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February 23, 2021

Preliminary Pedestrian Level Wind Study

**3016, 3020, 3032 Kirwin Avenue &
3031 Little John Lane Development
Mississauga, Ontario**

Theakston Project No. 20637

Submitted To:

**DVB Real Estate Investments Inc.
4918 King Street, P.O. Box 1194
Beamsville, Ontario
L0R 1B0**

Attention: Evan Ekstein

Submitted By:

**Theakston Environmental
Consulting Engineers
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Stephen Pollock, P.Eng.

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1. EXECUTIVE SUMMARY

Based upon our analysis, wind conditions on and around the proposed 3016, 3020, 3032 Kirwin Avenue & 3031 Little John Lane Development Site are considered generally suitable for walking or better in winter and activities requiring longer exposures during the balance of the seasons, in the existing setting.

The Proposed Development occupies a portion of a block of land bounded by Dundas Street East to the southeast, and Kirwin Avenue to the northeast. The site is currently vacant, formerly occupied by 4 single-family dwellings, related open areas, vegetation, and parking. The development site shares the block with low through high-density residential buildings, street related commercial along Dundas Street East, and green space associated with John C. Price Park.

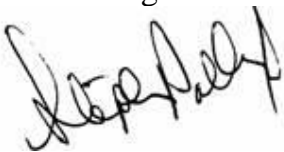
The Development involves a proposal to construct an irregularly shaped 8 storey apartment building on site. The main entrance to the building is located at the northern corner of the building, accessed via a driveway along the northwestern property line that provides vehicular access from Kirwin Avenue to underground parking and services. Outdoor Amenity Space is proposed at the western corner of the building at-grade, and on the roof of the building at the 9th level.

With inclusion of the proposed Development, prevailing pedestrian comfort conditions are predicted to remain comfortable and suitable for walking, standing, or better, year round under normal to high ambient wind conditions. Localised areas will realise subtle improvements to pedestrian comfort conditions, the improvements for the most part attributed to the proposed Development sheltering leeward areas that are currently exposed to dominant wind directions.

Additional mitigation is recommended for the Rooftop Amenity Space in order to achieve more comfortable conditions that are suitable for the intended use. Comfort conditions expected at the proposed Development Site are considered better than those required to suit a suburban context, based upon qualitative analysis.

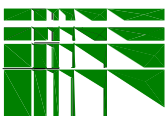
Should you have questions or comments, please do not hesitate to call.

Kindest Regards



Stephen Pollock P.Eng

Nicole Murrell M. Eng



2. INTRODUCTION

We have been retained to conduct a preliminary pedestrian level wind study for the proposed residential development of 3016, 3020, 3032 Kirwin Avenue & 3031 Little John Lane, herein referred to as the Proposed Development, in Mississauga, Ontario. The assessment is based upon project plans prepared by KFA Architects + Planners Inc. The objective of this primary analysis is to estimate pedestrian level wind conditions resulting from inclusion of the Proposed Development, relative to comfort and safety. The analysis is based upon the historical wind conditions and our experience with similar microclimatic analyses that were conducted on other properties in the area. The qualitative assessment utilises numerical analysis of local wind data predicted at the site and provides a synopsis of pedestrian comfort conditions anticipated on, and adjacent to, the property. It is a precursor to physical scale model testing, the quantitative analysis that will further define anticipated wind conditions, and mitigation, should such measures be required.

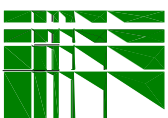
3. SITE INFORMATION & PROPOSED DEVELOPMENT

The Proposed Development occupies a block of land bounded by Dundas Street East to the southeast, Jaguar Valley Drive to the southwest, and Kirwin Avenue to the northeast through northwest. Note: Mississauga's street orientation is relative to the Lake Ontario Shoreline resulting in east/west orientated streets being offset by approximately 60 degrees north. The site is currently vacant, formerly occupied by 4 single-family dwellings, related open areas, vegetation, and parking. The development site shares the block with low through high-density residential buildings, street related commercial, along Dundas Street East and green space associated with John C. Price Park. (Figure 1).

It is proposed that the site be redeveloped to include an irregularly shaped 8 storey apartment building on site. The main entrance to the building is located at the northern corner of the building, accessed via a driveway along the northwestern property line that provides vehicular access from Kirwin Avenue to underground parking and services. Outdoor Amenity Space is proposed at the western corner of the building at-grade, and on the roof of the building at the 9th level. (Figure 2).

4. SURROUNDING AREA

Residential and commercial development, related open areas, and mature vegetation, as indicated in Figure 1, for all intents and purposes, surround the site. To the immediate southeast of the Development site a series of 1 and 2 storey buildings flank the northwest



side of Dundas Street East, while a mix of relatively higher residential and commercial buildings flank the southeast side of the street, with low-density residential neighbourhoods to the southeast beyond. Low-rise street related commercial and low to mid-rise residential, for all intents and purposes, line Dundas Street East to the immediate northeast and southwest of the site. Kirwin Avenue is flanked by low-density residential dwellings in the immediate vicinity of the proposed Development that increase in density with progression in a northwesterly direction along the street. Richard Jones Park, which is dominated by mature deciduous vegetation, is situated to the north of Kirwin Avenue beyond. Lands occupying the quadrant from the northwest through southwest of the development site are assigned to John C. Price Park, which is similarly dominated by mature deciduous vegetation and flanked by high-rise residential buildings beyond.

Urban intensification is in various stages of approval in the area, most notable is the 86 – 90 Dundas Street East Development situated to the south and comprised of a 16 storey residential building with street related commercial at-grade along Dundas Street East.



Proposed Development Site Looking South from Kirwin Avenue.

5. METEOROLOGICAL DATA

For studies in the City of Mississauga, historical weather data recorded at the Pearson International Airport and Billy Bishop Toronto City Island Airport were considered. Billy Bishop Airport realises a more significant wind climate, in comparison to Pearson, and is considerably further from the proposed Development site. This considered in concert with the site's distance from Lake Ontario indicate the wind climate at the Proposed

Development is better represented by Pearson International Airport. From the historical wind data it is apparent that winds can occur from any direction, however, the data indicates the directional characteristics of strong winds at Pearson are most likely to occur from the north through west to southwest with a far less significant easterly component (Figure 3).

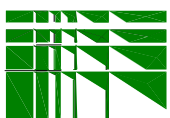
The Historical meteorological data presented in the wind roses is measured at an elevation of 10m. This data is numerically processed with AERMET, a meteorological processor that considers wind speed and direction. Thus, representative ground level velocities at a height of 1.8m, for an urban macroclimate, are 52% of the mean values indicated on the wind rose, (for suburban and rural macroclimates the values are 63% and 78% respectively).

The macroclimate for this area is considered suburban. Figure 3 also depicts wind velocity categories relative to directionality at the airport with strong winds, greater than 29km/h, occurring approximately 6% of the time during the summer and 13% during the winter, and emanating from the aforementioned quadrants during both the winter and summer seasons, with calm conditions occurring approximately 7% of the time during the summer and 5% of the time during winter.

6. COMFORT CRITERIA

The assignment of pedestrian comfort takes into consideration pedestrian safety and comfort attributable to mean and gust wind speeds. Gusts have a significant bearing on safety, as they can affect a person's balance, while winds flowing at or near mean velocities have a greater influence upon comfort. The effects of mean and gust wind conditions are described as suitable for Sitting or Standing or Walking over 80% of the time. In order for a point to be rated as suitable for Sitting, for example, the wind conditions must be less than 10 km/h. The rating would include conditions ranging from calm up to wind speeds that would rustle tree leaves or wave flags slightly. As the name infers, the category is recommended for outdoor space such as terraces and patios where people might sit for extended periods and generally applied to the summer months.

The Standing category is slightly more tolerant of wind, including wind speeds from calm up to 14km/h. In this situation, the wind would rustle tree leaves and, on occasion, move smaller branches while flags would be partially extended. This category would be suitable for locations where people might sit for short periods or stand in relative comfort, such as building entrances and drop-off areas. The Walking category includes wind speeds from calm up to 19km/h. These winds would set tree limbs in motion, lift leaves, litter and dust, and the locations are suitable for sidewalks and parking. The Uncomfortable category covers a broad range of wind conditions, including wind speeds above 19km/h. These



winds would set trees in motion, cause inconvenience when walking, and are not generally suitable to activities. Safety concerns are associated with wind speeds that are beyond the uncomfortable category, being sufficient to affect a person's balance.

Many variables contribute to a person's perception of the wind environment beyond the seasonal variations presented. While people are generally more tolerant of wind during the summer months, than during the winter, due to the wind cooling effect, people become acclimatized to a particular wind environment. Persons dwelling near the shore of an ocean, large lake or open field are more tolerant of wind than someone residing in a sheltered wind environment.

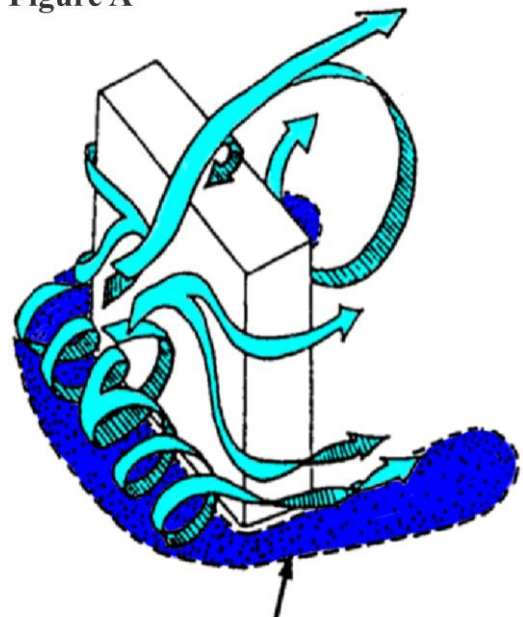
7. PEDESTRIAN LEVEL WIND ASSESSMENT

Variables beyond the orientation and conformation of a proposed development must be considered in predicting wind speed and occurrence at a given location. These include the previously discussed historical wind climate, surrounding terrain, and neighbouring buildings, each of which is quantified and/or analysed in the microclimatic analysis of pedestrian level winds. The results of such quantitative analyses have afforded a knowledge base that allows an estimation of pedestrian level wind conditions.

The site and the surrounds, in the present circumstances as a mix of suburban residential neighbourhoods, commercial and industrial developments, and open spaces, have a sympathetic relationship with the existing wind climate. Urban development provides turbulence inducing surface roughness that can be wind friendly, while open settings afford wind the opportunity to accelerate as the wind's boundary layer profile thickens at the pedestrian level, owing to lack of surface roughness. Transition zones from open to urban settings can prove problematic, as winds exacerbated by the open setting are redirected to flow over, down, around and between buildings.

High-rise buildings may exacerbate wind conditions within their immediate vicinity, to varying degrees, by redirecting wind currents to the ground level and along streets and open areas. In general, wind will split upon impact with a high-rise building, with portions flowing down the face of the building to the pedestrian level as downwash, where it is deflected, or otherwise

Figure A



Area of Strong Surface Wind

redirected to flow along the building and around its corners, creating localized zones of increased pedestrian level wind. Conversely, points situated to the leeward, or in the wake of buildings will often enjoy an improvement in pedestrian comfort. As such, it is reasonable to expect inclusion of the proposed development will alter wind conditions under specific wind directions and velocities from those of the existing site condition, resulting in an improvement over the existing conditions at some points, with more windy conditions at others.

Discussion of Northerly Winds

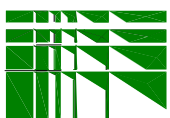
Existing Setting

Northerly winds make up a significant percentage of the prevailing wind climate; they tend to be of moderate velocity, and are preconditioned upon approach by residential neighbourhoods comprised of single family dwellings flanking Kirwin Avenue and Whitchurch Mews beyond, the latter flanking Richard Jones Park, which supports a mixed growth suburban forest. The residential properties and park to the north of the site present a relatively consistent, coarse approach, which will induce turbulence into the wind's approach flow, significantly reducing the wind's energy realized at the site, particularly at the pedestrian level.

The proposed Development site is for all intents and purposes in the aerodynamic shade region of the above-mentioned. This will result in comfortable conditions along Kirwin Avenue proximate to the Development site and on the site proper, suitable for standing or walking along the street in winter, and for activities requiring longer exposures during the remaining seasons. Dundas Street East and Little John Lane are similarly protected from northerly winds and are expected to realise conditions mainly suitable for standing throughout the year.

Proposed Setting

Northerly winds approaching from over the rooftops and the windward low-density residential neighbourhoods that support a mix of mature coniferous and deciduous vegetation will come into contact with the northmost corner of the building where the wind streamlines will split with portions being deflected to flow up and over the rooftop, along the façades of the building, around the corners and beyond. Portions of the wind climate will also downwash to the pedestrian level below, however downwash is well mitigated by the steps and balconies that punctuate the building façades that will direct winds to flow around the building at elevations above the pedestrian level. Downwash that does find its way to the pedestrian level will be directed to flow along the northwestern and northeastern façades, creating slightly windy conditions along the private driveway and Kirwin Avenue adjacent to the proposed building. The changes to winds in the area will be relatively minor given the favourable windward terrain to the



north. As such, Kirwin Avenue will remain suitable for standing or walking through the winter, and for activities requiring longer exposures during the remaining seasons.

The interior spaces of the proposed Development along the private driveway feature landscape design features such as fencing and trees/plantings that introduce roughness into wind streamlines, and are for the most part in the aerodynamic shade region of the low-rise neighbourhoods and mature vegetation to the north. As such, these areas will realise comfortable conditions, suitable for standing, or better, much of the time, and appropriate for the area's intended purposes.

Portions of Dundas Street East and Little John Lane will realise increased blockage to northerly winds with inclusion of the proposed Development, however the areas will likely realise similar conditions to the existing setting and will remain suitable for standing throughout much of the year.

Discussion of Westerly Winds

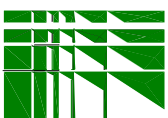
Existing Setting

Westerly winds similarly make up a significant percentage of the prevailing wind climate; they tend to be of higher velocity, particularly during the winter months, and are preconditioned upon approach by John C. Price Park and mid/high-rise apartment buildings situated along Kirwin Avenue about the Park and Jaguar Valley Drive. The high-density buildings are in the order of 4 to 5 stories with several high-rise slab style buildings, the nearest in the order of 12, 16, and 29 stories. The surroundings also support mature vegetation which when considered in concert present a coarse approach terrain, which will induce turbulence into the wind's approach flow, significantly reducing the wind's energy at the pedestrian level.

The proposed Development site is for all intents and purposes in the aerodynamic shade region of the above-mentioned. This will result in comfortable wind conditions along Kirwin Avenue, Dundas Street East, and on the proposed Development site, suitable for standing much of the time, and for activities requiring longer exposures, occasionally suitable for sitting, during the summer season.

Proposed Setting

Westerly winds approaching the site at the pedestrian level are well mitigated by the windward surrounds, as discussed above, however westerly winds approaching at higher streamlines will come into contact with the westmost corner of the proposed building at higher elevations. These wind streamlines will split with portions being deflected to flow up and over the rooftop, and or along the façades of the building above the pedestrian level. Portions of these winds will also downwash towards the pedestrian



level, however these winds will be interrupted by the various steps and balconies in the northwest and southwest façades to flow around the building above the pedestrian level. Minimal downwash will reach the pedestrian level where it will quickly dissipate along the building façades and be further mitigated by the proposed landscaping about the site at-grade.

As such, westerly winds are well mitigated by the layout and design features of the proposed Development and the site and surrounds will realise similar conditions to the existing setting. Kirwin Avenue will realise increased blockage to westerly winds with inclusion of the proposed Development, and will realise subtle improvements in comfort conditions, however it will likely remain suitable for standing much of the time.

Discussion of Southerly Winds

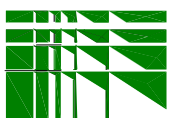
Existing Setting

Southerly winds make up a less significant percentage of the prevailing wind climate and tend to be of lower velocity, however, portions thereof are less favourably preconditioned upon approach. This can be attributed to a relatively more open terrain comprised of low-rise commercial buildings, interspaced with the occasional mid-rise slab style residential building, related parking and green space which will allow wind to accelerate, relative to the coarser terrains associated with the previously discussed wind directions.

The proposed Development site is for all intents and purposes in the aerodynamic shade region of the above-mentioned 2 storey strip mall along the northwest side of Dundas Street East. This will result in comfortable wind conditions along Kirwin Avenue, once removed from the intersection, and on the proposed Development site, with pedestrian comfort ratings as suitable for standing along the sidewalks of the street in winter, and for activities requiring longer exposures during the remaining seasons. The more open lands associated with the intersection of Kirwin Avenue and Dundas Street East may experience slightly windier conditions on the occasion of high ambient southerly winds that are rated suitable for leisurely walking from time to time.

Proposed Setting

Southerly winds approaching from over the 2 storey strip mall along Dundas Street East, will come into contact with upper levels of the southern corner and southeastern/western façades of the proposed building and split with portions being deflected to flow up and over the rooftops, and/or along the façades of the building and dissipate around the corners beyond. Again, portions of these winds that are directed to downwash towards the pedestrian level will be well mitigated by the stepped façades,



balconies, and strip mall to the south. As such, very little downwash will reach the pedestrian level and will have minimal effects on the comfort conditions in the area.

Winds that do reach the pedestrian level will be further mitigated by the proposed landscape features such as fencing, trees/plantings, and others, that will provide roughness to winds in the area.

Kirwin Avenue and Little John Lane are expected to realise similar conditions along the sidewalks with inclusion of the proposed Development, that remain comfortable and appropriate for the intended uses. Dundas Street East, proximate to the 2 storey strip mall, may realise subtle increases in winds as streamlines that formerly flowed over the strip mall and open site beyond will be redirected by the proposed Development to flow over portions of the street. Dundas Street East will remain comfortable and appropriate for the intended use, suitable for standing or walking through the winter, and for lower activity levels, mainly suitable for standing, through the remainder of the year.

Discussion of Easterly Winds

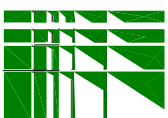
Existing Setting

Easterly winds are infrequent, however they can be strong and are often associated with storms. The existing commercial and residential developments to the east of the property, flanking Dundas Street East, and the low density residential beyond, present a relatively coarser approach than those associated with southerly winds. This terrain will induce more turbulence into the wind's approach flow, significantly reducing the wind's energy at the pedestrian level upon approach.

The proposed Development site is for all intents and purposes in the aerodynamic shade region of the above-mentioned. This will result in comfortable conditions along Kirwin Avenue proximate to the Development site and on the site proper, suitable for standing much of the time, along the street adjacent to the site in winter, and for activities requiring longer exposures during the remaining seasons. The more open lands associated with the intersection of Kirwin Avenue and Dundas Street East may experience slightly windier conditions on the occasion of high ambient easterly winds that are rated suitable for leisurely walking from time to time.

Proposed Setting

Easterly winds approaching from over the rooftops of the windward low-density residential neighbourhoods and street related commercial along Dundas Street East will come into contact with the upper levels of the eastmost corner of the proposed Development. These wind streamlines will split with portions being deflected to flow up and over the rooftops, and/or along the southeastern and northeastern façades of the



building. Portions of the winds that are downwashed towards the pedestrian level will be well mitigated by steps and balconies that punctuate the façades.

Portions of the easterly wind climate closer to the pedestrian level will approach the site from over the open lands associated with the intersection of Kirwin Avenue and Dundas Street East. These winds will split upon contact with the eastern corner of the building and flow along the northeastern and southeastern façades at-grade. As such, on the occasion of high ambient easterly winds, Kirwin Avenue may realise conditions that are windy at times, but remain suitable for leisurely walking through the winter and for longer exposure times through the remainder of the year.

The interior spaces of the proposed Development feature landscape design features that introduce roughness into wind streamlines, and are for the most part in the aerodynamic shade region of the buildings along Dundas Street East to the southeast. Easterly winds that do manage to flow along the southeastern façade of the building will be moderate and will be well mitigated by landscape features including fencing, trees, plantings, and others, resulting in comfortable conditions that remain suitable for the intended use.

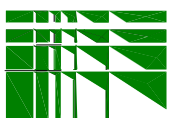
Discussion of Ordinal Winds

Ordinal Winds approaching from northwesterly, northeasterly, southeasterly, and southwesterly directions will contact the façades of the proposed development at near right angles. This generally results in the propensity for a downwash of wind to the pedestrian level, the magnitude of which is dependent upon several variables. Those variables commanding primary consideration are the building height, and the effective width of the presented façade. It is intuitively obvious that short and/or narrow façades will reduce the propensity for downwash, and the irregularly shaped 8 storey façades of the proposed Development presented to ordinal winds will display a marked tendency to deflect wind to flow over the buildings.

Mitigation of downwash is well understood and was applied through design whereby the irregular building façades are stepped at various levels and are punctuated with balconies. This, in addition to other design features, will mitigate the effects of winds at the pedestrian level. At the pedestrian level, landscape features incorporating fencing, trees, plantings, and other features help to control pedestrian comfort conditions.

Discussion of Outdoor Amenity

An Outdoor Amenity Area is proposed at-grade adjacent to the western corner of the building. The area is well protected from easterly and southerly winds by the proposed



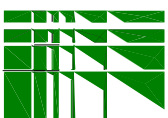
Development, and from northerly through westerly winds by the coarse surrounds comprised of low-rise residential and mature vegetation. This will result in comfortable conditions within the amenity space with winds from most directions. The minimal winds that will downwash from the building above and flow along the northwestern façade of the building and through the space will be further mitigated by proposed landscape design features such as fencing, trees, and plantings that introduce roughness into wind streamlines. As such, the at-grade amenity space will realise seasonally comfortable conditions that are suitable for the intended use of sitting through the summer and shoulder seasons. If sitting conditions are desired through the winter months as well, minor modifications to the landscape plans may be made that introduce further coniferous trees, raised planters, screens, or others, into the area in order to create more comfortable winter conditions.

An Outdoor Amenity Space is also proposed atop the building at the 9th level. Portions of the area are in the aerodynamic shade region of the mechanical penthouse to winds from northerly through easterly directions, however the space is exposed to large portions of the remaining dominant wind climate. As such, the space is expected to realise windy conditions, suitable for standing in the summer and standing or leisurely walking throughout the shoulder seasons. A mitigation plan is required for the space in order to achieve more comfortable conditions that are seasonally appropriate for the intended use. The plan may include 1.8m high perimeter wind screens, raised planters populated with coarse plantings, trellises, and others, that will mitigate winds flowing over the area. With incorporation of an appropriate mitigation plan, the rooftop Amenity Space will realise comfortable conditions that are seasonally suitable for the intended use.

Discussion of Residential Entrances

The Main Residential Entrance to the proposed Development is located at the northern corner of the building, accessed from the private driveway, just off Kirwin Avenue. The entrance is set beneath an overhang and is protected from large portions of the wind climate, however it will be exposed to winds from northerly directions that accelerate along Kirwin Avenue and split upon contact with the northern corner of the proposed Development. These winds are relatively well mitigated by the windward terrain, and as such the entrance is expected to realise comfortable conditions that remain suitable for standing year-round and appropriate for the intended use. The entrance features a vestibule that will further assist in mitigating winds realised at the entrance.

Wind conditions comfortable for standing are preferable at building entrances, while conditions suitable for walking are suitable for walkways. The Main Residential Entrance



to the proposed Development, and the Kirwin Avenue sidewalk beyond, will be comfortable and suitable for the intended uses, year-round.

8. MITIGATION STRATEGIES

The proposed Development plans establish a context for development in terms of height, massing, and location that allows the assessment of wind issues/problems that may persist once built.

The proposed Development employs wind mitigative design features that include:

- low height
- irregular façades
- textured façades
- stepped massing
- balconies
- overhangs
- fencing
- landscaping

and others, that will increase surface roughness apparent to the wind.

Additional mitigation is recommended for the Rooftop Amenity Space in order to achieve more comfortable conditions that are suitable for the intended use. The plan should be designed with input from the consultant and may include 1.8m high perimeter wind screens, raised planters populated with coarse plantings, trellises, and others, situated about the area. Comfort conditions expected at the proposed Development site are considered better than those required to suit the context, based upon qualitative analysis.

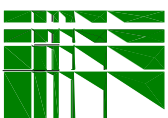
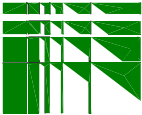
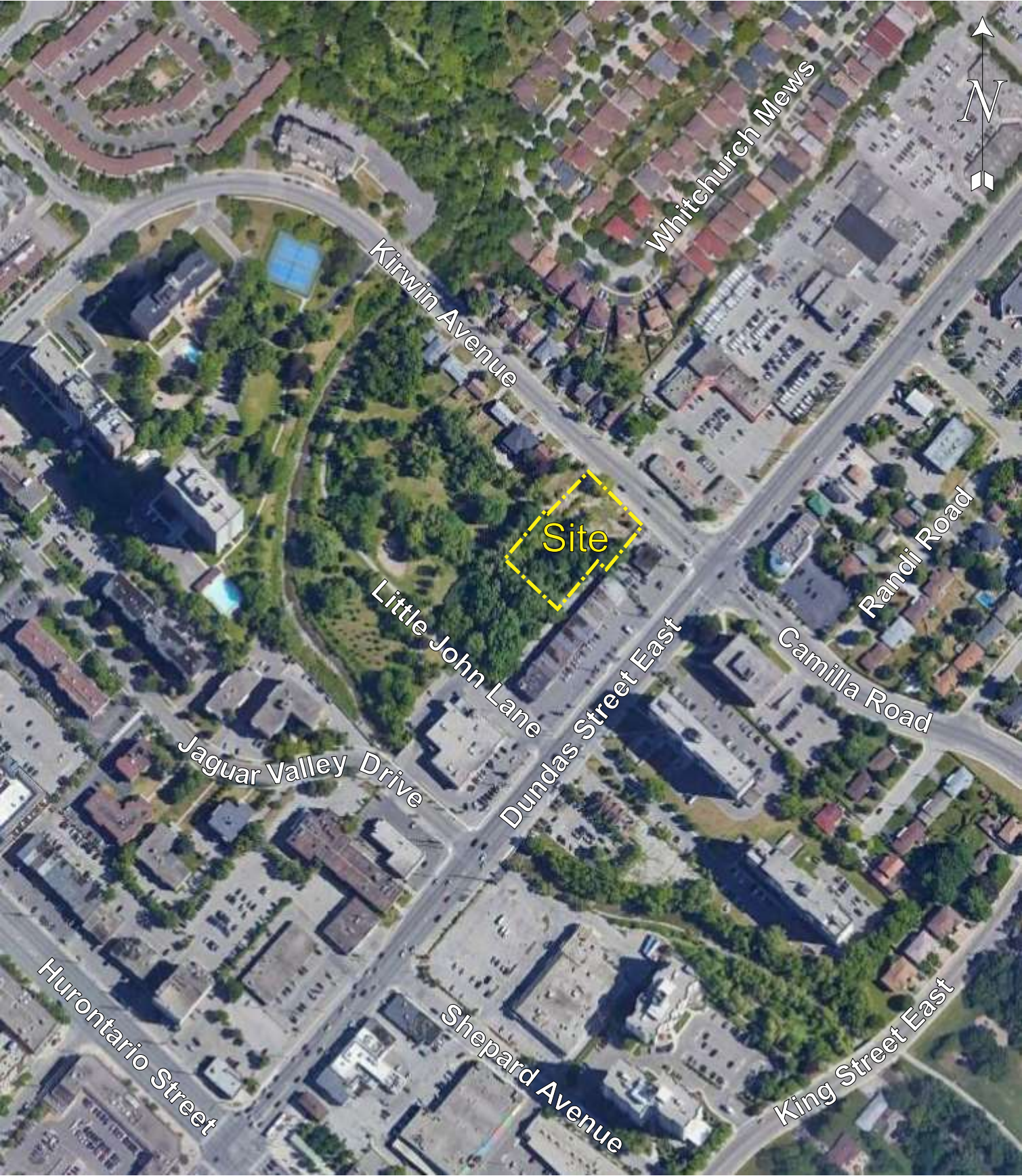


Figure 1: Site Aerial Photo



15



3016-3022 Kirwin Ave

Review: February 04th, 2021

Legal Description
ALL OF LOTS 27 TO 30 REGISTERED PLAN NO. C-11 AND PART OF LOT 5 REGISTERED
PLAN TOR-12 AND PART OF LOT 15 CONCESSION 1, NORTH OF DUNDAS STREET CITY OF
MISSISSAUGA REGIONAL MUNICIPALITY OF PEELE

Site		
Gross Site Area	6,389.0 m ²	68,700 sf
Hardcore Driveway	2,460.0 m ²	26,392 sf
Board Walking Area	17.7 m ²	190 sf
Net Site Area	3,911.3 m ²	42,028 sf
Lot Frontage	60.3 m	
Lot Depth	131.4 m	
Building proposal		
Building Footprint	1,703.0 m ²	
Building Height	25 m	"Wind Farm" Excluded
Gross Floor Area	(Based on GFA - Apartment Zones)	11,271 m ²
Lot Coverage (%)	(Based on Gross Site Area)	27.2%
Lot Coverage (%)	(Based on Net Site Area)	43%
FSI	(GFA / Gross Site Area)	1.74
FSI	(GFA / Net Site Area)	2.83

Proposed Areas	Floor	OFA ¹ (m ²)	OFA ² (m ²)	Total (m ²)
Ground Floor		1,260.0	930.0	10,011
1st Floor		600.0	600.0	6,459
2nd floor		1,585.0	3,325.0	16,615
3rd floor		1,575.0	1,725.0	17,154
4th Floor		1,558.0	1,448.0	15,587
5th Floor		1,427.0	1,367.0	14,715
6th Floor		1,365.0	1,365.0	13,590
7th Floor		1,311.0	1,265.0	13,617
8th Floor		1,158.0	1,080.0	11,410
Total OFA		12,183.0	11,120.0	119,690

Total Proposed GFA	11,120.0 m²	119,600 ft²
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“Gross Floor Area (GFA)” - A horizontal cross-section of the sum of the areas of each story of a building above or below established grade, measured from the exterior of exterior walls of the building including floor and occupied by interior walls and excluding any part of the building used for mechanical floor space, stairways, elevators, motor vehicle parking, bicycle parking, storage rooms, below-grade parking, any enclosed and used for the collection or storage of disposable or recyclable waste generated within the building, common facilities for the use of the residents of the building, a day care and nursery and

²² **Greenhouse Gas Emission Area (GGEP)** - The total enclosed area of a factory building measured to the outside surface of the permanent external walls of the building or division or to a peak-inclined surface, or plane as in the case of overhangs and projections to the outside surface of the building.

Unit Count	Units	1 Bed	2 Bed	3 Bed
Ground Floor	10			
2nd Floor	29			
3rd Floor	23			
4th Floor	22			
5th Floor	20			
6th Floor	19			
7th Floor	19			
8th Floor	16			
Total Units	148	115	32	3

Vehicular Parking			
Parking Required	UNITS	PARKING	RATIO
Perks 1 Bed @ 1.10 per unit	113	133	1.18
Perks 2 Bed @ 1.30 per unit	32	44	1.38
Perks 3 Bed @ 1.5 per unit	3	5	1.50
	Total:	181	

Rental Visitors @ 0.15 per unit	148	22	0.15
Total Vehicular Parking Required		Total	294

Parking Provided (estimated)					
	A1 Grade	F1 Level	P2 Level	Sub Total	Ratio
Residential	0	64	93	157	1.06
Residential Visitor	5	19	0	21	0.14
	5	83	93	178	

Total Vehicular Parking Provided	Total	178	1.20
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Bicycle Parking

Required

	Ratio	
Short Term Residential	0.09 x unit	12
Long Term Residential	0.7 x unit	104
	Total	116

Provided (estimated)	At Grade	Pt Level
Short Term Residential	14	0
Long Term Residential	0	101

Landscaped Area	Loc	119
Soft Landscaping	912.0 m ²	23%
Hard Landscaping	760.0 m ²	19%
Green Roof	466.0 m ²	12%
Total Landscape	2138.0 m ²	54%

Amenity Area _____

Amenity Area Required _____

5.5 m ² per unit	828.8 m ²
Total Attentives Required	828.8 m²

Amenity Area Provided (estimated)		
1) Indoor	Ground Floor	330.0 m ²
2) Outdoor		

Ground Floor	100.0 m ²	
Roof	450.0 m ²	
Total Amenties	800.0 m²	5.9 sqm x unit

3016

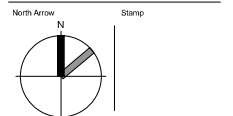
KIRWIN AVE

3016-3022 Kirwin Avenue
Mississauga - ON - Canada

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[illegible]

11x17 FORMAT
HALF SCALE



Project No: 20009

Scale: 1 : 300

Date: Feb. 04, 2020

Drawn by: FC

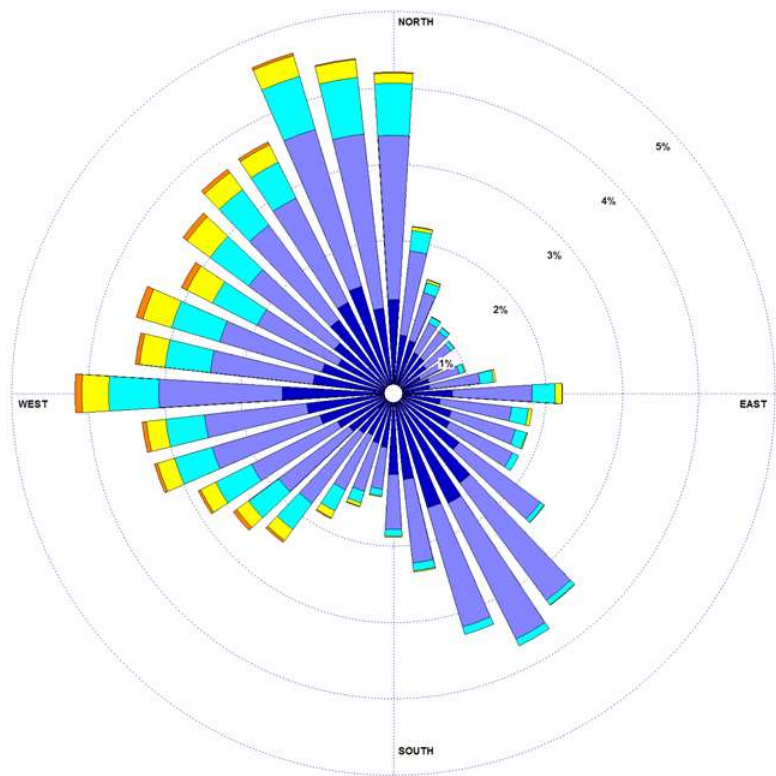
Drawing Title

SITE PLAN & STATS

Drawing

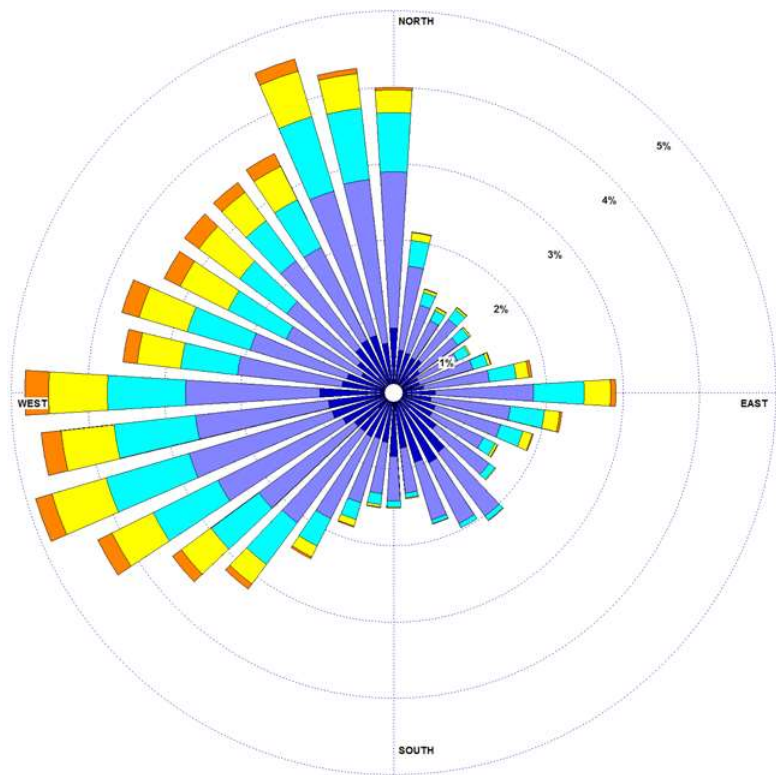
A001

Figure 3: Windroses - Toronto Pearson International Airport



Speed Range	Probability (%)
Calm	7%
1 - 8km/h	33%
9 - 16km/h	42%
17 - 28km/h	12%
29 - 40km/h	5%
> 40km/h	1%

Summer - May through October, 1980 to 2017



Speed Range	Probability (%)
Calm	5%
1 - 8km/h	24%
9 - 16km/h	41%
17 - 28km/h	17%
29 - 40km/h	10%
> 40km/h	3%

Winter - November through April, 1980 to 2017

