

Lessons Learned, Toronto Port Lands Contaminated Land and River Construction

Meggen Janes and Danielle Thorsen, Geosyntec Consultants International Inc
Steve Desrocher and Marsela Wijaya, Waterfront Toronto

Waterfront Toronto's Port Lands Flood Protection Project, a \$1.25 billion project funded by the Government of Canada, Province of Ontario, and City of Toronto, is one of the largest infrastructure projects in Toronto's history. The Port Lands area, on the shore of Lake Ontario, immediately east of downtown Toronto was created through decades of infilling of historic wetlands and has, until recently, been used for heavy industry. The result is land with extensive non-aqueous phase liquid (NAPL), petroleum hydrocarbons, and metals contamination and poor geotechnical conditions with low strength sand and compressible organic soils.

The project will protect 240 hectares of land in the Port Lands and surrounding communities from flooding by building a new one kilometer river channel and two new river outlets to convey flood waters. New parks, roads, and bridge networks will complete the public realm around the river channel that will unlock a 22 hectare area for revitalization.

Building a new river through contaminated lands is no easy feat. To build the river and flood protect the area, over 1 million cubic metres of soil will be excavated. Waterfront Toronto made an early decision to sustainably reuse as much of the soil as possible to construct flood protection berms and elevate the ground surface out of the flood plain. With no comparable project of this nature in Canada, there were and continue to be many lessons learned.

This presentation will evaluate some of the environmental lessons learned that have in retrospect provided useful guidance for future projects. These include:

Value in Data Collection: The river excavation soil was well characterized but it is recognized that soil excavations will uncover unforeseen conditions. Focused data collection was applied after 90% design. We'll explore pros and cons of late in game data collection using several examples from the project.

Value in Continuous Improvement: There were several pivotal moments relating to soil management and environmental effects that led to an audit of plans, changes in approaches, redefinition of roles and responsibilities, and soil management rebalancing. We'll review how continuous improvement practices led to cost savings and continued stakeholder support.

Value in Re-Engineering: Several late changes to the design were initiated from early findings during construction. Several examples will be reviewed.

Value in Non-Standard Environmental Permitting: Site specific environmental permits are the norm rather than a community based approach. Here, a community based environmental permit led to reduction in the need for individual site specific permits. Where site specific permits were still required, land ownership consolidation led to further reduction in the required number of individual permits. These strategies will be presented.

Meggen Janes

Meggen Janes is a Principal at Geosyntec and a former Director at Waterfront Toronto. She has over 25 years of experience in brownfield redevelopment, risk based environmental strategies and remediation projects. She has specialized in unique strategies for public realm site redevelopment where use of soil and site management measures have been critical to the success. Meggen taught a graduate course in Soil Remediation for Ryerson University's Environmental Science and Management program and been a guest lecturer for many college and university programs.