

# Are you Under Managing Excess Soils at Contaminated Sites?

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## Background

Despite advances in in-situ remediation techniques, physical soil removal (“dig and haul”) remains a preferred remedial solution at many contaminated sites. This is especially true in urban areas where re-development of properties and infrastructure renewal (especially transit/transportation projects) require the removal of excess soils as part of the construction process. Often, these excess materials are disposed of as waste even when their contaminants of concern do not always warrant disposal over beneficial reuse. Unfortunately, some of these excess soils also end up improperly deposited at “clean fill” sites in rural areas and on agricultural lands, where they present a liability to the property owner(s) and their host municipalities. At these sites, the risks of environmental impacts are high and resources to monitor and assess potentially contaminated soils are limited.

Soil management challenges are compounded by the growing lack of landfill space and associated increasing costs to manage soils using a “dig and haul” approach. Soil is now recognized as a finite resource and there are growing arguments that excess soils should only be landfilled as a last resort. Furthermore, hauling soils, in many cases hundreds of kilometers, raises questions about the sustainability of “dig and haul” remediation options despite the associated beneficial reduction in environmental risk at a source site.



Photo: Malroz Engineering Inc.

In response to these challenges Provincial Regulators and Industry Stakeholders are developing best practices to promote the offsite re-use and/or onsite management of soils identified as failing initial environmental screening quality assessments required for the intended site use.

## The Changing Project Environment

As a result of poor excess soil management practices, increased responsibility (liability) is being placed on generating sites to ensure that soils are being adequately characterized and transported to appropriate receiving sites. This creates a disincentive for transporting excess soils to anywhere but a licensed landfill.

A recent regulatory shift towards carbon taxation and/or cap and trade credits creates new potential costs to large soil management projects that intend to truck excess soils. Recent surveys by the Ontario Society of Professional Engineers (OSPE) and the Residential Civil Construction Alliance of Ontario (RCCAO) suggest that millions of kilometers of truck traffic result from the movement of excess soils to licensed landfills every year. These landfills are typically located in rural areas, often more than 100 km from the urban and suburban areas where source sites are commonly located.

Landfill capacity is increasingly limited and disposal costs can quickly add up for soils that are only slightly contaminated (for example, as a result of road de-icing operations). There is increased pressure on landfill operators to prioritize remaining landfill capacity for waste that cannot otherwise be treated or re-used elsewhere, rather than accepting marginally impacted soils.

These factors create incentives for projects to minimize the generation of excess soils, re-use soils on site and/or find local opportunities to beneficially re-use soil (where appropriate).

### Optimizing Cost Savings While Managing Liability

A skilled and experienced Qualified Person (Professional Engineer or Professional Geologist) is equipped to appropriately characterize excess soils and work with project owners to optimize project costs and liabilities. Often, working with such individuals is counterintuitive because the upfront costs are typically higher than employing “soil brokers” that direct soils to “clean fill” receiving sites with inadequate/no characterization or to an expensive licensed landfill. Incurring costs in the thousands of dollars to work with a qualified person who is abreast of the changing regulatory landscape to understand project goals, and to balance the often competing interests of project cost and liability, can contribute to overall project savings in the order of hundreds of thousands or millions of dollars. This is accomplished by minimizing unnecessary transfer to licensed landfills, promoting re-use of soils on the subject site and/or working with the project team to identify appropriate receiving sites where placement of soils is beneficial and would not create an undue risk to the soil generators at the source site.

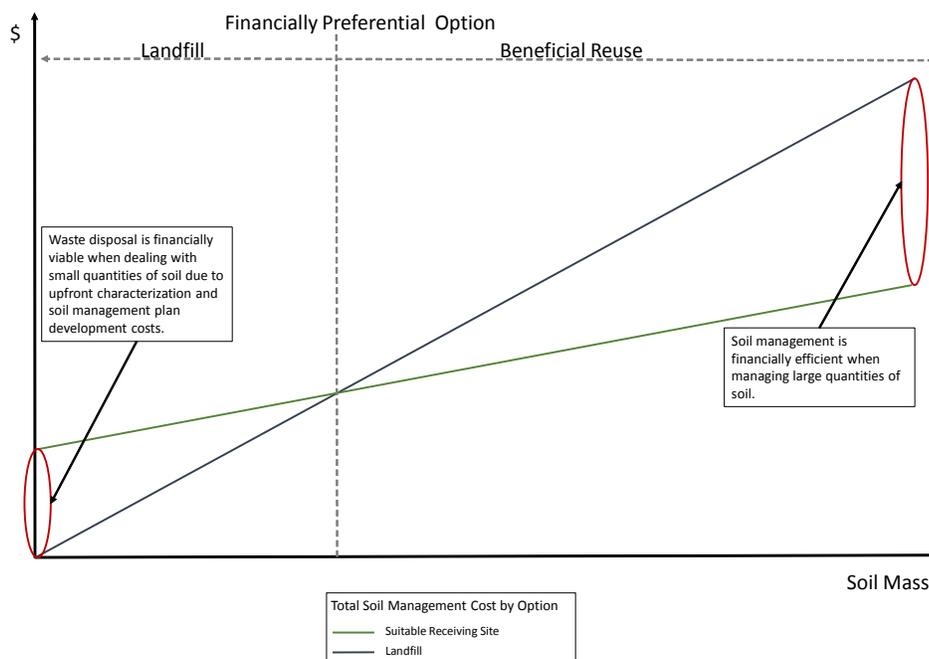


Figure 1: Summary of approach to financially optimizing landfill vs beneficial reuse approach.

### Conclusions

Despite the popularity and attractiveness of “dig and haul” as a preferred remedial solution, it is beneficial to review project goals with a Qualified Person that is abreast of the evolving regulatory and technical landscape. This can lead to significant overall project cost savings while managing project liability, by reducing the volume of excess soils requiring offsite disposal and promoting beneficial re-use.