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March 26, 2019

Ms. Melinda Holland
Planner
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Toronto, ON
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Re: Pedestrian Wind Assessment
591 Liverpool Rd.
Pickering, ON
RWDI Project 1703242

Dear Ms. Holland,

RWDI has prepared this letter to present our opinion on the pedestrian wind conditions around the proposed development at 591 Liverpool Road in Pickering, ON.

This pedestrian wind review has been prepared in support of the OPA/RZA application for the project. Wind tunnel testing will be conducted at a later design stage in support of the SPA submission to quantify the wind conditions and, if needed, to develop wind control solutions.

The following discussions describe the potential pedestrian wind conditions on and around the proposed development based on a review of the local wind climate and the design information received by RWDI on January 16 and 22, 2019, combined with our extensive experience with wind-tunnel tests for similar building projects.

BUILDING AND SITE INFORMATION

The proposed development will be located on the east side of Liverpool Rd., along the north shore of Frenchman's Bay in Pickering, ON (see Image 1). It will consist of two 23-storey buildings on the east portion of the site connected to 4 to 5 storey podiums on the west side (see Image 2).

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Image 1: Aerial View of Site and Surroundings (Photograph Courtesy of Google™ Earth)

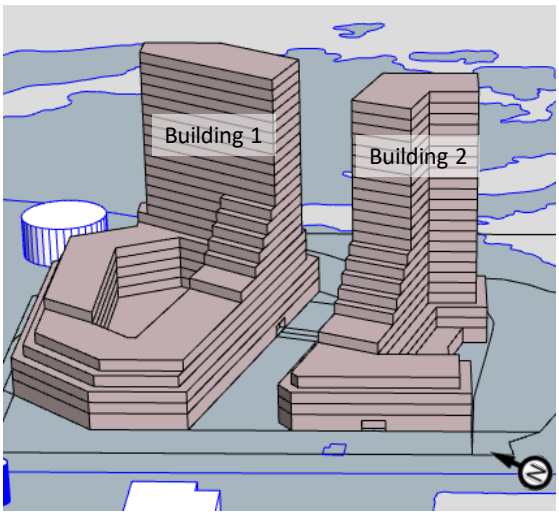


Image 2: Rendering of the Proposed Development – View from the Southwest

The site is immediately surrounded by low-rise residential buildings to the northwest, a parking lot and empty land to the north, Frenchman's Bay to the east and west, and Lake Ontario to the south. Beyond the immediate surroundings, the buildings are generally low rise to the north.

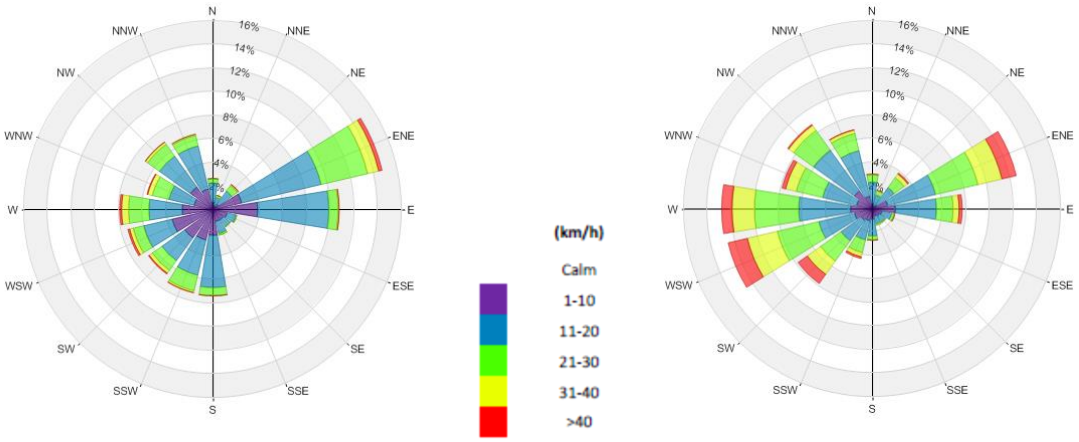
WIND DATA

Wind data from Billy Bishop Toronto City Airport were used as a reference for the current project (refer to the wind roses in Image 3). This is the nearest station with long-term, comprehensive wind data.

When all winds are considered, winds from the westerly and east-northeast directions are predominant during the summer. During the winter, winds are from southwest through west-northwest, east-northeast and east directions. Strong winds occur more often in the winter, and they are typically from the southwest through west and east-northeast directions.

PEDESTRIAN WIND ASSESSMENT

To provide an opinion on the overall wind conditions expected on and around the proposed development, RWDI reviewed the long-term meteorological data for the area, drawings of the proposed development, and information regarding the surroundings. These data, in conjunction with our experience in the area and our engineering judgment, allowed us to predict the expected wind conditions on the project site, as summarized below.



Summer Winds (May to October) **Winter Winds (November to April)**

Image 3: Direction Distribution of Winds recorded at Billy Bishop Toronto City Airport from 1986 to 2017

- The placement of podiums of both buildings of the proposed development on the west side and their stepped nature are positive design feature, which will reduce the impact of the strong prevailing southwesterly to westerly winds on the western building perimeter and sidewalks. Appropriate wind conditions are expected at the sidewalks along Liverpool Rd. throughout the year.

- Setbacks of the towers at levels 4 and 7 on the east side are also positive features that help to reduce the impact of the east-northeasterly winds downwashing off these toward to the ground on the east side of the site. However, these setbacks are small and therefore wind speeds on the east side of the tower (Location A1 in Image 4) are still expected to be high. Since this area is an outdoor amenity intended to be used for passive activities during the summer, wind speeds would be higher than desired. Therefore, we recommend including dense hard and soft landscaping elements in

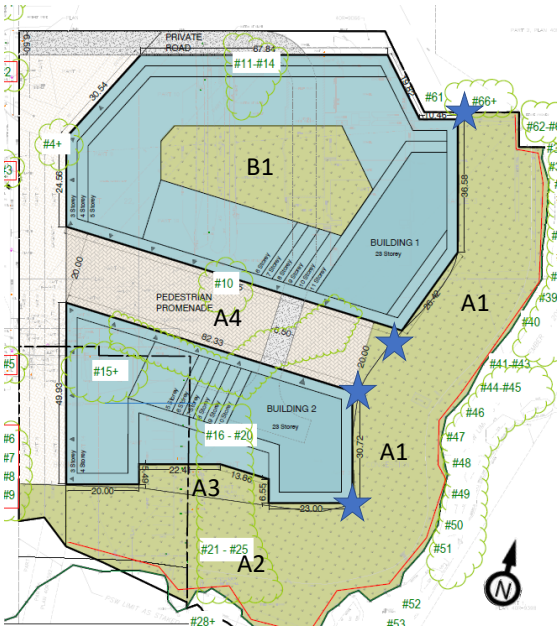


Image 4: Ground Floor Plan

this area to reduce the wind speeds. Wind speeds are also expected to be high at the open space to the south of the site (A2) due to exposure to the prevailing winds; therefore, we recommend dense hard and soft landscaping elements in this area to reduce the wind speeds. Calmer wind conditions are expected at the small recessed area to the south of Building 2 (A3).

- The two towers are positioned in a way that the prevailing southwesterly and northeasterly could channel between them. This could result in high wind speeds at along the pedestrian promenade (A4), where winds could be uncomfortable during the winter. Tree with underplanting and porous windscreens throughout this promenade can help to improve the wind conditions. A canopy or trellis structures over the promenade between the two towers would also be beneficial. If there are entrances along this promenade, we recommend recessing them from the main façade or installing porous windscreens on both sides of them.

- Channelling of winds between the two buildings and the acceleration of the east-northeasterly winds down the tall east facades and around the tower corners will create wind conditions at the southeast and northeast corners of Buildings 1 and 2 (marked by blue stars in Image 4) that are potentially uncomfortable during the winter. We recommend installing porous windscreens or coniferous landscaping at these areas and reducing pedestrian access to these areas and avoiding having entrances there.

- Due to exposure to the prevailing westerly winds, wind speeds at the outdoor amenity areas and terraces facing west are expected to be higher than desired during the summer. Tall parapets, landscaping and trellises in these areas will help to reduce the wind speeds. Wind speeds at the courtyard of Building 1 (B1) are expected to be calm as it is protected by the podium and the tower from the prevailing winds.

- The Biglieri Group Ltd. has confirmed that the design recommendations provided above can be accommodated in the proposed design. Wind tunnel testing will be required at later design stage in support of the SPA submission to quantify the predicted wind conditions and evaluate the effectiveness of the recommended mitigation measures.

CLOSING

We trust the enclosed meets your present requirements. Should you have any questions or require additional information, please do not hesitate to contact us.

Yours truly,

Saba Saneinejad, Ph.D.
Senior Technical Coordinator

John Alberico, M.Sc., CCEP
Senior Project Consultant / Principal

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