June 7, 2024

Bayview Orleans Inc.
108 Chestnut Street
Toronto, ON M5G 1R3

Attn: Imran Gulamani, Vice-President
imran.gulamani@bayviewgroup.com

Dear Mr. Gulamani:

Re: Pedestrian Level Wind Study Addendum
265 Centrum Boulevard, Ottawa
Gradient Wind File 23-023 June 2024

Gradient Wind Engineering Inc. (Gradient Wind) completed a computational pedestrian level wind (PLW) study in March 2023 for the proposed development located at 265 Centrum Boulevard in Ottawa, Ontario[1]. The work, which was performed to satisfy concurrent Zoning By-law Amendment (ZBLA) and Site Plan Control application requirements, was conducted based on architectural drawings of the proposed development prepared by B+H Architects in March 2023[2]. The proposed development is considered a Type 2 application.

The March 2023 PLW study concluded that most grade-level areas within and surrounding the subject site were predicted to be acceptable for the intended pedestrian uses throughout the year. Specifically, conditions over surrounding sidewalks, walkways, transit stops, surface parking, laneways, and building access points were considered acceptable.

[1] Gradient Wind Engineering Inc., '*265 Centrum Boulevard – Pedestrian Level Wind Study*', [March 29, 2023]
[2] B+H Architects, '*265 Centrum Boulevard, Site Plan Agreement – Issued for SPA*', [March 24, 2023]

Exceptions were as follows:

(i) The neighbouring areas of Cumberland Seniors Park and 22e Régiment Park, where conditions were predicted to be suitable for a mix of sitting and standing during the typical use period (May to October, inclusive) following the introduction of the proposed development.

(ii) In the vicinity of the building access points serving the upper lobby of Tower A and along the access points along the southwest elevation of Tower B serving the indoor amenity spaces at the upper grade level, where conditions were predicted to be suitable for strolling during the spring, autumn, and winter, and it was recommended to recess the noted entrances into the building façade by at least 2 m.

(iii) Within the retail patio, outdoor amenity, and parkette, where conditions were predicted to be suitable for sitting within the majority of their areas during the typical use period with limited areas suitable for standing.

(iv) Within the parkland dedication, where conditions were predicted to be suitable for mostly standing during the typical use period with conditions suitable for strolling to the north and sitting to the east.

(v) The stair feature between Towers A and B that links the upper and lower grade levels, where conditions were predicted to be uncomfortable for 30% of the time during the winter season owing to the channeling of prominent winds through the development, in combination with downwash effects from higher-level winds incident on Towers A and B.

A freestanding feature canopy was recommended over the stair feature to provide pedestrians with a means of protection from the elements, including during periods of strong wind activity, and local wind mitigation targeted around sensitive areas was recommended for the grade-level amenity spaces, depending on programming, which may take the form of 1.6-metre (m) tall wind screens and planters with coniferous plantings in dense arrangements, in combination with strategically placed high-back bench seating and other local wind mitigation.

Furthermore, wind conditions within the amenity terraces serving the proposed development atop the podia serving Towers A and C at Levels 7 and 4, respectively, were predicted to be suitable for mostly standing during the typical use period, with conditions suitable for sitting along the tower elevations and isolated regions suitable for strolling. Conditions within the amenity terrace serving Tower C at Level 3 were predicted to be suitable for sitting within the majority of the terrace, with a limited region of standing conditions to the northeast, while the terrace at Level 21 serving Tower B was predicted to be suitable for a mix of sitting, standing, and strolling, with conditions suitable for sitting mostly located along the east elevation of Tower B.

To improve wind conditions, the implementation of tall wind screens, in place of standard height guards, was recommended along the full perimeters of the amenity terraces at Levels 3, 4, and 7, in combination with targeted mitigation inboard of the perimeter in the form of tall wind screens or similar architectural features and canopies located above designated seating areas. Canopies extending from the tower façades at the northeast and northwest corners of Tower C and at the southwest corner of Tower A were recommended to deflect downwash incident on the tower façades. If required by programming, it was recommended that conditions within the Level 3 terrace serving Tower C could be improved with a 1.8-m-tall wind screen along the full perimeter of the terrace.

Notably, the current architectural drawings, which were distributed to the consultant team in May 2024[3] in preparation for a resubmission of the Site Plan Control application, include three primary changes to the proposed development: (i) the parkland dedication to the south at the upper grade level has been revised to a landscaped outdoor amenity area, (ii) the Level 21 amenity terrace serving Tower B has been replaced with private balconies, and (iii) 2-m-tall wind screens have been added along the perimeters of the podium roof level terraces serving Towers A and C, adopting the recommendations of the March 2023 PLW study.

[3] B+H Architects, '*265 Centrum Boulevard, Site Plan Agreement – Issued for SPA Revision #1*', [May 28, 2024]

The City of Ottawa provided the applicant, Demarco Construction and Bayview Orleans Inc., with the following comments:

Comment 4.3(a):

> *"Post development wind conditions in the existing Cumberland Seniors Park and 22e Régiment Park will only be suitable for standing during the typical use period. It is not acceptable to create a new condition where wind conditions make it uncomfortable to sit in a public park. The architects and wind consultant are asked to work together to show and explain what massing changes, including reductions in height, would be necessary to maintain the existing range of use of the parks and show this with a new wind study."*

While windier conditions within the existing Cumberland Seniors Park and the 22e Régiment Park are predicted following the introduction of the proposed development, conditions within the two parks are also predicted to be suitable for sitting for at least 70% of the time during the typical use period, where the target is 80% of the time to achieve the sitting comfort class. Notably, the two parks have limited seating areas and benches, and are mostly comprised of walking pathways. As noted in the Ottawa Terms of Reference (Wind), conditions suitable for strolling may be considered acceptable for sidewalks associated with mainstreets, plazas, and parks.

Furthermore, trees, vegetation, and other existing and planned landscaping elements were omitted from the simulation model, as is industry standard practice, due to the difficulty of providing an accurate seasonal representation of vegetation. The landscaping elements that could not be included in the simulation model, notably the existing trees and vegetation within the two parks, are expected to somewhat improve pedestrian wind comfort within the parks. In addition, the covered gazebo at the centre of the 22e Régiment Park is expected to provide conditions that are comfortable for sitting beneath the gazebo.

Notably, changes to the massing of the development were discussed between Gradient Wind and the building architects and planners during the design process, and the current site massing was thoughtfully designed with careful consideration of urban design elements.

Comment 4.3(b):

> *"Wind conditions over the stair feature linking the lower and upper grade levels are predicted to be uncomfortable for 30% of the time during the winter season. While a freestanding canopy is proposed, the architects and wind consultant are asked to work together to show and explain what massing changes would alleviate this condition and remove the need for a canopy, and to show this with a new wind study."*

The central stair feature is an urban design element that links and connects Brisebois Crescent to Centrum Boulevard. The stair feature is a transitional area that links the two grade levels and pedestrian usage is expected to be short without pedestrians lingering in the area. The proposed freestanding canopy would provide pedestrians with shelter from the elements, including during periods of strong winds, and is expected to improve pedestrian comfort over the stair feature.

Comment 4.3(c):

> *"During the typical use period, conditions over the parkland dedication are predicted to be suitable for sitting to the west, strolling to the north, and for standing throughout the remainder of the area. The architects and wind consultant are asked to work together to show and explain what changes to the building massing would make the entire parkland dedication area suitable for sitting or lounging."*

The implementation of a freestanding canopy over the stair feature between Towers B and C is also expected to improve wind conditions over the landscaped amenity area, which was previously the parkland dedication, as the canopy reduces downwash effects from prominent winds incident on the façades of Towers B and C. The landscaped amenity area is also expected to benefit from local mitigation around sensitive areas, such as tall wind screens and planters with coniferous plantings in dense arrangements, combined with strategically placed high-back bench seating and other local wind mitigation.

Comment 4.3(d):

> *"During the typical use period, conditions over the retail patio, outdoor amenity, and parkette are predicted to be suitable for sitting within the majority of their areas, with regions suitable for standing that are predicted to occur elsewhere. The architects and wind consultant are asked to work together to show and explain what changes to the building massing would make all of the areas suitable for sitting."*

Wind conditions over the retail patio during the typical use period are predicted to be mostly suitable for sitting, with limited areas of conditions suitable for standing predicted along the outer perimeter of the patio and along the south elevation. Where conditions are suitable for standing, they are also suitable for sitting at least 75% of the time during the same period, where the target is 80% to achieve the sitting comfort class. If seating is programmed along the perimeter of the patio or along its south elevation, local wind mitigation along the perimeter of the space, such as coniferous plantings or tall wind screens or other local wind mitigation, is expected to improve comfort conditions over the noted areas.

Regarding the parkette along the north elevation of Tower B, wind conditions during the typical use period are predicted to be suitable for sitting over the majority of the space, with limited areas of conditions suitable for standing to the east and west. Notably, to the east, where conditions are suitable for standing, they are also suitable for sitting at least 77% of the time during the same period, where the target is 80% to achieve the sitting comfort class. Local wind mitigation targeted around seating areas, similar to the recommended local mitigation for the landscaped outdoor amenity, is expected to be effective in improving wind comfort over the eastern and western areas of the parkette.

Similarly, wind conditions within the grade-level outdoor amenity along the south elevation of Tower B are predicted to be suitable for sitting during the typical use period within the majority of the space. In addition, where conditions are suitable for standing, they are also suitable for sitting at least 78% of the time during the same period, where the target is 80% to achieve the sitting comfort class. If seating areas are located where conditions are predicted to be suitable for standing, local wind mitigation is expected to be effective in improving comfort conditions.

Regarding the amenity terraces serving the proposed development atop the podia serving Towers A and C, the landscape plan for the amenity terraces is expected to include barriers limiting pedestrian access to the corners of the podia serving Towers A and C where the windiest conditions are predicted to occur during the typical use period. Furthermore, barriers separating programming areas on the two podia are expected to help break-up the wind over the terrace and to improve wind comfort conditions over the podia rooftop areas. The programming for the terraces will also locate seating and walking areas closer to the base of the two towers where conditions are predicted to be calmer. Additionally, as noted above, the common amenity terrace serving Tower B at Level 21 has been removed in the current architectural design.

The extent of the mitigation measures is dependent on the programming of the terraces, and an appropriate mitigation strategy will continue to be developed in collaboration with the building and landscape architects as the design of the proposed development progresses.

Sincerely,

Gradient Wind Engineering Inc.

David Huitema, M.Eng.
Wind Scientist

Justin Ferraro, MBA, P.Eng.
Principal