

January 27, 2021

All Seniors Care Acquisitions Ltd.  
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Toronto, ON M4W 3R8

SLR Project No.: 241.20221.00000

**RE: PEDESTRIAN WIND ASSESSMENT - DRAFT  
33-37 ARKELL ROAD & 1408 GORDON STREET - GUELPH**

At the request of All Seniors Care Acquisitions Ltd. this letter of opinion by SLR Consulting (Canada) Ltd. (SLR) provides our estimation of the pedestrian wind conditions surrounding the proposed development at 33-37 Arkell Road and 1408 Gordon Street in Guelph, Ontario. This letter is in support of the submission to the City of Guelph for Official Plan Amendment (OPA), Zoning By-law Amendment (ZBA), and Site Plan Approval (SPA) applications.

This letter of opinion regarding pedestrian wind comfort is based on architectural drawings issued by IBI Group Architects in December 2020 and January 2021; our previous experience in southern Ontario, including Guelph; our engineering judgment; and, our experience in studying pedestrian comfort associated with building aerodynamics. A site visit was conducted by SLR on January 22, 2021.

### **BUILDING INFORMATION & SURROUNDINGS**

The L-shaped site is located on the southeast side of Arkell Road, between Gordon Street and Malvern Crescent. There is access to the site from Arkell Street along the north edge, as well to Gordon Street at the southeast corner. The site is currently vacant.

The proposed development is a mid-rise residential building. At the north edge of the site the building is five-storeys tall (approximately 20 m), while at the south edge of the site it is six-storeys in height (approximately 25 m). There are commercial entrances along Arkell Street, while the two main residential entrances are along the west side of the building. Additional exits and entrances can be found along the west, south and east facades. There are also outdoor amenity spaces at grade along the east side of the building. A site plan is provided in **Figure 1**.

Directly surrounding the proposed development there is a proposed mid-rise (eight-storeys) residential building to the southwest, an existing mid-rise (seven-storeys) residential building to the west, low-rise residential buildings to the north, a low-rise institutional building to the northeast, and low-rise residential and commercial buildings to the east through south. Beyond the immediate surroundings there are low-rise residential and commercial buildings in all directions, with significant woodlots to the north and southwest. Images of the surroundings are shown in **Figures 2a** and **2b**.

In addition, there are two nearby transit stops on either side of Gordon Street, just north of Arkell Road.

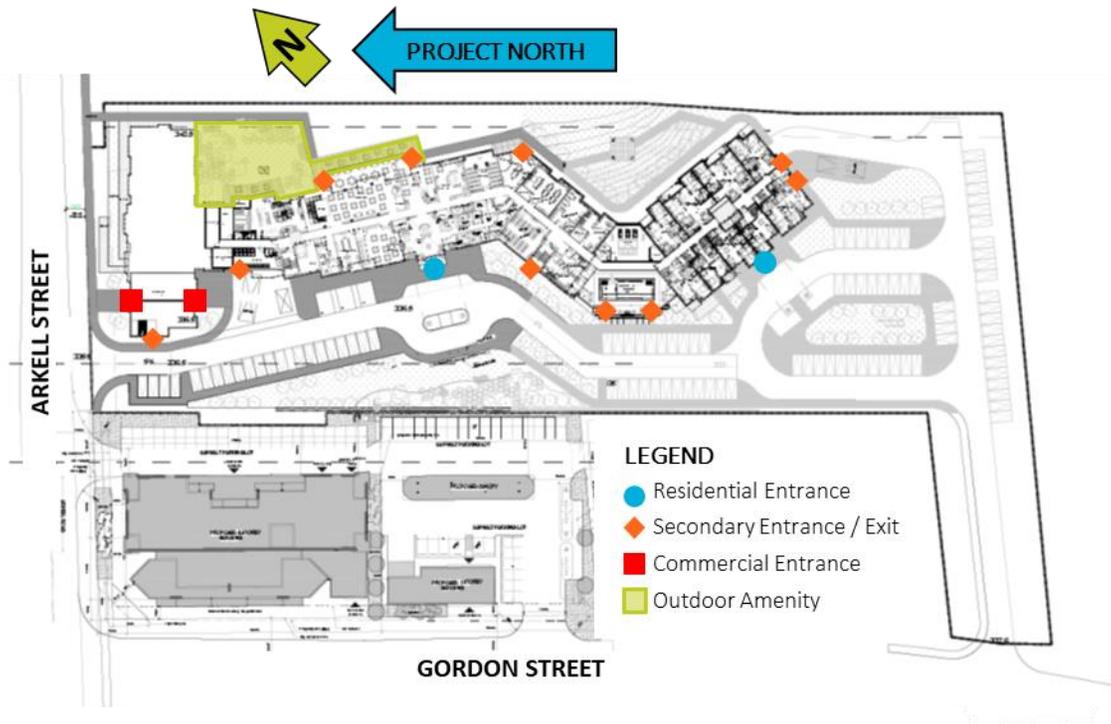


Figure 1: Site plan (December 2020, courtesy of IBI Group Architects)



Figure 2a: Looking northwest along Gordon Street

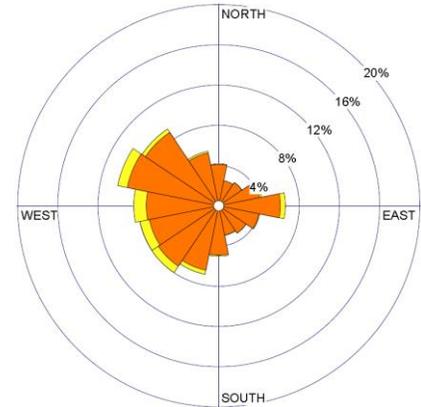


Figure 2a: Looking northeast along Arkell Road

## WIND CLIMATE

To determine the wind conditions at the site, wind data recorded at the Region of Waterloo International Airport in Breslau, for the period 1993 to 2015, were obtained and analysed to create a wind climate model. This meteorological data is representative of the region, including Guelph.

The annual wind distribution diagram (“wind rose”) is shown in **Figure 3**. This diagram illustrates the percentage of time wind blows from the 16 main compass directions. Of main interest are the longest peaks that identify the most frequently occurring wind directions. The annual wind rose indicates that winds approaching from the northwest and southwest quadrants are the most prevalent. The direction from which stronger winds (greater than 30 km/h, yellow) approach are also of interest as they have the highest potential of creating problematic wind conditions, depending upon site exposure and the building configuration. The wind rose in **Figure 3** also identifies the directional frequency of these stronger winds. On an annual basis, strong winds occur most frequently from the west, west-southwest, west-northwest, and southwest directions.



**Figure 3: Annual Wind Directionality  
Regional of Waterloo International Airport  
(1993-2015)**

This analysis of meteorological data provides the foundation for estimating the wind conditions on and around the proposed site.

## PEDESTRIAN WIND CONDITIONS

### WIND COMFORT CRITERIA

There are generally accepted wind comfort levels that are desired for various pedestrian uses.

- The most stringent category of sitting is considered appropriate for cafes and dedicated seating areas, while for public parks standing would be appropriate in the summer.
- For outdoor amenity spaces, wind conditions suitable for sitting and/or standing are generally desirable during the summer months.
- For main entrances and transit stops, wind conditions conducive to standing would be preferred throughout the year.
- For public sidewalks, wind comfort suitable for leisurely walking would be desirable year-round; however, in the winter, windier conditions comfortable for fast walking, may occur in harsher wind climates.

This criterion relates to wind force on pedestrians and do not consider thermal comfort.

### ANTICIPATED WIND CONDITIONS

In general, wind conditions in the vicinity of the development, including the nearby sidewalks along Arkell Road and Gordon Street are expected to be suitable for sitting and/or standing throughout the year once the proposed development is constructed. This includes the two nearby transit stops.

Along the north facade, including the two commercial entrances and the sidewalk, wind conditions are expected to be suitable for sitting in the summer and standing in the winter. At the nearby exit on the east side of the building, wind conditions are predicted to be comfortable for standing year-round. Wind

conditions in the north loading area are anticipated to be conducive to sitting year-round, as the north building element will provide local protection from the prevailing winds. At the main north entrance wind conditions are expected to be comfortable for sitting year-round as the large canopy will provide shelter for the doors. Similar wind conditions are anticipated at the south main entrance.

Wind conditions in the outdoor amenity spaces on the east side of the building are expected to be comfortable for sitting year-round, as the mass of the building generally shelters the area from the prevailing winds.

At the numerous exits and secondary entrances along the west, south and east facades wind conditions are predicted to be suitable for sitting in the summer and standing in the winter, including the south loading area.

As the wind conditions described are expected to meet the criteria, these wind conditions are considered appropriate for the intended usage of the areas. No changes to the building are necessary from a wind comfort perspective.

## CLOSING

Wind conditions on and around the site are expected to be suitable for the intended usage, due to the overall wind climate of the region and the overall massing of the building. In our opinion, no additional wind analysis is required.

Should you have any questions or comments, please feel free to contact me.

Yours sincerely,

**SLR Consulting (Canada) Ltd.**



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