

NovaTox

Risk Assessment for Ripley's Aquarium of Canada, Toronto, Ontario

Client

Canada Lands Company

Location

301 Front Street,
Toronto, Ontario

Date Completed

2010

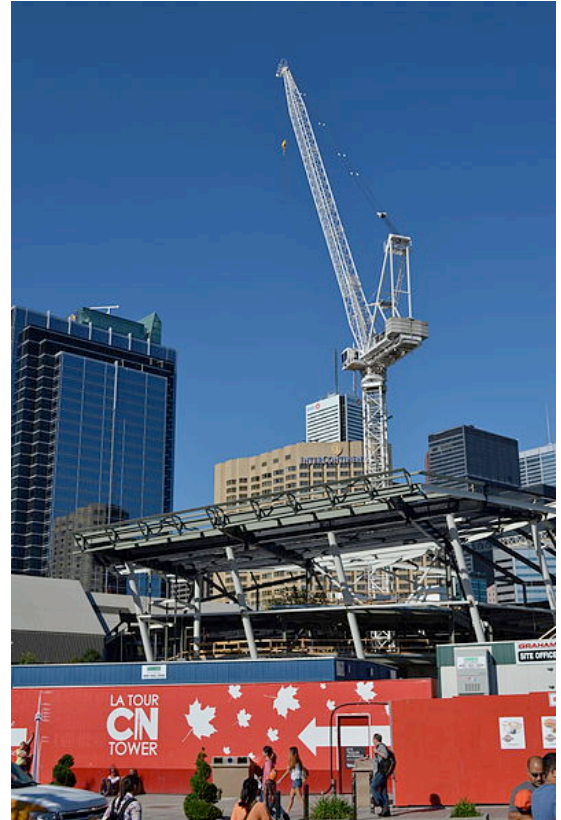
NovaTox prepared a risk assessment to evaluate potential risks to human and ecological receptors for a portion of the CN Tower East Lands property located at the base of the CN Tower. The results of the risk assessment were used to support a Record of Site Condition (RSC) filing under O. Reg. 153/04 to allow redevelopment of the site as Ripley's Aquarium of Canada, now a major tourist attraction in downtown Toronto, Ontario.

The site is situated south of the former shoreline of Lake Ontario, in an area reclaimed from the lake for development purposes through historic filling activities that began in the late 1800s. The filling activities were random and typically consisted of placement of soil mixed with coal ash and cinder materials from local areas. The results of multiple Phase One and extensive Phase Two Environmental Site Assessment activities conducted at the site indicated that the property is underlain by fill materials mainly consisting of a mixture of earth with coal ash and rubble. Concentrations of metals, polychlorinated biphenyls (PCBs), and polycyclic aromatic hydrocarbons (PAHs) in soil exceeded the applicable Table 3 generic Site Condition Standards.

NovaTox prepared a human health risk assessment (HHRA) that evaluated risks to both construction workers and future occupants of the aquarium. Pathways of exposure included direct contact with chemicals in soil and groundwater (for construction workers), direct contact with chemicals in soil for maintenance workers and site users (occupational workers and/or patrons), and direct contact exposure to chemicals in groundwater for construction workers. It was determined through the HHRA that several contaminants in soil at the property presented a risk to maintenance workers, occupational workers, and construction workers who may be exposed to soil at the site. Risk management measures in the form of specific building features (e.g., concrete floors, concrete walkways, and surface treatments such as clean soil cover or asphalt pathways) were identified as a requirement to interrupt exposure pathways for occupational workers and receptors who may visit the site less frequently (i.e., patrons).

The ERA examined risks to plants, soil organisms, and various urban-adapted wildlife, and identified a requirement to limit the exposure to chemicals in soil to both on-site and off-site ecological receptors after redevelopment using various risk management measures including the maintenance of clean soil cover or installation of various types of surface treatment ground cover over the entire surface of the site.

The risk assessment was accepted by the Ontario MOE in 2010, allowing Ripley's to begin construction and open the aquarium to the public in October 2013.



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