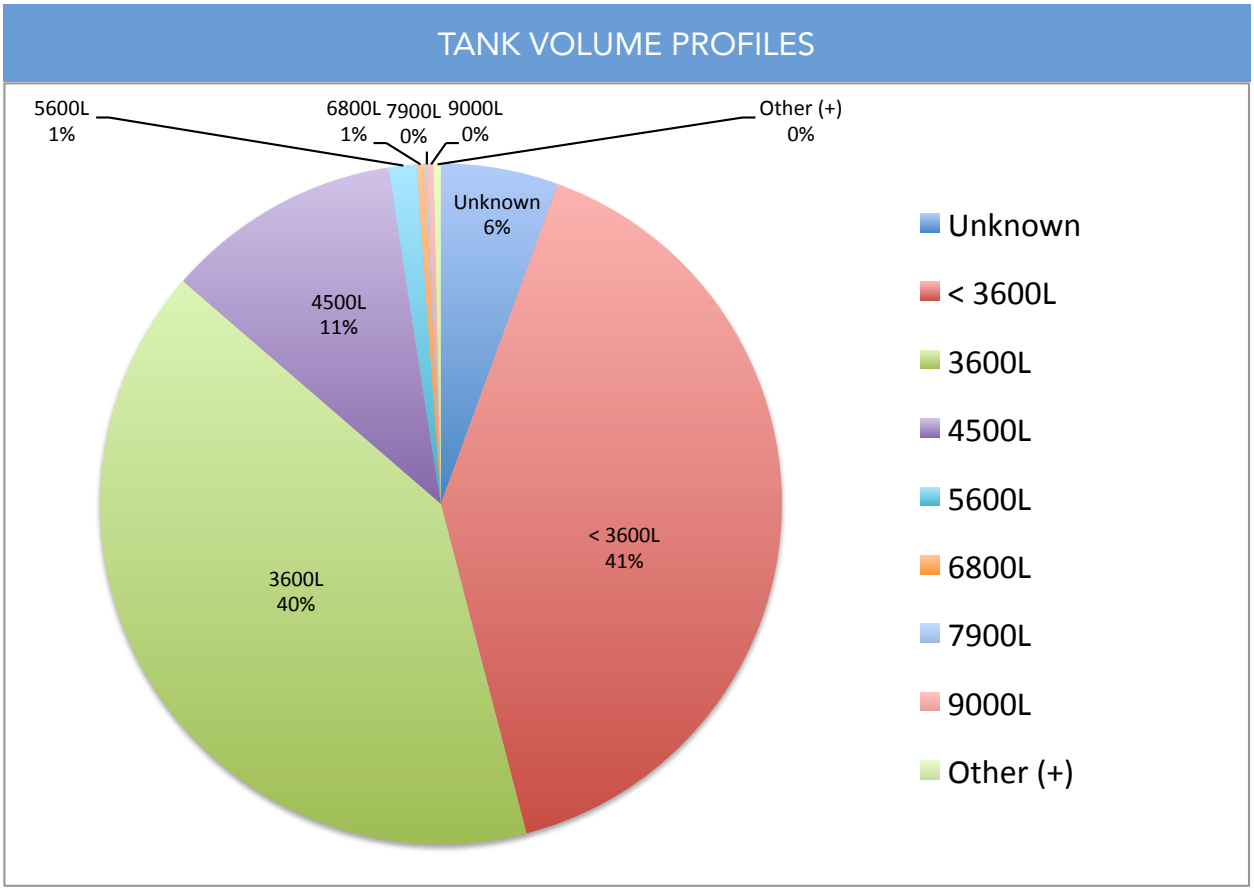
Unknown Age	77%
1970-1979	2%
1980-1989	3%

1990-1999	8%
2000-2009	9%
2010-2017	1%

An important portion of the interpretation of this data would require an assessment of system tank volumes. These were categorized into commonly used volumes recognized by industry. The minimum size (or volume) required and produced today is 3600L. Tanks smaller than 3600L are evidence of a much older system that would have been installed a number of decades ago.

TANK VOLUME ASSESSMENT

Of the 7,669 systems inspected, it was found that 81% of systems had 3600L or lesser of volume capacity. The remaining 29% were found to fall into slightly larger tank categories.



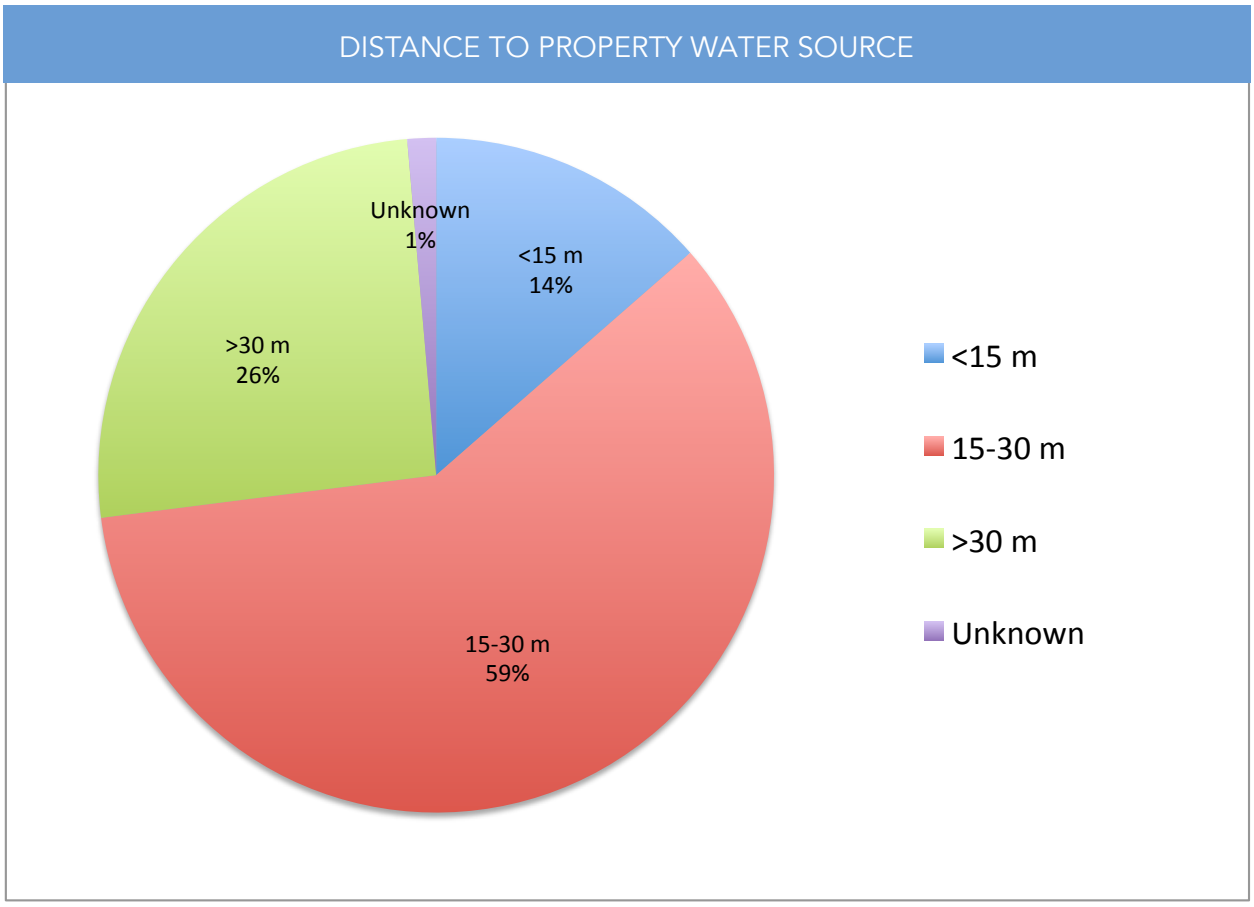
< 3600L	41%
3600L	40%
4500L	11%
Unknown	6%

5600L	0.5%
6800L	1%
7900L	0.5%
Other +	0.5%

Wastewater treatment systems and septic systems play an important role in rural water protection strategies. Drinking water and household source water are of particular note, due to the risks posed on human health where sewage contamination has an has an effect on the drinking water source. Existing regulations require that water sources have a minimum distance from the onsite wastewater system of 15m for vulnerable water sources and 30m for others.

ASSESSMENT OF DISTANCES TO WATER SOURCE

It was found that 59% of drinking water sources were between 15-30m from the onsite system, and almost 15% were within 15m. The majority of the remaining properties were found to have more than 30m of separation. In general, approximately 25% of properties inspected were serviced by water sources that were too close to the septic system based on building code standards.

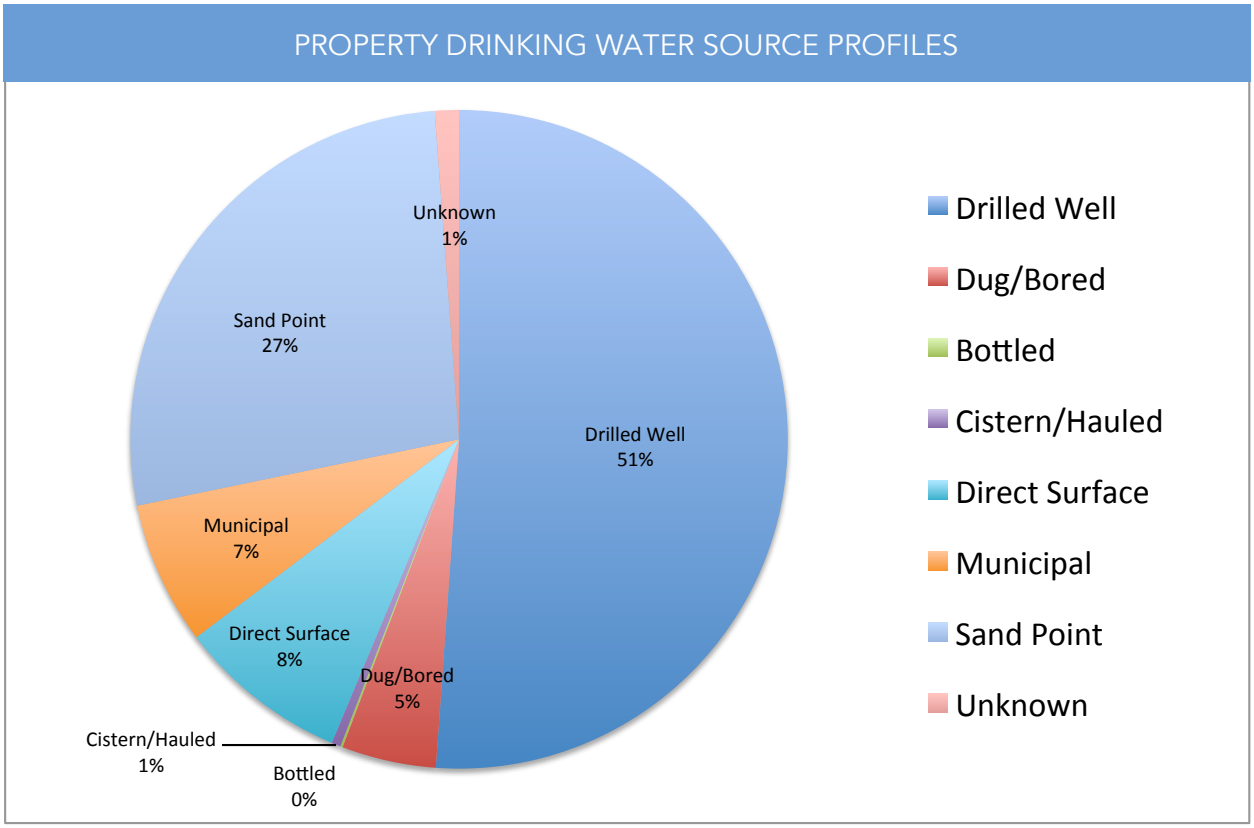


Less than 15m	Less than 15m between the water source and the septic system.
Between 15-30m	15-30m between the water source and the septic system.
More than 30m	More than 30m between the water source and the septic system.
Unknown	Distance between the septic system and water source was not confirmed.

The scope of WSP's data and information collection included identifying the type of water supply provided on the respective property. Drilled well with air-tight and vermin-proof casings to the appropriate depth are the vulnerable of the drinking water sources.

ASSESSMENT OF DRINKING WATER SOURCES

It was found that 51% of drinking water sources were drilled wells, presumably with the appropriate and secure casings required. 27% of water sources were found to be sand point wells, which are considered vulnerable to groundwater contamination.



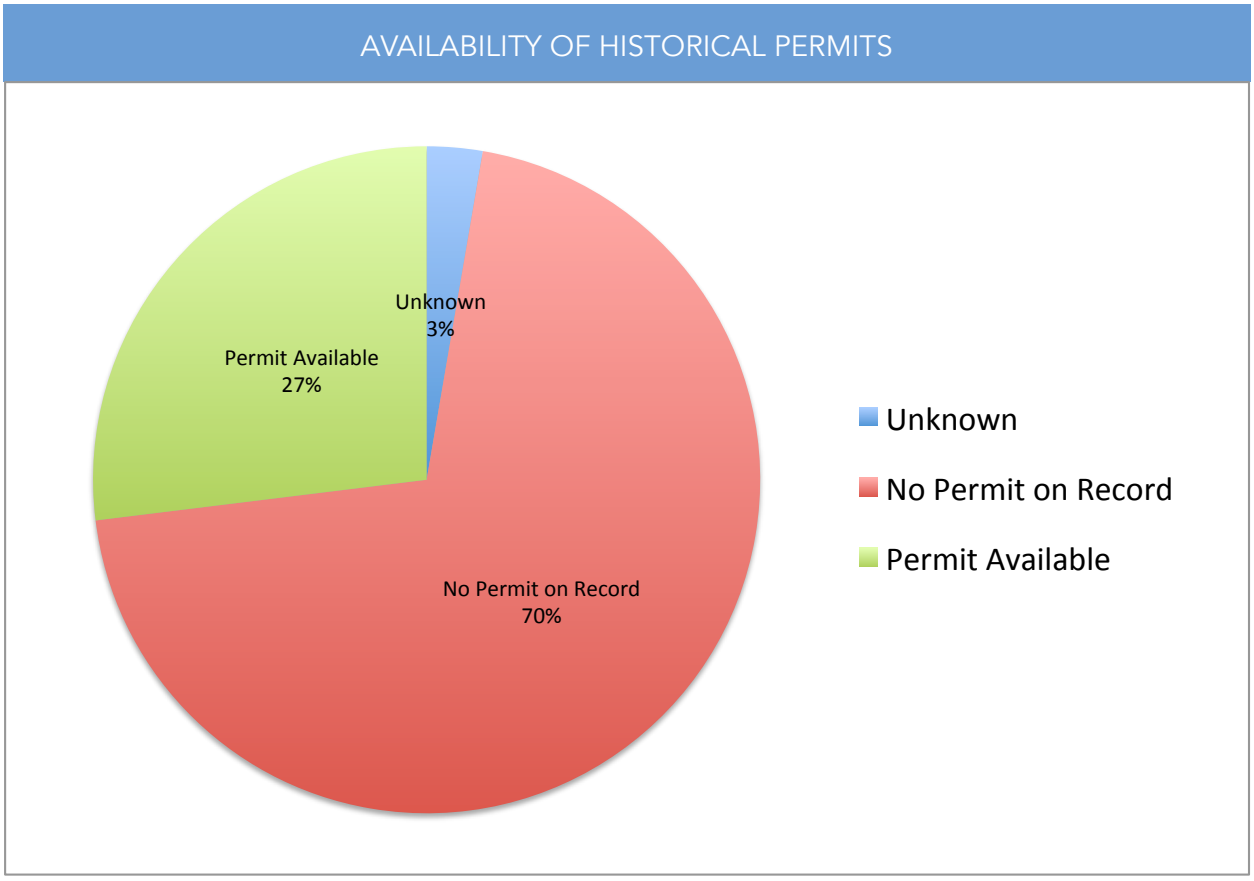
Drilled Well	51%
Dug/Bored Well	5%
Bottled Water	0.5%
Cistern/Hauled	1%

Direct Surface	8%
Municipal	7%
Sand Point	27%
Unknown	1%

Septic systems have been regulated by permits issued under Part 8 of the Ontario Building Code since 1997. Prior to that, permits were administered primarily through the local Health Units. There are many systems for which permit records are no longer available, or never existed in the first place. There is a strong correlation between a lack of records and system age, i.e. systems older than 20 years tend to lack appropriate records and documentation.

ASSESSMENT OF PERMIT AND RECORD AVAILABILITY

It was found that only 27% of the systems inspected had permit documentation available, and the remaining 73% of systems have no records of what is installed and when it was installed. Given that the functional life of a septic system is typically in the rage of 25 to 40 years (depending on use and maintenance practices), these statistics are a strong indicator of the general age of the existing systems in Ontario, that they are potentially approaching, or exceeding their expected functional life.

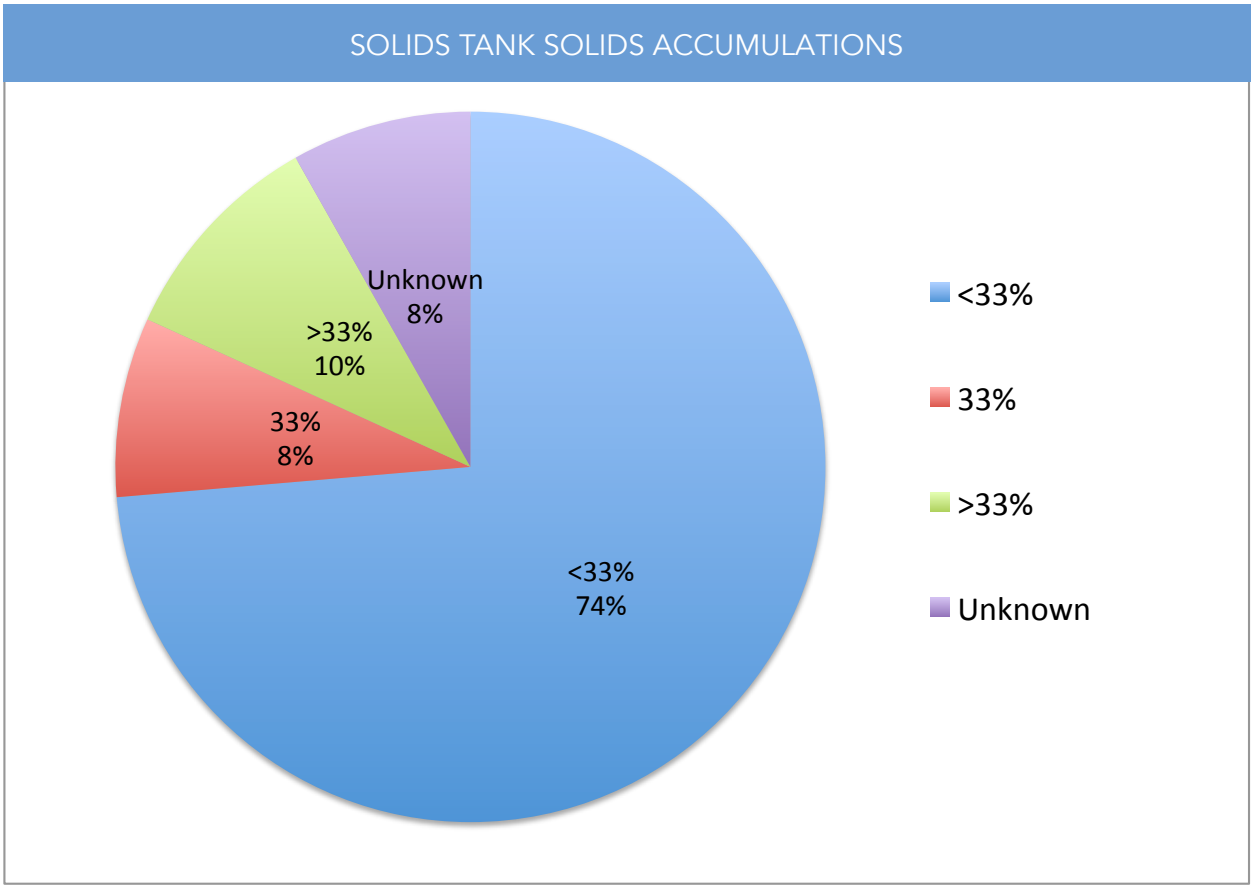


Unknown	Permit availability could not be confirmed (3%)
No Permit	No permit on record available (70%)
Permit Available	A historical permit or record was available through the municipality (27%)

The most reliable method of determining whether or not a system requires a pump-out is by conducting a solids accumulation measurement. Existing regulations state that when the solids within the septic tank occupy one-third of the working capacity, then a pump out is required in order to ensure the system continues to function optimally.

ASSESSMENT OF SYSTEM ACCUMULATIONS

It was found that 74% of systems inspection had less than 33% of solids accumulations occupying the septic tank. Of the remaining known findings, 18% were either due for a pump out, or over-due for a pump out.

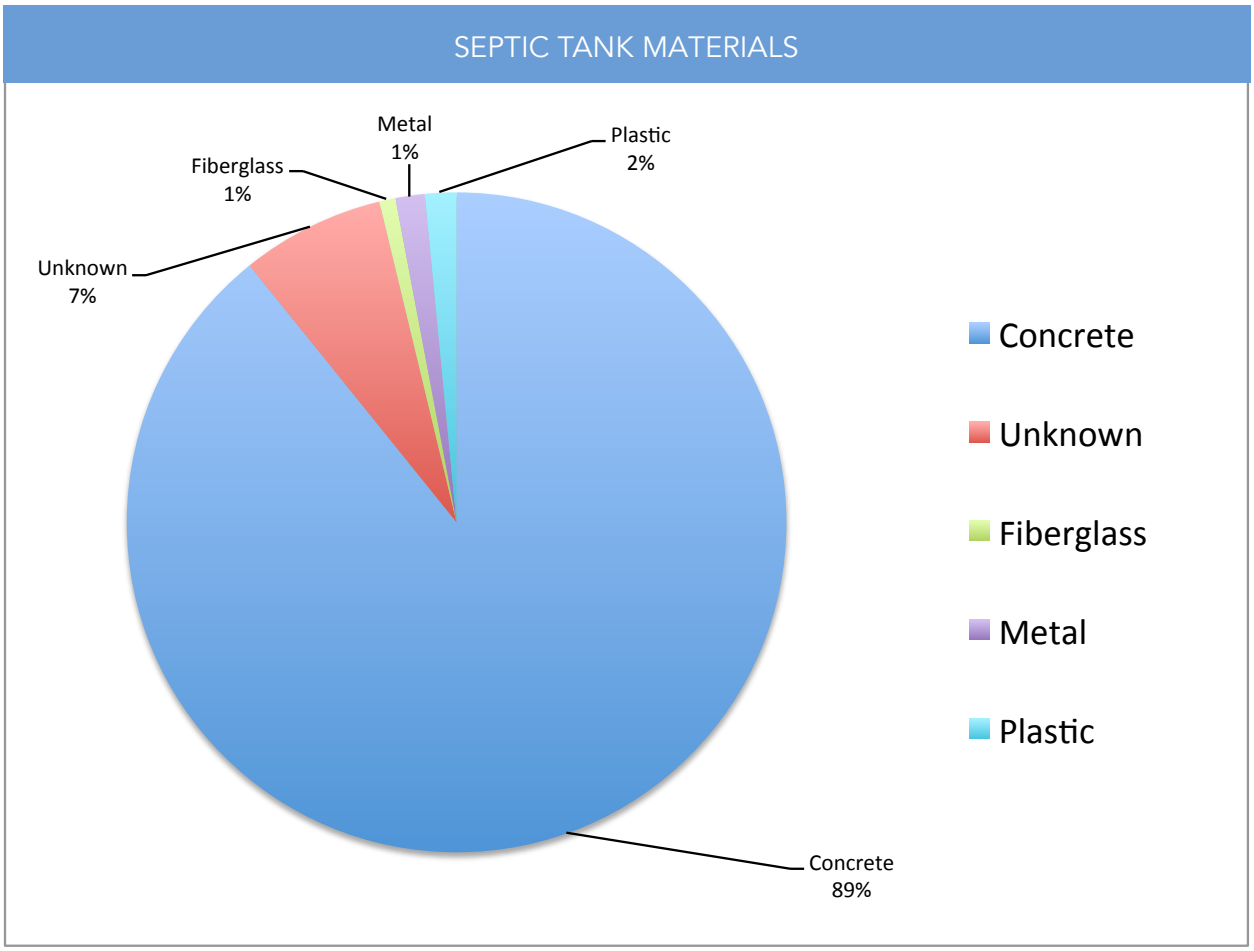


Unknown	Unknown (8%)
At 33%	Pump-out due (8%)
Greater Than 33%	Pump-out over due (10%)
Less Than 33%	No pump out required (74%)

While plastic and concrete tanks have become industry standards, metal tanks have been installed across Ontario in various locations historically. Although metal is structurally able to support the liquid volume, the gases formed inside septic tanks corrode the interior of metal tanks causing breakouts, leakage or tank collapse.

ASSESSMENT OF SEPTIC TANK MATERIALS

The vast majority of tank materials were found to be constructed of concrete. Though only comprising 1% of tank materials identified, metal tanks are still in use are highly vulnerable to corrosion and contamination. Of the 5616 identified concrete tanks, 16% were observed to be showing signs of "spalling" or deterioration, indicating that replacement will be required in the near future.



Unknown	51%
Concrete	46%
Fiberglass	1%

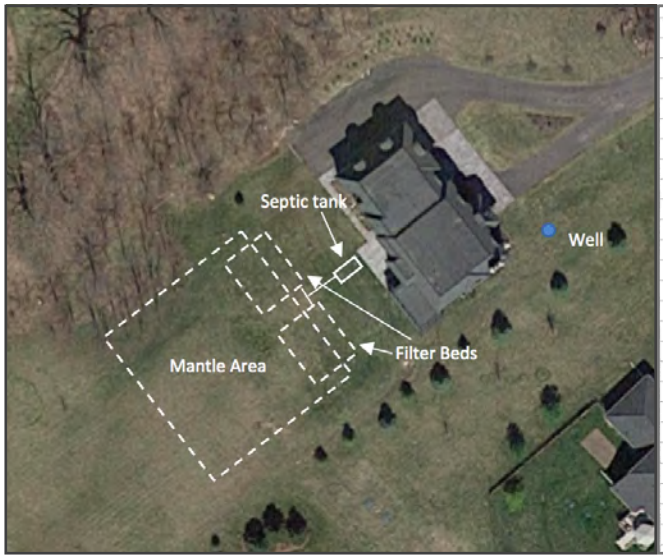
Metal	1%
Plastic	2%

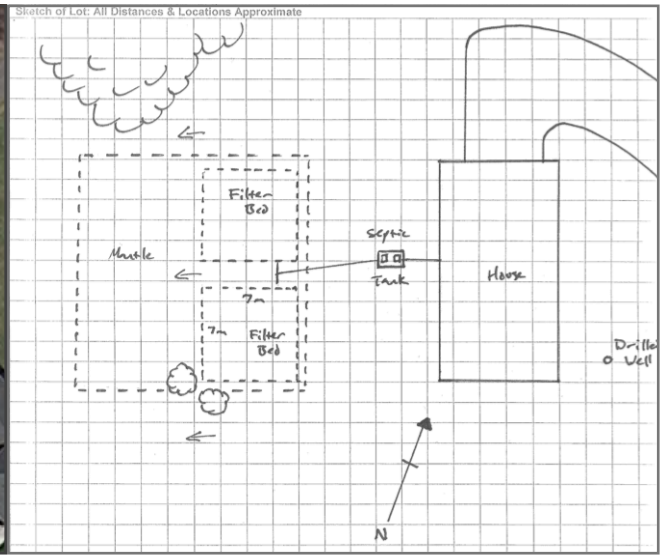
APPENDIX 3:

SEPTIC SYSTEM CONDITION CASE STUDY

Case Study #1

System in Substantial Compliance Inspection
Background Information
Reason for Inspection: Property Transaction **Approximate age of system:** 5 years **Past/current occupancy:** 2 **Proposed Occupancy:** 3-5
Observations: Newer system installation (~5 years old), Watertight risers to grade over both tank access ports Effluent level in tank appropriate (no evidence of previously elevated levels) Two (2) effluent filters installed at tank outlet Gravity discharge to twin filter beds Good grading around beds to direct surface water away Camera inspection of outlet pipe clean and free of significant sludge/solids No elevation of liquid level in tank or in pipe during tracer dye & loading test
Recommendations: - Monitor solids accumulation in septic tank - Clean effluent filters on routine schedule - Sign maintenance agreement with service provider





Case Study #1 Photos

Case Study #2

Failed System Inspection

Background Information

Reason for Inspection: Property Transaction
Approximate age of system (years): 45
Past occupancy: 2 Full-time
Current or proposed occupancy: Unknown

Observations:

Homeowner had not experienced any indications of septic system failure.

Leaching field saturated as shown by test pit excavation into a single absorption trench.

Discharge pipe saturated as shown by sewer camera inspection. Green tracer dye visible.

Green tracer dye visible within drainage swale on property border, indicating discharge of untreated sewage to the ground surface.

Outcomes:

Full system replacement has since occurred.

Case Study #2 Photos

Case Study #3

'Tricky' System Inspection

Background Information

Reason for Inspection: Property Transaction
Approximate age of system (years): 25-30
Past occupancy: 2, full-time
Current or proposed occupancy: Seasonal cottage – shared between two families

Observations:

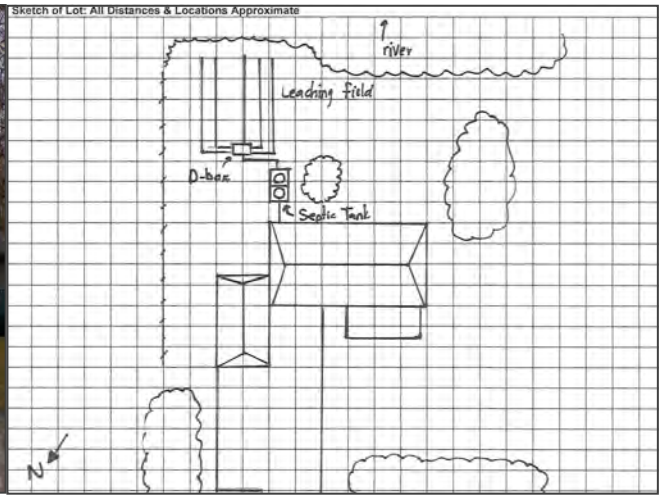
This inspection was conducted for the potential purchaser of property, and was previously advised by her agent and homeowner that an inspection was not necessary as the municipality had completed a mandatory re-inspection two years prior and there were no issues. A report was provided for review.

During the inspection, the septic tank concrete was noted to be significantly deteriorated presenting a health and safety risk. The camera inspection of the outlet pipe leaving the tank identified a small concrete distribution box which none of the parties were aware of. The distribution box was uncovered and lid was removed. The concrete of the box was substantially deteriorated and was full of sludge, impeding the flow of effluent to several of the distribution lateral lines.

A camera inspection of each line, along with a tracer dye and loading test showed that the majority of effluent was discharging to only 2 of the 6 total lines. This was setting the system up for hydraulic overload and premature failure even though to the untrained eye, no "obvious" indications of malfunction or failure would be evident without a camera inspection.

Recommendations:

- Proactively replace the septic tank and distribution box
- Mechanically flush the distribution laterals and treat with a biological remediation product



Case Study #3 Photos

Case Study #4

Non-Residential Forensic Assessment Inspection
Background Information
Reason for Inspection: Forensic Assessment of Failing System **Approximate age of system:** Unknown **Type of Facility Serviced:** Privately owned and operated restaurant and store **Daily Design Flow:** 9,500 L/day
Observations: Documented occurrences of effluent breakout into a nearby ditch Existing tanks showed sign of concrete deterioration Observed infiltration of groundwater into the siphon tank Leaching bed was saturated, pipes full of sludge Significant biomat buildup in stone trenches and surrounding soil
Outcomes: Recommended replacement of leaching bed

Case Study #5

Non-Residential Forensic Assessment Inspection
Background Information
Reason for Inspection: Forensic Assessment of Failing System **Approximate age of system:** 45 Years **Type of Facility Serviced:** Elementary School **Daily Design Flow:** 3880 L/day
Observations: Documented occurrences of effluent breakout at ground surface Parts of leaching bed saturated. Significant proportion of clay tiles were completely blocked with soil/sludge. Sandy soils most likely allowed the bed to continue to dissipate the effluent for many years prior to discovery of the clogged tiles.
Outcomes: Replacement system has since been installed.

Case Study #5

Case Study #6

Non-Residential Forensic Assessment Inspection
Background Information
Reason for Inspection: Forensic Assessment of Failing System **Approximate age of system:** 9 Years **Type of Facility Serviced:** Factory (employee washrooms) **Daily Design Flow:** 4,000 L/day
Observations: Evidence of past breakout of effluent to a nearby roadside ditch. Leaching bed was found to be completely saturated despite sandy, well draining soils. Significant sludge and biomat build-up in trenches and surrounding soil.
Outcomes: Replacement system has since been installed.

APPENDIX 4:

MINISTER BILL MAURO COMMUNICATION

Dear Heads of Council:

I am writing today to inform you that the Ministry of Municipal Affairs will not be moving forward with the proposals requiring regular inspections, pumping out of septic tanks and keeping of the septic tanks and treatment units' maintenance records put forth in Phase One of the Building Code consultation.

The consultation process provided municipalities, industry, subject matter experts and members of the public with an opportunity to offer their input and views on the proposed changes. The Ministry welcomed the feedback and I was pleased with the frank responses with respect to septic systems.

I have always felt that there are sufficient protections in place to mitigate against septic system failures. Since 1997, there has been a requirement for owners of septic tanks and treatment units to clean out their systems when the working capacity is one-third full. This will continue to be in effect.

I value the input of our municipal partners. I've heard from many of you on this issue and I thank you for your input.

Sincerely,

Original signed by

Bill Mauro
Minister

Madame, Monsieur,

Je vous écris aujourd'hui pour vous informer que le ministère des Affaires municipales ne donnera pas suite aux propositions, formulées dans le cadre de la première phase de la consultation sur le Code du bâtiment, d'exiger la vidange et l'inspection régulières des fosses septiques ainsi que la tenue de registres d'entretien des fosses septiques et des unités de traitement.

Le processus de consultation a permis aux municipalités, à l'industrie, aux spécialistes en la matière et aux membres du public de faire part de leurs commentaires et points de vue sur les changements proposés. Le ministère a été heureux de la réponse à la consultation et je suis satisfait d'avoir reçu des réponses franches concernant les systèmes septiques.

J'ai toujours eu le sentiment qu'il existe des protections suffisantes pour atténuer les risques de défectuosités des systèmes septiques. Depuis 1997, les propriétaires de fosses septiques et d'unités de traitement sont tenus de faire vidanger leurs systèmes lorsque ceux-ci atteignent le tiers de leur capacité utile. Cette exigence continuera de s'appliquer.

J'apprécie la contribution de nos partenaires municipaux. Vous êtes nombreux à nous avoir fait part de votre opinion sur cette question et je vous remercie de votre contribution.

Sincères salutations,

Le ministre,

Orignal signé par

Bill Mauro

Hannah Evans - Director
Building and Development Branch, Ministry of Municipal Affairs
777 Bay Street, 16th Floor | Toronto ON M5G 2E5
☎ 416-585-6399

Application for Review Checklist

Before you send your Application for Review and supporting documents to the Environmental Commissioner of Ontario, make sure you:

- [X] Complete the forms for Applicant Number One **AND** Applicant Number Two, including the signatures of both applicants
- [X] If you are a corporate applicant, provide the proper legal name of the corporation **AND** complete the declaration of incorporation in Ontario
- [X] Make it clear what *existing* policy, act, regulation or instrument you want reviewed
  - AND/OR -
  Make it clear that you want the Minister to review the need for a *new* policy, act, or regulation
- [X] If you are seeking a review of an *existing* policy, act, regulation or instrument:
  a. include the section number(s) or parts of the policy, act, regulation or instrument that you would like to be reviewed; **AND**
  b. double check that the section(s) or parts of the policy, act, regulation or instrument that you seek to have reviewed is/are subject to an *EBR* Application for Review
- [X] If you are seeking a review of the need for a *new* policy, act or regulation, double check that the ministry that would be responsible for such a policy, act or regulation is subject to an *EBR* Application for Review
- [X] Explain why the review that you are requesting is necessary to protect the environment
- [X] Provide a summary of the evidence that supports your belief that the review you are requesting should be undertaken in order to protect the environment
- [X] Address your original Application for Review to:
  The Environmental Commissioner of Ontario
  1075 Bay Street, Suite 605
  Toronto, ON M5S 2B1
- [X] Retain a copy of your Application for Review and supporting documents for your own records

Disponible en français

Progressing nicely

BY TOM VAN DUSEN
The writer lives in Russel County
tomvandusen99@yahoo.com

It seems like only a few years have passed but it has been more than a decade since I joined the Raisin-South Nation Source Protection Committee as a representative of the general public.

Some 19 such regional committees were established under the Clean Water Act with a mandate to do everything possible to prevent another Walkerton E. coli drinking water tragedy which, in 2000, claimed seven lives and sickened hundreds of other residents.

To me, joining the committee was a valid way to step beyond freelance farm writing, to move from observer to actually playing a role in the process. At the time, there was discomfort in the agricultural community that the source protection thrust would get in the way of accepted farming practices.

If you recall, an intake well located on a farm was originally blamed for Walkerton and it took years to clear the record. SPCs were required to include agricultural representatives and Raisin-South Nation always boasted several; their presence and a non-aggressive approach helped our committee develop a constructive relationship and widespread buy-in with regional farmers.

Today, Source Protection Committees are winding down to occasional meetings and annual progress reports to the Ministry of Environment and Climate Change. The workload is easing because the committees have completed the task of identifying municipal water delivery systems and implementing protective zones around their sources. The committees are now largely in maintenance mode.

The first annual progress reports to the ministry are due in May. Raisin-South Nation SPC is among the group of 19 drafting its report which members got a first look during a recent meeting. We were pleased to hear Project Manager Phil Barnes observe that any threats to communal water systems have been removed or mitigated; Phil confirmed that policies implemented have been effective, appropriate and fiscally responsible.

He told committee members – and indicated in the draft report – that the regional source protection plan covering 7,000 square-km is on target to ensure that identified activities never pose a significant drinking water threat. Across the region, 170,000 of a total population of close to 260,000 rely on municipally delivered drinking water.

The only lingering drinking water issue at the moment, Phil said, is high sodium in a couple of locations.

The only lingering drinking water issue at the moment, Phil said, is high sodium in a couple of locations. While it doesn't constitute a health problem, it does impinge on quality.

The progress report asks respondents to explain any delays. In Raisin-South Nation's case, Phil indicated, there haven't been any: "We hit the ground running and did it right by developing good policies with open timelines rather than specific deadlines."

Some 18 municipalities within the region, including a portion of the City of Ottawa and the City of Cornwall, have vulnerable areas where threat elimination policies apply. All municipalities have processes in place to ensure day-to-day planning decisions conform to source protection plans.

Almost all have designated the two local conservation authorities for risk management duties, with officials screening building permits and planning applications in vulnerable areas. Municipalities are required to review and update official plans to make sure they're in line with regional source protection policies.

Since the Raisin-South Nation approach took effect, 104 risk management plans covering 218 properties have been implemented. Some 90 per cent of on-site sewage systems have been inspected in accordance with the Ontario Building Code with the vast majority found to be functioning as designed; 12 per cent required minor maintenance while two were replaced.

One aspect of the report where Raisin-South Nation committee members suggested more action was source protection awareness. While 89 Drinking Water Protection Zone signs have been installed along 400-series highways and municipal roads, members felt municipalities should do more to lift the program profile.

In wrapping up the draft report, Phil said the region's source protection success can be attributed to a coordinated and consistent effort in addressing activities listed as threats. Staff at partner conservation authorities have developed streamlined risk management practices, documentation, data systems, education and outreach materials.

He also credited a provincial municipal implementation fund which removed the burden of a possible surcharge to landowners requiring risk management action, resulting in a more expedient negotiation process.

Overall, it feels like a job well done!