

GRADIENTWIND

ENGINEERS & SCIENTISTS

May 13, 2024

O-St. Dennis Inc.
141 Adelaide Street West, Suite 600
Toronto, ON M5H 3L5

Attn: Laurie Payne, Executive Vice President
lpayne@ogdc.ca

Dear Ms. Payne:

Re: Pedestrian Level Wind Study Addendum
7 St. Dennis Drive & 10 Grenoble Drive, Toronto
Gradient Wind File 22-109

Gradient Wind Engineering Inc. (Gradient Wind) completed a computational pedestrian level wind (PLW) study for the proposed multi-building development located at 7 St. Dennis Drive and 10 Grenoble Drive in Toronto, Ontario¹. This study, which was performed to satisfy Zoning By-Law Amendment application resubmission requirements, was conducted based on architectural drawings of the proposed development prepared by architects–Alliance in November 2023². This study was preceded by a PLW study in July 2022³ for the previous design of the proposed development.

In the current architectural design, which was distributed to the consultant team in April 2024, the floorplates of Towers 1, 2, and 4 have been reduced to 800 square metres (sm) from 810 sm, and an additional storey has been added to Towers 1, 2, and 3, increasing their heights to 53, 49, and 40 storeys, respectively.

The PLW study from 2023 concluded that most grade-level areas within and surrounding the subject site are predicted to experience conditions that are considered acceptable for the intended pedestrian uses, inclusive of surrounding sidewalks, most nearby transit stops, nearby existing surface parking, the outdoor

¹ Gradient Wind Engineering Inc., '7 St. Dennis Drive and 10 Grenoble Drive – Pedestrian Level Wind Study', [Dec 12, 2023]

² architects–Alliance, '7 St. Dennis + 10 Grenoble, OGDC, ZBA Application,' [Nov 9, 2023]

³ Gradient Wind Engineering Inc., '7 St. Dennis Drive and 10 Grenoble Drive – Pedestrian Level Wind Study', [July 5, 2022]

amenities along the east and south elevations of Tower 1, the outdoor amenities serving Tower 3, and in the vicinity of building access points. A typical transit shelter was recommended for the westbound transit stop to the northeast of Tower 2 to provide pedestrians with a means to protect themselves from the elements, including during periods of strong wind activity. Recommendations regarding mitigation were provided in the study for the outdoor amenities serving Towers 2 and 4, the outdoor amenity to the north of Tower 1, the proposed public park, and the common amenity terraces serving the proposed development at Level 2.

Notably, the primary building access points along the northeast elevation of Tower 2 and the east and west elevations of Tower 3 are recessed into their building façades per the recommendations of the December 2023 study.

The 2023 and 2024 massing designs are mostly similar, and as such, similar wind conditions are expected within most areas surrounding and throughout the subject site. The conclusions and recommendations regarding grade-level wind conditions in the December 2023 study remain applicable to the current architectural design.

Furthermore, the City of Toronto provided the applicant with the following comment:

Comment 17:

“The proposed public park is not comfortable sitting all in summer from the pedestrian wind comfort level. Please provide potential mitigation measures to improve wind comfort conditions.”

Under the existing site massing, prior to the introduction of the proposed development, wind comfort conditions over the proposed public park area are predicted to be suitable for a mix of sitting and standing during the summer, and where conditions are suitable for standing, they are also suitable for sitting at least 70% of the time during the same period. Winds from multiple prevailing directions are predicted to accelerate somewhat around the exposed northeast and northwest corners of the existing buildings at 7 St. Dennis Drive and 10 Grenoble Drive, respectively, and to downwash towards grade-level over the west façade of 10 Grenoble Drive. In addition, salient southeasterly winds are predicted to accelerate somewhat around the northeast corner of the existing building at 200 Gateway Boulevard and over the open space between 7 St. Dennis Drive and 10 Grenoble Drive.

While wind conditions following the introduction of the proposed development are predicted to be slightly windier over the proposed park in comparison to existing conditions, these conditions may be considered satisfactory for a public park. Currently, wind conditions are suitable for sitting at least 70% of the time during the typical use period (May to October, inclusive). Conditions over the proposed park are predicted to be suitable for sitting for at least 60% of the time over most of the windier eastern extent of the park following the introduction of the proposed development during the same period, representing a 10% decrease in the percentage of time that the park is suitable for sitting during the typical use period.

There are a number of strategies being deployed on the site to improve wind conditions. The proposed public park is in a currently treed and bermed area, and the landscape plan⁴ for the area includes the retention of the existing coniferous trees within the area. As noted in the detailed PLW study, these trees, which could not be implemented into the simulation model, are expected to provide an improvement to the wind comfort conditions within the park and to create areas of calmer wind conditions. The current berms and mounds within the proposed park will also be retained, further providing localized partial shielding effects to the prevailing winds in the area. Above the retention of existing trees, additional trees and vegetation will be proposed, and targeted landscaping elements such as high-back bench seating may provide further screening against direct winds as well canopies above designated seating areas that may provide pedestrians with further shelter from the elements.

The project team, including the building architects and landscape architects, explored alternative massing changes in Tower 1 to enhance the wind comfort conditions within the proposed public park. In the alternative scenario, the tower was setback farther south from the north elevation of the podium and the canopy along the perimeter of the podium was extended eastward, along with wind screening implemented at grade at the northeast corner of Tower 1. Additionally, the change in the wind conditions over the proposed public park following the introduction of the proposed neighbouring future development at 200 Gateway Boulevard was investigated.

⁴ The MBTW Group, 'Landscape Plan, 7 St. Dennis Drive, Drawing L1b, Re-issued for ZBA Subdivision,' [Dec 7, 2023]

It was found that the noted revisions to the built form, the wind screening at grade at the northeast corner of Tower 1, and the introduction of the proposed future high-rise development at 200 Gateway Boulevard result in similar wind conditions over the proposed park as compared to the December 2023 architectural design.

The predicted wind comfort conditions within the public park may be considered to be appropriate and satisfactory for the intended pedestrian uses as a public park during the summer season, particularly when the noted design and landscape considerations are taken into account. The wind conditions can be further improved with the retention of the existing conifers and the berms and mounds within the area and the implementation of thoughtful programming that responds to the wind conditions in the area. This is expected to be effective in creating zones of calmer wind conditions where desired by the future detailed programming of the space. Targeted landscaping elements such as high-back bench seating may provide further screening against direct winds, and canopies above designated seating areas may provide pedestrians with further shelter from the elements. It is anticipated that these design interventions will achieve sitting conditions within sensitive regions of the proposed public park during the summer.

The mitigation strategy for the proposed public park will be further explored for the future Site Plan Control application submission, for which the predicted wind comfort and safety conditions within and surrounding the proposed development, including within the proposed public park, will be reconfirmed using physical wind tunnel testing of a scale model of the proposed development in its surroundings.

Sincerely,

Gradient Wind Engineering Inc.



Justin Ferraro, P.Eng.
Principal