

CONSTRUCTION SOIL IS A VALUABLE RESOURCE THAT SHOULD NOT BE WASTED

By **Andy Manahan** and **Giovanni Cautillo**

Every year, thousands of trucks in Canadian metropolitan areas haul what is called “excess soil” from transit developments, sewer and watermain projects, road building, utilities and new housing sites. It is often dumped like a waste product at licensed landfill sites more than 100 kilometres away from its point of origin. Sometimes, it is spread on farm land. The preferable option would be to reuse it at other nearby infrastructure projects, ideally within 10 kilometres.

Each year, an estimated 26 million cubic metres of construction soil must be managed in Ontario. This would fill Toronto’s Rogers Centre 16 times, according to environmental lawyer and engineer Frank Zechner. He has also calculated that it costs approximately \$2 billion per year to move and dispose of it. His estimates are based on research prepared with

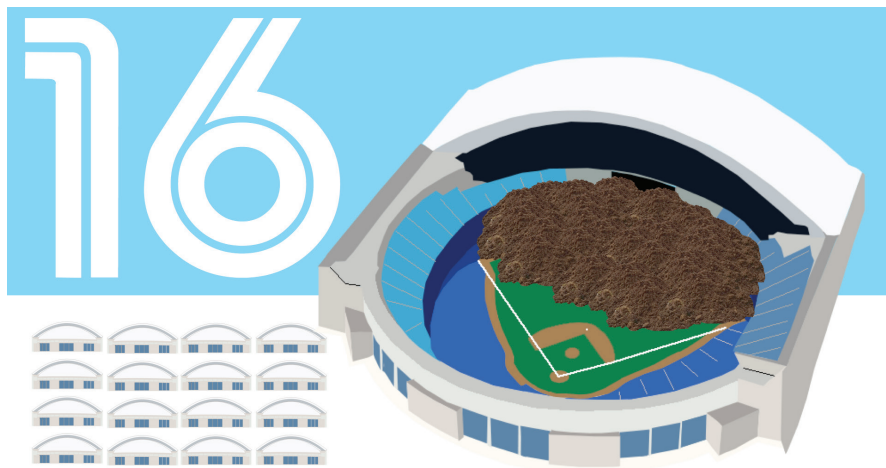
Statistics Canada data sets published in “2017 Update: Quantification of Excess Construction Soils in Ontario”, an independent report commissioned by the Residential and Civil Construction Alliance of Ontario (RCCAO).

This is an important issue for several reasons. Firstly, some coordination to repurpose the resource could save municipalities millions of dollars, possibly re-allocating that money for other vital infrastructure.

Secondly, the environmental impact is undeniable as greenhouse gas emissions are produced by platoons of trucks travelling on municipal and provincial roads.

Thirdly, those roads are incurring a lot of wear and tear, which means funds have to be spent on road repairs and maintenance sooner than if these trucks were using them less.

These reasons were the impetus for RCCAO and the Greater Toronto Sewer and Watermain Contractors Association (GTSWCA) to finance and produce



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a three-part video series on management of construction soil.

“*The Real Dirt on Dirt: Solutions for Construction Soil Management*” was released in September 2018. The series is designed to encourage adoption of best management practices (BMPs) for construction soil and increase awareness of smart financial choices and environmental conservation through better upfront planning.

The first video, “*Financial and Environmental Benefits of Best Practices*”, starts off by explaining that almost two million trucks will dump a load of construction soil this year at sites all over Ontario. With good planning, coordination and consistent handling practices, most of that soil could be beneficially reused more safely and transported within the municipality where it came from.

It is also clear that the unnecessary transport of construction soil has a financial impact on the municipalities when they fund infrastructure development. A 2016 study by the Ontario Society of Professional Engineers (OSPE), GTSWCA and RCCAO, entitled “*Excess*

Soil Management: Ontario is Wasting a Precious Resource”, looked at 24 projects in the Greater Toronto Area and found that, on average, the loading, trucking and dumping of soil added 14% to the cost of municipal infrastructure projects. These were projects by contractors who did their best to implement BMPs.

The second video, “*Words of Wisdom from a Water Main Contractor*”, features an interview with a sewer and water main contractor, Tony Di Pede of North Rock Group. Standing at a water main dig in a residential neighbourhood in Nobleton, Ontario, Di Pede expressed his strong belief in making smarter decisions for the benefit of municipalities and the people who live in the communities that are seeing trucks drive through them.

He is equally insistent that making changes to soil management won’t affect his company’s bottom line. It is a pass-through cost, so there is no vested interest in his statement. “It’s not saving me a penny,” Di Pede said. “Where it’s saving the money is for the municipalities, because I bid on the work based on the information they give me.” Ideally, con-

tractors would put all of the soil back where it came from as “native backfill.”

COST SAVINGS POSSIBLE

If excavated soil from roads, bridges and sewer projects cannot be reused as native backfill, it can often be taken to other nearby construction sites. When trucks are not transporting soil long distances, projects can enjoy up to 9% cost savings, as determined by the OSPE/GTSWCA/RCCAO study.

Di Pede suggested that municipalities perform a full chemical analysis of the soil before it is disturbed so they “know the product that they have.” Then, they can look at other projects and see who needs this material.

Even if there are minor salt exceedances, however, the soil is going back in the same right-of-way, and other sites are not being impacted.

MEGAPROJECTS

The third video, “Big Bang for the Buck on Megaprojects”, looks at Toronto’s Eglinton Crosstown Light Rail project. According to Zechner and confirmed by Metrolinx, it will take an estimated 150,000 truck trips to move the Crosstown’s construction soil over the lifespan of the project, which began in 2011 and is expected to be completed in 2021.

Zechner’s 2012 report, “Eglinton LRT Project: Estimated Costs and Impacts of Addressing Excess Construction Soil”,

calculated carbon dioxide gas emissions emitted by trucks hauling Crosstown project soil from Toronto to the surrounding region at more than 60,000 metric tonnes.

Projects in the United Kingdom have demonstrated that local, beneficial reuse of construction soil can reduce carbon dioxide emissions by up to 80%. With fewer trucks on the road, Canadian roadways can be safer and less congested, and longer-lasting, saving money for other infrastructure or community needs.

Meanwhile, technology is making it easier to digitally track soils and maintain a record of test results. SoilFLO for instance, analyzes the product and monitors who is moving it, where it is coming from, where it can go and where it will be transported.

Using innovation, implementing BMPs and progressive government policy can significantly improve this situation as well as reduce the risk of illegal dumping.

MOVING FORWARD

While the term “excess soil” is commonly used within construction and government circles, it incorrectly implies that this soil is a waste. Construction soil is a reusable resource, unlike contaminated soil which needs to be treated.

Incorporating BMPs into municipal by-laws and tender documents will help to ensure that clean soil is reused and that contaminated soil is dealt with appro-

priately. For example, a soil management plan would have to be developed for larger sites, such as Crosstown, and it would be certified and overseen by a qualified professional.

In Ontario, the Ministry of the Environment, Conservation and Parks is reviewing draft regulations to enhance the management of soil from building and infrastructure projects across the province.

A multi-ministry approach, comprising efforts by the Ministries of Environment, Municipal Affairs and Housing, Transportation, Infrastructure and others, will also help to achieve a more coordinated effort.

Working together, industry, government and the public can find solutions that provide economic and environmental advantages for our communities.

For more information on soil management and to watch the three-part video series, visit soilil.com. ■

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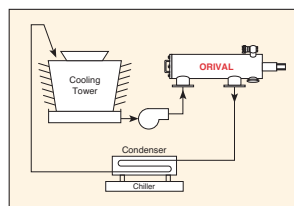
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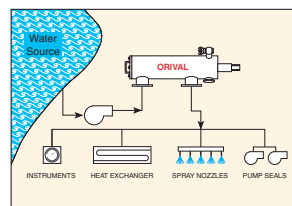
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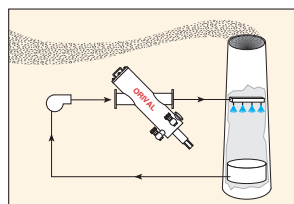
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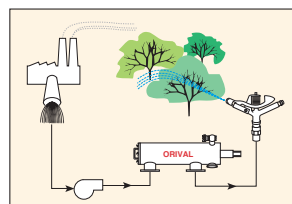
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