REPORT

JOYMAR DRIVE & TANNERY STREET

MISSISSAUGA, ON

PEDESTRIAN LEVEL WIND STUDY
RWDI # 2401317
April 23, 2024

SUBMITTED TO

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EXECUTIVE SUMMARY

RWDI was retained to conduct a pedestrian wind assessment for the proposed Joymar Drive & Tannery Street in Mississauga, Ontario. The assessment was based on the wind-tunnel testing conducted for the proposed development under the Existing, Phase 1, and Phase 1 & 2 configurations of the site and surroundings. The results were analysed using the regional wind climate records and evaluated against the Mississauga Pedestrian Wind Criteria for pedestrian comfort (pertaining to common wind speeds conducive to different levels of human activity) and pedestrian safety (pertaining to infrequent but strong gusts that could affect a person's footing). The predicted wind conditions are presented in Figures 1A through 3C and Table 1, and are summarized as follows:

GROUND LEVEL: COMFORT

Existing Configuration

- The existing wind conditions on and around the site are comfortable for pedestrian use throughout the year.

Phase 1 Configuration

- With the addition of the Phase 1 development, wind conditions are expected to be comfortable for the intended pedestrian use at most locations throughout the year including sidewalks and main entrances. Higher than desired wind speeds (becoming uncomfortable) are expected at the northwest building corner in the undercut of Tower A throughout the year, and at an isolated area along Joymar Drive to the southeast of Tower A during the winter.

Phase 1 & 2 Configuration

- In the Phase 1 & 2 configuration with the addition of the Phase 2 buildings, wind conditions remain comfortable for pedestrian use at most locations on and around the site throughout the year. A reduction in wind speeds is expected that would improve the condition at the northwest and southeast corners of Tower A., but the location at the northwest corner of Tower A remains uncomfortable in the winter. An increase in wind speeds (becoming uncomfortable) are expected at two areas between the towers, including the main entrance to Tower B, in the winter.

GROUND LEVEL: SAFETY

- Existing wind speeds at all areas assessed meet the wind safety criterion. In the Phase 1 and the Phase 1 & 2 configurations, wind speeds that meet the safety criterion are anticipated at all grade level locations, except the northwest building corner in the undercut of Tower A where the wind safety limit is expected to be exceeded.

ABOVE-GRADE AMENITY TERRACES

- In the summer in the Phase 1 & 2 configuration, wind speeds are expected to be comfortable for passive pedestrian use at all areas of the Level 8 outdoor amenity area on the podium of the North Buildings. Seasonally stronger winds are predicted at some areas on Level 8 during the winter, which may be acceptable due to the infrequent use of this space during the colder months.

- In the Phase 1 & 2 configuration, all above-grade locations are predicted to meet the safety criterion.

After wind tunnel testing was completed, RWDI received landscape drawings from Strybos Barron King on March 22, 2024, and updated progress drawings from SRM Architects on April 12, 2024. A discussion of the impact of landscaping and design changes is provided in Section 3.3.

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1 INTRODUCTION

RWDI was retained to conduct a pedestrian wind assessment for the proposed Joymar Drive & Tannery Street in Mississauga, Ontario. This report presents the project objectives, approach, and the main results from RWDI's assessment and provides conceptual wind control measures, where necessary. Our Statement of Limitations as it pertains to this study can be found in Section 4 of this report.

1.1 Project Description

The proposed development site is located on the north side of Jorymar Drive between Tannery Street and Thomas Street (Image 1). The development will consist of three residential buildings ranging from 12- to 22-storeys including outdoor amenity space at grade and above grade and considers two phases.

1.2 Objectives

The objective of the study was to assess the effect of the proposed development on local conditions in pedestrian areas on and around the study site and provide recommendations for minimizing adverse effects, if needed. This quantitative assessment was based on wind speed measurements on a scale model of the project and its surroundings in one of RWDI's boundary-layer wind tunnels. These measurements were combined with the local wind records and compared to the Mississauga criteria for gauging wind comfort and safety in pedestrian areas. The assessment focused on critical pedestrian areas, including building entrances, public sidewalks and amenity areas.

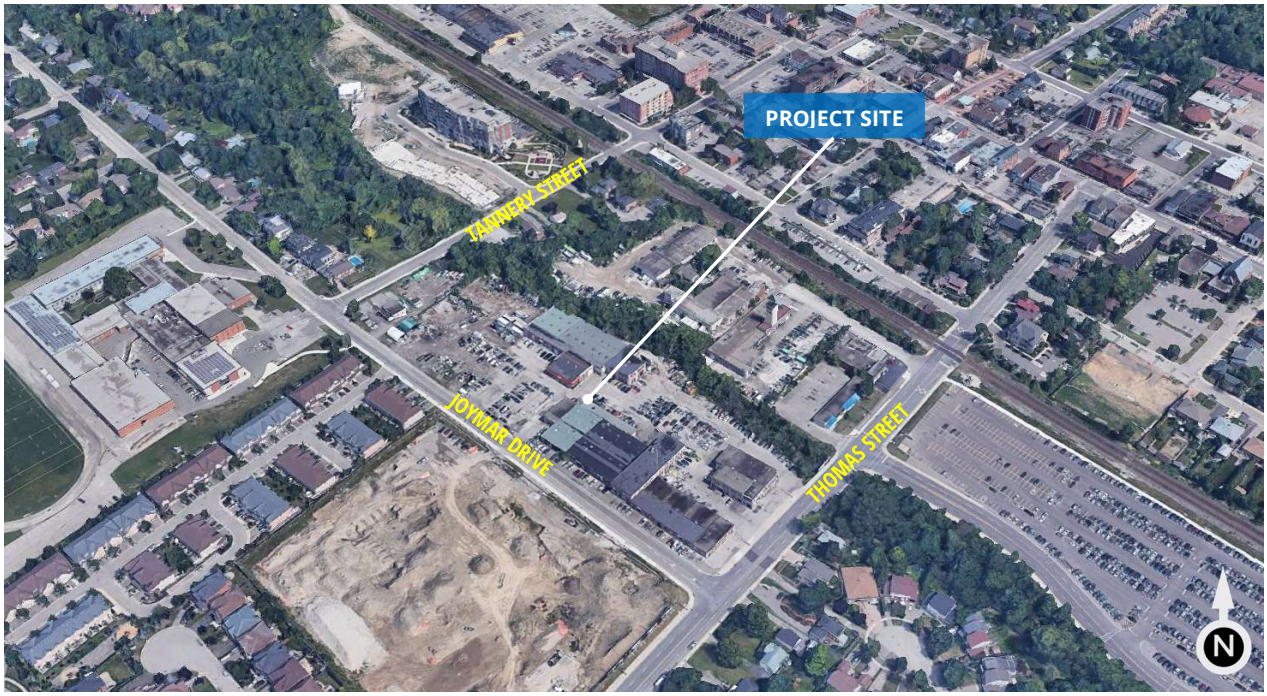


Image 1: Aerial View of Existing Site and Surroundings (Photo Courtesy of Google™ Earth)

2 BACKGROUND AND APPROACH

2.1 Wind Tunnel Study Model

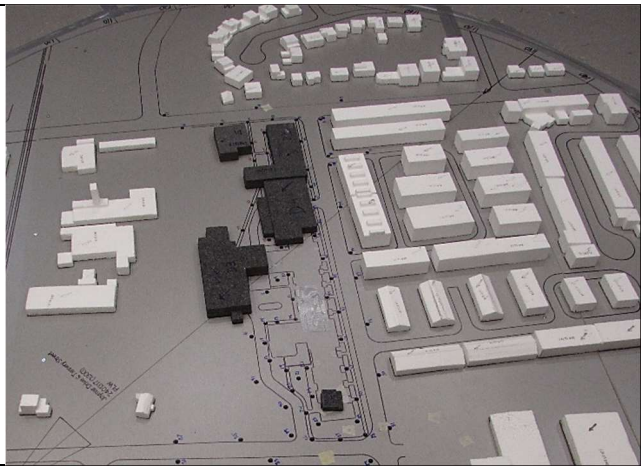
To assess the wind environment around the proposed project, a 1:300 scale model of the project site and surroundings was constructed for the wind tunnel tests of the following configurations:

A - Existing: Existing site with existing surroundings (Image 2A),

B – Phase 1: Phase 1 with existing surroundings (Image 2B), and,

C – Phase 1 & 2: Phase 1 & 2 with existing surroundings (Image 2C).

The wind tunnel model included all relevant surrounding buildings and topography within an approximate 360 m radius around the study site. The wind and turbulence profiles in the atmospheric boundary layer beyond the modelled area were also simulated in RWDI's wind tunnel. The wind tunnel model was instrumented with 99 specially designed wind speed sensors to measure mean and gust speeds at a full-scale height of approximately 1.5 m above local grade in pedestrian areas throughout the study site. The placement of wind measurement locations was based on our experience and understanding of the pedestrian usage for this site. Wind speeds were measured for 36 directions in 10-degree increments. The measurements at each sensor location were recorded in the form of ratios of local mean and gust speeds to the mean wind speed at a reference height above the model.



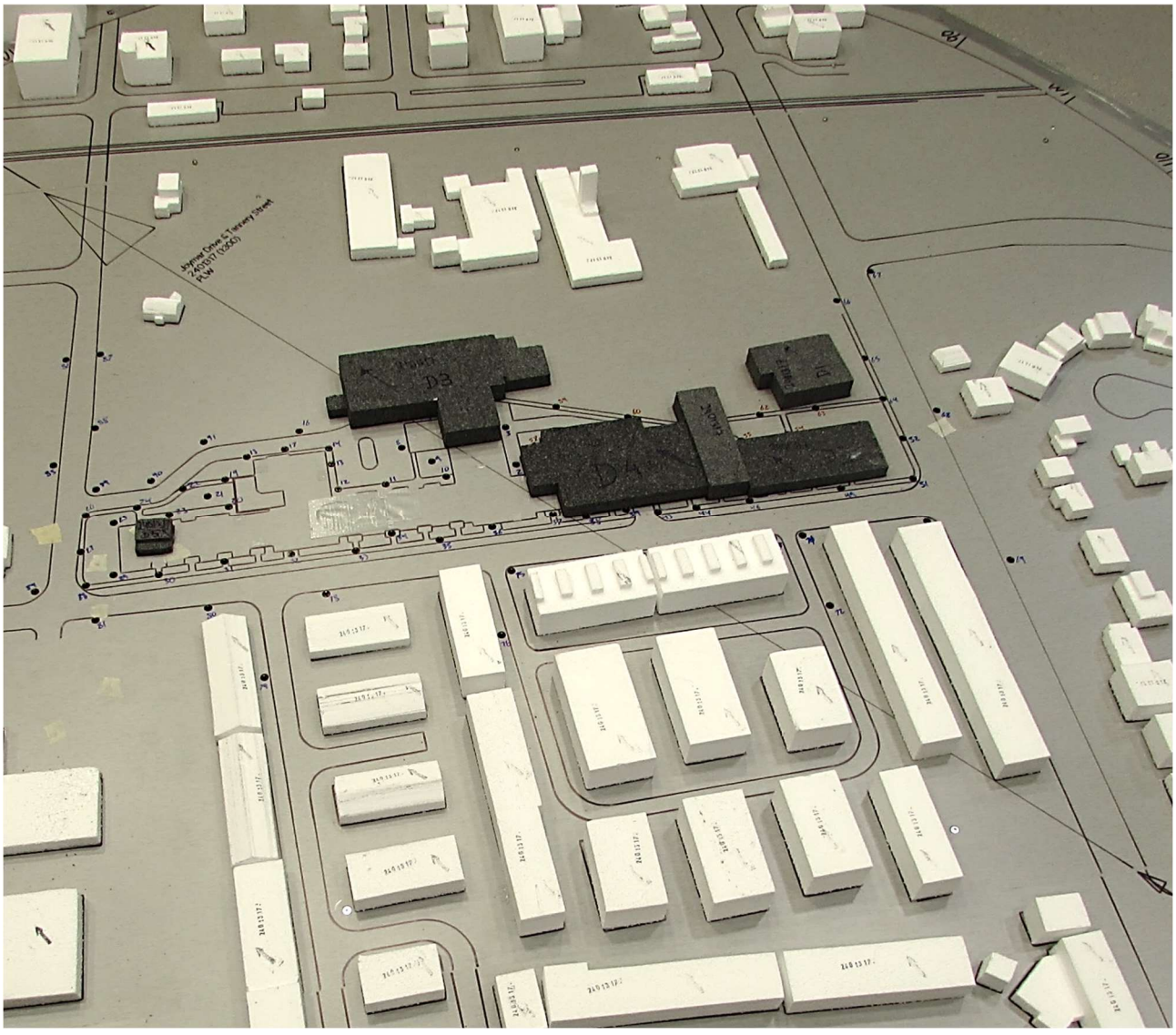


Image 2A: Wind Tunnel Study Model – Existing Configuration

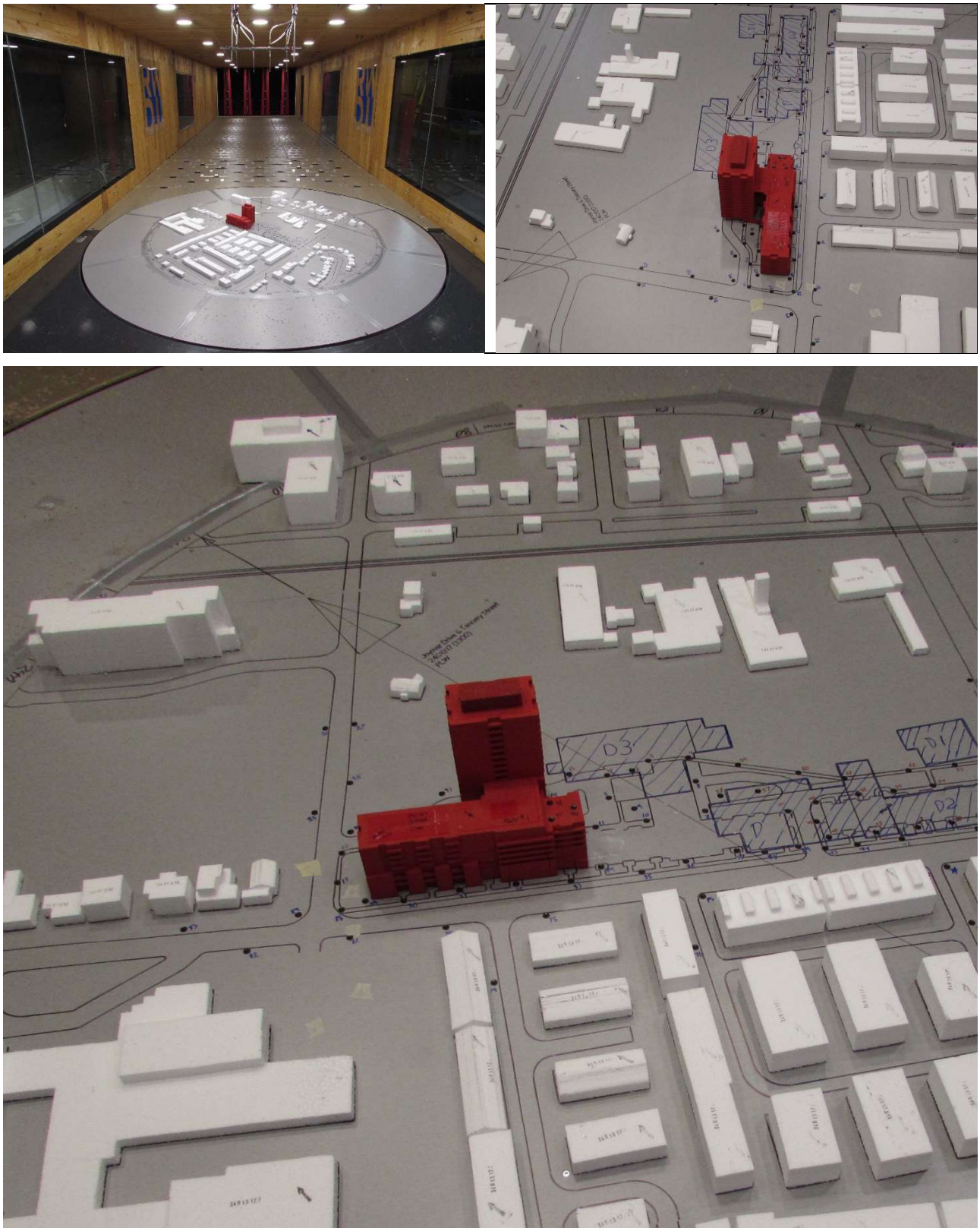
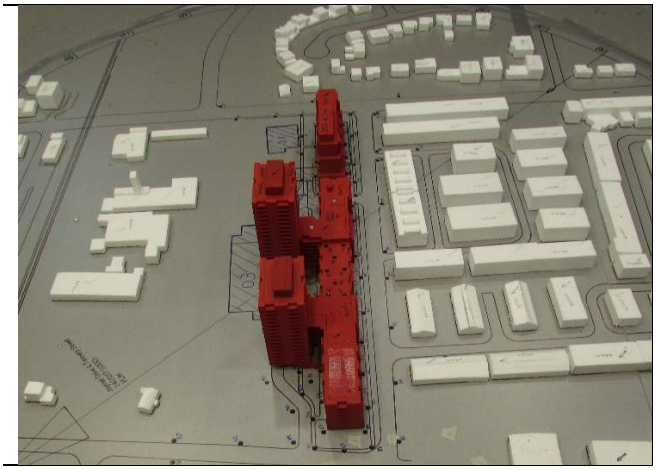


Image 2B: Wind Tunnel Study Model – Phase 1 Configuration



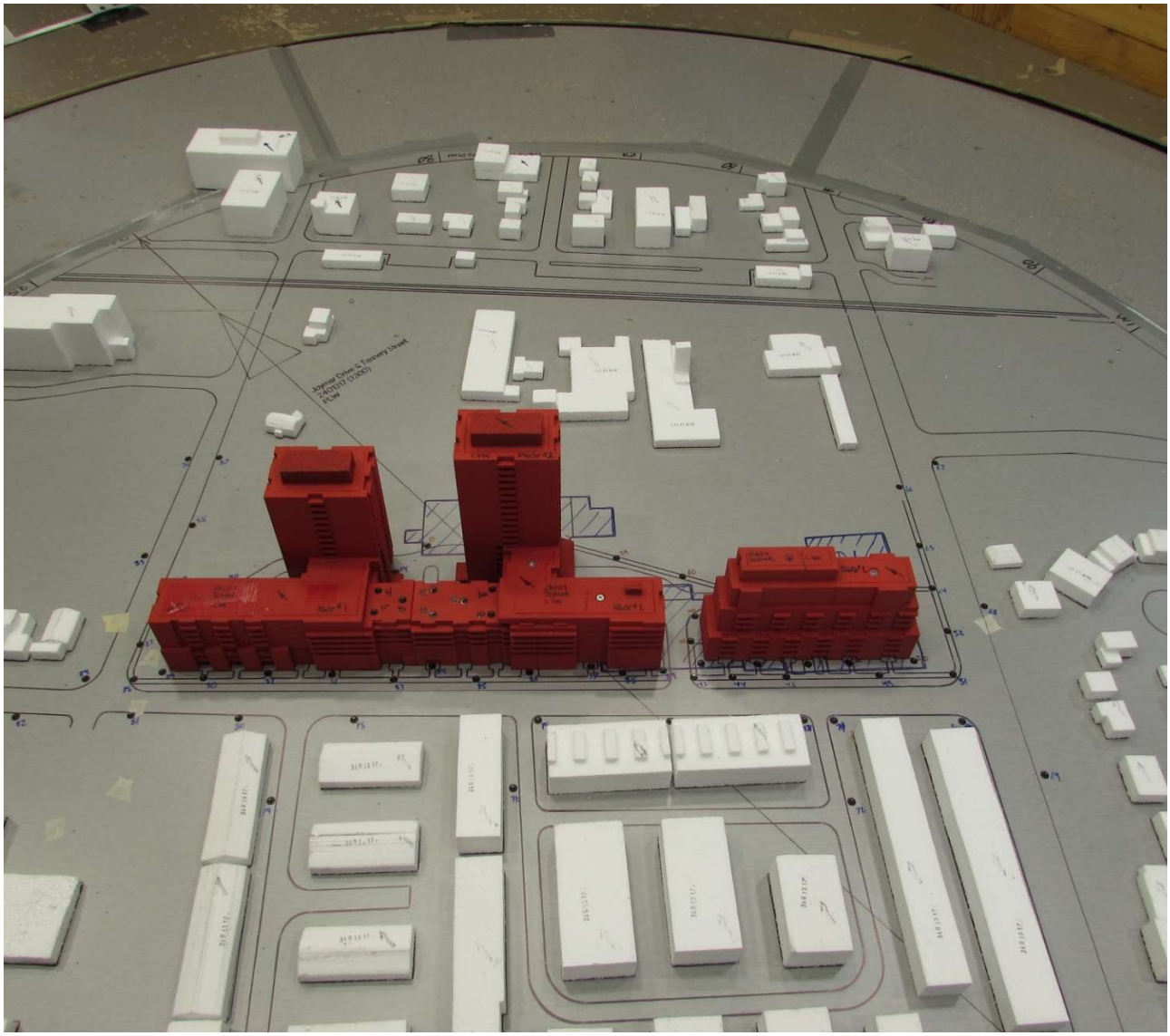
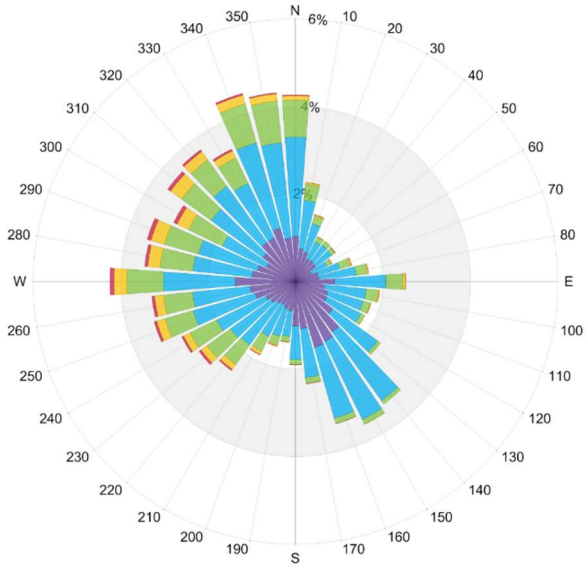


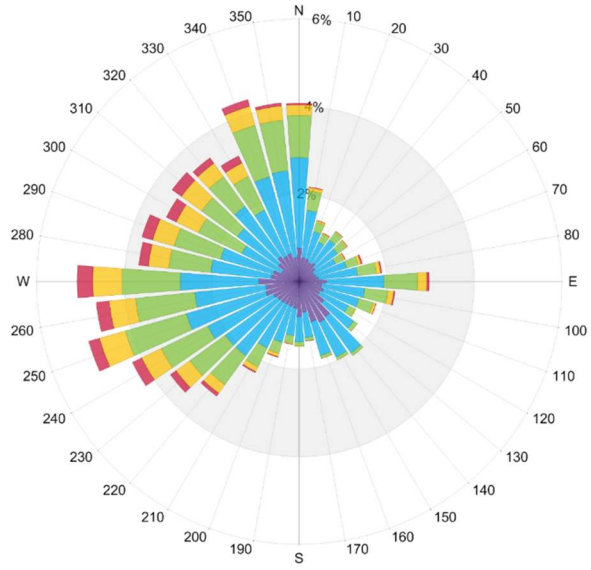
Image 2C: Wind Tunnel Study Model – Phase 1 & 2 Configuration

2.2 Wind Climate Data

Wind statistics recorded at Toronto Pearson International Airport between 1990 and 2020, inclusive, were analyzed for the summer (May to October) and winter (November to April) seasons. Image 3 graphically depicts the directional distributions of wind frequencies and speeds for these two seasons. Winds from the southwest, west, and northwest directions are predominant during both summer and winter. During the winter season, the winds from the east direction are also frequent, as indicated by the wind roses. The southeast winds are frequent in the summer, but typically of low speeds. Strong winds of a mean speed greater than 30 km/h, measured at the airport (at an anemometer height of 10 m), occur for 4.6% and 11.1% of the time during the summer and winter seasons, respectively. Wind statistics were combined with the wind tunnel data to predict the frequency of occurrence of full-scale wind speeds. The full-scale wind predictions were then compared with the wind criteria for pedestrian comfort and safety.



Summer (May to October)



Winter (November to April)

Wind Speed (km/h)	Probability (%) Summer	Winter
Calm	6.0	4.0
1-10	32.0	23.0
11-20	42.2	40.1
21-30	15.2	21.8
31-40	3.7	7.9
>40	0.9	3.2

Image 3: Directional Distribution of Winds Approaching Toronto Pearson International Airport (1990 to 2020)

2.3 Mississauga Pedestrian Wind Criteria

The Mississauga pedestrian wind criteria, developed in June 2014, are specified in the Urban Design Terms of Reference, "Pedestrian Wind Comfort and Safety Studies". As both mean and gust wind speeds can affect pedestrian comfort, their combined effect is used as the basis of the comfort criteria and defined as a Gust Equivalent Mean (GEM) wind speed. A 20% exceedance is used in these comfort criteria to determine the comfort category, which suggests that wind speeds would be comfortable for the corresponding activity at least 80% of the time or four out of five days.

Only gust winds are considered in the safety criterion. These are usually rare events but deserve special attention in city planning and building design due to their potential impact on pedestrian safety.

The following defines the criteria.

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

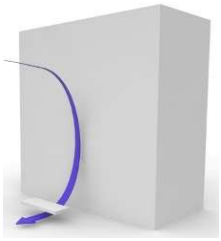
Notes:
(1) GEM speed = max (mean speed, gust speed/1.85),
(2) GEM speeds listed above are based on a seasonal exceedance of 20% of the time between 6:00 and 23:00.

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

Notes:
(1) Based on an annual exceedance of 9 hours or 0.1% of the time for 24 hours a day.

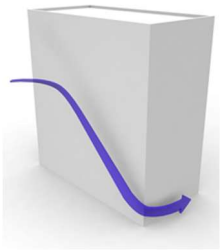
2.4 General Wind Flow Mechanisms

In the discussion of wind conditions, reference is made to the following wind flow mechanisms (Image 4):



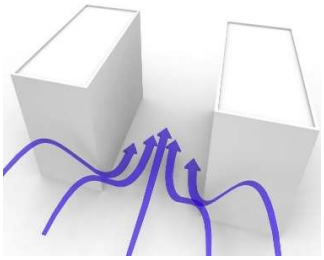
DOWNWASHING

Tall buildings tend to intercept the stronger winds at higher elevations and redirect them to the ground level. This is often the main cause for wind accelerations around large buildings at the pedestrian level.



CORNER ACCELERATION

When wind moves around the buildings a localized increase in the wind activity or corner acceleration can be expected around the exposed building corners at pedestrian level. The effect is intensified when the wind approaches at an oblique angle to a tall façade and are deflected down and around the exposed corners.



CHANNELLING EFFECT

Wind flow tends to accelerate through the space between buildings, under bridges or in passages through buildings due to channelling effect caused by the narrow gap. The effect is intensified if the channel is aligned with the predominant wind direction.

Image 4: General Wind Flow Mechanisms

If these building/wind combinations occur for prevailing winds, there is a greater potential for increased wind activity. Design details such as setting back a tall tower from the edges of a podium, deep canopies close to ground level, wind screens, tall trees with dense landscaping, etc. (Image 5) can help reduce wind speeds. The choice and effectiveness of these measures would depend on the exposure and orientation of the site with respect to the prevailing wind directions and the size and massing of the proposed buildings.

Podium/tower setback, canopy, landscaping and wind screens (left to right)

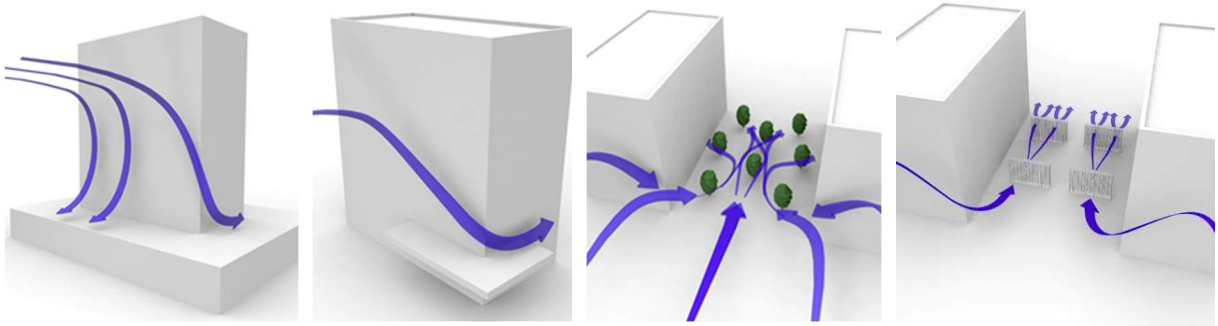


Image 5: Common Wind Control Measures

3 RESULTS AND DISCUSSION

The predicted wind conditions are shown on site plans in Figures 1A through 3C, located in the "Figures" section of this report. These conditions and the associated wind speeds are also presented in Table 1, located in the "Tables" section of this report. The following is a detailed discussion of the suitability of the wind conditions for the anticipated pedestrian use of each area of interest.

3.1 Grade Level (Locations 1 through 91)

Wind conditions comfortable for walking are appropriate for sidewalks and walkways on and around the project site as pedestrians will be active and less likely to remain in one area for prolonged periods of time. Lower wind speeds, conducive to standing or sitting, are preferred at main entrances where pedestrians are apt to linger.

Note that, in the following discussions, wind directions are based on true north, while project north has been considered for reference around the project site and buildings.

3.1.1 Existing Configuration

For all areas on and around the project site, existing wind speeds are comfortable for sitting or standing in the summer and walking or lower in the winter (Figures 1A and 2A). Wind speeds that meet the safety criterion are anticipated at all areas assessed in the Existing configuration (Figure 3A).

3.1.2 Phase 1 Configuration

With the addition of the Phase 1 building to the site, wind speeds at most areas are similar to the conditions in the Existing configuration with a few areas close to the building perimeter predicted to be reduced throughout the year. An increase in wind speeds is expected to the north, west, and south of the development; however, conditions at most areas remain appropriate for the intended uses. Wind speeds that meet the safety criterion are predicted at all grade level locations in the Phase 1 configuration with the exception of Location 18 at the northwest corner of Tower A, where the criterion is exceeded (Figure 3B).

Wind conditions continue to be comfortable for sitting or standing in most areas in the summer with higher speeds comfortable for walking near the southwest building corner, areas to the north, and a few locations along the sidewalks of Joymar Drive (Figure 1B). Wind speeds becoming uncomfortable are predicted at one location in the undercut of Tower A at the northwest corner (Location 18 in Figure 1B). During the winter, wind speeds increase with conditions comfortable for walking expected at more areas compared to the summer (Figure 2B). These conditions are appropriate for the intended use of the sidewalks and walkways on and around the site year-round. Uncomfortable conditions remain at the northwest corner of Tower A with an additional area of uncomfortable predicted to the southeast along the sidewalk of Joymar Drive (Location 18 and 35 in Figure 2B).

Wind conditions at the outdoor amenity space to the west of Tower A during the summer, when this area would be frequented, are expected to be comfortable for sitting or standing which is appropriate for pedestrian use (Locations 19, 21 and 22 In Figure 1B).

Main entrances in the Phase 1 configuration are situated near Locations 13 and 32. Wind speeds at both entrances are predicted to be comfortable for sitting or standing throughout the year which are suitable conditions for entrances (Figures 1B and 2B).

3.1.3 Phase 1 & 2 Configuration

With the addition of Phase 2, wind speeds are expected to be reduced at most areas on and around the site throughout the year when compared with the Phase 1 configuration (Figures 1C and 2C). Wind speeds at all locations at grade in the Phase 1 & 2 configuration are predicted to meet the wind safety criterion; however, one location where winds would exceed the criterion are expected to remain in the undercut of Tower A at the northwest corner (Location 18 of Figure 3C).

During the summer, wind conditions are expected to be comfortable for sitting or standing with a few areas of walking to north of site, between Tower A and B and near the west side of the South Building, these conditions are suitable for pedestrian use at most locations (Figure 1C). In the winter, wind conditions at areas close to the building perimeters are reduced, while winds being channelled in the gap between Tower A and B and the North Building Phase 2, and the South Building increase from being comfortable for standing in Phase 1 to be comfortable for walking in the Phase 1 & 2 configuration. Two locations between Tower A and B are expected to be uncomfortable (Locations 8 and 11 in Figure 2C). Positively, the uncomfortable wind condition predicted to the south along Joymar Drive to in the Phase 1 configuration would be improved to be comfortable for standing in the Phase 1 & 2 configuration (Location 35 Figure 2C).

Wind conditions at the various outdoor amenity spaces during the summer, when these areas would be frequented, are expected to be comfortable for sitting or standing which is appropriate for pedestrian use (Locations 9, 19, 21, 22, 53, 57, 58 and 63 in Figure 1C).

Wind speeds at most entrance locations are comfortable for sitting or standing during the summer, which is suitable for the intended use (Locations 13, 32, 36 and 47 in Figure 1C), with the exception of the entrance to Tower B which has wind speeds higher than desired for an entrance location, comfortable for walking (Location 8 in Figure 1C). Wind speeds during the winter are expected to increase; however, wind conditions remain comfortable for the intended use at most entrance locations (Locations 32, 36 and 47 in Figure 2C). Higher than desired wind speeds are expected at the entrances between Tower A and Tower B due to the direct exposure to the prevailing northwesterly winds as well as these winds being intercepted by the towers and being redirected down (downwashing) to grade (Locations 8 and 13 in Figure 2C). The large canopies above the Tower A and B entrances are a positive feature which helps to reduce downwashing winds.

3.2 Outdoor Amenity Levels Above Grade (Locations 92 through 99)

It is generally desirable for wind conditions on terraces intended for passive activities to be comfortable for sitting or standing in the summer, with conditions comfortable for sitting being desirable in seating/longing/dining areas. During the winter, the area would not be used frequently, and increased wind activity would be considered appropriate.

In the Phase 1 & 2 configuration, wind conditions on the Level 8 amenity terrace of the North Building (Locations 92 through 99 in Figure 1B) are predicted to be comfortable for sitting or standing during the summer which is suitable for passive pedestrian use. During the winter, some locations in the middle of the Level 8 amenity terrace are expected to be windier than desired (Locations 95, 96 and 97 in Figure 2B). The wind safety criterion is expected to be met at all areas on the Level 8 amenity terrace (Figure 3C).

3.3 Landscaping and Design Changes

After wind tunnel testing, RWDI received landscape drawings (Image 6) from Strybos Barron King on March 22, 2024, and updated progress drawings (Image 7a) from SRM Architects on April 12, 2024. All the proposed landscaping features are expected to help improve wind conditions. The dense landscaping in the berm to the north are predicted to help reduce winds around the site and within the drop off zone between Towers A and B. The coniferous trees would extend their benefit to the winter and may help reduce the uncomfortable conditions at the entrances and areas within the drop off zone.

If further reduction in wind speeds is desired, consider recessing the entrance into the façade. Alternatively, tall screens or planters on the north side are expected to help shelter the entrances. With the suggested wind strategies in place, a reduction in wind speeds to acceptable levels throughout the year is expected.

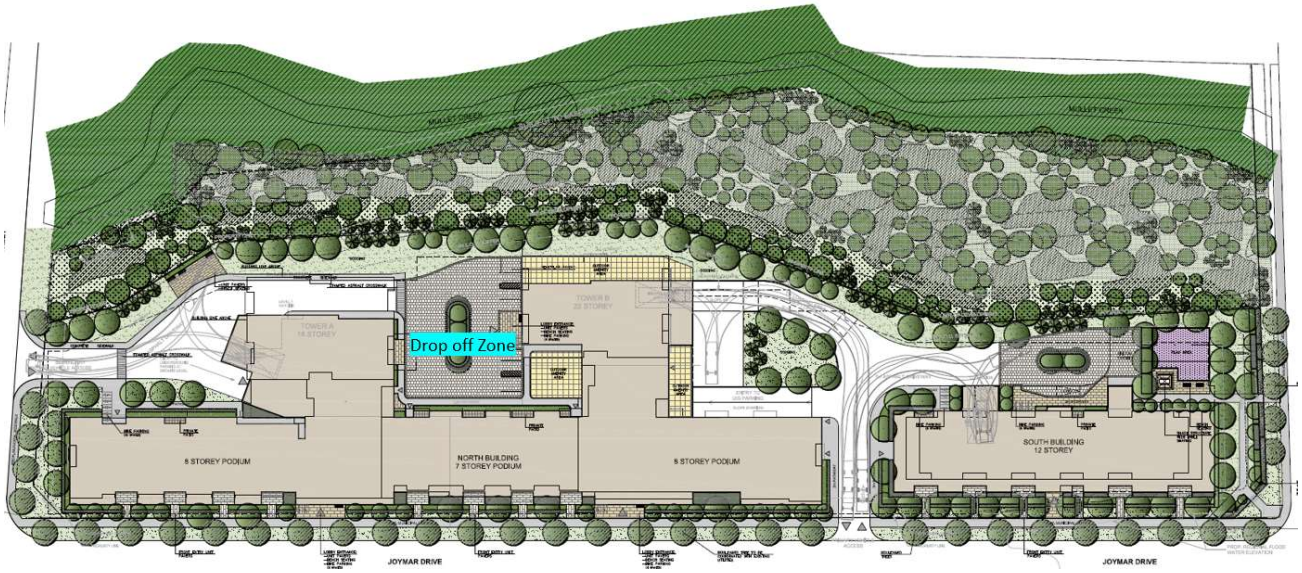


Image 6: Landscape drawing

The configuration of northwest corner of Tower A was updated (Image 7a). The strong winds predicted at Sensor #18 (Image 7b) may occur at the new building corner to the west (Blue clouded area in Image 7a), which is expected for vehicular access only. If a reduction in these potentially strong winds is desired, it is recommended to place a tall, porous wind screen (no more than 30% porous), or a tall coniferous tree at the corner to the west, if feasible.

It is also noted that the entrances for Tower A and B will include vestibules. Vestibules are positive design features that allow pedestrians to shelter inside on windier days.

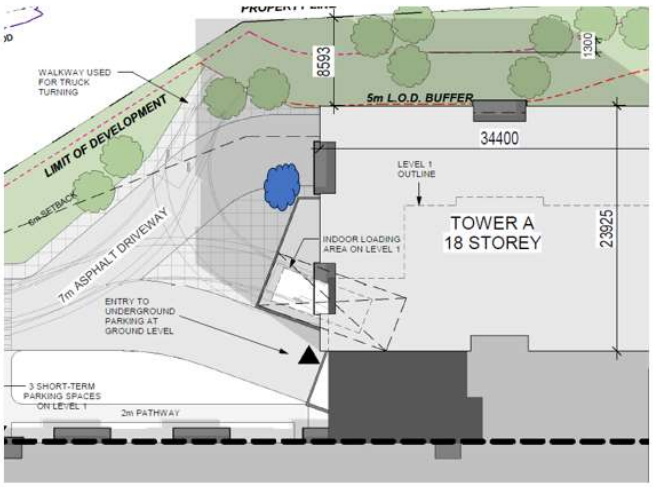


Image 7a: Updated drawings

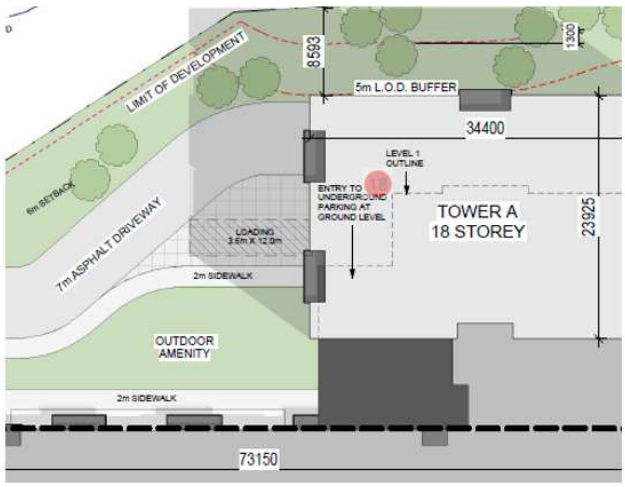


Image 7b: Drawings at time of testing

4 STATEMENT OF LIMITATIONS

Limitations

This report was prepared by Rowan Williams Davies & Irwin, Inc. ("RWDI") for De Zen Realty Company Limited ("Client"). The findings and conclusions presented in this report have been prepared for the Client and are specific to the project described herein ("Project"). The conclusions and recommendations contained in this report are based on the information available to RWDI when this report was prepared.

The conclusions and recommendations contained in this report have also been made for the specific purpose(s) set out herein. Should the Client or any other third party utilize the report and/or implement the conclusions and recommendations contained therein for any other purpose or project without the involvement of RWDI, the Client or such third party assumes any and all risk of any and all consequences arising from such use and RWDI accepts no responsibility for any liability, loss, or damage of any kind suffered by Client or any other third party arising therefrom.

Finally, it is imperative that the Client and/or any party relying on the conclusions and recommendations in this report carefully review the stated assumptions contained herein and to understand the different factors which may impact the conclusions and recommendations provided.

Design Assumptions

RWDI confirms that the pedestrian wind assessment (the "**Assessment**") discussed herein was performed by RWDI in accordance with generally accepted professional standards at the time when the Assessment was performed and in the location of the Project. No other representations, warranties, or guarantees are made with respect to the accuracy or completeness of the information, findings, recommendations, or conclusions contained in this Report. This report is not a legal opinion regarding compliance with applicable laws.

The findings and recommendations set out in this report are based on the following information disclosed to RWDI. Drawings and information listed below were received from SRM Architects and used to construct the scale model of the proposed Joymar Drive & Tannery Street Project **("Project Data**").

File Name	File Type	Date Received (dd/mm/yyyy)
24025 - Joymar Drive & Tannery St, Mississauga (De Zen)_MAIN FILE_V1c	Revit	08/02/2024
24025 240130 Phasing Jan 31st	PDF	01/02/2024
5173-L100 (Landscape Concept Plan)	PDF	22/03/2024
24025 - Joymar Drive & Tannery St	PDF	12/04/2024

The recommendations and conclusions are based on the assumption that the Project Data and Climate Data are accurate and complete. RWDI assumes no responsibility for any inaccuracy or deficiency in information it has received from others. In addition, the recommendations and conclusions in this report are partially based on historical data and can be affected by a number of external factors, including but not limited to Project design, quality of materials and construction, site conditions, meteorological events, and climate change. As such, the conclusions and recommendations contained in this report do not list every possible outcome.

The opinions in this report can only be relied upon to the extent that the Project Data and Project Specific Conditions have not changed. Any change in the Project Data or Project Specific Conditions not reflected in this report can impact and/or alter the recommendations and conclusions in this report. Therefore, it is incumbent upon the Client and/or any other third party reviewing the recommendations and conclusions in this report to contact RWDI in the event of any change in the Project Data and Project Specific Conditions in order to determine whether any such change(s) may impact the assumptions upon which the recommendations and conclusions were made.

5 REFERENCES

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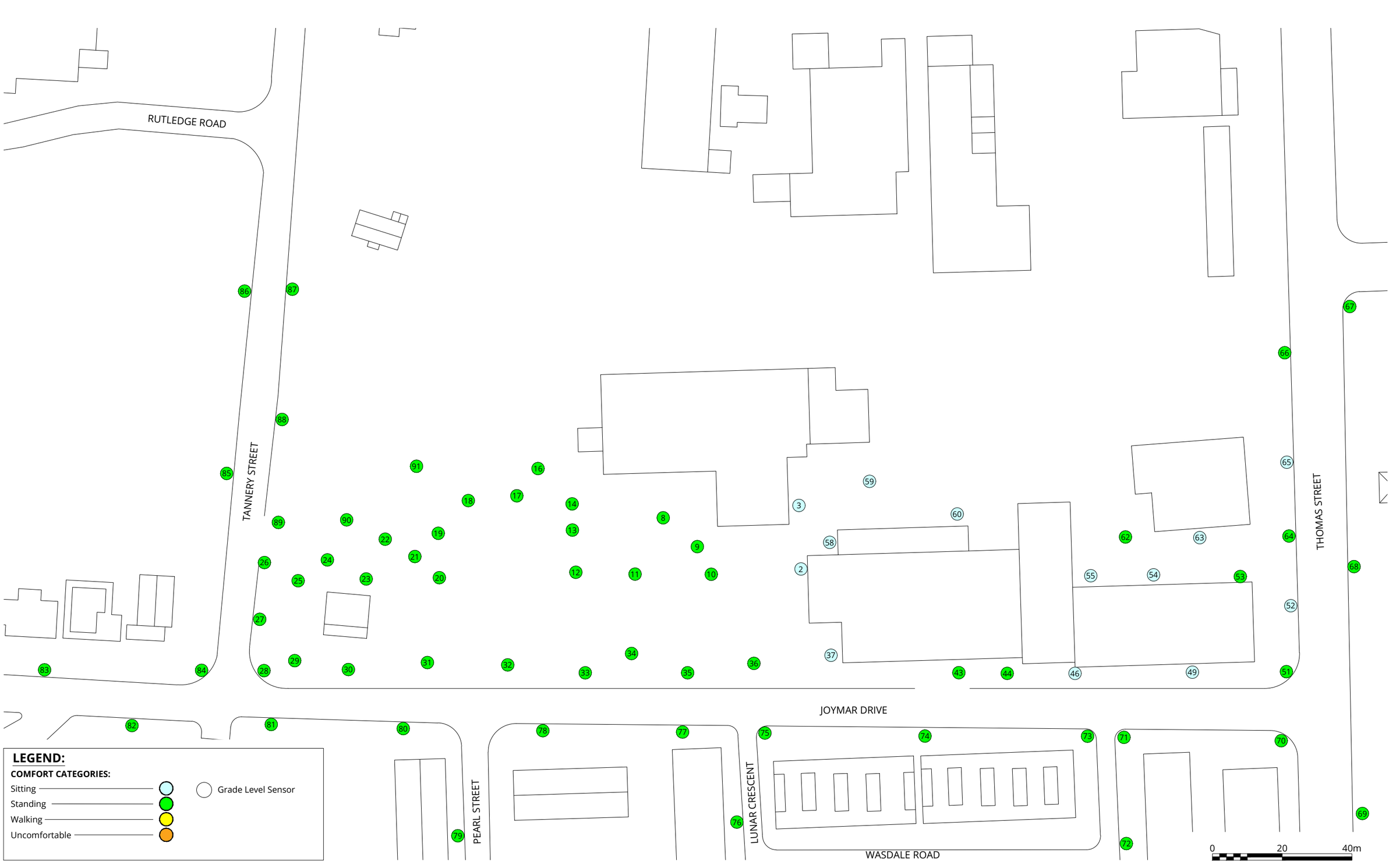
FIGURES



Pedestrian Wind Comfort Conditions
Existing Configuration
Summer (May to October, 6:00 to 23:00)

Joymar Drive & Tannery Street - Mississauga, ON

Project North True North

Project #2401317

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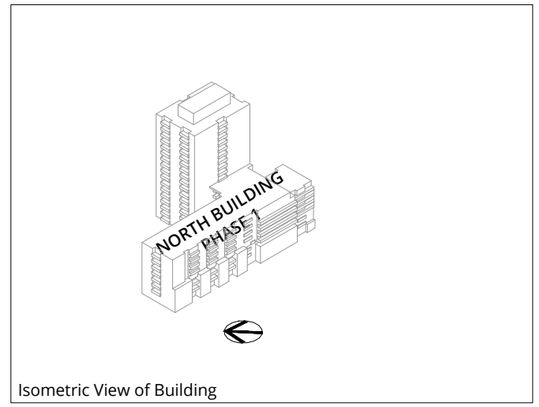
Date Revised:	Mar. 8, 2024		



Isometric View of Building

RUTLEDGE ROAD

TANNERY STREET

THOMAS STREET

JOYMAR DRIVE

PEARL STREET

LUNAR CRESCENT

WASDALE ROAD

OUTDOOR AMENITY

TOWER A

NORTH BUILDING PHASE 1

LEGEND:

COMFORT CATEGORIES:

- Sitting
- Standing
- Walking
- Uncomfortable

- Grade Level Sensor
- Building Above Removed for Clarity
- Main Entrance Location

0 20 40m

Pedestrian Wind Comfort Conditions

Proposed Configuration, Phase 1

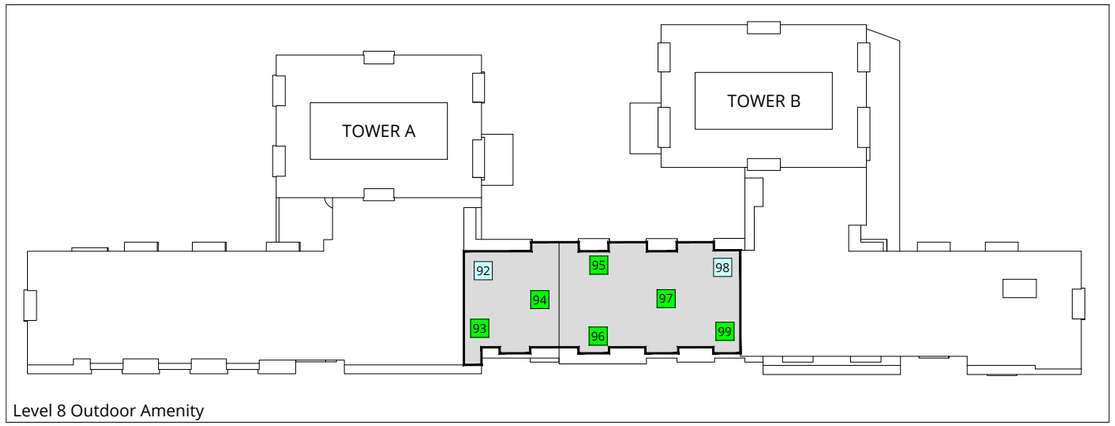
Summer (May to October, 6:00 to 23:00)

Joymar Drive & Tannery Street - Mississauga, ON

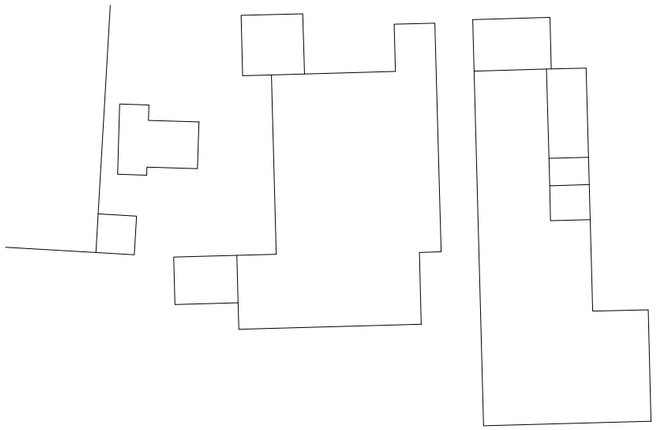
Project North True North

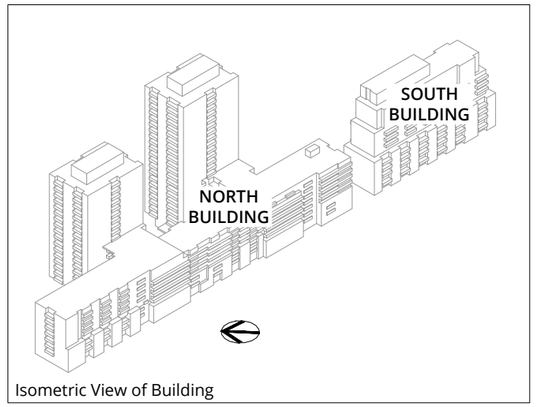
Project #2401317

Drawn by:	DG	Figure:	1B
Approx. Scale:	1:1000		
Date Revised:	Mar. 8, 2024		

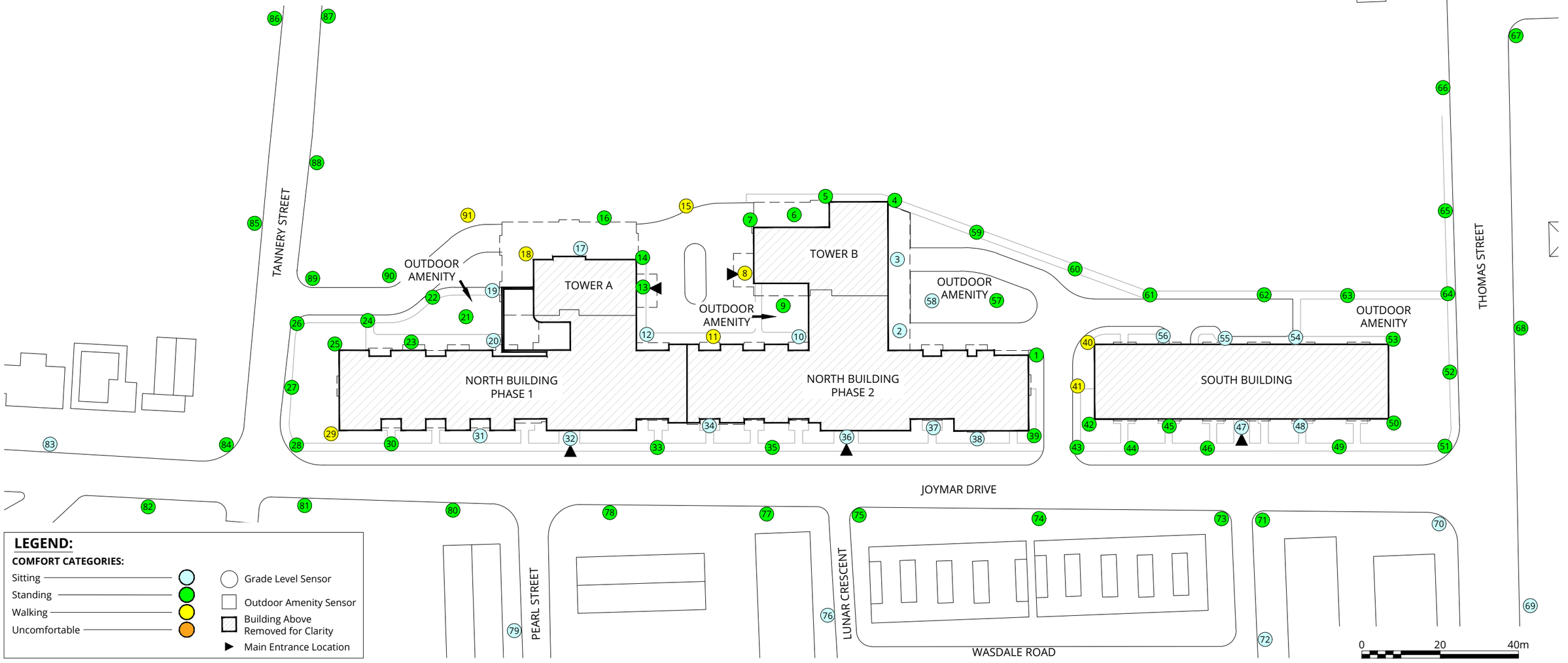


Level 8 Outdoor Amenity





Isometric View of Building



LEGEND:

COMFORT CATEGORIES:

- Sitting
- Standing
- Walking
- Uncomfortable

- Grade Level Sensor
- Outdoor Amenity Sensor
- Building Above Removed for Clarity
- Main Entrance Location

Pedestrian Wind Comfort Conditions
Proposed Configuration, Phase 1&2
Summer (May to October, 6:00 to 23:00)

Joymar Drive & Tannery Street - Mississauga, ON

Project North True North

Project #2401317

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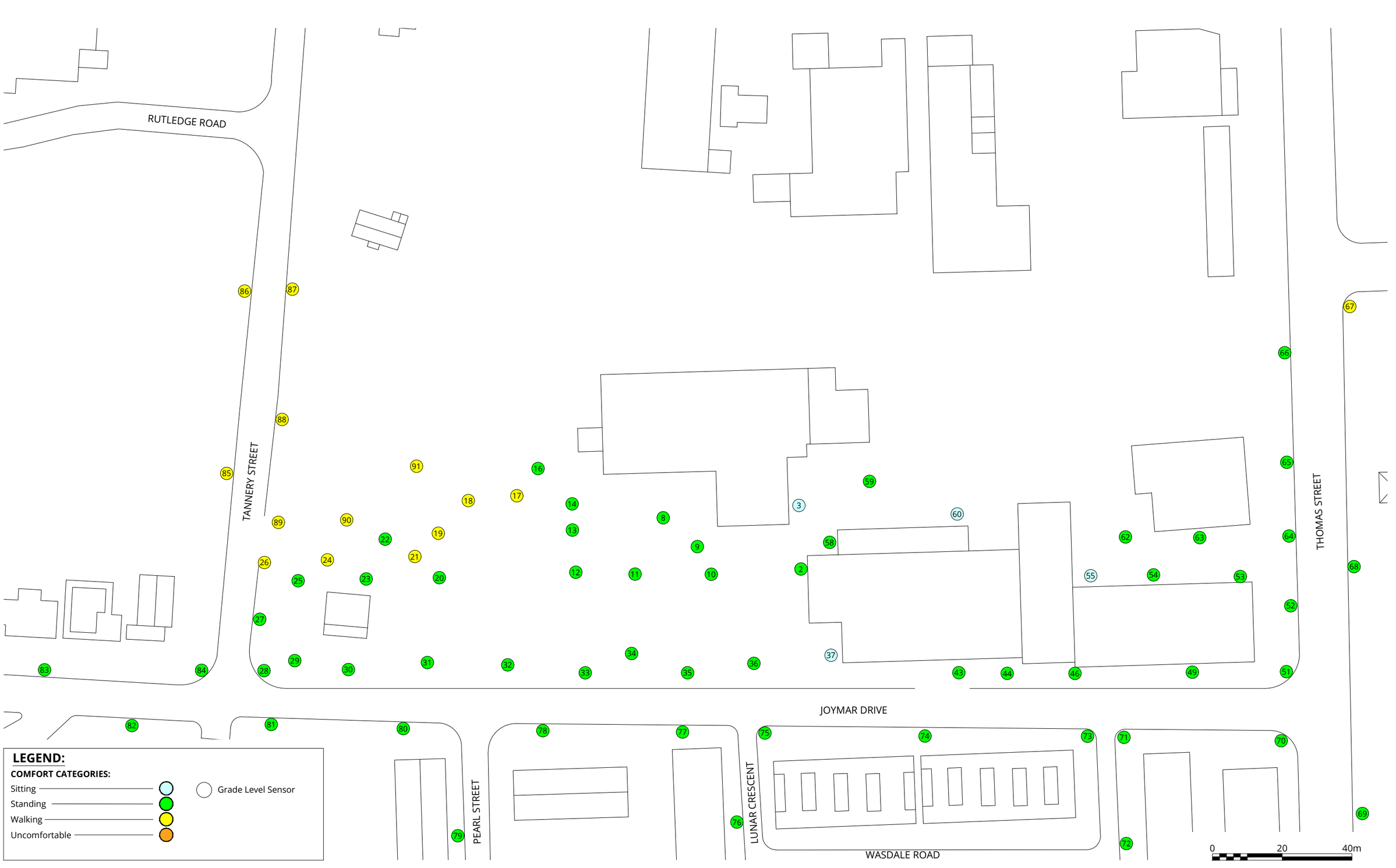
Approx. Scale:	1:1000		
Date Revised:	Mar. 8, 2024		



Pedestrian Wind Comfort Conditions
Existing Configuration
Winter (November to April, 6:00 to 23:00)

Joymar Drive & Tannery Street - Mississauga, ON

Project North True North

Project #2401317

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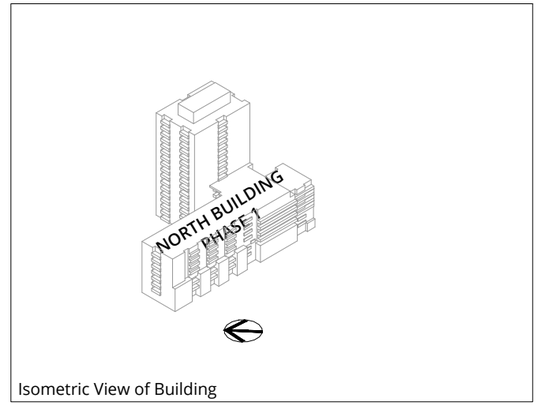
Approx. Scale:	1:1000		
Date Revised:	Mar. 8, 2024		



Isometric View of Building

RUTLEDGE ROAD

TANNERY STREET

THOMAS STREET

JOYMAR DRIVE

PEARL STREET

LUNAR CRESCENT

WASDALE ROAD

OUTDOOR AMENITY

TOWER A

NORTH BUILDING PHASE 1

LEGEND:

COMFORT CATEGORIES:

- Sitting
- Standing
- Walking
- Uncomfortable

- Grade Level Sensor
- Building Above Removed for Clarity
- Main Entrance Location

0 20 40m

Pedestrian Wind Comfort Conditions

Proposed Configuration, Phase 1

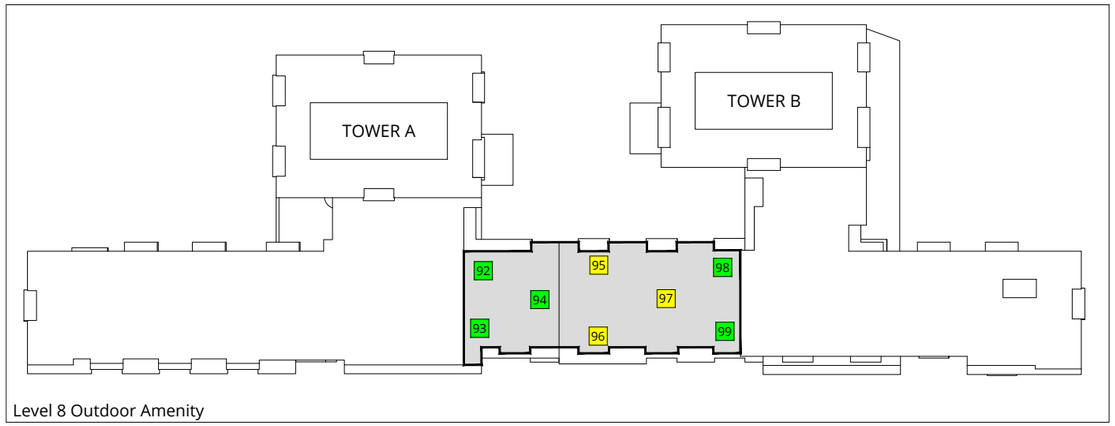
Winter (November to April, 6:00 to 23:00)

Joymar Drive & Tannery Street - Mississauga, ON

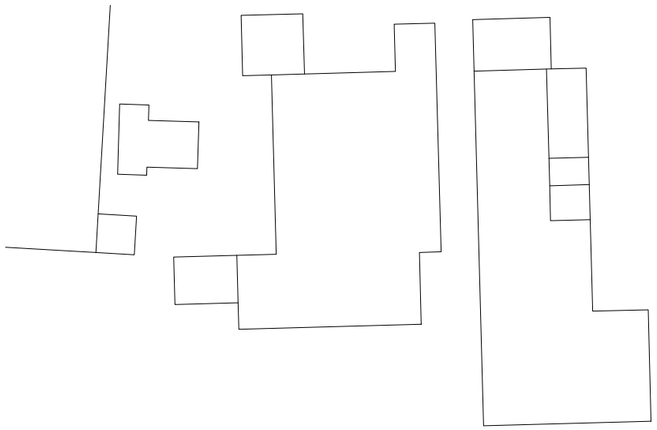
Project North True North

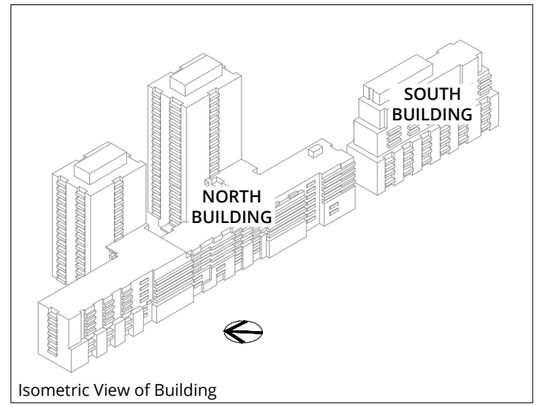
Project #2401317

Drawn by:	DG	Figure:	2B
Approx. Scale:	1:1000		
Date Revised:	Mar. 8, 2024		

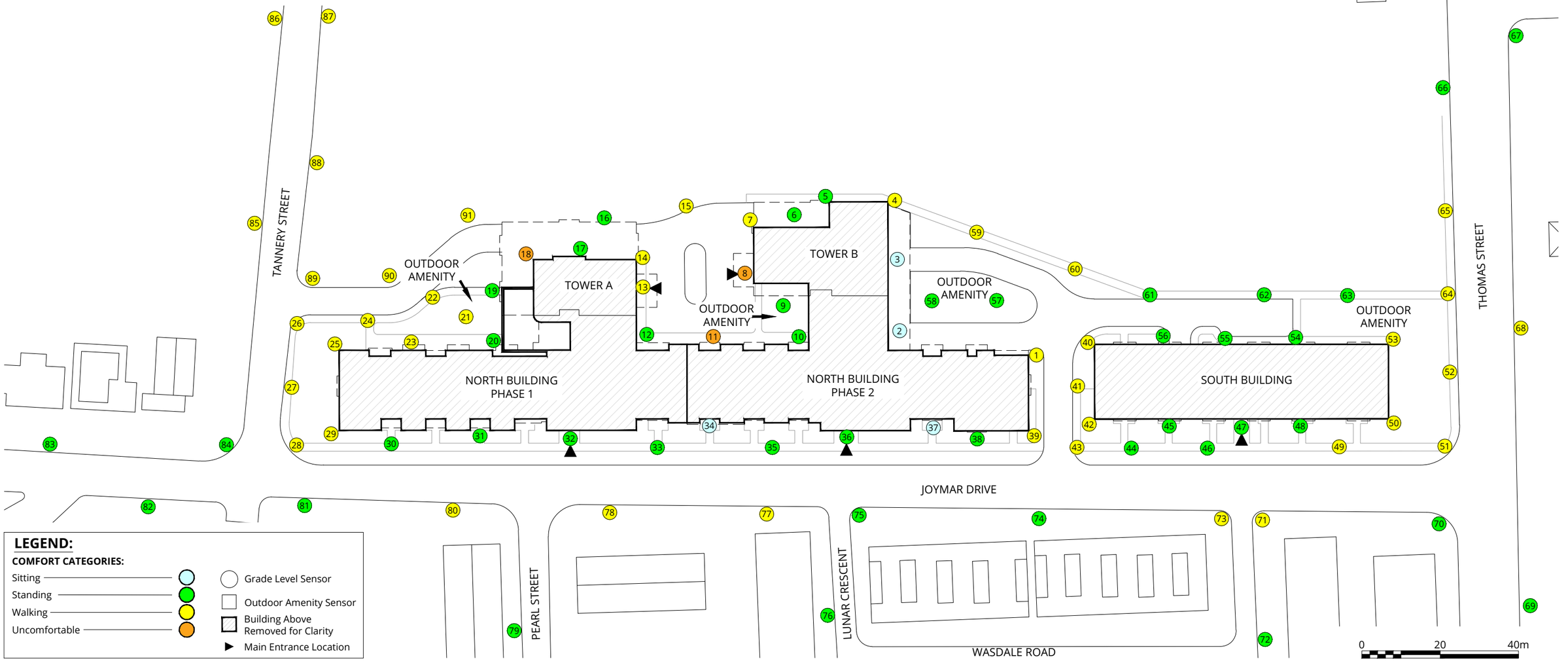


Level 8 Outdoor Amenity





Isometric View of Building



LEGEND:

COMFORT CATEGORIES:

- Sitting
- Standing
- Walking
- Uncomfortable

- Grade Level Sensor
- Outdoor Amenity Sensor
- Building Above Removed for Clarity
- Main Entrance Location

Pedestrian Wind Comfort Conditions
Proposed Configuration, Phase 1&2
Winter (November to April, 6:00 to 23:00)

Joymar Drive & Tannery Street - Mississauga, ON

Project North True North

Project #2401317

Drawn by:	DG	Figure:	2C
Approx. Scale:	1:1000		
Date Revised:	Mar. 8, 2024		

RUTLEDGE ROAD

TANNERY STREET

PEARL STREET

LUNAR CRESCENT

JOYMAR DRIVE

WASDALE ROAD

THOMAS STREET

LEGEND:

SAFETY CATEGORIES:

Acceptable

Exceeded

Grade Level Sensor

0 20 40m

Pedestrian Wind Safety Conditions

Existing Configuration

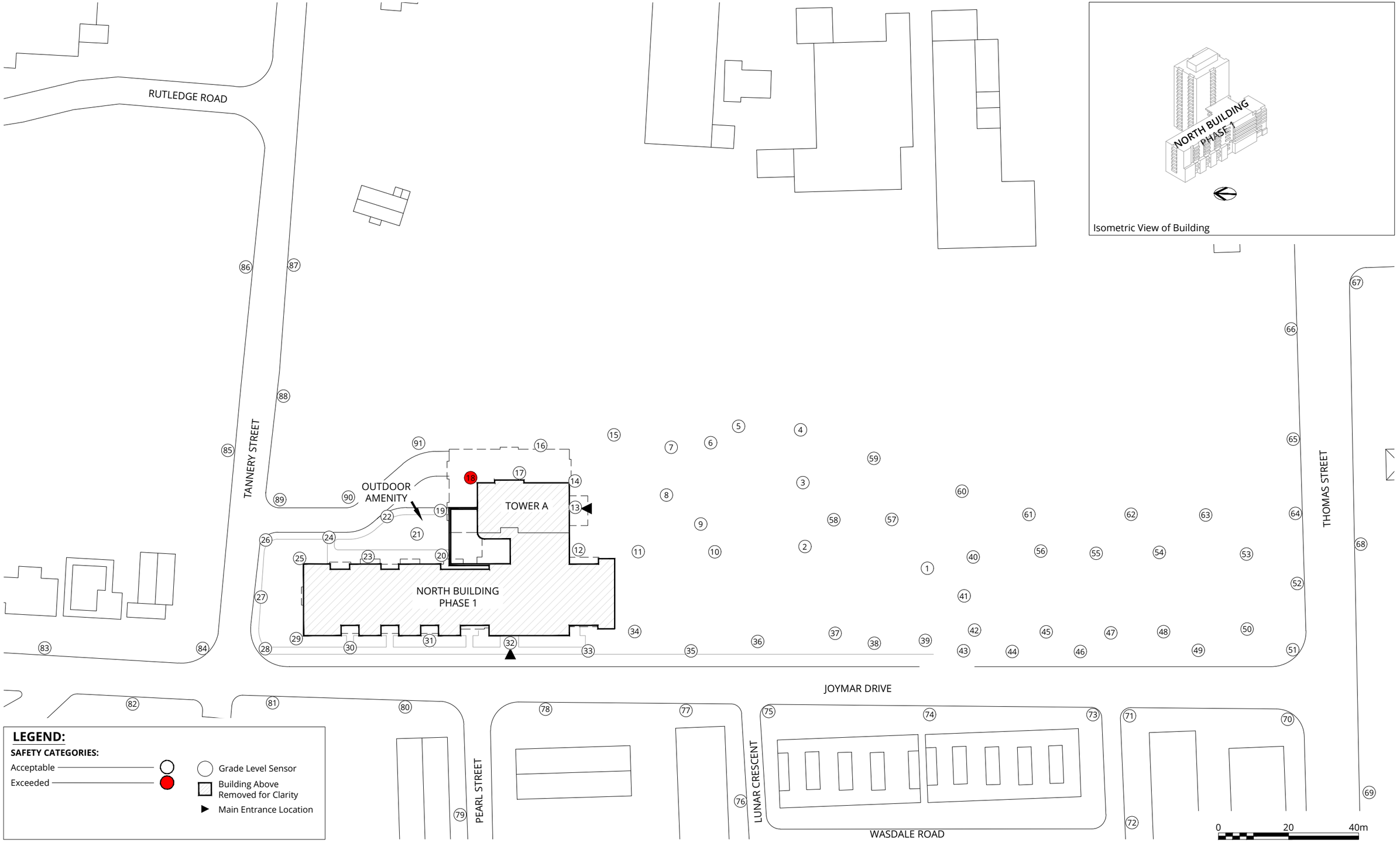
Annual (January to December, 0:00 to 23:00)

Joymar Drive & Tannery Street - Mississauga, ON

Project North True North

Project #2401317

Drawn by:	DG	Figure:	3A
Approx. Scale:	1:1000		
Date Revised:	Mar. 8, 2024		



Isometric View of Building

LEGEND:

SAFETY CATEGORIES:

- Acceptable
- Exceeded
- Grade Level Sensor
- Building Above Removed for Clarity
- Main Entrance Location

Pedestrian Wind Safety Conditions

Proposed Configuration, Phase 1

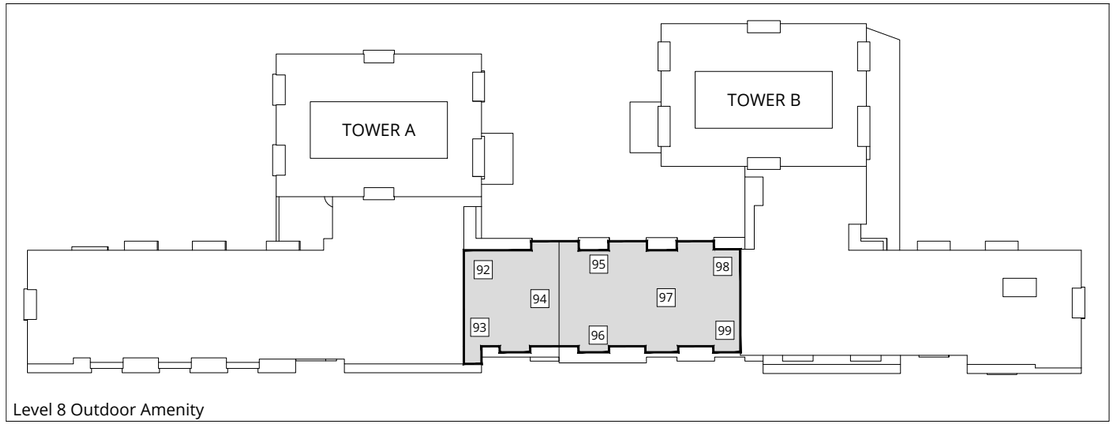
Annual (January to December, 0:00 to 23:00)

Joymar Drive & Tannery Street - Mississauga, ON

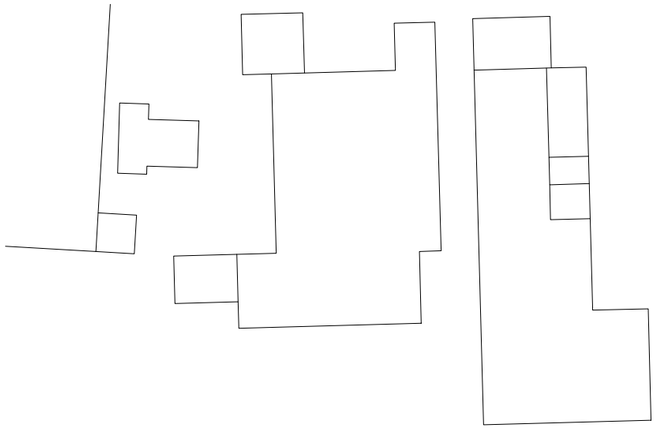
Project North True North

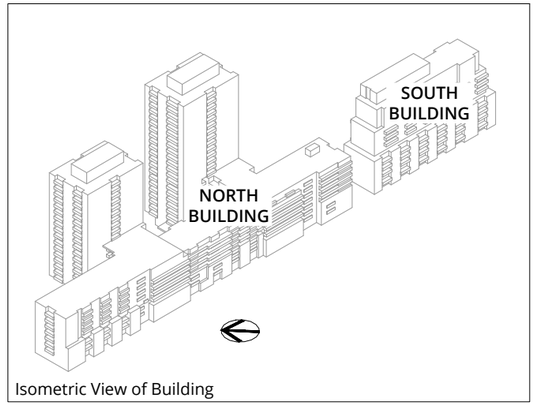
Project #2401317

Drawn by:	DG	Figure:	3B
Approx. Scale:	1:1000		
Date Revised:	Mar. 8, 2024		

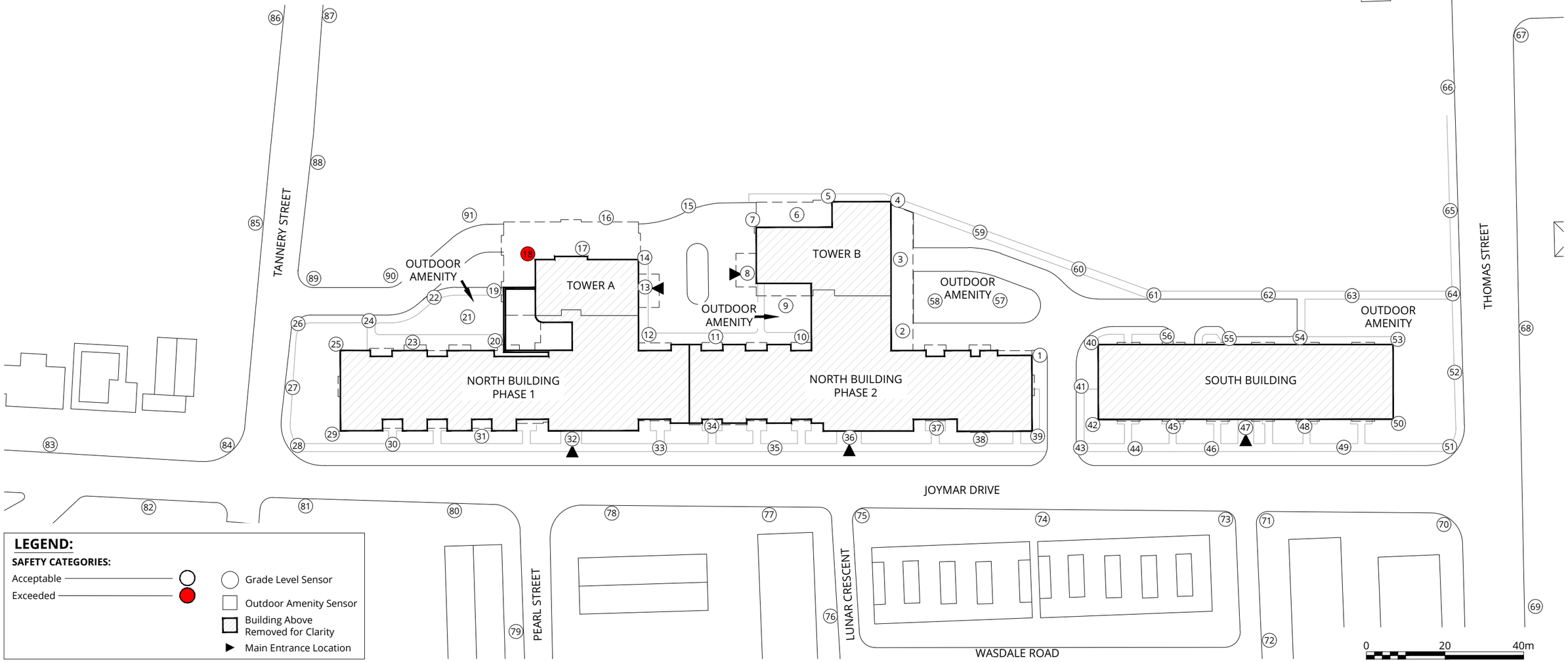


Level 8 Outdoor Amenity





Isometric View of Building



LEGEND:

SAFETY CATEGORIES:

Acceptable

Exceeded

Grade Level Sensor

Outdoor Amenity Sensor

Building Above Removed for Clarity

Main Entrance Location

Pedestrian Wind Safety Conditions

Proposed Configuration, Phase 1&2

Annual (January to December, 0:00 to 23:00)

Joymar Drive & Tannery Street - Mississauga, ON

Project North True North

Project #2401317

Drawn by:	DG	Figure:	3C
Approx. Scale:	1:1000		
Date Revised:	Mar. 8, 2024		

TABLES

Table 1: Pedestrian Wind Comfort and Safety Conditions

Location	Configuration	Wind Comfort				Wind Safety	
		Summer		Winter		Annual	
		Speed (km/h)	Rating	Speed (km/h)	Rating	Speed (km/h)	Rating
1	Existing	-	-	-	-	-	-
	Phase 1	12	Standing	15	Standing	61	Pass
	Phase 1&2	15	Standing	17	Walking	73	Pass
2	Existing	9	Sitting	11	Standing	51	Pass
	Phase 1	14	Standing	17	Walking	71	Pass
	Phase 1&2	7	Sitting	9	Sitting	33	Pass
3	Existing	8	Sitting	9	Sitting	37	Pass
	Phase 1	13	Standing	16	Walking	70	Pass
	Phase 1&2	8	Sitting	9	Sitting	42	Pass
4	Existing	-	-	-	-	-	-
	Phase 1	14	Standing	16	Walking	70	Pass
	Phase 1&2	14	Standing	16	Walking	66	Pass
5	Existing	-	-	-	-	-	-
	Phase 1	14	Standing	17	Walking	73	Pass
	Phase 1&2	13	Standing	15	Standing	66	Pass
6	Existing	-	-	-	-	-	-
	Phase 1	15	Standing	17	Walking	73	Pass
	Phase 1&2	11	Standing	13	Standing	60	Pass
7	Existing	-	-	-	-	-	-
	Phase 1	15	Standing	18	Walking	73	Pass
	Phase 1&2	13	Standing	16	Walking	69	Pass
8	Existing	11	Standing	13	Standing	59	Pass
	Phase 1	14	Standing	17	Walking	72	Pass
	Phase 1&2	17	Walking	21	Uncomfortable	83	Pass
9	Existing	11	Standing	13	Standing	54	Pass
	Phase 1	13	Standing	16	Walking	64	Pass
	Phase 1&2	12	Standing	14	Standing	72	Pass
10	Existing	12	Standing	14	Standing	57	Pass
	Phase 1	13	Standing	16	Walking	65	Pass
	Phase 1&2	9	Sitting	12	Standing	49	Pass
11	Existing	12	Standing	15	Standing	58	Pass
	Phase 1	12	Standing	15	Standing	63	Pass
	Phase 1&2	17	Walking	21	Uncomfortable	82	Pass
12	Existing	13	Standing	15	Standing	57	Pass
	Phase 1	6	Sitting	7	Sitting	43	Pass
	Phase 1&2	9	Sitting	11	Standing	46	Pass

Table 1: Pedestrian Wind Comfort and Safety Conditions

Location	Configuration	Wind Comfort				Wind Safety	
		Summer		Winter		Annual	
		Speed (km/h)	Rating	Speed (km/h)	Rating	Speed (km/h)	Rating
13	Existing	13	Standing	15	Standing	58	Pass
	Phase 1	8	Sitting	9	Sitting	41	Pass
	Phase 1&2	14	Standing	16	Walking	67	Pass
14	Existing	12	Standing	15	Standing	56	Pass
	Phase 1	14	Standing	15	Standing	65	Pass
	Phase 1&2	15	Standing	18	Walking	75	Pass
15	Existing	-	-	-	-	-	-
	Phase 1	15	Standing	18	Walking	75	Pass
	Phase 1&2	16	Walking	19	Walking	80	Pass
16	Existing	12	Standing	15	Standing	56	Pass
	Phase 1	16	Walking	17	Walking	69	Pass
	Phase 1&2	13	Standing	15	Standing	59	Pass
17	Existing	13	Standing	16	Walking	60	Pass
	Phase 1	10	Sitting	12	Standing	58	Pass
	Phase 1&2	9	Sitting	11	Standing	55	Pass
18	Existing	14	Standing	16	Walking	61	Pass
	Phase 1	21	Uncomfortable	26	Uncomfortable	103	Exceeded
	Phase 1&2	20	Walking	25	Uncomfortable	101	Exceeded
19	Existing	13	Standing	16	Walking	58	Pass
	Phase 1	10	Sitting	12	Standing	59	Pass
	Phase 1&2	10	Sitting	12	Standing	55	Pass
20	Existing	13	Standing	15	Standing	56	Pass
	Phase 1	9	Sitting	11	Standing	50	Pass
	Phase 1&2	9	Sitting	11	Standing	49	Pass
21	Existing	13	Standing	16	Walking	58	Pass
	Phase 1	13	Standing	16	Walking	69	Pass
	Phase 1&2	13	Standing	16	Walking	70	Pass
22	Existing	13	Standing	15	Standing	57	Pass
	Phase 1	15	Standing	19	Walking	79	Pass
	Phase 1&2	15	Standing	19	Walking	80	Pass
23	Existing	11	Standing	13	Standing	51	Pass
	Phase 1	13	Standing	17	Walking	76	Pass
	Phase 1&2	13	Standing	16	Walking	77	Pass
24	Existing	13	Standing	16	Walking	61	Pass
	Phase 1	13	Standing	15	Standing	61	Pass
	Phase 1&2	13	Standing	16	Walking	65	Pass

Table 1: Pedestrian Wind Comfort and Safety Conditions

Location	Configuration	Wind Comfort				Wind Safety	
		Summer		Winter		Annual	
		Speed (km/h)	Rating	Speed (km/h)	Rating	Speed (km/h)	Rating
25	Existing	13	Standing	15	Standing	60	Pass
	Phase 1	15	Standing	18	Walking	71	Pass
	Phase 1&2	15	Standing	18	Walking	72	Pass
26	Existing	13	Standing	16	Walking	58	Pass
	Phase 1	15	Standing	18	Walking	70	Pass
	Phase 1&2	15	Standing	18	Walking	73	Pass
27	Existing	12	Standing	15	Standing	61	Pass
	Phase 1	15	Standing	18	Walking	72	Pass
	Phase 1&2	15	Standing	18	Walking	75	Pass
28	Existing	12	Standing	15	Standing	60	Pass
	Phase 1	15	Standing	18	Walking	70	Pass
	Phase 1&2	15	Standing	18	Walking	70	Pass
29	Existing	12	Standing	15	Standing	59	Pass
	Phase 1	16	Walking	19	Walking	77	Pass
	Phase 1&2	16	Walking	19	Walking	77	Pass
30	Existing	12	Standing	14	Standing	57	Pass
	Phase 1	12	Standing	13	Standing	58	Pass
	Phase 1&2	11	Standing	13	Standing	55	Pass
31	Existing	12	Standing	15	Standing	60	Pass
	Phase 1	10	Sitting	12	Standing	57	Pass
	Phase 1&2	9	Sitting	11	Standing	55	Pass
32	Existing	12	Standing	15	Standing	58	Pass
	Phase 1	11	Standing	13	Standing	50	Pass
	Phase 1&2	10	Sitting	12	Standing	46	Pass
33	Existing	12	Standing	15	Standing	58	Pass
	Phase 1	13	Standing	16	Walking	70	Pass
	Phase 1&2	11	Standing	13	Standing	55	Pass
34	Existing	13	Standing	15	Standing	60	Pass
	Phase 1	15	Standing	18	Walking	74	Pass
	Phase 1&2	7	Sitting	9	Sitting	39	Pass
35	Existing	13	Standing	15	Standing	60	Pass
	Phase 1	16	Walking	21	Uncomfortable	81	Pass
	Phase 1&2	12	Standing	14	Standing	59	Pass
36	Existing	12	Standing	14	Standing	56	Pass
	Phase 1	14	Standing	16	Walking	71	Pass
	Phase 1&2	9	Sitting	11	Standing	44	Pass

Table 1: Pedestrian Wind Comfort and Safety Conditions

Location	Configuration	Wind Comfort				Wind Safety	
		Summer		Winter		Annual	
		Speed (km/h)	Rating	Speed (km/h)	Rating	Speed (km/h)	Rating
37	Existing	9	Sitting	10	Sitting	42	Pass
	Phase 1	12	Standing	14	Standing	59	Pass
	Phase 1&2	7	Sitting	8	Sitting	33	Pass
38	Existing	-	-	-	-	-	-
	Phase 1	11	Standing	13	Standing	52	Pass
	Phase 1&2	10	Sitting	12	Standing	52	Pass
39	Existing	-	-	-	-	-	-
	Phase 1	11	Standing	13	Standing	51	Pass
	Phase 1&2	15	Standing	18	Walking	85	Pass
40	Existing	-	-	-	-	-	-
	Phase 1	12	Standing	15	Standing	62	Pass
	Phase 1&2	17	Walking	20	Walking	82	Pass
41	Existing	-	-	-	-	-	-
	Phase 1	12	Standing	14	Standing	59	Pass
	Phase 1&2	16	Walking	20	Walking	80	Pass
42	Existing	-	-	-	-	-	-
	Phase 1	11	Standing	13	Standing	54	Pass
	Phase 1&2	14	Standing	16	Walking	70	Pass
43	Existing	11	Standing	13	Standing	54	Pass
	Phase 1	10	Sitting	12	Standing	52	Pass
	Phase 1&2	14	Standing	17	Walking	69	Pass
44	Existing	11	Standing	13	Standing	50	Pass
	Phase 1	10	Sitting	12	Standing	51	Pass
	Phase 1&2	11	Standing	13	Standing	57	Pass
45	Existing	-	-	-	-	-	-
	Phase 1	11	Standing	13	Standing	55	Pass
	Phase 1&2	11	Standing	12	Standing	56	Pass
46	Existing	10	Sitting	12	Standing	48	Pass
	Phase 1	11	Standing	13	Standing	54	Pass
	Phase 1&2	11	Standing	13	Standing	59	Pass
47	Existing	-	-	-	-	-	-
	Phase 1	12	Standing	14	Standing	57	Pass
	Phase 1&2	10	Sitting	12	Standing	54	Pass
48	Existing	-	-	-	-	-	-
	Phase 1	12	Standing	14	Standing	57	Pass
	Phase 1&2	10	Sitting	12	Standing	55	Pass

Table 1: Pedestrian Wind Comfort and Safety Conditions

Location	Configuration	Wind Comfort				Wind Safety	
		Summer		Winter		Annual	
		Speed (km/h)	Rating	Speed (km/h)	Rating	Speed (km/h)	Rating
49	Existing	10	Sitting	12	Standing	50	Pass
	Phase 1	11	Standing	13	Standing	56	Pass
	Phase 1&2	12	Standing	16	Walking	68	Pass
50	Existing	-	-	-	-	-	-
	Phase 1	12	Standing	14	Standing	58	Pass
	Phase 1&2	15	Standing	19	Walking	82	Pass
51	Existing	11	Standing	13	Standing	49	Pass
	Phase 1	12	Standing	14	Standing	58	Pass
	Phase 1&2	14	Standing	18	Walking	80	Pass
52	Existing	10	Sitting	12	Standing	49	Pass
	Phase 1	13	Standing	15	Standing	58	Pass
	Phase 1&2	13	Standing	16	Walking	75	Pass
53	Existing	11	Standing	12	Standing	53	Pass
	Phase 1	13	Standing	15	Standing	59	Pass
	Phase 1&2	14	Standing	16	Walking	69	Pass
54	Existing	10	Sitting	11	Standing	45	Pass
	Phase 1	12	Standing	15	Standing	60	Pass
	Phase 1&2	10	Sitting	12	Standing	51	Pass
55	Existing	7	Sitting	8	Sitting	38	Pass
	Phase 1	12	Standing	15	Standing	61	Pass
	Phase 1&2	10	Sitting	11	Standing	48	Pass
56	Existing	-	-	-	-	-	-
	Phase 1	12	Standing	14	Standing	61	Pass
	Phase 1&2	9	Sitting	11	Standing	53	Pass
57	Existing	-	-	-	-	-	-
	Phase 1	13	Standing	16	Walking	68	Pass
	Phase 1&2	13	Standing	15	Standing	66	Pass
58	Existing	9	Sitting	11	Standing	49	Pass
	Phase 1	14	Standing	16	Walking	72	Pass
	Phase 1&2	9	Sitting	12	Standing	54	Pass
59	Existing	10	Sitting	12	Standing	48	Pass
	Phase 1	14	Standing	16	Walking	68	Pass
	Phase 1&2	15	Standing	17	Walking	72	Pass
60	Existing	8	Sitting	10	Sitting	43	Pass
	Phase 1	13	Standing	15	Standing	64	Pass
	Phase 1&2	15	Standing	17	Walking	71	Pass

Table 1: Pedestrian Wind Comfort and Safety Conditions

Location	Configuration	Wind Comfort				Wind Safety	
		Summer		Winter		Annual	
		Speed (km/h)	Rating	Speed (km/h)	Rating	Speed (km/h)	Rating
61	Existing	-	-	-	-	-	-
	Phase 1	13	Standing	15	Standing	63	Pass
	Phase 1&2	12	Standing	15	Standing	70	Pass
62	Existing	11	Standing	13	Standing	51	Pass
	Phase 1	13	Standing	15	Standing	60	Pass
	Phase 1&2	12	Standing	14	Standing	62	Pass
63	Existing	10	Sitting	11	Standing	46	Pass
	Phase 1	13	Standing	15	Standing	58	Pass
	Phase 1&2	13	Standing	15	Standing	62	Pass
64	Existing	12	Standing	15	Standing	57	Pass
	Phase 1	13	Standing	15	Standing	59	Pass
	Phase 1&2	14	Standing	17	Walking	71	Pass
65	Existing	10	Sitting	12	Standing	49	Pass
	Phase 1	13	Standing	16	Walking	60	Pass
	Phase 1&2	13	Standing	16	Walking	66	Pass
66	Existing	13	Standing	15	Standing	59	Pass
	Phase 1	13	Standing	16	Walking	60	Pass
	Phase 1&2	12	Standing	15	Standing	60	Pass
67	Existing	13	Standing	16	Walking	61	Pass
	Phase 1	14	Standing	16	Walking	60	Pass
	Phase 1&2	12	Standing	15	Standing	58	Pass
68	Existing	11	Standing	14	Standing	55	Pass
	Phase 1	12	Standing	14	Standing	56	Pass
	Phase 1&2	13	Standing	16	Walking	71	Pass
69	Existing	11	Standing	13	Standing	58	Pass
	Phase 1	11	Standing	14	Standing	60	Pass
	Phase 1&2	10	Sitting	12	Standing	53	Pass
70	Existing	12	Standing	13	Standing	56	Pass
	Phase 1	12	Standing	13	Standing	54	Pass
	Phase 1&2	10	Sitting	12	Standing	49	Pass
71	Existing	13	Standing	15	Standing	66	Pass
	Phase 1	12	Standing	15	Standing	62	Pass
	Phase 1&2	13	Standing	16	Walking	68	Pass
72	Existing	11	Standing	13	Standing	51	Pass
	Phase 1	11	Standing	13	Standing	53	Pass
	Phase 1&2	10	Sitting	12	Standing	47	Pass

Table 1: Pedestrian Wind Comfort and Safety Conditions

Location	Configuration	Wind Comfort				Wind Safety	
		Summer		Winter		Annual	
		Speed (km/h)	Rating	Speed (km/h)	Rating	Speed (km/h)	Rating
73	Existing	12	Standing	14	Standing	61	Pass
	Phase 1	11	Standing	13	Standing	53	Pass
	Phase 1&2	13	Standing	16	Walking	66	Pass
74	Existing	12	Standing	14	Standing	59	Pass
	Phase 1	9	Sitting	11	Standing	46	Pass
	Phase 1&2	12	Standing	14	Standing	56	Pass
75	Existing	11	Standing	14	Standing	54	Pass
	Phase 1	11	Standing	13	Standing	51	Pass
	Phase 1&2	12	Standing	14	Standing	60	Pass
76	Existing	11	Standing	13	Standing	53	Pass
	Phase 1	11	Standing	13	Standing	57	Pass
	Phase 1&2	10	Sitting	11	Standing	53	Pass
77	Existing	12	Standing	15	Standing	62	Pass
	Phase 1	14	Standing	17	Walking	70	Pass
	Phase 1&2	13	Standing	16	Walking	70	Pass
78	Existing	11	Standing	13	Standing	54	Pass
	Phase 1	17	Walking	20	Walking	80	Pass
	Phase 1&2	14	Standing	17	Walking	71	Pass
79	Existing	11	Standing	13	Standing	53	Pass
	Phase 1	9	Sitting	11	Standing	52	Pass
	Phase 1&2	9	Sitting	11	Standing	55	Pass
80	Existing	13	Standing	15	Standing	63	Pass
	Phase 1	15	Standing	18	Walking	69	Pass
	Phase 1&2	13	Standing	16	Walking	66	Pass
81	Existing	12	Standing	15	Standing	60	Pass
	Phase 1	14	Standing	16	Walking	60	Pass
	Phase 1&2	13	Standing	15	Standing	60	Pass
82	Existing	12	Standing	14	Standing	56	Pass
	Phase 1	12	Standing	14	Standing	55	Pass
	Phase 1&2	12	Standing	14	Standing	56	Pass
83	Existing	11	Standing	13	Standing	51	Pass
	Phase 1	10	Sitting	12	Standing	49	Pass
	Phase 1&2	10	Sitting	12	Standing	49	Pass
84	Existing	12	Standing	14	Standing	58	Pass
	Phase 1	13	Standing	16	Walking	64	Pass
	Phase 1&2	13	Standing	15	Standing	63	Pass

Table 1: Pedestrian Wind Comfort and Safety Conditions

Location	Configuration	Wind Comfort				Wind Safety	
		Summer		Winter		Annual	
		Speed (km/h)	Rating	Speed (km/h)	Rating	Speed (km/h)	Rating
85	Existing	14	Standing	16	Walking	59	Pass
	Phase 1	13	Standing	16	Walking	62	Pass
	Phase 1&2	14	Standing	17	Walking	65	Pass
86	Existing	15	Standing	17	Walking	64	Pass
	Phase 1	14	Standing	18	Walking	63	Pass
	Phase 1&2	14	Standing	17	Walking	63	Pass
87	Existing	14	Standing	17	Walking	63	Pass
	Phase 1	14	Standing	17	Walking	62	Pass
	Phase 1&2	14	Standing	17	Walking	63	Pass
88	Existing	14	Standing	17	Walking	61	Pass
	Phase 1	14	Standing	17	Walking	65	Pass
	Phase 1&2	14	Standing	17	Walking	67	Pass
89	Existing	14	Standing	17	Walking	61	Pass
	Phase 1	14	Standing	17	Walking	72	Pass
	Phase 1&2	14	Standing	18	Walking	75	Pass
90	Existing	13	Standing	16	Walking	61	Pass
	Phase 1	14	Standing	16	Walking	70	Pass
	Phase 1&2	14	Standing	17	Walking	71	Pass
91	Existing	14	Standing	17	Walking	60	Pass
	Phase 1	16	Walking	20	Walking	79	Pass
	Phase 1&2	16	Walking	20	Walking	80	Pass
92	Existing	-	-	-	-	-	-
	Phase 1	-	-	-	-	-	-
	Phase 1&2	10	Sitting	12	Standing	49	Pass
93	Existing	-	-	-	-	-	-
	Phase 1	-	-	-	-	-	-
	Phase 1&2	11	Standing	13	Standing	55	Pass
94	Existing	-	-	-	-	-	-
	Phase 1	-	-	-	-	-	-
	Phase 1&2	12	Standing	15	Standing	60	Pass
95	Existing	-	-	-	-	-	-
	Phase 1	-	-	-	-	-	-
	Phase 1&2	15	Standing	19	Walking	73	Pass
96	Existing	-	-	-	-	-	-
	Phase 1	-	-	-	-	-	-
	Phase 1&2	13	Standing	16	Walking	66	Pass

Table 1: Pedestrian Wind Comfort and Safety Conditions

Location	Configuration	Wind Comfort				Wind Safety	
		Summer		Winter		Annual	
		Speed (km/h)	Rating	Speed (km/h)	Rating	Speed (km/h)	Rating
97	Existing	-	-	-	-	-	-
	Phase 1	-	-	-	-	-	-
	Phase 1&2	13	Standing	16	Walking	67	Pass
98	Existing	-	-	-	-	-	-
	Phase 1	-	-	-	-	-	-
	Phase 1&2	10	Sitting	13	Standing	55	Pass
99	Existing	-	-	-	-	-	-
	Phase 1	-	-	-	-	-	-
	Phase 1&2	11	Standing	13	Standing	56	Pass

Season	Months	Hours
Summer	May - October	6:00 - 23:00 for comfort
Winter	November - April	6:00 - 23:00 for comfort
Annual	January - December	0:00 - 23:00 for safety
Configurations		
Existing	Existing site and surroundings	
Phase 1	Phase 1 with existing surroundings	
Phase 1 & 2	Phase 1 & 2 with existing surroundings	

Comfort Speed (km/h)	
(20% Seasonal Exceedance)	
≤ 10	Sitting
11 - 15	Standing
16 - 20	Walking
> 20	Uncomfortable

Safety Speed (km/h)	
(0.1% Annual Exceedance)	
≤ 90	Pass
> 90	Exceeded