Item 10.2

PERMIT APPLICATIONS 10.2 - 10.2 MAJOR APPLICATION - REGULAR

Applications that involved a more complex suite of technical studies to demonstrate consistency with policies; applications that cover a significant geographic area (e.g. subdivisions, stormwater management ponds), extensive modifications to the landscape, major infrastructure projects, emergency works, resolution of violations/after the fact permits, trail construction.

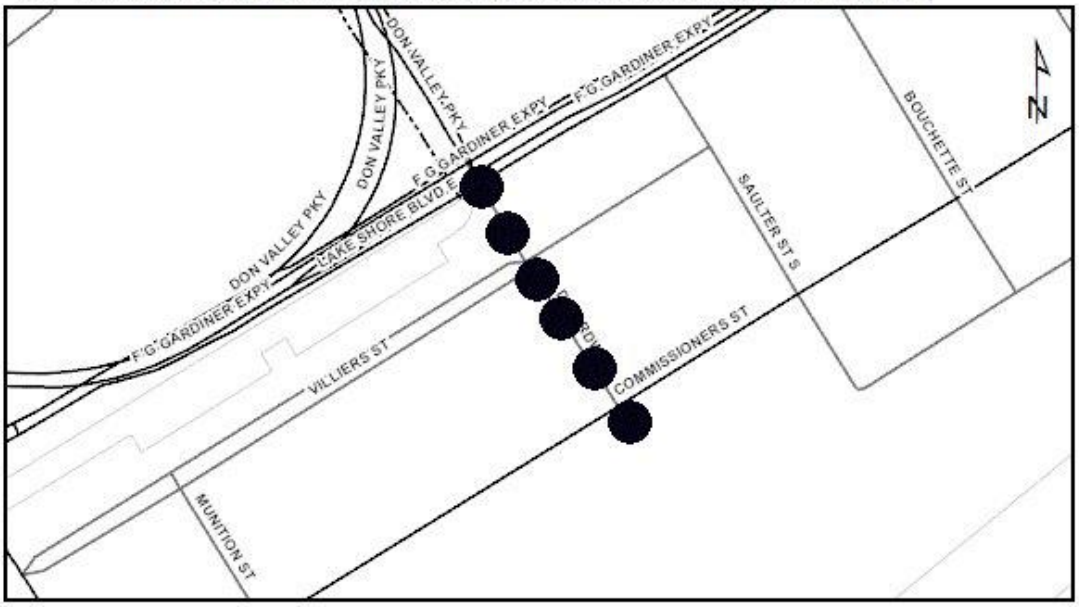
CITY OF TORONTO (TORONTO AND EAST YORK COMMUNITY COUNCIL AREA)

WATERFRONT TORONTO

To construct, reconstruct, erect or place a building or structure, site grade and temporarily or permanently place, dump or remove any material, originating on the site or elsewhere within the Port Lands, generally along the Don Roadway from approximately Lake Shore Boulevard East to just south of Commissioners Street, in the City of Toronto (Toronto and East York Community Council Area), Don River Watershed, as located on property under a Master License Agreement between the Toronto Economic Development Corporation (TEDCO) operating under CreateTO and Waterfront Toronto.

The purpose is to construct a flood protection landform along the redeveloped Don Roadway from Lake Shore Boulevard East to just south of Commissioners Street, in the City of Toronto. These are enabling works associated with the redevelopment of the Toronto Port Lands Flood Protection and Don Mouth Naturalization project and is part of the comprehensive plan to protect portions of downtown Toronto from the risk of flooding during a Regulatory Storm event.

MAP LOCATION: Flood Protection Landform (South of Lake Shore Blvd E. to South of Commissioners St)



The permit will be issued for the period of June 10, 2022 to June 9, 2024 in accordance with the following documents and plans which form part of this permit:

- **Letter of Undertaking to provide to the engineering and landscape drawings, revisions to technical memos and digital modelling, if needed, to the satisfaction of**

TRCA staff; dated May 26, 2022; received May 26, 2022; prepared by Waterfront Toronto.

RATIONALE
The application was reviewed by staff on the basis of the following information:

Proposal:
The overall Port Lands Flood Protection and Enabling Infrastructure project is a comprehensive plan involving a series of projects within the Lower Don and Port Lands area to ultimately protect approximately 240 hectares of urban land east and south of the Don River, currently subject to flooding. Work includes but is not limited to the naturalization and widening of the mouth of the Don River along with the construction of a new river valley system from the mouth of the Don River at the Keating Channel, through the Port Lands, discharging through the Polson Slip. An overflow spillway (Don Greenway) is also being constructed to allow water to flow southward through a new wetland and into the Ship Channel. Construction of the new river valley system, spillway and work at the mouth of the Don River including the Lake Shore Bridge East widening and work at the Sediment and Debris Management Area (SDMA) have all been approved through various permit applications over the past couple of years and are currently under construction.

This proposal involves the construction of a flood protection landform (FPL) from approximately Lake Shore Boulevard East to just south of Commissioners Street. The FPL will be located immediately east of the newly constructed river valley system, under the redeveloped Don Roadway and is one of the critical pieces of infrastructure needed to meet the overall flood protection plan for the lower Don area. The FPL will be constructed under the Don Roadway (previously approved under a separate permit application - CFN 65487, C-211465) as a permanent, passive flood protection feature to remain in perpetuity. Significant ground improvement is required in this area to protect the FPL and new infrastructure (road, utilities, water, gas, stormsewers, etc.) from significant settlement. As such the FPL will be situated over a system of rigid inclusions (RI) capped with a steel reinforced concrete load transfer platform which will act as the proposed ground improvement system to support most of the FPL and the Don Roadway. The RI system is designed to limit settlement. South of Commissioners Street the FPL will be constructed over native soils where the southern end of the FPL will taper off. The FPL will be surcharged with soil south of Commissioners Street to achieve the ground improvements necessary for long-term stability.

The FPL is designed such that typical failure modes are considered including external erosion, global stability, bearing capacity, settlement, overtopping and seepage. Each failure mode is evaluated against long-term stable conditions and extreme design conditions.

- External Erosion: The surface materials lining the eastern bank of the river valley located adjacent to the FPL have been designed to resist damage and erosion.

- Global Stability: The stability of the FPL was evaluated under two scenarios: (1) designed with the Don Roadway sitting on top of the FPL (as proposed) and, (2) as a stand-alone structure (FPL on its own). The design met or exceeded targets for each scenario.

- Bearing Capacity: The northern footprint of the FPL will be constructed within the limits of the RI system/platform and will be resistant to bearing capacity failure. For the small section south of Commissioners Street the FPL will be supported on native soils. To mitigate

impacts due to settlement at the southern end, the site will be surcharged and monitoring of the FPL will take place.

- Settlement: The crest of the FPL must be maintained at the design target elevations of between 77.95 masl and 77 masl. As such, the RI foundation is designed to control settlement of the FPL. Most of the settlement of the FPL located north of Commissioners Street is expected to occur during construction. This will be compensated for with the placement of additional fill to achieve design targets. The area south of Commissioners Street will be surcharged to account for settlement using an embankment to load additional fill. The temporary embankment will be de-constructed in final construction stages and re-graded.

- Overtopping: The FPL crest elevations are 0.5 m above the Regulatory flood elevations along the river valley. This is greater than the typical freeboard target of 0.3 m, which allows for a 0.2 m rise in water levels due to future uncertainties such as climate change.

- Seepage: The FPL is designed to limit seepage through construction of cohesive, low permeability material, strategically placed cut-off walls in the valley and the RI system to prevent seepage.

A long-term operation and maintenance plan was prepared for the FPL as a stand-alone document. The document outlines inspection requirements, an instrumentation/monitoring plan, maintenance requirements, best practices and work restrictions/limitations within the vicinity of the FPL.

Control of Flooding:
Although the site is currently within the Don River flood plain, the proposed FPL south of Lake Shore Boulevard East is part of a broader set of works in the lower Don that will ultimately address the current flood risk by protecting the Port Lands and adjacent areas for future development, and from potential loss of life and costly flood damage. These works include not only the construction of this FPL, but also rely on the future construction of the flood protection landform from Lake Shore Boulevard East northward to approximately the CN Rail/Metrolinx bridge (currently under a separate review process), construction of the new river valley system and spillway (Don Greenway), construction of the SDMA, deepening of the Keating Channel to improve flow conveyance and the widening and extension of Lake Shore Bridge East (all previously approved).

Pollution:
The Port Lands work site is currently managed with erosion and sediment control measures installed under previous TRCA permit approvals and include a combination of settling ponds, check dams, catch basin barriers, cut-off swales, and stormwater collection ponds which are maintained and revised as the site construction advances, and for the entire duration of construction. A comprehensive and phased erosion and sediment control plan to address site conditions including temporary stock piling that will occur as part of the site preparation grading and excavations was previously approved through Work Package 5 (CFN 61075, C-190581). These measures will be implemented to prevent the release of construction generated sediments into the nearby Don River and Ship Channel of Lake Ontario.

Dynamic Beaches:
Not applicable.

Erosion:
No geotechnical/slope stability issues have been identified. The FPL is designed to be stable in the long-term.

Conservation of Land:
No in-water works are associated with this project.

Plantings
All vegetation has been removed from this site under a previous TRCA permit to allow for other on-going works in this area to proceed. Once the FPL and Don Roadway are constructed Waterfront Toronto will implement an overall project-wide restoration plan that was approved under the previously approved permits.

Policy Guidelines:
This proposal complies with Section 8.9, Infrastructure Policies of The Living City Policies for Planning and Development in the Watersheds of the Toronto and Region Conservation Authority.

CFN: 64901 - Application #: 0544/21/TOR
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