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December 22, 2023

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**Re: Pedestrian Wind Assessment – Letter of Opinion  
Speedvale Affordable Housing  
Guelph, Ontario  
RWDI Project 2400320**

Dear Brett,

RWDI AIR Inc. (RWDI) has prepared this letter to comment on the expected wind conditions around the proposed Speedvale Affordable Housing development in Guelph, Ontario. This qualitative assessment is based on the local wind climate, the design information received by RWDI on December 21, 2023, the existing surroundings as well as our engineering judgement and experience with wind tunnel testing of projects in Guelph area.

## SITE AND BUILDING INFORMATION

The proposed development site is located on the south side of Speedvale Avenue East, between Metcalfe Street and Manhattan Court (Image 1). The site is currently occupied by low-rise buildings and surrounded by low-rise residential buildings in all directions.

The proposed development consists of a 5-storey residential building and a partially below-grade basement level, with an elongated rectangular floor plan. Main entrance to the building is situated on the east façade. An amenity seating area and a surface parking lot are proposed on the southwest and south sides, respectively. Site plan, building elevations and 3D renderings of the proposed building are shown in Image 2.



**Image 1: Aerial View of the Project Site and Surroundings**  
(courtesy of Google™ Earth)

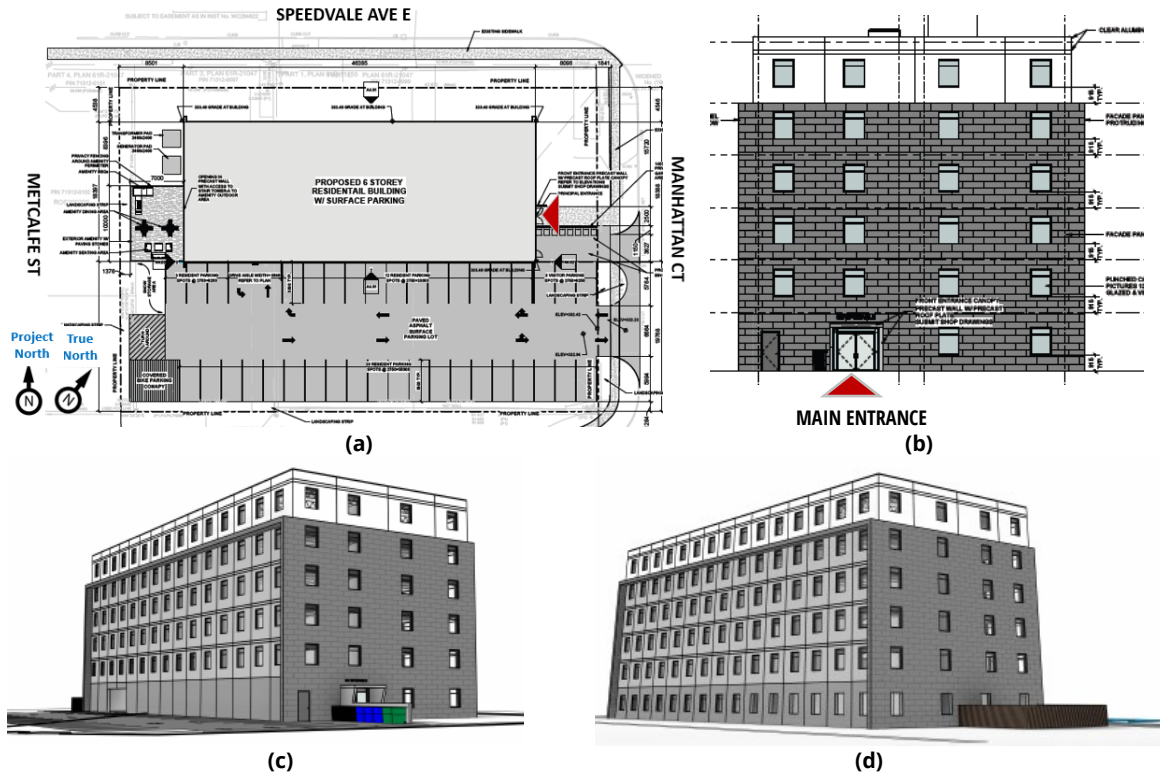


Image 2: (a) Site Plan, (b) East Building Elevation, (c) Southeast View, and (d) Northwest View

## METEOROLOGICAL DATA

Wind statistics recorded at Waterloo-Wellington International Airport between 1991 and 2021, inclusive, were analysed. Image 3 graphically depicts the directional distribution of wind frequency and speeds for the summer (May-October) and winter (November-April). When all winds are considered, those blowing from the east and southwest through northwest are predominant during both seasons.

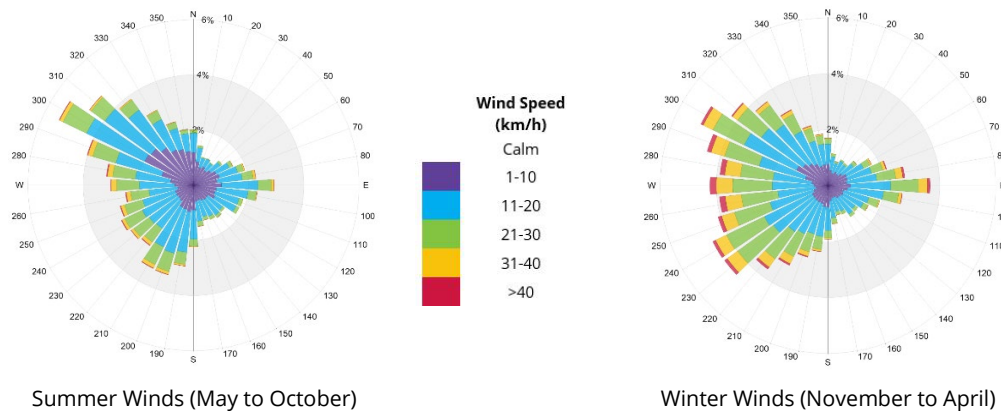


Image 3: Direction Distribution of Winds Recorded at Waterloo-Wellington International Airport (1991 and 2021)



Strong winds of a mean speed greater than 30 km/h measured at the airport (red and yellow bands in the wind roses) are more frequent during the winter. These winds are primarily from the westerly and easterly directions.

## PEDESTRIAN WIND ASSESSMENT

Pedestrian areas of interest on and around the site include main building entrance, surface parking lot, amenity seating area as well as public sidewalks along Speedvale Avenue East, Metcalfe Street and Manhattan Court.

### Existing Scenario

Buildings that are currently on the site and in the surrounding areas are low-rise. As such, they are not expected to redirect winds and cause adverse effects at ground level. Therefore, wind conditions on and around the existing site are suitable for pedestrian use throughout the year.

### Proposed Scenario

The proposed development, at 5 storeys, will be taller than the existing buildings on the site and the surrounding buildings. Thus, the building facades will intercept the prevailing westerly and easterly winds and redirect them to ground level. Such wind downdrafts will subsequently accelerate along the facades and around the building corners, creating increased wind activity. It is worth noting that due to the moderate height of the proposed development, the wind impacts are not predicted to be significant and wind conditions in the extended surrounding areas are not expected to be affected by the construction of the new building.

- The predicted wind speeds are considered suitable for the intended use of sidewalks and the surface parking lot.
- At the main entrance location along the east façade, wind speeds are expected to be appropriate for pedestrians. While the proposed vestibule feature is a positive design aspect that provides an area for pedestrians to take shelter at on cold and windy days, the overhead canopy and the precast wall on the south side of the doors are beneficial toward creating calm wind conditions in the entry area.
- At the amenity seating area near the southwest corner, wind conditions are expected to be comfortable for passive patron use during both the summer and winter seasons. The proposed fencing along the perimeters of the amenity is positive and helps create a sheltered area for prolonged seating and leisure activities. We recommend ensuring the privacy fencing has a minimum height of 2 m to provide adequate wind shelter. Any use of landscaping, screen walls or partitioning elements throughout the amenity area will further reduce wind speeds.



## 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 very truly,

**RWDI AIR Inc.**

A handwritten signature in black ink, appearing to read 'Anthony Vanderheyden'.

Anthony Vanderheyden, B.A.Sc., EIT  
Project Manager

A handwritten signature in black ink, appearing to read 'Rose Babaei'.

Rose Babaei, Ph.D.  
Senior Technical Coordinator

AUV/RB/hta