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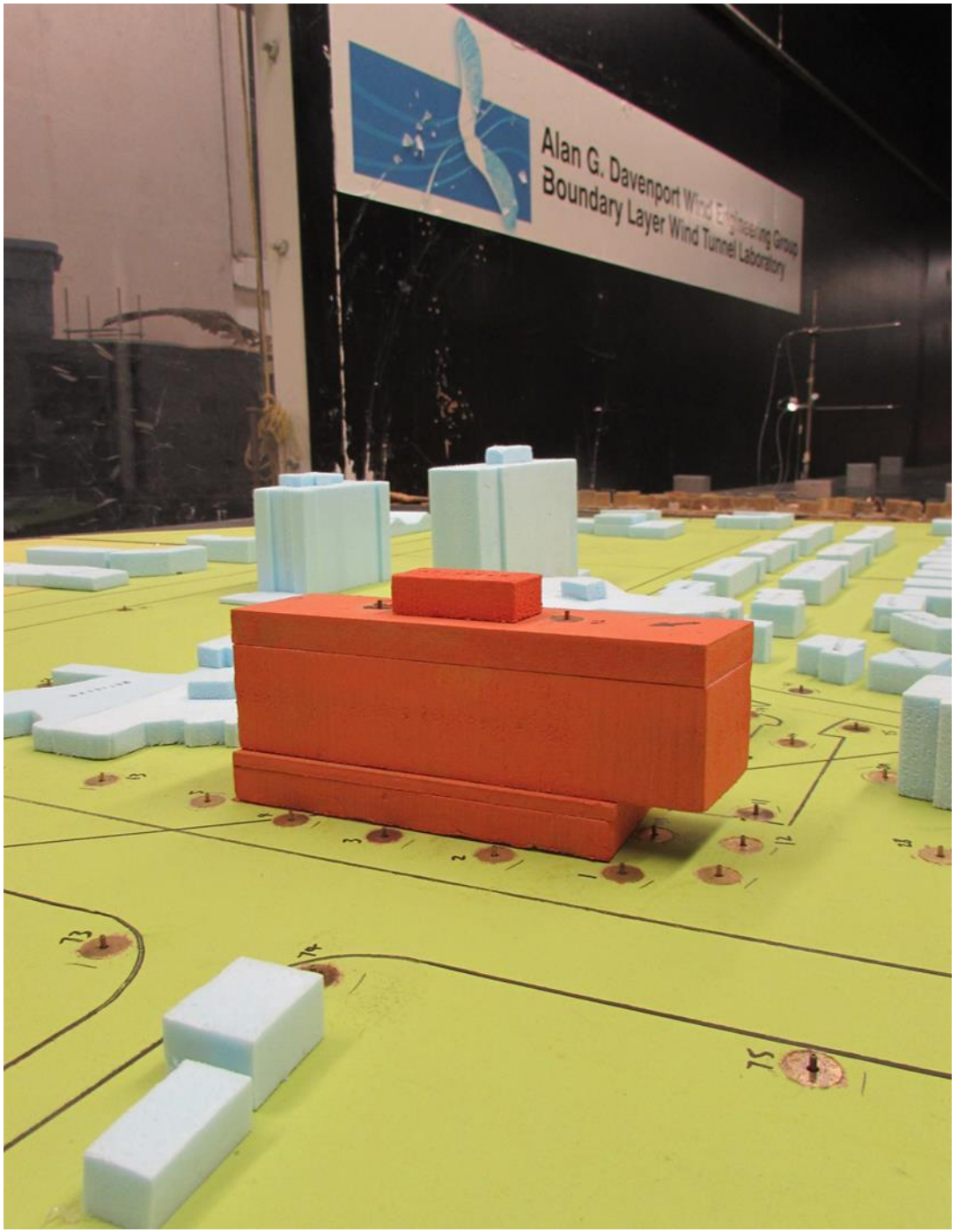
Date: November 14, 2023

Re: **Pedestrian Wind Study**

1315 Silver Spear Road
Mississauga, Ontario

SLR Project #241.031124.00001



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1	November 14, 2023	Stefan Gopaul	Tahrana Lovlin	Tahrana Lovlin

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1.0 Introduction

SLR Consulting (Canada) Ltd. (SLR) was retained by Starlight Investments to conduct a pedestrian wind study for the proposed development at 1315 Silver Spear Road in Mississauga, Ontario. This report is in support of the combined Official Plan Amendment (OPA) and Zoning Bylaw Amendment (ZBA) application for the development.

1.1 Existing Development

The proposed development is located at 1315 Silver Spear Road. The site is currently occupied by a parking lot and existing mid-rise residential building. **Figure 1** provides an aerial view of the immediate study area. A virtual site visit was conducted by SLR using Google Earth images dated November 6, 2022. Several images of the site and surroundings are included in **Figures 2a** through **2d**.

Immediately surrounding the site are low-rise commercial developments to the northwest through northeast; a high-rise residential building to the east; and low-rise residential developments in all other directions. Beyond the immediate surroundings are low-rise residential and commercial buildings in all directions.

Typically, developments with SPA approval within a 500 m radius are included as existing surroundings; however, for this assessment, none fall within the radius. This was confirmed through SLR reviewing the City of Mississauga's available information and by Urban Strategies, the planner for the project.

Figure 1: Aerial view of existing site & surroundings
Credit: Google Earth Pro, dated 11/6/2022

Figure 2a: Looking northeast along Burnhamthorpe Road East
Credit: Google Earth Pro, dated 5/2022

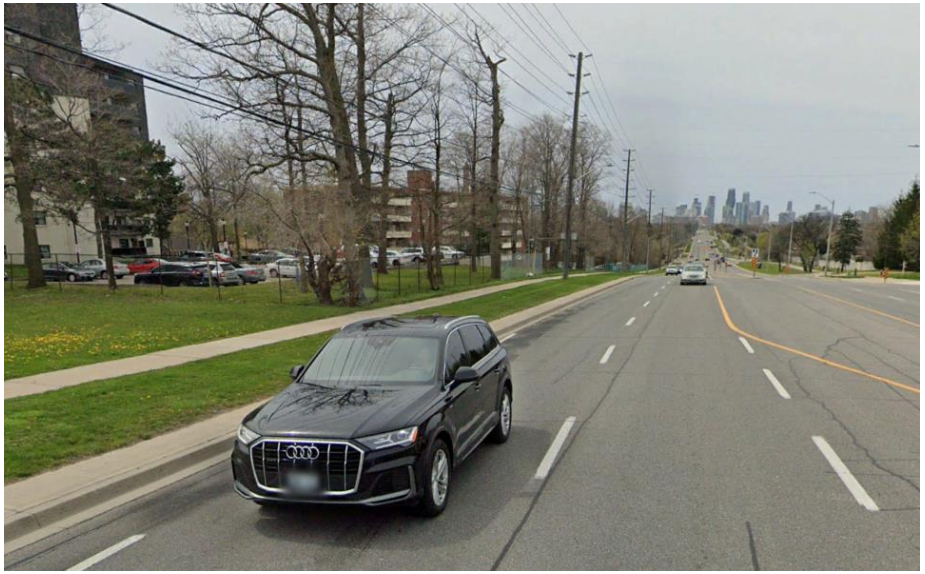


Figure 2b: Looking southwest along Burnhamthorpe Road East
Credit: Google Earth Pro, dated 5/2022

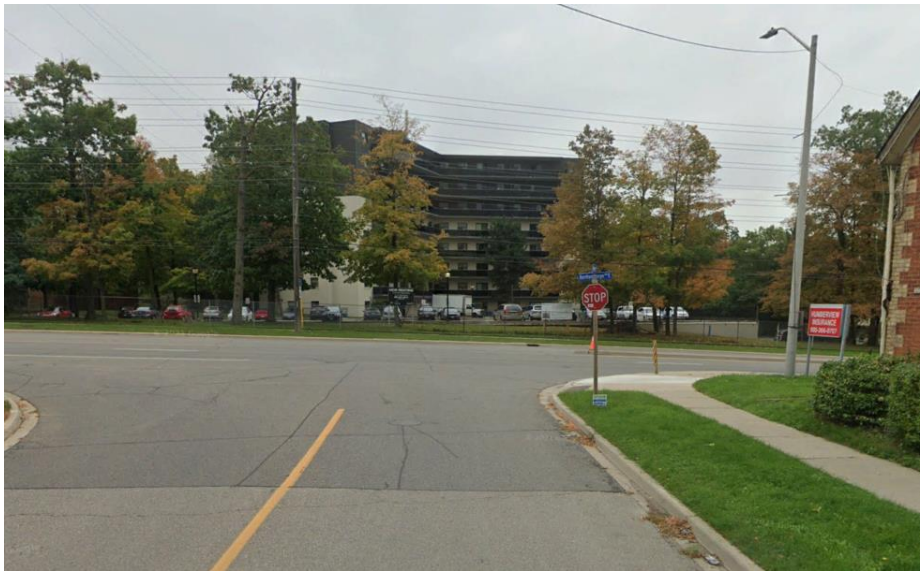


Figure 2c: Looking southeast along Hickory Drive
Credit: Google Earth Pro, dated 10/2021

Figure 2d: Looking northwest at the site from Silver Spear Road
Credit: Google Earth Pro, dated 10/2021

1.2 Proposed Development

The proposed development consists of a nine-storey residential building with a total height of 35.6 m including mechanical penthouse. **Figure 3** shows a conceptual rendering of the proposed development.

1.3 Areas of Interest

Areas of interest for pedestrian wind conditions include those areas which pedestrians are expected to use on a frequent basis. Typically, these include sidewalks, main entrances, transit stops, plazas and parks. On-site areas of interest are shown in **Figure 4**.

The main entrance is situated along the north facade of the building, with secondary entrances and exits located along the north, west, and south facades. In addition, grade-level landscaped amenity areas are located to the south of the building, with an outdoor amenity terrace is located on the roof.

There are four transit stops to the north-northeast of the development, near the intersection of Burnhamthorpe Road East and Dixie Road (i.e., on both sides of Burnhamthorpe Road East and on both sides of Dixie Road).

Note that Project North is approximately 42° counter-clockwise from True North. When referring to the building, Project North is used; when referring to wind directions, True North is used.

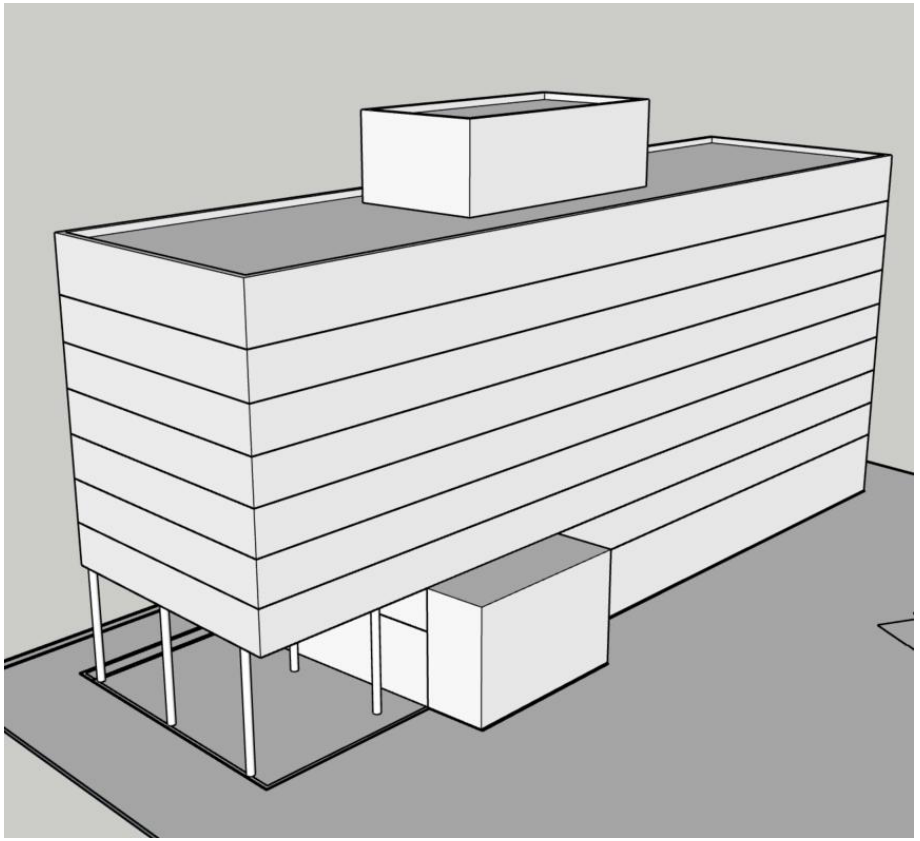


Figure 3: Simple rendering of the proposed development
Credit: Architecture Unfolded

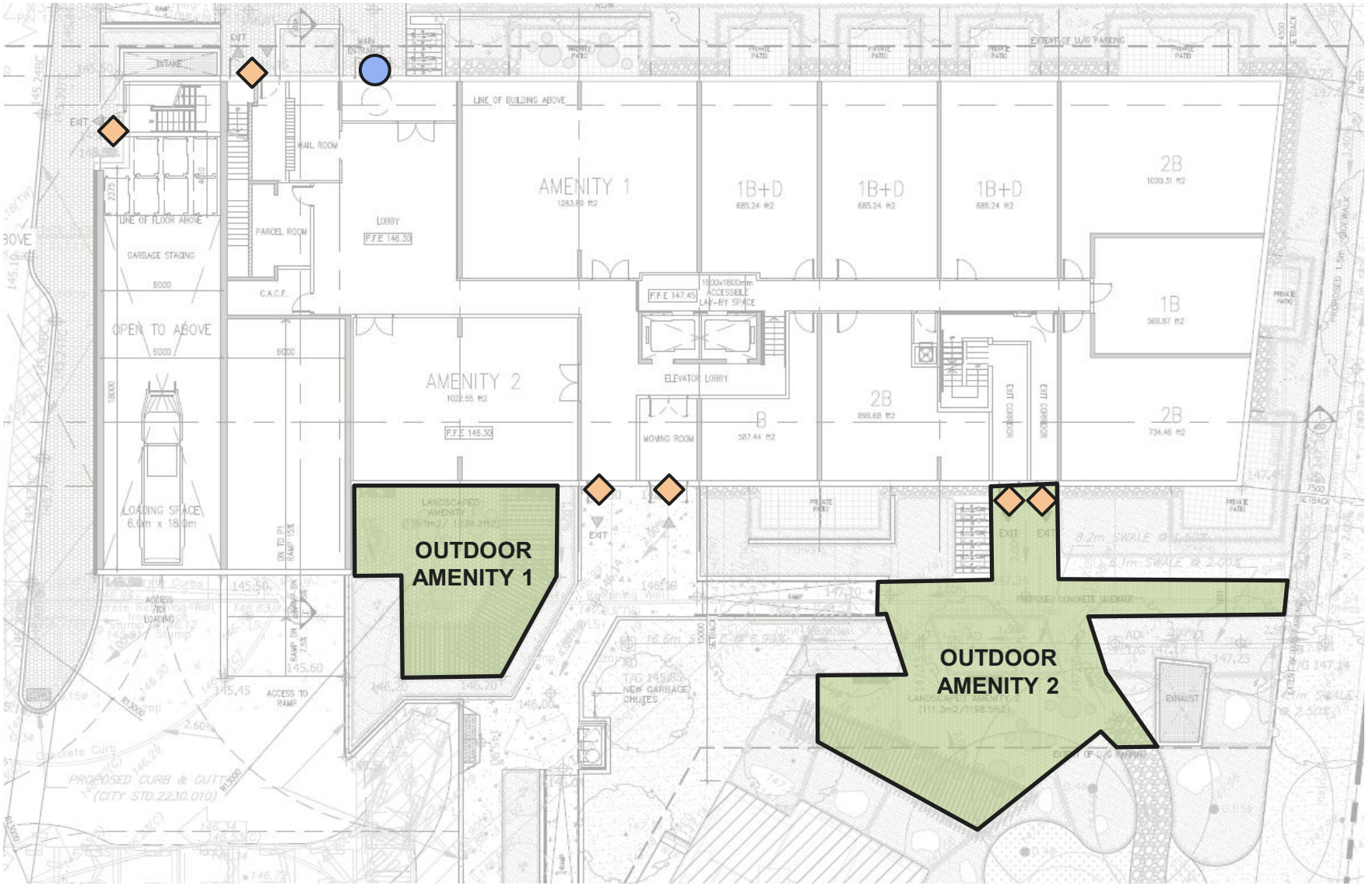


Figure 4: Areas of Interest (Grade Level)
Updated Architectural Set Received November 10, 2023

2.0 Approach

The objective of the wind tunnel study is to assist the design team and City Planning officials in making informed decisions about the building form considered and its influence on pedestrian comfort. This quantitative analysis involves the construction of a physical model of the development and surrounding features that influence wind flow. The physical model is instrumented with probes and tested in a wind tunnel. Afterwards, the wind tunnel data are combined with regional meteorological data; this analysis is then compared to the relevant wind criteria and standards in order to determine how appropriate the wind conditions are for the intended pedestrian usage.

2.1 Scale Model Construction

A 1:400 scale model of the proposed development at 1315 Silver Spear Road was constructed based on drawing information received by SLR from Architects Unfolded on September 5 and 6, 2023. In addition, updated architectural drawings were received on November 10, 2023, after the wind-tunnel testing was conducted. A virtual site visit conducted by SLR on September 24, 2023.

The proximity model of the surrounding area was built in block form for a radius of approximately 480 m from the site centre. As existing buildings surrounding the site will influence wind characteristics, existing buildings, and those buildings with SPA were included in the model for both the Existing and Proposed Configurations. Information regarding which approved developments to include within the existing surrounds was determined per Section 1.1.

SLR assessed two configurations, for comparison, as follows:

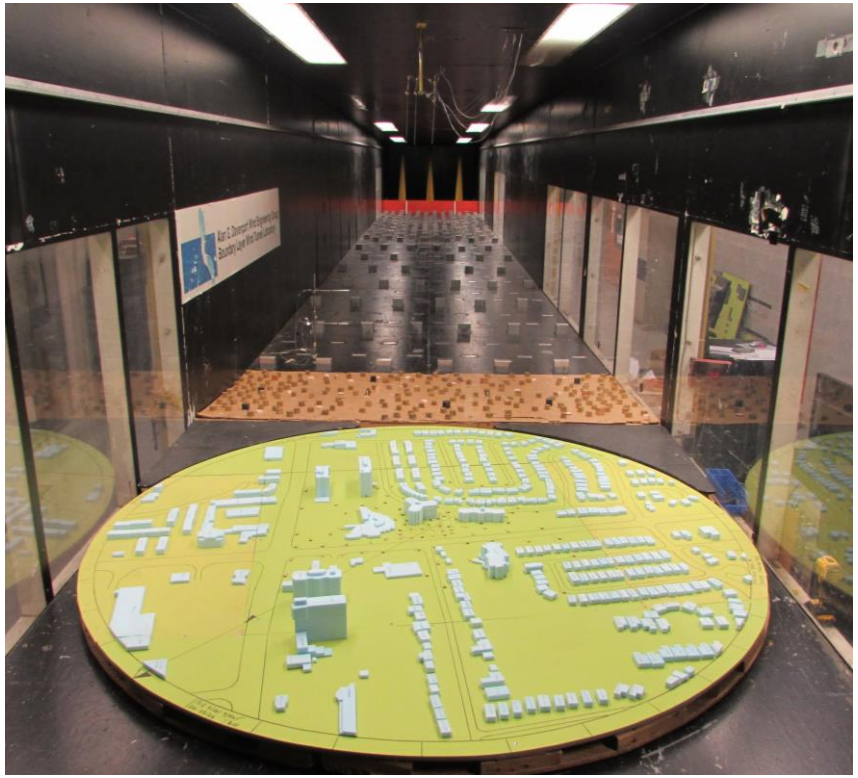
- **Existing Configuration:** Existing site with existing and in-construction surroundings.
- **Proposed Configuration:** Proposed development with existing and in-construction surroundings.

Photographs of the wind tunnel model showing both the Existing Configuration and the Proposed Configuration are included in **Figures 5a** and **5b**.

2.2 Wind Tunnel

Wind tunnel tests were conducted in the Alan G. Davenport Wind Engineering Group Boundary-Layer Wind Tunnel Laboratory at the University of Western Ontario. The upstream test section of the wind tunnel included generic roughness blocks and turbulence-generating spires to modify the wind flow approaching the model. These features develop characteristics of the wind flow that are similar to the actual site. The test model is rotated on a turn-table to simulate different wind directions with the upstream terrain being changed as appropriate to reflect the various upwind conditions encountered around the site.

The test model was equipped with 93 omni-directional probes to record wind speed at the pedestrian-level (approximately 1.5 m above grade). The orientation of the model was rotated in 10° intervals on the turn-table to permit measurement of wind speed at each probe location for 36 wind directions. The wind tunnel data were then combined with the wind climate model for this region to predict the occurrence of wind speeds in the pedestrian realm and compare against wind criteria for comfort and safety.



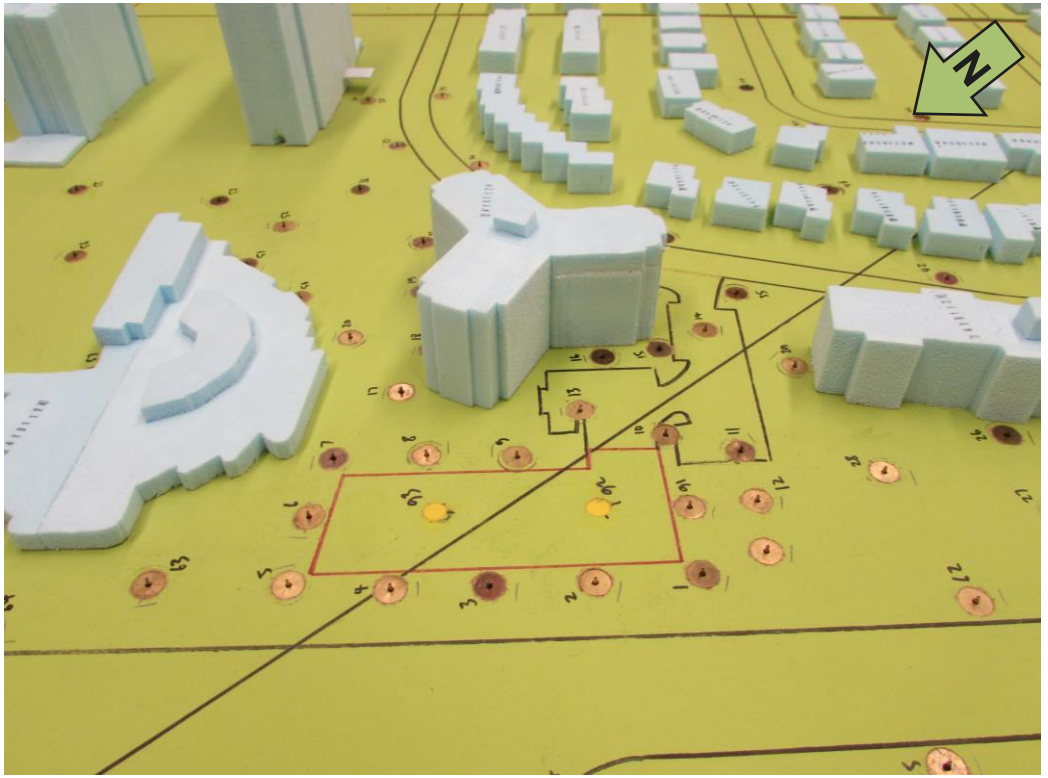


Figure 5a: Existing Configuration

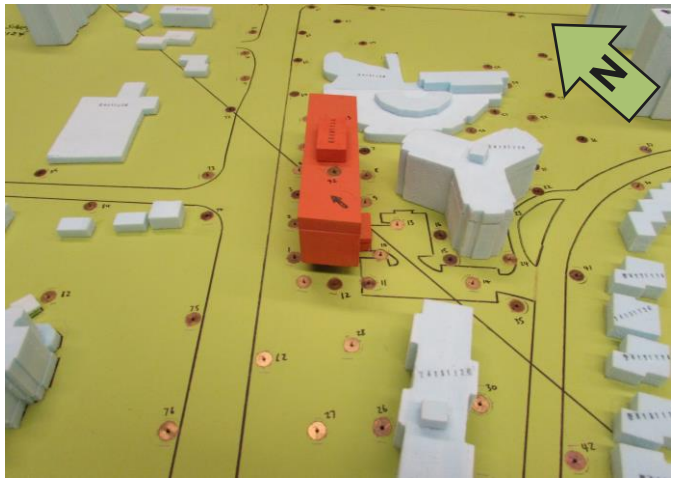


Figure 5b: Proposed Configuration

2.3 Wind Climate

Wind data recorded at Pearson International Airport in Toronto for the period of 1991 to 2020 were obtained and analysed to create a wind climate model for the region. Annual and seasonal wind distribution diagrams ("wind roses") are shown in **Figure 6**. These diagrams illustrate 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 wind approaching from the northerly through westerly directions are most prevalent. The seasonal wind roses readily show how the prevalent winds shift throughout the year.

The directions from which stronger winds (e.g., > 30 km/h) approach are also of interest as they have the highest potential of creating problematic wind conditions, depending upon site exposure and the building configurations. The wind roses in Figure 6 also identify the directional frequency of these stronger winds, as indicated in the figure's legend colour key. On an annual basis, strong winds occur from the northwesterly and westerly sectors. All wind speeds and directions were included in the wind climate model.

Figure 6: Wind Roses for Toronto Pearson International Airport (1991-2020)

3.0 Pedestrian Wind Criteria

Wind comfort conditions are discussed in terms of being acceptable for certain pedestrian activities and are based on predicted wind force and the expected frequency of occurrence. Wind chill, clothing, humidity and exposure to direct sun, for example, all affect a person's thermal comfort; however, these influences are not considered in the wind comfort criteria.

The criteria utilized for this analysis is provided by the City of Mississauga, in the document *Urban Design Terms of Reference – Pedestrian Wind Comfort and Safety Studies* (February 2023). The comfort criteria, which is based on certain predicted hourly gust-equivalent mean (GEM) wind speeds being exceeded 20% of the time, are summarized in **Table 1**. By allowing for a 20% exceedance, it assumes wind speeds will be comfortable for the corresponding activity at least four out of five days. The comfort criteria consider only daytime hours, between 6:00am and 11:00pm. GEM is defined as the maximum of either mean wind speed or gust wind speed divided by 1.85.

The criterion for wind safety in the table is based on hourly gust wind speeds that are exceeded nine hours per year (approximately 0.1%) of the time). When more than one event is predicted annually, wind mitigation measures are then advised. The wind safety criterion is shown in **Table 2**.

Table 1: Wind Comfort Criteria

Comfort Category	GEM Wind Speed Exceeded 20% of the time	Description of Wind Comfort
Sitting	10 km/h	Calm or light breezes desired for outdoor restaurants and seating areas where one can read a paper without having it blown away.
Standing	15 km/h	Gentle breezes suitable for main building entrances and bus stops.
Walking	20 km/h	Moderate breezes that can be tolerated if one's objective is to walk, run or cycle without lingering.
Uncomfortable	> 20 km/h	Strong winds of this magnitude are considered a nuisance for most activities, and wind mitigation is typically recommended.

Table 2: Wind Safety Criterion

Safety Criterion	Gust Wind Speed Exceeded Once Per Year (0.1%)	Description of Wind Effects
Exceeded	> 90 km/h	Excessive gust speeds that can adversely affect a pedestrian's balance and footing. Wind mitigation is typically required.

4.0 Results

Figures 7a through **8b** present graphical images of the wind comfort conditions for the summer and winter months around the proposed development. These represent the seasonal extremes of best and worst case. The “comfort zones” shown are based on an integration of wind speed and frequency for all 36 wind directions tested with the seasonal wind climate model. The presence of mature trees can lead to wind comfort levels that are marginally more comfortable than shown, during seasons when foliage is present. Full detailed results for the summer and winter can be found in **Appendix A**. Annual wind safety results are also provided in **Appendix A**, as well as in **Figures 9a** and **9b**.

There are generally accepted wind comfort levels that are desired for various pedestrian uses. However, in some climates these may be difficult to achieve in the winter due to the overall climate. For sidewalks, walkways and pathways, wind comfort suitable for walking are desirable year-round but may not be feasible in the winter. For main entrances, transit stops, and public amenity spaces such as parks and playgrounds, wind conditions conducive to standing are preferred throughout the year. For on-site amenity areas, wind conditions suitable for sitting or standing are desirable during the summer, with stronger wind flows, conducive to walking, tolerated in the winter. The most stringent category of sitting is desirable during the summer for dedicated seating areas, such as patios, where calmer wind is expected for the comfort of patrons.

4.1 Building Entrances & Walkways (Locations 1-6, 8 & 9, 11-24, and 91)

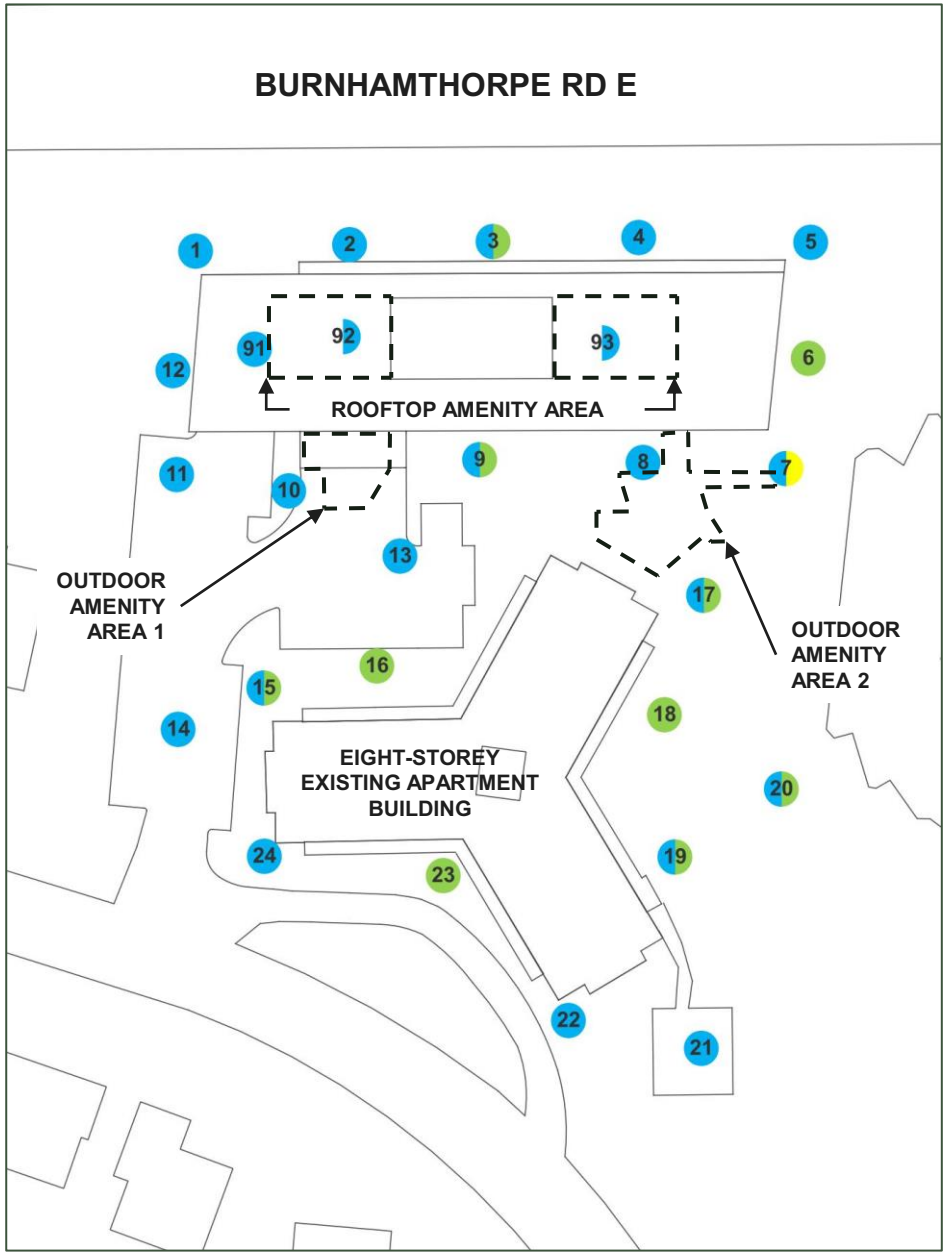
In the Existing Configuration, on-site wind conditions are suitable for sitting or standing in the summer (**Figure 7a**), and walking or better in the winter (**Figure 7b**).

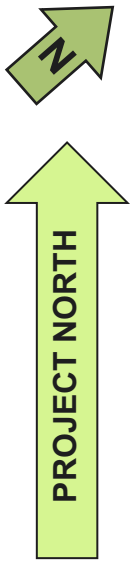
In the Proposed Configuration, on-site wind conditions remain comfortable for sitting or standing in the summer (**Figure 7a**) and walking or better in the winter (**Figure 7b**), which is considered appropriate. Wind conditions at the main entrance (Location 2) and secondary entrances and exits (Locations 2, 8, and 9) are comfortable for sitting or standing year-round (**Figures 7a** and **7b**), which is considered suitable for entrances.

4.2 Outdoor Amenity Areas (Locations 7, 8, 10, 92, and 93)

Wind conditions in outdoor amenity areas 1 and 2 at grade are comfortable for standing in the summer (**Figure 7a**), which is considered appropriate outdoor amenity spaces. In the winter, these areas are suitable for standing or walking in the winter (**Figure 7b**).

Wind conditions on the rooftop amenity area are comfortable for standing throughout the year (**Figures 7a** and **7b**), which is considered appropriate for an outdoor terrace intended for passive use. An in-progress landscape plan was received from the MBTW Group on September 26, 2023, showing landscaping and hardscaping elements proposed on the rooftop amenity area. Although wind conditions on this terrace are favourable, these elements will help to further improve wind conditions, particularly during the summer months.

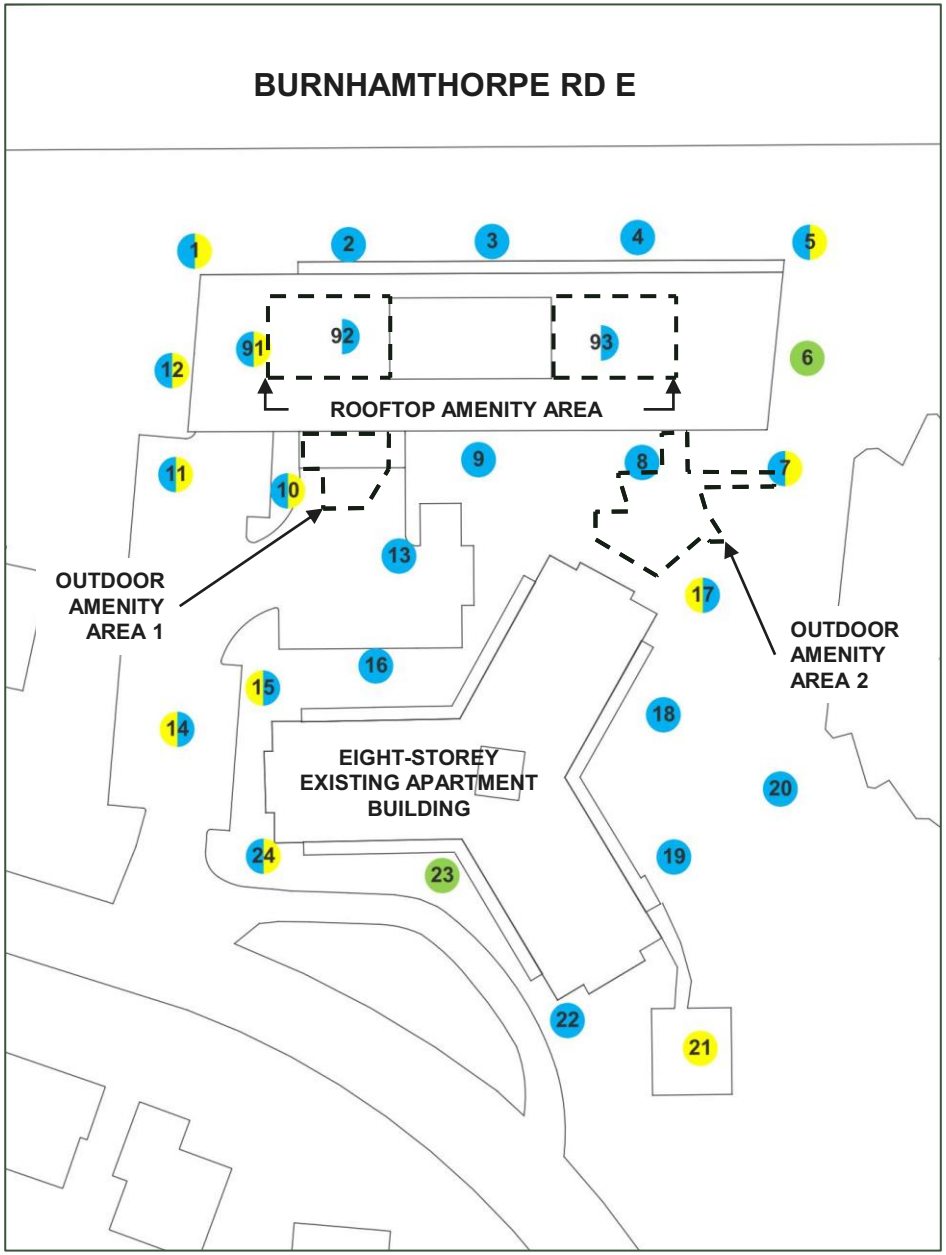


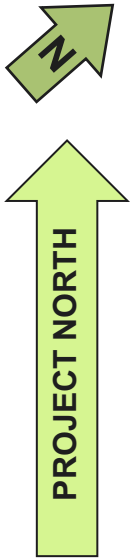


LEGEND

- Sitting
- Standing
- Walking
- Uncomfortable
- Existing | Proposed Conditions
- Outdoor Amenity Area

Figure 7a: Summer Season – Pedestrian Wind Conditions – Building Entrances, On-Site Walkways, & Outdoor Amenity Areas





LEGEND

- Sitting
- Standing
- Walking
- Uncomfortable
- Existing | Proposed Conditions
- Outdoor Amenity Area

Figure 7b: Winter Season – Pedestrian Wind Conditions – Building Entrances, On-Site Walkways, & Outdoor Amenity Areas

4.3 Surrounding Sidewalks (Locations 25 through 90)

In the Existing Configuration, wind conditions along the sidewalks of Burnhamthorpe Road East, Silver Spear Road, Dixie Road, Hickory Drive, Scottsburg Crescent, Tyregrove Road, Golden Orchard Drive, and Beechollow Crescent are comfortable for walking or better year-round (**Figures 8a** and **8b**) which is considered suitable for the intended use. Wind conditions at the nearby transit stops (i.e., on both sides of Burnhamthorpe Road East and on both sides of Dixie Road) are comfortable for standing in the summer (**Figure 8a**) and walking or better in the winter (**Figure 8b**).

In the Proposed Configuration, wind conditions along these nearby sidewalks remain comfortable for walking or better throughout the year (**Figures 8a** and **8b**), which is considered suitable. Wind conditions at the nearby transit stops remain comfortable for standing in the summer (**Figure 8a**) and walking or better in the winter (**Figure 8b**).

4.4 Wind Safety

In the Existing Configuration, the wind safety criterion is met at all locations on an annual basis (**Figure 9a**).

In the Proposed Configuration, the wind safety criterion is met at all off-site locations and most on-site locations (**Figure 9b**). An exceedance of wind safety criterion occurs on site, on the walkway beneath the building overhang at the west end of the building (Location 91, **Figure 9b**). These strong wind flows are due to the prevailing northwesterly winds downwashing from the north façade and accelerating beneath the overhang, thereby creating strong wind flows in that area.

To improve wind safety conditions in this area, SLR recommends the inclusion of semi-porous vertical screens, either staggered along the walkway beneath the undercut or positioned along the soffit at the north edge of the undercut. SLR will work with the design team to develop wind control solutions for this area.

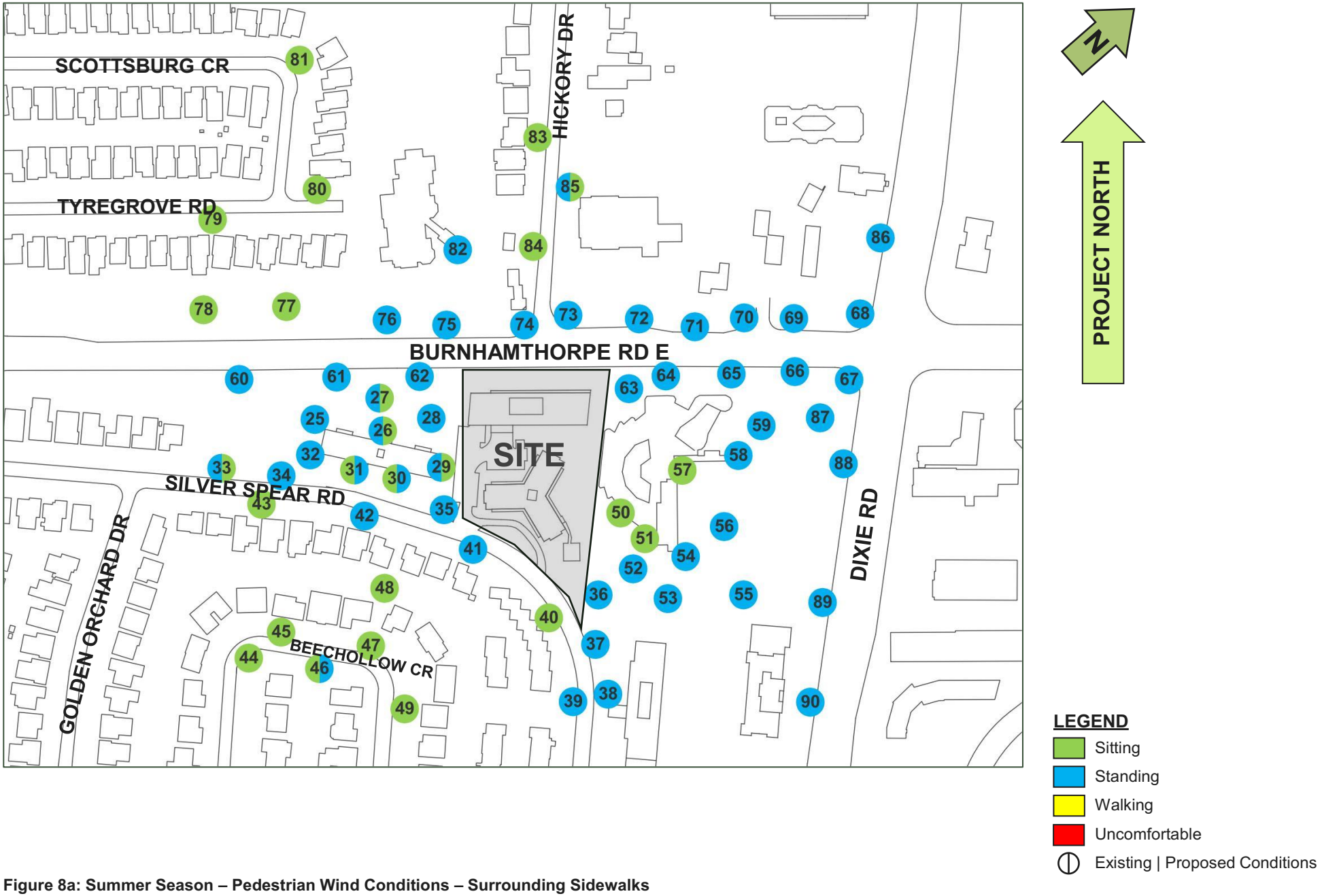


Figure 8a: Summer Season – Pedestrian Wind Conditions – Surrounding Sidewalks

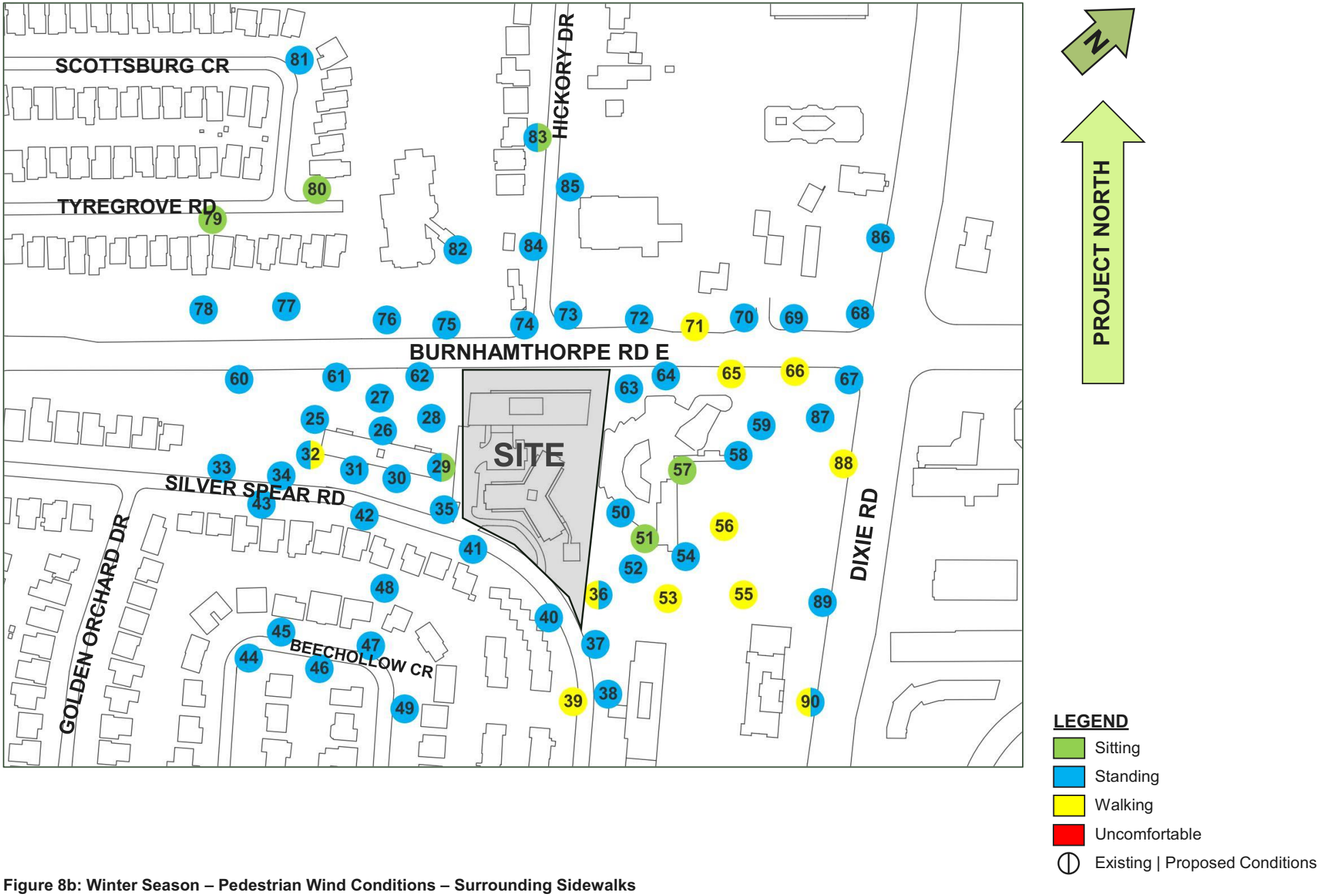


Figure 8b: Winter Season – Pedestrian Wind Conditions – Surrounding Sidewalks

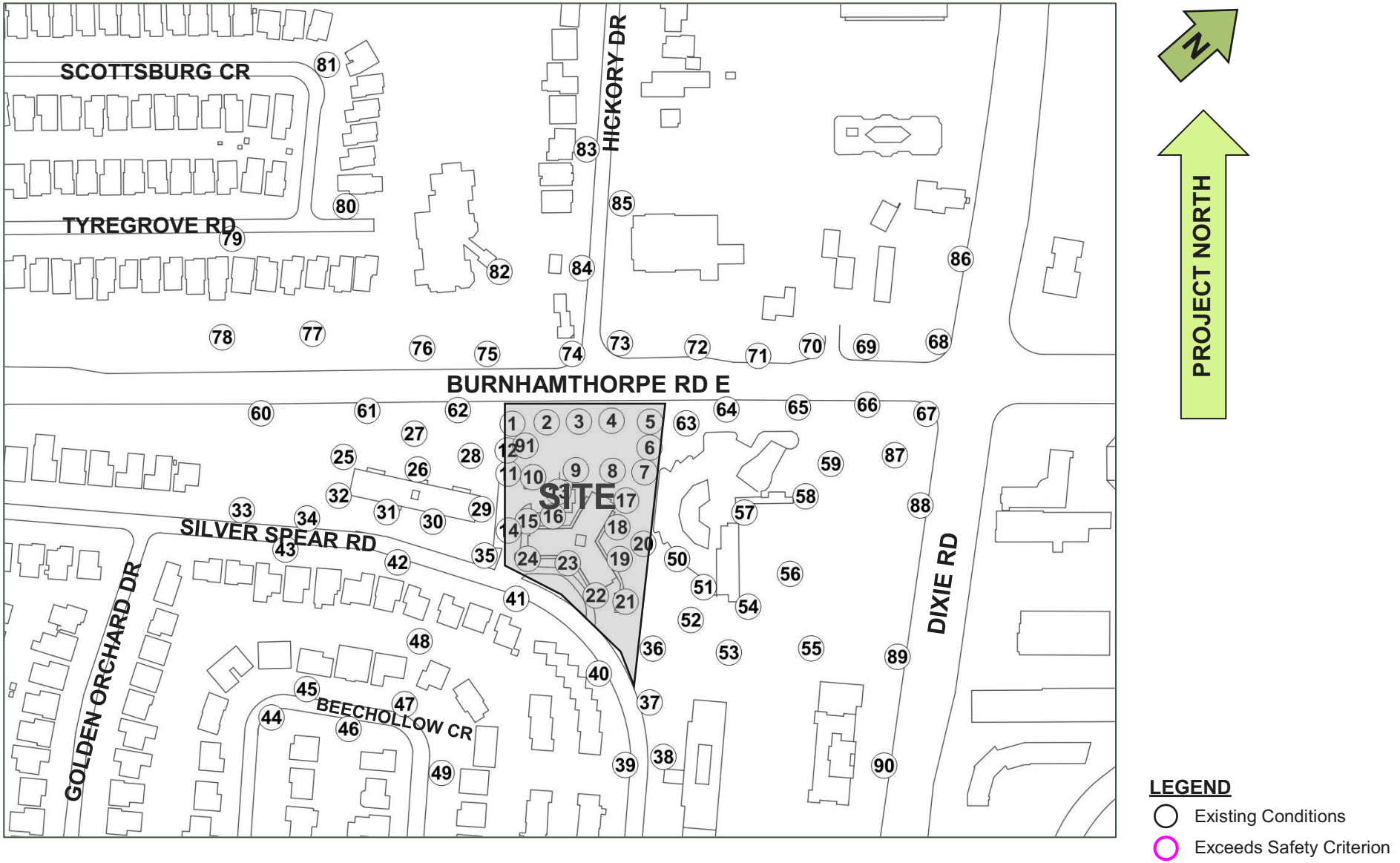


Figure 9a: Annual – Pedestrian Wind Safety Conditions – Existing Configuration

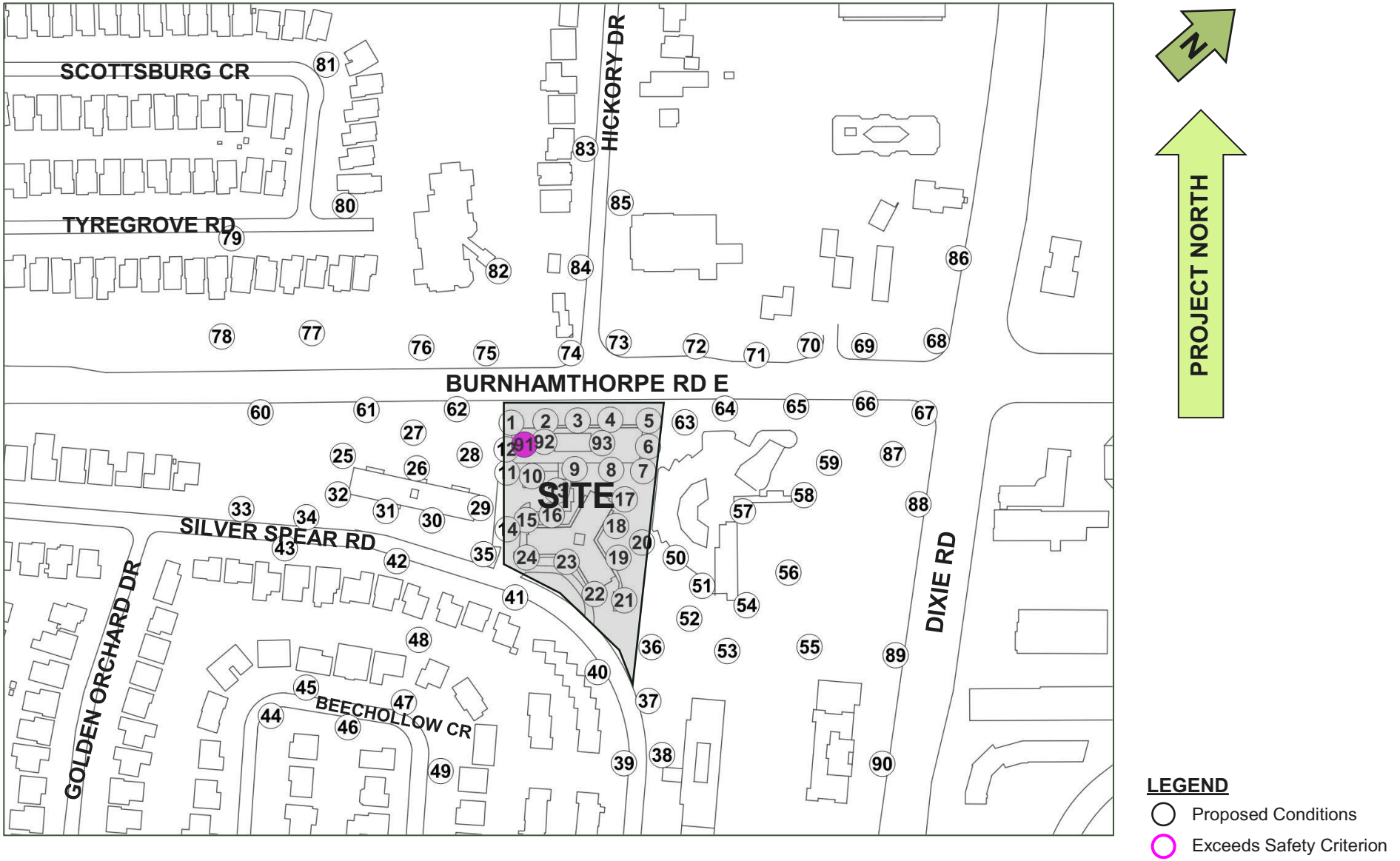


Figure 9b: Annual – Pedestrian Wind Safety Conditions – Proposed Configuration

5.0 Conclusion & Recommendations

The pedestrian wind conditions predicted for the proposed development at 1315 Silver Spear Road in Mississauga, Ontario have been assessed through wind tunnel modeling techniques. Based on the results of our assessment, the following conclusions have been reached:

- The wind safety criterion is met at all locations in the Existing Configuration and at all off-site locations in the Proposed Configuration on an annual basis. A wind safety exceedance occurs in the Proposed Configuration beneath the building overhang at the west end of the building. Wind control recommendations are provided.
- On-site wind conditions are suitable for the intended use throughout the year in both the Existing Configuration and Proposed Configuration, including the main and secondary entrances.
- Wind conditions are suitable for the intended use at outdoor amenity areas 1 and 2 at grade and in the rooftop amenity area in the Proposed Configuration.
- Wind conditions on the sidewalks surrounding the proposed development, as well as the nearby transit stops, are appropriate for the intended use year-round in both the Existing Configuration and Proposed Configuration.

6.0 Limitations of Liability

This report has been prepared and the work referred to in this report has been undertaken by SLR Consulting (Canada) Ltd. (SLR) for Starlight Investments, hereafter referred to as the “Client”. It is intended for the sole and exclusive use of the Client and the City of Mississauga. The report has been prepared in accordance with the Scope of Work and agreement between SLR and the Client. Other than by the Client and by the City of Mississauga in their role as land use planning approval authorities, copying or distribution of this report or use of or reliance on the information contained herein, in whole or in part, is not permitted unless payment for the work has been made in full and express written permission has been obtained from SLR.

This report has been prepared in a manner generally accepted by professional consulting principles and practices for the same locality and under similar conditions. No other representations or warranties, expressed or implied, are made.

Opinions and recommendations contained in this report are based on conditions that existed at the time the services were performed and are intended only for the client, purposes, locations, time frames and project parameters as outlined in the Scope or Work and agreement between SLR and the Client. The data reported, findings, observations and conclusions expressed are limited by the Scope of Work. SLR is not responsible for the impacts of any changes in environmental standards, practices, or regulations subsequent to performance of services. SLR does not warranty the accuracy of information provided by third party sources.

7.0 References

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Appendix A

Pedestrian Wind Comfort & Safety Tables

Interpretation Of Results

Example Table 1 below illustrates the wind comfort and safety criteria. The table provides the GEM (Gust Equivalent Mean) wind speed (in km/h) exceeded 20% of the time for comfort for each of the two seasons for each configuration. It also categorizes the wind speeds as either sitting, standing, walking or uncomfortable. In addition, the table provides the gust wind speed exceeded 0.1% of the time annually.

For instance, at Location 1 there is not data in the Existing Configuration, while in the Proposed Configuration, wind conditions are suitable for walking in the winter season, while in the summer wind conditions are suitable for standing.

At Location 3, wind conditions are suitable for standing in the summer seasons for both Existing and Proposed Configurations. During the winter, the wind conditions are uncomfortable in both Configurations. In addition, the safety criteria is exceeded on an annual basis at Location 3 for both Configurations.

The categories are summarized in **Example Table 2**.

Example Table 1: Pedestrian Wind Conditions

Location	Configuration	Wind Comfort		Wind Safety
		GEM Speed Exceeded 20% of the Time (km/h)		Gust Speed Exceeded 0.1% of the Time (km/h)
		Summer	Winter	
1	Existing			
1	Proposed	14.7	18.4	80.8
2	Existing	11.5	13.9	51.7
2	Proposed	8.3	9.8	40.2
3	Existing	13.0	22.3	90.5
3	Proposed	10.9	24.5	92.6

Example Table 2: Categories

Comfort Category	GEM Wind Speed Exceeded 20% of the time
Sitting	10 km/h
Standing	15 km/h
Walking	20 km/h
Uncomfortable	> 20 km/h
Safety	> 90 km/h

Table A1-1: Pedestrian Wind Conditions

Location	Configuration	Wind Comfort		Wind Safety
		GEM Speed Exceeded 20% of the Time (km/h)		Gust Speed Exceeded 0.1% of the Time (km/h)
		Summer	Winter	
1	Existing	12.2	14.6	54.3
1	Proposed	13.9	16.4	62.7
2	Existing	10.4	12.6	46.0
2	Proposed	10.1	12.2	50.5
3	Existing	10.8	13.2	49.2
3	Proposed	9.9	12.3	52.1
4	Existing	12.0	14.6	51.7
4	Proposed	10.4	13.1	56.6
5	Existing	11.7	14.2	52.2
5	Proposed	13.3	16.7	72.7
6	Existing	8.0	9.8	38.6
6	Proposed	6.6	7.9	50.5
7	Existing	12.2	14.8	50.3
7	Proposed	15.7	18.6	61.2
8	Existing	11.0	13.6	55.3
8	Proposed	12.0	14.5	55.9
9	Existing	10.4	12.8	50.5
9	Proposed	8.9	10.4	37.9
10	Existing	10.3	11.8	45.5
10	Proposed	12.3	15.5	61.7

Table A1-2: Pedestrian Wind Conditions

Location	Configuration	Wind Comfort		Wind Safety
		GEM Speed Exceeded 20% of the Time (km/h)		Gust Speed Exceeded 0.1% of the Time (km/h)
		Summer	Winter	
11	Existing	10.5	12.6	46.7
11	Proposed	12.8	16.1	71.1
12	Existing	10.4	12.5	46.2
12	Proposed	12.7	15.0	75.0
13	Existing	10.8	12.9	51.0
13	Proposed	11.9	14.4	55.4
14	Existing	13.1	15.6	68.9
14	Proposed	10.6	12.4	54.6
15	Existing	13.3	15.8	75.0
15	Proposed	9.8	11.4	41.9
16	Existing	9.4	11.4	51.3
16	Proposed	9.4	11.2	50.3
17	Existing	12.2	15.1	68.7
17	Proposed	9.4	10.9	40.7
18	Existing	9.6	11.4	42.0
18	Proposed	9.0	10.7	36.6
19	Existing	10.9	12.4	51.8
19	Proposed	9.7	11.0	47.0
20	Existing	12.4	14.7	65.8
20	Proposed	10.0	11.6	42.4

Table A1-3: Pedestrian Wind Conditions

Location	Configuration	Wind Comfort		Wind Safety
		GEM Speed Exceeded 20% of the Time (km/h)		Gust Speed Exceeded 0.1% of the Time (km/h)
		Summer	Winter	
21	Existing	12.8	15.1	61.2
21	Proposed	12.8	15.4	58.2
22	Existing	11.1	12.8	48.8
22	Proposed	11.4	13.3	51.0
23	Existing	6.8	8.1	30.6
23	Proposed	6.7	8.2	32.7
24	Existing	11.6	13.4	57.9
24	Proposed	12.5	15.1	63.2
25	Existing	11.9	13.7	57.0
25	Proposed	11.5	13.4	56.5
26	Existing	11.5	13.9	53.5
26	Proposed	9.8	12.2	50.5
27	Existing	10.0	11.8	48.5
27	Proposed	9.6	11.7	45.7
28	Existing	10.4	12.5	48.3
28	Proposed	11.1	13.3	51.5
29	Existing	10.1	11.9	55.6
29	Proposed	8.6	9.9	41.0
30	Existing	9.3	10.7	43.1
30	Proposed	10.1	11.8	48.5

Table A1-4: Pedestrian Wind Conditions

Location	Configuration	Wind Comfort		Wind Safety
		GEM Speed Exceeded 20% of the Time (km/h)		Gust Speed Exceeded 0.1% of the Time (km/h)
		Summer	Winter	
31	Existing	10.0	11.6	42.5
31	Proposed	10.3	12.1	46.6
32	Existing	11.8	14.6	61.2
32	Proposed	12.1	15.1	64.3
33	Existing	10.1	11.9	45.2
33	Proposed	9.9	11.8	45.4
34	Existing	11.2	13.6	53.9
34	Proposed	11.0	13.5	54.9
35	Existing	12.1	14.6	64.3
35	Proposed	11.1	13.3	51.7
36	Existing	13.0	15.2	55.0
36	Proposed	12.7	14.9	54.5
37	Existing	11.8	14.2	57.5
37	Proposed	12.0	14.6	60.9
38	Existing	12.1	14.0	64.9
38	Proposed	11.8	13.7	59.1
39	Existing	14.4	17.5	65.0
39	Proposed	14.3	17.5	66.5
40	Existing	8.7	10.2	39.1
40	Proposed	8.8	10.5	39.9

Table A1-5: Pedestrian Wind Conditions

Location	Configuration	Wind Comfort		Wind Safety
		GEM Speed Exceeded 20% of the Time (km/h)		Gust Speed Exceeded 0.1% of the Time (km/h)
		Summer	Winter	
41	Existing	10.3	12.7	52.2
41	Proposed	10.4	12.9	55.1
42	Existing	10.1	12.3	49.3
42	Proposed	10.9	13.3	52.8
43	Existing	9.8	11.9	45.8
43	Proposed	9.7	11.8	45.5
44	Existing	9.0	10.3	38.0
44	Proposed	9.1	10.5	43.5
45	Existing	8.6	10.3	38.3
45	Proposed	9.0	11.0	40.8
46	Existing	9.9	12.0	48.2
46	Proposed	10.4	12.7	49.9
47	Existing	9.2	11.2	42.5
47	Proposed	9.5	11.5	44.0
48	Existing	9.6	11.6	51.5
48	Proposed	9.4	11.4	49.5
49	Existing	8.9	10.6	43.2
49	Proposed	8.8	10.5	43.1
50	Existing	9.8	11.4	43.3
50	Proposed	8.9	10.5	39.9

Table A1-6: Pedestrian Wind Conditions

Location	Configuration	Wind Comfort		Wind Safety
		GEM Speed Exceeded 20% of the Time (km/h)		Gust Speed Exceeded 0.1% of the Time (km/h)
		Summer	Winter	
51	Existing	8.1	9.3	39.0
51	Proposed	7.9	9.2	38.7
52	Existing	10.8	12.6	49.6
52	Proposed	10.8	12.8	51.4
53	Existing	12.4	15.4	63.7
53	Proposed	12.8	15.9	66.8
54	Existing	11.2	13.2	55.2
54	Proposed	11.5	13.7	56.2
55	Existing	12.6	15.1	57.3
55	Proposed	12.6	15.1	60.3
56	Existing	13.9	16.2	56.7
56	Proposed	13.7	16.1	56.5
57	Existing	7.8	9.2	34.2
57	Proposed	7.5	8.9	33.7
58	Existing	11.1	12.9	50.9
58	Proposed	11.0	12.8	51.3
59	Existing	12.2	14.7	53.8
59	Proposed	11.8	14.2	54.5
60	Existing	10.6	12.8	46.7
60	Proposed	10.5	12.6	46.6

Table A1-7: Pedestrian Wind Conditions

Location	Configuration	Wind Comfort		Wind Safety
		GEM Speed Exceeded 20% of the Time (km/h)		Gust Speed Exceeded 0.1% of the Time (km/h)
		Summer	Winter	
61	Existing	10.8	12.7	47.2
61	Proposed	10.3	12.2	44.2
62	Existing	10.2	12.2	45.8
62	Proposed	10.5	12.6	48.6
63	Existing	11.1	13.5	51.3
63	Proposed	11.8	14.8	68.8
64	Existing	11.0	13.6	53.0
64	Proposed	11.1	13.9	60.2
65	Existing	12.2	15.5	57.1
65	Proposed	12.7	16.1	60.0
66	Existing	12.9	15.3	55.7
66	Proposed	13.0	15.8	56.7
67	Existing	11.5	13.5	49.5
67	Proposed	11.6	13.7	50.5
68	Existing	11.0	12.9	47.8
68	Proposed	11.0	12.9	47.1
69	Existing	11.8	14.5	56.1
69	Proposed	11.7	14.3	57.0
70	Existing	10.4	12.7	50.3
70	Proposed	10.2	12.4	49.1

Table A1-8: Pedestrian Wind Conditions

Location	Configuration	Wind Comfort		Wind Safety
		GEM Speed Exceeded 20% of the Time (km/h)		Gust Speed Exceeded 0.1% of the Time (km/h)
		Summer	Winter	
71	Existing	12.0	15.3	57.0
71	Proposed	12.4	15.8	59.2
72	Existing	11.8	14.3	53.1
72	Proposed	11.3	13.9	55.2
73	Existing	11.6	13.8	51.1
73	Proposed	10.4	12.5	47.0
74	Existing	10.1	11.8	44.9
74	Proposed	10.4	12.3	45.0
75	Existing	11.1	13.2	48.3
75	Proposed	11.1	13.2	48.8
76	Existing	10.3	12.4	46.9
76	Proposed	10.1	12.1	46.0
77	Existing	9.0	10.7	42.6
77	Proposed	8.6	10.1	39.1
78	Existing	8.9	10.5	41.9
78	Proposed	8.5	10.0	38.7
79	Existing	8.0	9.8	39.6
79	Proposed	8.0	9.7	39.2
80	Existing	8.2	9.8	36.7
80	Proposed	8.2	9.8	36.6

Table A1-9: Pedestrian Wind Conditions

Location	Configuration	Wind Comfort		Wind Safety
		GEM Speed Exceeded 20% of the Time (km/h)		Gust Speed Exceeded 0.1% of the Time (km/h)
		Summer	Winter	
81	Existing	9.6	11.4	46.6
81	Proposed	9.4	11.3	45.4
82	Existing	11.4	12.8	50.2
82	Proposed	10.8	12.0	47.2
83	Existing	9.0	10.4	41.3
83	Proposed	8.3	9.7	39.8
84	Existing	9.8	11.8	47.8
84	Proposed	9.0	11.1	44.0
85	Existing	10.4	12.2	51.9
85	Proposed	10.0	11.7	48.6
86	Existing	12.2	14.3	50.5
86	Proposed	11.8	13.8	49.6
87	Existing	11.0	13.3	50.6
87	Proposed	11.0	13.3	51.5
88	Existing	12.8	15.1	54.0
88	Proposed	13.1	15.5	54.4
89	Existing	11.9	14.7	59.9
89	Proposed	11.7	14.5	58.2
90	Existing	13.6	15.2	70.6
90	Proposed	13.4	15.0	68.1

Table A1-10: Pedestrian Wind Conditions

Location	Configuration	Wind Comfort		Wind Safety
		GEM Speed Exceeded 20% of the Time (km/h)		Gust Speed Exceeded 0.1% of the Time (km/h)
		Summer	Winter	
91	Existing	10.6	12.7	46.2
91	Proposed	13.8	16.0	91.9
92	Existing			
92	Proposed	12.3	14.4	61.2
93	Existing			
93	Proposed	12.7	14.2	56.0