

Top 10 Risks of the “Clean Fill” Dump Site

Definition in Uxbridge and Scugog Site-Alteration By-laws

“commercial fill operation”-means the *placing or dumping of fill involving remuneration paid, or any other form of consideration provided, to the owner or occupier of the land, whether or not the remuneration or consideration provided to the owner is the sole reason for the placing or dumping of the fill;*



Earthworx Fill Site in Scugog

Unacceptable concentration levels of Petroleum Hydrocarbons, Polyaromatic Hydrocarbons, and Heavy Metals were found in soil tests and the fill permit was revoked in October 2010.

Risk 1

Lack of Provincial Regulation

- The MOE, through the EPA, strictly regulates aspects of “Brownfield” re-development.
- Brownfields are “abandoned, idle, or under-utilized industrial and commercial properties where the previous property use caused environmental contamination”.
- However, so called “clean fill” dump sites, which often accept excavated soils from Brownfields, are not within the jurisdiction of the MOE leaving a dangerous void in the protection of human and ecological health.

Risk 2

Brownfield Remediation

“To date, a frequently selected option for managing contaminated soil is off-site disposal.” *

** A Guide on Site Assessment, the Cleanup of Brownfield Sites and the Filing of Records of Site Condition pg. 26*

The Problem

- Under Brownfield regulation, the MOE does not require testing of the excavated material that has gone off of the property
- The Ministry does not regulate or require a record of the quality of any soil removed or where any soil excavated goes
- There are no rules required by brownfield regulation for testing of excavated fill
- The “qualified person”, hired to be in charge of the brownfield site, determines what is a waste and where it goes
- It is left up to Municipality (or Conservation Authority) to regulate incoming fill, originating from brownfield sites, through site-alteration by-laws and policies

Risk 3

No Definitions

- There are no MOE definitions of what constitutes “clean fill” or “contaminated fill”.
- Soils coming from Brownfields may be considered “clean” by one set of standards and “contaminated” in another.
- It is left up to Municipalities, often small ones with limited resources and expertise in the field, to regulate this complex issue through site-alteration by-laws.

Risk 4

“Borrowing” MOE Regulations for use in Fill By-Laws

- Given the lack of provincial regulations for fill dump sites, municipalities have been struggling to deal with this issue through their site-alteration by-laws.
- These by-laws were *never intended* to deal with the risks that commercial fill dumps pose to healthy native soils and precious groundwater resources.
- Municipalities have tried to cope by often “borrowing” MOE regulations that were **NEVER** designed for use at a fill dump site.

MOE tables prescribed for use as minimal cleanup standards at contaminated sites, are being used as a “surrogate” in municipal site-alteration by-laws.

TABLE 2: Full Depth Generic Site Condition Standards in a Potable Ground Water Condition

Table 2 Contaminant	Soil Standards (other than sediment) µg/g			Potable Ground Water µg/L
	Agricultural or Other Property Use	Residential/ Parkland/Institutional Property Use	Industrial/ Commercial/Community Property Use	All Types of Property Use
Acenaphthene	(29) 7.9	(29) 7.9	(29) 21	4.1
Acenaphthylene	(0.17) 0.15	(0.17) 0.15	(0.17) 0.15	1
Acetone	(28) 16	(28) 16	(28) 16	2700
Aldrin	0.05	0.05	(0.11) 0.088	0.35
Anthracene	(0.74) 0.67	(0.74) 0.67	(0.74) 0.67	2.4
Antimony	7.5	7.5	(50) 40	6
Arsenic	11	18	18	25
Barium	390	390	670	1000
Benzene	(0.17) 0.21	(0.17) 0.21	(0.4) 0.32	5
Benz[a]anthracene	(0.63) 0.5	(0.63) 0.5	0.96	1
Benzo[a]pyrene	0.078	0.3	0.3	0.01
Benzo[b]fluoranthene	0.78	0.78	0.96	0.1
Benzo[ghi]perylene	(7.8) 6.6	(7.8) 6.6	9.6	0.2
Benzo[k]fluoranthene	0.78	0.78	0.96	0.1
Beryllium	(5) 4	(5) 4	(10) 8	4
Biphenyl 11'-	(1.1) 0.31	(1.1) 0.31	(210) 52	0.5
Bis(2-chloroethyl)ether	0.5	0.5	0.5	5
Bis(2-chloroisopropyl)ether	(1.8) 0.67	(1.8) 0.67	(13) 11	120
Bis(2-ethylhexyl)phthalate	5	5	(25) 78	10

Canadian Council of Ministers of the Environment (CCME)

“Soil standards are for the cleanup of contaminated sites and must not be used for the contamination of clean sites. They represent clean down to levels at contaminated sites and not pollute up to levels for less contaminated sites.”

“ Best Science” is Always Changing

- New Table standards come into effect this July, 2011.
- The majority of these contaminants have seen a decrease in acceptable concentration levels in soil.



ENVIRONMENTAL

Table 2: Potable Ground Water

Contaminant	Agricultural or Other Property Use				Residential/ Parkland/ Institutional Property Use				Industrial/ Commercial/ Community Property Use			
	2004		2009		2004		2009		2004		2009	
	Med / Fine	Coarse	Med / Fine	Coarse	Med / Fine	Coarse	Med / Fine	Coarse	Med / Fine	Coarse	Med / Fine	Coarse
PAH												
Acenaphthene	15	29	7.9		15	29	7.9		15	29	21	
Acenaphthylene	100	0.17	0.15		100	0.17	0.15		130	0.17	0.15	
Anthracene	28	0.74	0.67		28	0.74	0.67		28	0.74	0.67	
Benzo[a]anthracene	6.6	0.63	0.5		6.6	0.63	0.5		6.6		0.96	
Benzo[a]pyrene	1.2	0.078			1.2	0.078			1.9	0.3		
Benzo[b]fluoranthene	12	0.78			12	0.78			18	0.96		
Benzo[g,h,i]perylene	40	7.8	6.6		40				40	9.6		
Benzo[k]fluoranthene	12	0.78			12	0.78			18	0.96		
Chrysene					12				17	9.6		
Dibenzof[a,h]anthracene									1.9	0.1		
Fluoranthene	40	0.69			40	0.69			40	9.6		
Fluorene	340	69	62		340	69	62		340	69	62	
Indeno[1,2,3-cd]pyrene									19	0.95	0.76	
Methylnaphthalene, 1-												
Methylnaphthalene, 2-												
Methylnaphthalene, 2-(1-)**	1.2	3.4	0.99		1.2	3.4	0.99		1.2	42	30	
Naphthalene	4.6	0.75	0.6		4.6	0.75	0.6		4.6	28	9.6	
Phenanthrene	40	7.8	6.2		40	7.8	6.2		40	16	12	
Pyrene	250	78			250	78			250	96		
Phenols												
Chlorophenol, 2-	0.1	2	1.6		0.1	2	1.6		0.1	3.9	3.1	
Dichlorophenol, 2,4-	0.3	0.27	0.19		0.3	0.27	0.19		0.3	0.27	0.19	

2004	2009
40	0.69

Cautions for MOE Table Use

- “Clean Sites” should only be accepting fill that is consistent with **Table 1 Standards** (Background Soil). This would be consistent with MOE requirements for similar sites under its regulation.
- “The generic SCS (site condition standards) approach is intended to protect “typical” receptors potentially exposed at contaminated sites rather than the most sensitive of all possible receptors.” (Rationale for the Development of Soil and Ground Water Standards for use at Contaminated site in Ontario, Dec. 22, 2009, pg. 4)
- “The numeric criteria (listed in the Tables) **contain many assumptions** that are appropriate for use at contaminated sites being redeveloped under Ontario RSC legislation, regulations and guidelines. However, **some of these assumptions may not be appropriate for other uses of these numeric criteria.**” (MOE Technical Update for the “Rationale for Site Condition Standards in O/Reg. 153/04” 4. Use of the Tables of Site Condition Standards, July 2004)

Risk 5

The Unconditional Acceptance of Soil Reports from the “Qualified Person”

- A “Qualified Person” (i.e. a “professional”), retained by the fill dump site owner, is often hired to review and approve soil origin reports in order to maintain a “clean” operation.

The Facts

- Fill operations can be very lucrative, multimillion dollar businesses
- A May 25, LSRCA report indicated, “For landowners, the offer of getting paid up to \$60 per triaxle load to accept fill material often clouds their judgement / awareness of the quality of material that they may be receiving.”

Management Issues Exposed at Large Fill Sites

The following are just a few statements taken from MOE Orders issued by provincial officer's regarding soil reports and soil quality issues at certain fill sites in Durham Region:

- **“(soil quality) reports were incomplete, inadequate and inaccurate”**
- “the Ministry has concerns regarding the quality of fill being deposited.”
- “The amount of sampling was not sufficient and how the sample information relates to the material that was, in fact, deposited at the Site is not clear.”
- “The Ministry has concerns over the quality of fill originating at Pier 27 and being deposited at other sites located in the York Durham District.”
- “there is insufficient information available ..to determine whether or not the operations at the (fill) Site.. may be causing an adverse effect that may result in the presence or discharge of a contaminant in, on or under the Site.”
- “I am not confident that the current documentation is satisfactory to confirm that acceptable material is being received at the Site.”

Risk 6

Ignorance of Prescribed Use

- “Soil reports” or assessments of the origin properties now being used as a record at the commercial fill dump site, were never prepared for the use of the fill dump site operation. In many instances, they were prepared for a prescribed purpose, perhaps years ago.
- These reports often contain statements of limitations that warn against such transfer.

Risk 7

Risks are to what sustains us:

Water and Soil

- In terms of groundwater, once contaminated it is very difficult and expensive to restore.
- Possible contamination via imported fill poses an unacceptable threat to clean and safe groundwater.
- Impairments to groundwater recharge is also an issue often overlooked.

Risk 8

Environmental Liabilities

- Short term economic gain does not outweigh the cost of potential long-term environmental liabilities.

Risk 9

Risk to Sensitive Areas

- Wetlands
- Areas of High Aquifer Vulnerability
- Significant Groundwater Recharge Areas
- Significant Wildlife Habitat and Endangered Species Habitat
- Valuable Farmland
- Landform Conservation Areas

Risk 10

Zoning Changes Without Due Process

- (For example) If a township allows a Table 2 fill operation in an area considered to be (or planned to be) agricultural or residential, and that fill is contaminated to the Industrial/Commercial/Community Property use level, it may then be considered unsuitable for agricultural or residential use.

What can be done right now?

1. Municipalities need to demand clear, effective **regulations** from the province to deal with the movement of Brownfield's Fill and the operation of large-scale commercial fill dump sites.

Meanwhile, enact clear and comprehensive site-alteration by-laws to address the issue.

Recommendations for Municipal Site-Alteration By-laws

There is the crucial understanding that commercial fill operations need to be declared **“a use of land”** and must be addressed in the zoning by-law. However, if a municipality is going to consider commercial fill operations (or large-scale fill operations) outside of zoning regulations, **consider including the following in your “site-alteration by-laws”**:

- **Prohibit them in sensitive areas**-(i.e.. Areas of High Aquifer Vulnerability, Significant Recharge Areas, Environmental Protection Areas, Natural Core or Natural Linkage Areas (ORMCP), Areas within or adjacent to Key Hydrologic Features of Key Natural Heritage Features, etc. As well, they should be prohibited in “Environmentally Sensitive Areas” according to the MOE definition in O. Reg. 153/04.
- **Request detailed environmental assessments and hydrogeological assessments** of proposed fill dump sites **before** permits are issued.
- **Stipulate that soil reports are to be current** (identify acceptable time frame) and **written specifically for use of the receiving site.**
- **Allow for “public consultation”** when these applications come up (as you would for a minor variance, for example).
- **Allow only Table 1 soils** at sites where there was no previous point source contamination (Don’t allow contaminants in the fill that were not previously present on the native site). Refer to the **MOE Fact Sheet , “Bringing Soil to an RSC Property, April 2011” for appropriate table usage that can be applied as an acceptable surrogate in fill-bylaws (MOE Fact Sheet attached to Report).**
- **Stipulate minimum testing requirements of the incoming fill** as per MOE’s minimal testing frequency rules for RSC sites (i.e. 1 test for every 160 cubic metres or 10-15 truckloads of fill coming in) Refer to the MOE Fact Sheet, “Bringing Soil to an RSC property.”
- **Include sections regarding proponent paid testing of fill by township/city and frequent inspections.**
- **Ask for Certificates of Approval from soil remediation facilities as some limitations preclude certain facilities from exporting treated fill to “sensitive sites”.**
- **Request that the owner complete a RSC (Record of Site Condition) for the property.**
(See the Environmental Protection Act Section XV.1 and O. Reg. 153/04.) This would allow the regulations under the Ministry of the Environment to kick in. In terms of the commercial fill operation, this would stipulate what “MOE Table” of soils would be allowed to be brought to the site, testing frequency etc. (One would have to ensure this is the case. This point needs to be further investigated.)

2. Brownfield Sites need to be cleaned up not just dumped “somewhere else”.

3. Municipalities need to declare fill operations what they are: **a use of land** not a mere “site-alteration” and address this in their zoning by-laws.

(Please note : Aerodrome location cannot be impacted, therefore creative sections in by-laws that allow regulation, not prohibition in these instances are required. For example, “When the requirements of this by-law cannot be met, the municipality shall consider entering into an agreement with the proponent with specific requirements to be determined by the Director and approved by Council.”)

Thank you for your attention



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