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August 22, 2024

MACKENZIE CECI
ACTING SENIOR MANAGER OF CURRENT PLANNING
PLANNING & DEVELOPMENT
CITY OF NIAGARA FALLS
4310 Queen Street
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Re: SUGGESTED HOLDING (H) PROVISION NOTED IN RESPONSE TO LETTER OF INCOMPLETE APPLICATION FOR PLOPZB20240330
OFFICIAL PLAN AMENDMENT AND ZONING APPLICATION
MUNICIPAL FILE #: AM-2024-11
PEDESTRIAN WIND STUDY, KALAR APARTMENTS, 7302 KALAR ROAD
RWDI #2306234, DECEMBER 13, 2023

Dear Mrs. Ceci,

Mr. Lesdow requested Rowan Williams Davies & Irwin Inc. (RWDI) to respond to the following paragraph in the above-noted letter:

> *No new uncomfortable wind impacts caused by the development proposal should occur within pedestrian areas of the development, within the public realm or on surrounding private properties. The submitted Pedestrian Wind Study indicates that uncomfortable wind impacts are expected on the subject property in the winter. Mitigation measures and/or modifications to the design of the building are required to address this. Staff will recommend the inclusion of a Holding (H) provision in the amending by-law to require the submission of an updated Wind Study to demonstrate no uncomfortable wind impacts and/or the effectiveness of any proposed mitigation measures.*

RWDI has prepared this addendum to comment on the City's feedback of the pedestrian level wind study for the Kalar Apartments project in Niagara Falls, ON.

For the proposed project, wind tunnel testing was conducted by RWDI in October 2023. Our findings were summarized in the final report:

> *Pedestrian Wind Assessment – Kalar Apartments – Niagara Falls, ON, RWDI #2306234, December 13, 2023, by Hang You, Tim Wiechers, and Scott Bell.*

The test results can be summarized as below:

- Wind comfort conditions across the existing site are appropriate for general sidewalk usages throughout the year.
- With the proposed development in place, wind conditions on and around the site are expected to be suitable for the intended usages at all locations in the summer and most locations in the winter. Uncomfortable wind conditions may be experienced through the channel between the two towers, as well as around several building corners in the winter (see orange dots in Image 1).
- Wind speeds on the above-grade terraces are predicted to be comfortable for general passive usages in the summer. Higher winds are anticipated in the winter, which might still be acceptable since the outdoor amenity will likely be occupied less frequently during the colder months.
- Positively, the pedestrian wind safety criterion is met at all locations assessed in both test configurations.

Image 1: Winter wind conditions indicting uncomfortable (orange) winds at a few test locations

The uncomfortable conditions you refer to are shown in Image 1 above. Of the eighty (80) tested sensor locations, uncomfortable conditions were anticipated at six (6) locations across the site model, and five (5) of which occur in areas which are not occupied or frequently used by pedestrians. These locations are:

- 21 Center of vehicular drive
- 44 Driveway entrance into underground parking
- 13, 32, 36 Corners of the building with minimal or negligible expected pedestrian use

Given the predicted wind speeds marginally exceed the comfort threshold for "walking", no mitigation measures were suggested in the report, with the exception of sensor Location 13 where higher wind speeds are predicted. In our report on page 8, the last paragraph it states:

> *In the winter months, wind conditions comfortable for standing or walking are expected at most locations around the two buildings (see Figure 2B). Uncomfortable wind conditions are anticipated in localized areas at exposed building corners (Locations 13, 32, and 36 in Figure 2B), and locations along the passage between the two buildings (Locations 21, 29, and 44 in Figure 2B). It may be noted that the wind speeds at all of these locations, with the exception of Location 13, are predicted to be marginally uncomfortable (i.e., 1 to 2 km/h over the threshold for the 'walking' criteria, see Table 1) and are located in areas around the development that will not have frequent pedestrian access. Thus, these elevated wind speeds may not be of major concern.*

Wind mitigation measures were suggested for Location 13 on page 9 of the report in the second paragraph, which reads:

> *Due to prevailing southwesterly winds downwashing off the west building façade and accelerating around the northwest building corner, the highest wind speeds are anticipated at Location 13 (see Table 1). It is understood that pedestrian access near Location 13 is limited, however, localized wind control features can be considered by the design team to improve wind conditions near this corner. These features may include soft and/or hard landscaping features that are at least 2 m tall. It is necessary for vegetation to be marcescent or coniferous to offer adequate wind sheltering during the winter season. Examples of these wind control features are presented in Image 7 for reference purposes. Such wind control features can also be considered in other areas of higher-than desired wind activity.*

With respect to the sixth location which indicated uncomfortable conditions, sensor Location 29, it is located on a pedestrian sidewalk. The corresponding wind speed is predicted to be also marginally uncomfortable, being 1 km/h over the threshold for the walking criteria and "may not be of major concern".

We have discussed the findings with the project Architect, Mr. Lesdow. It was decided that to avoid a possible issue with wind comfort, especially near Location 29 which is on a pedestrian sidewalk, this area would be addressed using the similar wind mitigation method for Location 13.

An updated Landscape drawing (see Image 2) was provided where coniferous landscaping elements were added as wind mitigation strategies. It was noted that at:

- Location 13 Three (3) eastern red cedars, which will be 2.0m in height, were added.
- Location 32 To maintain the symmetry of the site design, three (3) eastern red cedars were provided at this Location to balance Location 13.
- Location 29 Two eastern red cedars were added at this corner, with landscaping elements arranged closer to the pedestrian sidewalk.
- Location 16 Not required, but to maintain the symmetry of the plantings at Location 29, two eastern red cedars have been added.
- Surface Parking Six (6) eastern red cedars were in the center of the surface parking area between the two towers.

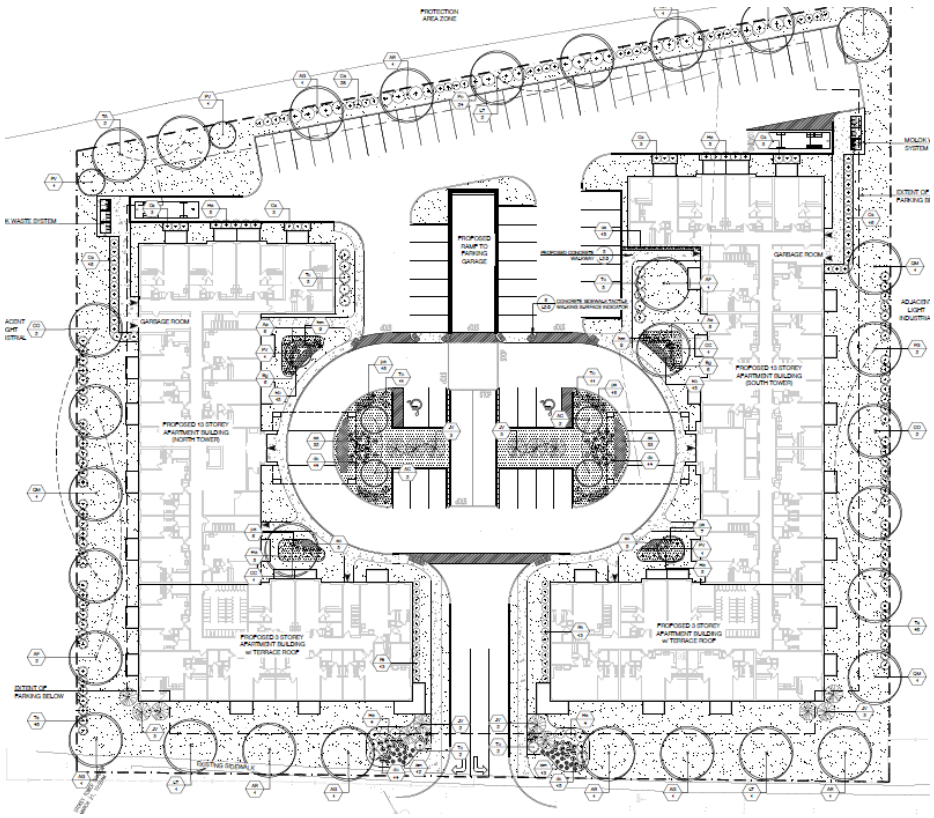


Image 2: Proposed Landscaping Plan

The proposed landscaping plan conforms to the wind mitigation strategy recommended in RWDI's report. With the proposed coniferous trees listed above, suitable wind conditions are expected to be achieved for the above-mentioned locations throughout the year. Wind speeds at Location 13 might still be marginally uncomfortable from time to time in the winter, which is acceptable given the negligible pedestrian activity at this building corner.

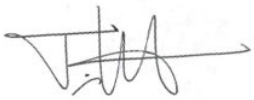
It is our opinion that no further mitigation measures would be required for this project for pedestrian comfort and safety. The overall wind activity across the project is considered moderate, which is supported by the absence of unsafe wind gusts at the project site in a windy region like Niagara Falls.

We trust the above discussion addresses the current concern with the uncomfortable winds predicted at this project. Should you have any questions or require additional information, please do not hesitate to contact us.

Yours truly,

Rowan Williams Davies and Irwin Inc. (RWDI)

Hang You, M.E.Sc.
Technical Coordinator



Timothy Wiechers, M.Sc.
Senior Technical Coordinator

Scott Bell, GSC
Project Manager