

October 9, 2020

Tenblock

30 Soudan Avenue, Suite 200
Toronto, ON M4S 1V6

Re: Air Quality Study
1875 Steeles Avenue West, North York
Gradient Wind File No.: 20-105-Air Quality R1

1. INTRODUCTION AND TERMS OF REFERENCE

Gradient Wind Engineering Inc. (Gradient Wind) has been retained by Tenblock to undertake an air quality study for the proposed development located at 1875 Steeles Avenue West in North York, Ontario. The complete scope of work within our mandate includes studies for air quality impacts from local transportation sources and surrounding industrial-use properties. The study is based on the Ontario Ministry of Environment, Conservation and Parks (MECP) Land Use Compatibility Guidelines (D-Series) and other relevant MECP guidelines and drawings prepared by Kirkor in October 2020.

The proposed development comprises Buildings A, B, and C, oriented counter-clockwise from south to north above a shared three-storey podium and two levels of below-grade parking. The podium has a U-shaped planform, open to the west. The sloping topography of the site allows for grade-level entrances along the north elevation at Level P1, and along the south and west façades at Level 1. At Level P1, residential units are located at grade along the north façade, with the remainder of the floor reserved for parking. At Level 1, the south, west, and north perimeter of the building contains residential units, with the interior spaces largely reserved for parking and building support functions. A parking entrance, loading zone, and entrances for each of the buildings face the central driveway / drop-off area, accessed from the future public road to the west. The primary entrance for Building C is located at the northwest corner of the podium. This floorplate is generally carried through to Levels 2 and 3, and at Level 4 the podium steps back from all elevations to meet the upper building floorplates, accommodating an outdoor amenity

space over the centre of the podium rooftop. Building A rises 38-storeys from the south end of the podium; having a rectangular floorplan with the long axis aligned east-west. At Levels 6 and 7 the floorplate sets back from the east accommodating green roofs. Above Level 38 the floorplate sets back from the east and north to meet a two-storey-height mechanical penthouse. At the north end of the podium Buildings B and C are integrated, forming an L-shape open to the southwest. At Level 9 the floorplate sets back from the south, west, and north, accommodating private terraces and an outdoor amenity area at the north side of the building. At Level 10 the floorplate sets back from the west and north to meet the typical Building B floorplan, terminating Building C with a green roof. Building B rises with a uniform rectangular floorplate to Level 39, above which the floorplate steps back from the west to meet the mechanical penthouse.

2. STUDY METHODOLOGY

2.1 Identifying Critical Points of Impingement

The critical points of impingement for this study include fresh-air intakes, public sidewalks, walkways, building entrances, balconies, and terraces/green roofs devoted to common amenity space. Different receiver location types can have varying exposure times and sensitivities to pollutants. For instance, fresh-air intakes continuously provide air to the building's mechanical systems and can affect a large number of the building's occupants, making them the most sensitive. Main entrances operate intermittently, predominantly during daytime hours; therefore, the sensitivity of these locations is lower.

2.2 Identifying Emissions Sources

Following the definition of the critical points of impingement, a review of the study area was conducted to locate sources of airborne pollutants and odours. In general, emission sources that are considered as potentially influential to residential properties included: (i) Highways and major arterial roadways that are within approximately 500 metres (m) and 100 m of the study site, respectively, such as Steeles Avenue West and Dufferin Street; and (ii) industrial facilities within 1000 m of the site, if present.

For land use compatibility, industrial sources are characterized into three categories depending on size of operation and potential for offsite emissions of noise, odour, dust and other contaminants. The MECP has developed Land Use Compatibility Guidelines (D1-D6) which recommend minimum separation distances



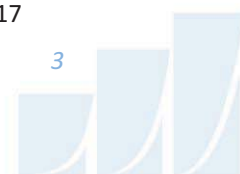
and areas of influence for various types of industries. The influence zone is 70 m for a Class 1 industry, 300 m for a Class 2 industry, and 1000 m for a Class 3 industry. A survey of the surrounding area has revealed one industrial property within the influence zone. The Sanofi Pasteur human vaccine manufacturing and research facility at 1755 Steeles Avenue West is considered as a Class 2 industry and is located approximately 200 m to the east of the study site. The facility contains laboratory fume hoods, cooling towers, natural gas fired boilers, and two natural gas co-generation units, all of which can contribute to local emissions concentrations. A review of satellite images in the area reveal that these sources are setback approximately 300 m from the study site. The facility has received an amended Environmental Compliance Approval (ECA) from the MECP, issued on May 13, 2020 (Number 8276-BFJK8D), ensuring that facility emissions will not exceed MECP maximum concentration levels at all off-site locations, including the existing 4-storey residential building at 1875 Steeles Avenue. Lastly, a review of meteorological conditions in the area reveals that winds are predominantly from the north and west directions, positioning the study site upwind from the Sanofi Pasteur facility for the prevailing wind directions.

3. RESULTS AND CONCLUSIONS

In keeping with standard building construction and good engineering practice, as well as City of Toronto guidelines¹, the following comments and recommendations are provided to be incorporated into the design of the building to ensure indoor air quality is maintained for the proposed development:

- (i) High-rise residential land use is feasible; the proposed building heights of 38, 39 and 10 storeys are appropriate from an air quality perspective.
- (ii) Emissions from the Sanofi Pasteur human vaccine manufacturing and research facility at 1755 Steeles Avenue West will not exceed MECP maximum permissible concentration level on the study site.
- (iii) Based on Gradient Wind's experience on other projects in the area, air quality impacts from surrounding roadways are expected to be minor with gaseous concentrations of Nitrogen Dioxide (NO₂), Carbon Monoxide (CO), and Particulate Matter (PM) remaining compliant with

¹ City of Toronto - Traffic-Related Air Pollution in Toronto and Options for Reducing Exposure, October 2017



the MECP's Ambient Air Quality Criteria (AAQC). With improvements to vehicle technology, concentrations are expected to reduce in the future.

- (iv) In line with standard building practices, design, install, operate and maintain air filtration at the fresh air intakes of the mechanical systems serving all habitable areas, including the addition of air conditioning. The areas that would not require filtered air would be parking garages and utility spaces. Minimum Efficiency Reporting Value (MERV) 8 certification filters will be used for this development. Details of the air filtration system will be designed by the mechanical engineers during the detailed design phase.

This concludes our air quality study and report. If you have any questions or wish to discuss our findings, please advise us. In the interim, we thank you for the opportunity to be of service.

Sincerely,

Gradient Wind Engineering Inc.



Michael Lafortune, C.E.T.
Environmental Scientist



Joshua Foster, P.Eng.
Principal

Gradient Wind File #20-105-Air Quality R1