A Greenbelt designation does not protect our water

We at OSRTF contend that a Greenbelt designation is not sufficient to protect water for future generations. The Ontario Soil Regulation Task Force is a not-for-profit corporation of volunteers speaking for over 20 different community and environment groups concerned about the impact of soil dumping on human health, the environment, and the water. Our members have been working with industry and three levels of government since 2010 for better regulation of the disposal or dumping of excess construction soil, commonly referred to as fill.

A commercial fill operation may involve hundreds of trucks a day depositing soil on a rural property for many years. There is a lot of soil that is disposed of in this manner. An industry association estimates the amount of soil looking for a place to be dumped, mainly in the Greater Golden Horseshoe or just beyond it, at 25 million cubic meters per year[1], enough to fill the Rogers Center (Sky Dome) to the roof 16 times over each year. The map on the next page is of soil dump sites or commercial fill operations that our members have located. The actual number of sites is unknown because there is no central registry. The concentrations seen in several areas are due to the observations of a member in that area. Note that most are in the Greenbelt.

Neighbours of these sites are upset with the truck traffic (on Bloomington Road a considerable portion of the traffic is trucks to and from one site) and the noise, mud, fumes, and road dangers they bring as well as the dust and stormwater runoff from the site. It is especially irksome for neighbours who have had their minor property improvements squashed by greenbelt regulations. However, the long term concern is for their drinking water wells. We agree whole heartedly with the following from your discussion document.

> PROTECTING WATER FOR FUTURE GENERATIONS Page 4
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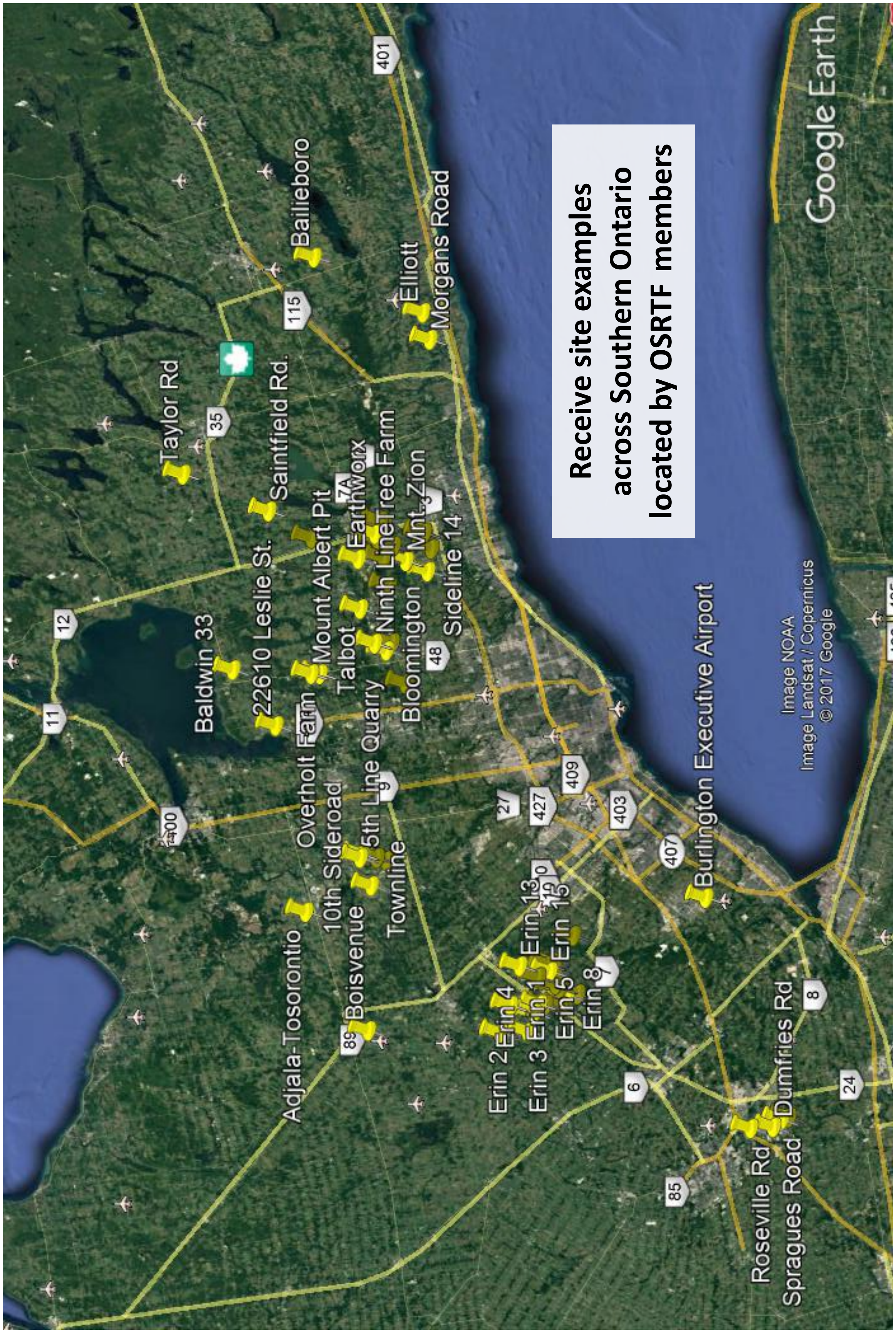
> "Pollution is a major concern for both groundwater and surface water. When contaminants such as nutrients, hydrocarbons, heavy metals, road salt, pesticides and animal waste seep into aquifers where groundwater is stored, the effects can be long term and difficult to reverse. That is why it is very important to prevent this pollution before it occurs."

We contend that the dumping of fill can be a source of contaminates that pollute the groundwater. The following pages will provide the evidence.

The discussion document says on page 5 that "The updated Greenbelt Plan and Growth Plan now contain stronger policies for protecting water resources across the GGH" by including policies that:

> (Page 30) •prohibit development and site alteration (with limited exceptions such as for infrastructure) in key hydrologic features (e.g. wetlands, permanent and intermittent streams, lakes, seepage areas and springs) and within a 30-metreminimum buffer (vegetation protection zone)

[1] 2017 UPDATE: Quantification of Excess Construction Soils in Ontario - Residential and Civil Construction Alliance of Ontario - April 2017


Receive site examples across Southern Ontario located by OSRTF members
Bailieboro
Taylor Rd
Saintfield Rd.
Elliott
Morgans Road
Baldwin 33
22610 Leslie St.
Mount Albert Pit
Overholt Farm
Talbot
EarthWorx
Ninth LineTree Farm
Mnt. Zion
Bloomington
Sideline 14
5th Line Quarry
10th Sideroad
Townline
Adjala-Tosorontio
Boisvenue
Erin 2
Erin 3
Erin 4
Erin 1
Erin 5
Erin 8
Erin 13
Erin 15
Burlington Executive Airport
Roseville Rd
Spragues Road
Dumfries Rd
Image NOAA
Image Landsat / Copernicus
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Google Earth

However this does not protect the groundwater aquifers that the rural population drinks from. We do note that the Niagara Escarpment Plan does have prohibitions against commercial fill sites and a Commission to provide enforcement. The Oak Ridges Moraine Conservation Plan does prohibit snow dumps, but not soil dumps. The implementation of these policies and plans is through the municipal governments and their by-laws and official plans but there are examples where the municipality may not have the inclination, time, expertise, or resources to update plans and by-laws and enforce them.

OSRTF and its members have identified and investigated sites where soil has been dumped in rural Ontario. These examples below demonstrate dangers to the groundwater.

Lakeridge Road: This rehabilitated gravel pit was authorized in 2010 by the Township of Scugog to receive soil for infilling that meets a Table 3 soil standard. The township did not have the expertise to recognize that the Table 3[2] categorization by the Ministry of the Environment[3] indicates the soil is not suitable for an area in which the neighboring residents are drinking from the local ground water. Investigations demanded by concerned residents identified concentrations of cyanide, conductivity, PAHs and/or VOCs in the soil that exceeded the Table 3 Standards. The cyanide concentrations in the soil are 3000 times the Table 3 limit of the revised 2011 standard and the latest draft standard is even more restrictive. The Environmental Assessment[4] ordered by MOE recommended "Additional excavation in these areas is recommended to remove the contaminated fill for disposal at an approved soil recycling or waste disposal facility" but this has not been done. Regular ground water monitoring requested by the MOE has found cyanide in one of the monitoring wells on the boundary of the property. There is a drinking water well just ½ km down flow from that well. Although the concentrations are below the danger level they have been increasing with every sample and we have been told that the groundwater monitoring program will not continue. The site is in an Area of High Aquifer Vulnerability and Protected Countryside Area of the Oak Ridges Moraine at the top of two major watersheds. The groundwater is flowing into the adjoining Natural Core Area.

Braat Farm: In 2011 a farmer near Rice Lake just outside the Greenbelt accepted loads of soil for a farm yard but became concerned when he saw debris in the soil and had it tested. Upon finding high copper levels that could be toxic to his sheep, the MOE became involved. MOE found[5] in the soil "waste matter including copper wire, coal, rubber, glass, asbestos, fireplace slag, paint chips, and cotton fibres" and "Overall, the fill material deposited on the Braat farm was contaminated with metals and organic compounds at concentrations that are likely to adversely affect the growth of some plants." The soil remediation facility providing the soil had signed a report that it was Table 2 soil going to an industrial/commercial property. But MOE[6] noted it exceeded Table 3 standards in several significant

[2] Table 3 - Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition of the Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act (MOE; March 9, 2004).
[3] MOE or Ministry of Environment and Climate Change (MOECC)
[4] Supplementary Phase II Environmental Site Assessment Report - 13471lake Ridge Road, Port Perry, Ontario Prepared By:D.L.Services Inc. Feb 15,2012
[5] Assessment of Fill Material on the Braat Farm Bailieboro, Ontario MOE Terrestrial Assessment Unit - Report 30279-2012 May 2012
[6] Provincial Officer's Report, 8312-8V6LSG, Ministry of the Environment – 2012/07/25

areas and was not suitable for an agricultural or residential property on potable ground water and as such the company was in violation of their Environmental Compliance Approval.

Bloomington: The Town of Whitchurch Stouffville and the Region of York approved the filling of an abandoned gravel pit with 1.15 million cubic meters of soil within an Area of High Aquifer Vulnerability and Natural Linkage Area of the Oak Ridges Moraine. The site is also within the town's wellhead protection area and only a few hundred meters of the wells themselves. A conference paper[7] by the Region painted a glowing picture of source site monitoring and a forested final rehabilitation. Since then the site was overfilled by 125% and then abandoned.

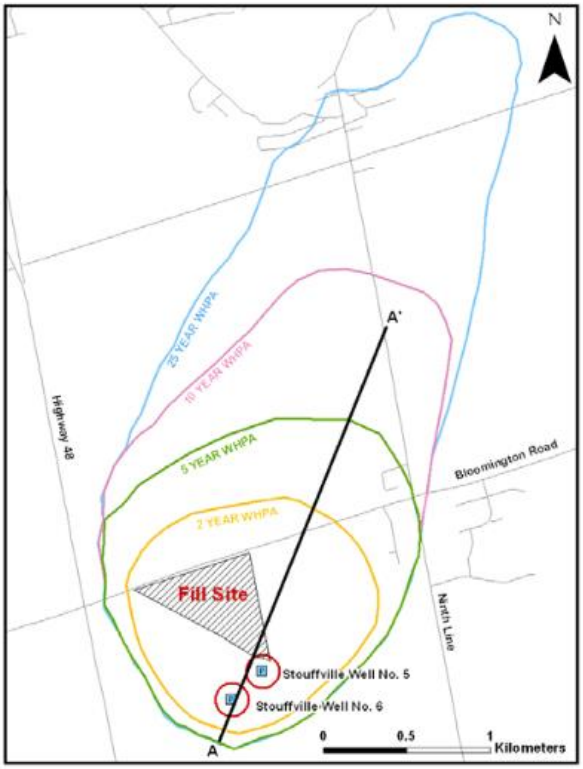

Figure 1. Stouffville Wellhead Protection Area showing Fill Site

A second gravel pit in Protected Countryside, also within the same wellhead protection area, has a permit to import soil at a rate of up to 600 trucks a day for up to 25 years.

Sideline 14: This is a rural property in Pickering where a landowner was willing to accept a few loads of fill he could use to build a parking pad on his sloped property. The company supplying the soil provided source site soil reports which indicated that the soil was Table 2, suitable for residential land on potable groundwater, and on that basis the City of Pickering issued a permit. On complaints of an oil smell, the landowner paid for soil analysis which found high levels of hydrocarbons, several times the limits of Table 2. The City ordered[8] the soil removed. Sampling of his water wells found hydrocarbons and carbon tetrachloride so the owner now drinks bottled water. Other properties just north of him have leveled off their lands to a depth of 1 to 2 meters above surrounding grade with soil from the same sources.

Tottenham Airfield: This grass strip airfield in the Natural Linkage Area of the Oak Ridges Moraine is being developed by clearing trees and accepting fill to level more than 30 hectares and then pave runways and taxiways. The filling has been going on for several years, in some areas to 7 meters of depth. The business supplying most of the soil provided written confirmation[9] that they "do not receive PCB impacted soils from their source sites. " Yet, "It is acknowledged that PCB in concentrations above those in Table 1 have been placed on the TAC property. To date, the remediation of these exceedances have been addressed with exception of the May 2016 fill deposition area, where PCB's were detected exceeding the Table 1 SCS." Of 22 monthly soil audit reports that have been completed, only four have been posted to the towns website and three of the four indicate exceedances of various contaminates of

[7] Gravel Pit Rehabilitation Near Shallow Municipal Wells – Threat or Opportunity? - Tanya Kampherm Martin, Scott Lister & Wendy Kemp - Regional Municipality of York, Newmarket, Ontario, Canada –IAH 2012 Congress
[8] Order to Discontinue – Order TOP-105 Reference FB 23-23-2010 City of Pickering.
[9] Staff Report #ENG-2017-75, December 11, 2017 to Committee of the Whole New Tecumseth

concern. In May of 2017, a report to the New Tecumseth town council said "First round of water samples…indicated detections for several parameters, including several metals, as well as toluene".

Greenbank Airways: After the experience of the Lakeridge Road site, the Township of Scugog granted a permit to import fill to this site with considerable conditions including posting and reviewing source site reports. Despite the assurances from the source site reports that the incoming soil met Table 2 requirements for an area of potable groundwater, subsequent borehole testing[10] on the receiving site after millions of cubic meters of soil had been placed to a depth of 17 meters found that 22 of the 45 samples exceeded Table 2 and thus potentially not protective of the groundwater. The Township is now suing for $105 million dollars to clean up the site.

Taylors Road: At this rural site, the landowner, wishing to rehabilitate an old gravel pit to a horse farm, took in loads of remediated soil, assured that it was suitable. The company supplying the soil had an approval by MOE to deposit remediated soil meeting Table 2 on industrial or commercial land. Complaints by neighbours led the MOE to test the soil and on their second visit they did find[11] that the soil, on this agriculturally zoned land, exceeded the Table 2. One sample had zinc 2100% over the limit for industrial land on non-potable groundwater. The site, as many are, is adjacent to a wetland.

These examples demonstrate that despite assurances that the soil being dumped at receive sites is protective of the groundwater, as well as human health and ecosystems, it is often found to not be when tested on site. Of all the cases we know of where the soil has been sampled and tested after deposition, none have consistently met the existing Table 2 standard for soil over potable groundwater.

The Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, that are the only standards available in Ontario for soil contamination, have been revised in 2004 and again in 2011 to be more stringent and are being revised again[12] to account for large volumes over 5000 cubic meters. Therefore, soils that were deposited in previous years as being protective of the environment could, in more recent times be considered as no longer being protective. We might expect that science in the future could find the standards of 2018 to have been inadequate to protect us.

Contaminated soil comes from excavations at construction sites that had been infilled in previous decades or centuries, such as when the excavations for the Exhibition Place Hotel hit contaminated

[10] Limited Subsurface Environmental Investigation, Greenbank Airport, 1140 Highway 47 East, Uxbridge, Ontario – Golder Associates – report 1525331

[11] Letter July 25, 2012 Re: Sample Results From the Taylor's Road Fill Site to City of Kawartha Lakes from Kelly Andrecli, MOE, Peterborough District Office

[12] for receiving sites outside of the Brownfield Regulations. The previous standards were devised for Brownfields but used ad-hoc for receiving sites.

soil[13], or when brownfields such as old gas stations, factories, or the Port Lands are redeveloped. Heavily contaminated soil is expensive to properly dispose of. It should go to soil remediation facilities, municipal landfill, or to hazardous waste treatment centres, all with much higher costs than disposal at commercial fill operations or private land owners as mentioned above. A conference of municipal lawyers was told[14] "every load of hazardous soil dumped illegally is worth as much as $6000 in saved tipping fees." There is great incentive for unscrupulous operators to pass off contaminated soil as clean soil or even to walk away from their own land after contaminating it with fill.

The bulk of the soil remediation that is done uses bioremediation techniques. However, as we learned from a course[15] on bioremediation, bioremediation does not treat all contaminates and is tricky to get right for each batch of soil. As such it does not always work as advertised. In addition, lessons on sampling taught us that because the soil samples tested in the lab are minuscule (thimbleful) in comparison to the amount of soil they supposedly represent (up to hundreds of truck loads), and because the soils are rarely homogenous, the sample results are not likely to be truly representative. It is likely because of this that the MOE, when issuing permits to soil remediation sites, had prohibited their processed soil from going to, variously, environmentally sensitive areas, agricultural, and/or residential lands. We are getting indications[16] that MOECC is revising the Environmental Compliance Approvals to remove these restrictions.

We have been told that during the recent reviews of the Municipal Act, Conservation Authorities Act, Aggregate Resources Act, and the Greenbelt Acts, the drafters were aware of the MOECC review of the soil policy and as such did not fully consider fill in the new legislation and regulations, deferring to the MOECC's forthcoming soil regulations. With our members on the Standards and the Market Based sections of MOECC's Excess Soil Engagement Group, we are aware of the drafts and do not see big improvements protective of the environment and groundwater. It will still be the municipalities responsible for the oversight of the receiving sites (now called 'reuse sites'). MOECC is adding much more complexity to the decision of whether or not the soil going to the site would be protective of the groundwater, even more difficult for the ill-prepared by-law inspector or town engineer. Councillors from one of the study areas for greenbelt expansion called out from the back of the room at the 2017 Soil Symposium[17], that as a municipality with only 1300 households they cannot afford to monitor or prosecute illegal soil dumping and are therefore being buried with loads of soil of unknown quality being dumped on vacant land. The MOECC will not investigate until there is some evidence of offsite adverse effects - evidence that the municipality cannot afford to collect.

Conclusion: A Greenbelt designation is not sufficient to protect water from potential contamination from the dumping of excess construction soil.

[13] Exhibition Place hotel plan stalled by fouled soil, Sept. 8 2013, Toronto Star
[14] Site Alteration By-Laws And The Dirty Business Of "Clean" Fill - Charles M. Loopstra, Q.C. - International Municipal Lawyers Association Conference IMLA in Canada 2014
[15] Environmental Bioremediation, December 4-5, 2017, EPIC Educational Program Innovations Center, Mississauga
[16] email correspondence with MOECC senior staff from the Environmental Assessment and Approvals Branch
[17] Excess Soil Symposium was convened by the Canadian Urban Institute on December 6, 2017in Caledon

Aside from the actual and potential contamination of the groundwater which could affect drinking water wells and ultimately negatively affect human health and property values, the commercial fill operations have other impacts upon the ecosystems and hydrology of the greenbelt.

- Soil is moved many kilometers[18], introducing seeds and roots to a new area of bare soil for explosive growth of potentially unwanted invasive species.
- A natural terrain is left unnaturally flat and level or covered with mounds from the loads slid off the trucks.
- The surface runoff pattern is altered by the site-alteration.
- Groundwater recharge is reduced by the depth of added soil and/or deposition of soils with reduced permeability.
- Erosion of the bare slopes silts the streams.
- Top soil covered by subsoil unsuitable for agriculture.
- Uneven compaction and debris impacting future building.

The right side of the photo below shows the natural looking gravel pit rehabilitation. The left side is the result of a commercial fill operation.

The Greenbelt plans and policies do have provisions for landform conservation. However, because site-alterations, which are the means by which fill operations are regulated, are not considered as "development" invariably the entire property can have its existing landforms obliterated. In our experiences in front of town councils or their staffs, they are unaware of many of the prohibitions of the greenbelt plans and policies. It should not be the task of citizens to remind governments of their obligations.

Conclusion: A Greenbelt designation does not protect the land's ecology and hydrology from the impacts of commercial fill operations.

[18] Several examples of 50 km or more

The consultation document asks a question.

11. What other priorities or initiatives do you think the Province should consider?

The province should add more prohibitions to the forthcoming MOECC Soil Regulations prohibiting fill operations, especially soil from soil remediation sites, from sensitive areas of the greenbelt.

1. Municipal Source Water Protection Areas,
2. Well Head Protection Areas,
3. Provincially Significant Wetlands,
4. The Regulated Areas of Conservation Authorities
5. Significant Groundwater Recharge Areas of Watershed Plans
6. Specialty Crop Areas
7. Prime Agricultural Areas,
8. Key natural heritage features,
9. Key hydrologic features.
10. Natural Core Areas,
11. Natural Linkage Areas,
12. Key Natural Heritage Features,
13. Hydrologically Sensitive Features,
14. Areas of Natural and Scientific Interest,
15. Landform Conservation Areas, and
16. High Aquifer Vulnerability Areas

The province should assist municipalities with creating and enforcing by-laws for fill sites.

Reviews of municipality's by-laws by OSRTF and by RCCAO[19] found them to be inconsistent and most of them inadequate to protect the residents and environment against fill. The fill operators move to the municipalities least able to protect themselves. The Province should create a body within the Ministry of Municipal Affairs to educate and guide municipalities to create protective by-laws and to assist them with technical expertise and legal resources to monitor and prosecute cases of illegal soil dumping.

[19] Survey of Municipal Soil By-laws – Residential and Civil Construction Alliance of Ontario – March 2013