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Item No. 5.1.1
Design Review Committee
December 18, 2023

TO: Chair and Members of Design Review Committee

SUBMITTED BY: **-Original Signed-**
Jacqueline Hamilton, Executive Director of Planning & Development

DATE: November 21, 2023

SUBJECT: **SPA-2023-01543: Downtown Halifax Site Plan Approval Application for a mixed-use building at the corner of Sackville Street, Granville Street, and Hollis Street, Halifax, known as Skye Halifax.**

ORIGIN

Application by Upland Planning and Design on behalf of United Gulf Developments Limited.

LEGISLATIVE AUTHORITY

Halifax Regional Municipality Charter (HRM Charter), Part VIII, Planning & Development.

RECOMMENDATION

It is recommended that the Design Review Committee:

1. Refuse the qualitative elements of the substantive site plan approval application for a 21-storey mixed-use development at 1591 Granville Street and 1568 Hollis Street, Halifax as shown in Attachment A, as the proposal does not comply with Sections 2.4, 3.2.1, 3.3.1, and 3.3.4 of the Design Manual, as noted in Attachment D; and

2. Refuse the requested variances to the Land Use By-law requirements regarding streetwall width, upper storey streetwall stepback, and maximum tower width and separation, as contained in Attachment B, as the proposal does not comply with Sections 3.6.4, 3.6.5 and 3.6.7 of the Design Manual, as noted in Attachment D.

BACKGROUND

An application has been received from Upland Planning and Design, on behalf of property owner United Gulf Developments Limited, for substantive site plan approval to enable a 21-storey mixed-use development at the corner of Sackville Street, Granville Street, and Hollis Street, to be known as "Skye Halifax" (Map 1). The property is in the Downtown Halifax plan area and is zoned Downtown Halifax (DH-1). Additionally, the property is within Precinct 4 – Lower Central Downtown.

This report addresses relevant regulations held within both the Downtown Halifax Land Use By-law and it's associated Design Manual in order to assist the Design Review Committee with their decision.

Subject Site	PID 00003954, Halifax
Location	Site bounded by Granville, Sackville and Hollis Streets, and the abutting HRM-owned MetroPark garage to the south
Zoning (Map 1)	DH-1 (Downtown Halifax) Zone
Lot Size	3,657 square metres (39,363 square feet)
Site Conditions	Significant grade changes surrounding site and frontage on 3 streets
Current Land Use(s)	Existing office building (vacant), parking lot, vacant space
Surrounding Land Use(s)	Surrounded by a mix of uses including: • The Maple, a mixed-use development to the east; • Centennial office building to the north; • Mountain Equipment Coop, the Green Lantern, and the Jade to the west; and • MetroPark facility to the south.

Project Description

The proposed 21-storey mixed-use development is summarized as follows (Attachments A, B, and C):

- Mix of uses including hotel, ground-floor retail, residential units, and underground parking;
- Five levels of underground parking (approximately 394 spaces), to be accessed off Hollis Street;
- Two ground-floor levels, one each facing Hollis and Granville streets, which include hotel lobby, commercial space, and residential lobby;
- Approximately 69 hotel units within the remainder of the building base (levels 3 to 5);
- Approximately 349 residential units within the two tower portions of the building;
- Landscaped rooftop terraces and amenity space located at the 3rd, 6th, and 22nd levels;
- Exterior building materials to include aluminum curtain and window walls with clear glass, stone cladding, aluminum screening and vertical aluminum fins in the base portions of the building; and
- Overall building height of 66 metres, plus penthouses (for residential amenities and mechanical), as per LUB allowances.

Information about the approach to the design of the building has been provided by the applicant and can be found in Attachment B. The proposed building floor plans, renderings and building cross sections can be found in Attachment C.

Site History

This is the second substantive site plan approval application for 'Skye Halifax' submitted to the Design Review Committee (DRC) for this site. The DRC first approved a substantive site plan approval application on November 14, 2019.[1] Staff recommended that DRC refuse the application as the proposal did not comply with the Design Manual. After some discussion, DRC approved the proposal and the variances, subject to several conditions. The below chart outlines the conditions and indicates if they have been addressed in this application.

[1] https://www.halifax.ca/media/67546

DRC Condition	Addressed in this Application
The minimum tower separation distance be 15 metres inclusive of balconies.	The minimum tower separation distance under this application is 15.3 metres, inclusive of balconies. However, this does not meet the requirements of the LUB.
Universal accessibility of the through cut block access be assured and meet or exceed Rick Hansen standards or the National Building Code whichever is more stringent.	The applicant has provided a set of stairs along with a ramp integrated into the seating area of the cut-through space which they state is code compliant. No documentation has been provided stating if this design is the most stringent between the Rick Hansen standards or the National Building Code. HRM Building Standards has advised there is not enough information to confirm if it is code compliant and barrier free. HRM Building Standards will require this information at the building permit stage.
The proposed ramp on Granville Street be redesigned so as to ensure landscaping of the retaining wall is contained within the property.	The ramp has been completely redesigned with no landscaping currently proposed.
Sunlight access be ensured in the through cut block.	The applicant hasn't confirmed this.
Interactive elements including possible public art be located within the through cut block connection.	The applicant hasn't confirmed these features have been provided nor shown them on the plans or illustrations.
An element be included to address wind on Hollis Street.	A new 2022 wind study was completed to take into consideration wind effects associated with the design changes. The results show there is no longer wind concerns along Hollis Street.
That the public benefit be the undergrounding of overhead electrical and communication distribution systems.	The applicant proposes that the public benefit category include the undergrounding of overhead electrical and communication distribution systems.

Since the DRC approval, the applicant has received a demolition permit to remove the existing structure on the site and a building permit to allow construction of the 2019 site plan approval design. As the Downtown Halifax Plan does not allow for amendments to previous site plan approval applications, the applicant is required to apply for an entirely new approval should they wish to make substantive design changes, which they have done under this application.

As stated by the applicant in the application letter, during the development of detailed building plans it was identified that adjustments were needed to the design to accommodate mechanical and structural considerations. The applicant also revisited the overall design of the building and made several tweaks; the more substantive changes were made to the tower design, through-block space, and podium design. Attachment B includes the applicant's overview on the design changes.

Repeal of Downtown Halifax Plan Area
On May 9, 2023, Regional Council initiated a process to repeal the Downtown Halifax Secondary Municipal Planning Strategy and Land Use By-law and to fully consolidate the Downtown Halifax Plan Area into the Regional Centre Plan Area.[2] The Regional Centre Secondary Planning Strategy and Land Use By-law was approved by Regional Council on October 26, 2021. The new plan includes new land use policies and regulations for the Regional Centre, including most of the area previously regulated by the Downtown Halifax Plan and Land Use By-law.

The Downtown Halifax Plan was allowed to remain in place until the existing Barrington Street and Old South Suburb Heritage Conservation Districts (HCD) could be consolidated and expanded under a new

[2] https://www.halifax.ca/media/82025

Downtown Halifax HCD. Council also allowed five properties (transition sites) with active site plan approval applications to remain under the Downtown Halifax Plan to allow them additional time to receive site plan approval and permits. The Skye Halifax site was one of these five transition sites.

In that additional time the applicant has received a full site plan approval and building permit for this property. Once the new Downtown Halifax HCD is approved and in effect, staff will return to Regional Council with amendments to repeal the Downtown Halifax Secondary Municipal Planning Strategy and Land Use By-law. However, the applicant has submitted another site plan approval application to request changes to the building design. To ensure the proposed changes are secured, the applicant is required to revise their building permit before the publication of the first notice to repeal the Downtown Halifax Plan. The revised building plans require reconsideration by the DRC prior to issuance of a revised building permit.

Regulatory Context
With regard to the Downtown Halifax Secondary Municipal Planning Strategy (DHSMPS) and the Downtown Halifax Land Use Bylaw (LUB), the following are relevant to note from a regulatory prespective:

- Zone: DH-1 (Downtown Halifax)
- Precinct: Lower Central Downtown (Precinct 4)
- Central Blocks: The site is located within the Central Blocks
- Maximum Building Height: The maximum permitted pre-bonus building height is 51 metres
- Post-Bonus Building Height: The maximum permitted post-bonus building height is 66 metres
- Viewplane: Viewplane #6 encumbers the southwest corner of the site on Granville Street
- Streetwall Setback: Varies between 0 – 1.5 metres
- Streetwall Height: Minimum streetwall height is 11 metres, and maximum streetwall height is 18.5 metres on all streets
- Prominent Civic/ Cultural Frontage: The site is identified as a Prominent Civic / Cultural Frontage along Sackville Street and adjacent building corners (Map 1 of the Design Manual)

Site Plan Approval Process
Under the site plan approval process, development proposals within the Downtown Halifax Plan area must meet the quantitative land use and building envelope requirements of the Land Use By-law (LUB), as well as the qualitative requirements of the By-law's Design Manual. The process requires approvals by both the Development Officer and the DRC as follows:

Role of the Development Officer
In accordance with the Substantive Site Plan Approval process, as set out in the Downtown Halifax LUB, the Development Officer is responsible for determining if a proposal meets the land use and built form requirements of the Downtown Halifax LUB. The Development Officer has reviewed this application and determined that the following elements do not conform to the Downtown Halifax LUB:

- Streetline setback;
- Minimum and maximum streetwall heights;
- Minimum streetwall width;
- Upper storey streetwall stepbacks;
- Upper storey side yard stepback; and
- Maximum tower width and separation distance.

The applicant has requested variances to these elements, and additional information on these requests can be found in Attachment B.

Role of the Design Review Committee
The Design Review Committee, established under the Land Use By-law, is the body responsible for making decisions relative to a proposal's compliance with the requirements of the Design Manual.

The role of the DRC in this case is to:

1. Determine if the project is in keeping with the guidelines contained within the Design Manual (Attachment D);
2. Consider the variance requests that have been made pursuant to variance criteria in the Design Manual (Attachment D);
3. Provide advice to the Development Officer if the proposal is suitable in terms of the expected wind conditions on pedestrian comfort (Attachment E); and
4. Provide advice to the Development Officer on the suitability of the proposed post-bonus height public benefit category (Attachment B).

Notice and Appeal

Where a proposal is approved by the Design Review Committee, notice of the decision is given to all assessed property owners within the DHSMPS Plan Area boundary plus 30 meters. Any assessed property owner within the area of notice may appeal the decision of the DRC to Regional Council. Where a proposal is refused by the Design Review Committee, the applicant may appeal the refusal to Regional Council.

If an appeal is filed, Regional Council will hold a hearing and make decision on the application. A decision to uphold an approval will result in the approval of the project while a decision to overturn an approval will result in the refusal of the site plan approval application.

Bill 329

Recently, in Bill 329, the Province passed amendments to the HRM Charter. These amendments include the authority of the development officer to grant a variance under section 250 for a setback or street wall. To date, no request for a variance under section 250A (1) has been made.

The amendments do not relate to power of the design review committee respecting site plan approval as these powers fall under sections 246A and 247 of the HRM Charter. The powers of the design review committee continue unchanged. Today, just as before Bill 329, section 9 of the land use by-law allows streetwall setbacks, streetwall height, streetwall width, streetwall stepbacks to be varied by site plan approval where the relaxation is consistent with the criteria of the Design Manual.

COMMUNITY ENGAGEMENT

The community engagement process is consistent with the intent of the HRM Community Engagement Strategy and the requirements of the Downtown Halifax LUB regarding substantive site plan approvals. The level of engagement was information sharing, achieved through the developer's website, public kiosks at HRM Customer Service Centres, and a Public Open House held by the Applicant on September 20, 2023.

DISCUSSION

Design Manual Guidelines

As noted above, the Design Manual contains a variety of building design conditions that must be met for the development of new buildings and modifications to existing buildings. Items of specific consideration to this proposal are as follows:

- Section 2.4 of the Design Manual contains design guidelines that are to be considered specifically for properties within Precinct 4; and
- Section 3.6 of the Design Manual specifies conditions in which variances to certain Land Use By-law requirements may be considered.

An evaluation of the general guidelines and the relevant conditions as they relate to the project are found in a table format in Attachment D. This table indicates staff's analysis and advice as to whether the project complies with the guidelines. Additionally, it identifies circumstances where there are different possible interpretations of how the project relates to a criterion, where additional explanation is warranted, or where the Design Review Committee will need to give attention in its assessment of conformance to the Design Manual. Staff have identified the following item as a discussion item that require further consideration by the Design Review Committee:

Building Articulation and Roofscapes (Sections 3.3.1a, b, c & d; 3.3.4a, b & d)
To ensure that building designs provide articulation and elements of variety and visual interest, the Design Manual calls for building forms which follow a "base/ middle/ top" design in which these building elements are clearly defined and distinguished from one another, and which contribute to the visual quality of the pedestrian environment and the skyline.

The base of the proposed building coincides with the streetwall and displays a high degree of transparency and quality materials. The base is distinguished from the middle by its vertical articulation on the lower and upper ground floor levels, by the repetition of stone clad bays and vertical aluminum fins.

The residential towers in the building's middle are horizontal in their articulation as a result of the repetition of the continuous balconies that wrap around the towers.

The top of the building, as noted in the applicant's design rationale, includes the penthouse levels of the towers. The south tower top is clearly distinguishable from the middle through the screening treatment that extends up the side of the building and across the front of the penthouse, along with the contrast of the horizontal balconies and the vertical cladding of the penthouses. However, the north tower top lacks interest and distinguishing characteristics and does not contribute to the visual quality of the skyline.

The proposal meets the Design Manual requirements for the "base" and "middle", however the "top" of the north tower does not meet the requirements as there is not enough distinction created in this design through the creation of a unique architectural feature or sculpting combined with night lighting.

Variance Requests
The applicant is requesting multiple variances to the quantitative requirements of the Downtown Halifax LUB, and these fall under six different categories:

1. streetline setback,
2. streetwall height,
3. streetwall width,
4. upper storey streetwall stepback,
5. upper storey side yard stepback, and
6. tower width and separation distances.

Some variance requests, such as the upper storey streetwall stepbacks apply in multiple locations. Other building features such as the continuous wrap-around balconies require more than one category of variances; those being the upper storey streetwall stepback, upper storey side yard stepback and tower width and separation distances. The applicant has detailed each of the variance requests with diagrams and provided a rationale for each variance pursuant to the Design Manual criteria (Attachment B). The staff review of the variances, provided in the section below, differs slightly from that of the applicant's by organizing the various variances into each respective variance category.

Variance 1: Streetline Setback
Subsection 9(1) of the LUB specifies that streetwalls shall have a setback from the streetline of 0 to 1.5 metres. The applicant is requesting to vary the streetline setback at Granville Street from 1.5 metres to 1.73 metres and at a small section to 6.66 metres. The applicant also is requesting to vary the setback at Hollis Streets from 1.5 metres to 3.22 metres and 4.21 metres. Subsection 9(8) of the LUB allows the requirement

of subsection 9(1) to be varied by site plan approval where the relaxation is consistent with the criteria of the Design Manual.

Subsection 3.6.1 of the Design Manual allows for variances to streetwall setbacks subject to meeting certain conditions as outlined in Attachment D. Of the potential conditions for a variance, this application is being considered under the following:

a. the streetwall setback is consistent with the objectives and guidelines of the Design Manual;

As the applicant has outlined in their variance request, the proposed request to vary the streetline setbacks from Granville Street are to provide a barrier-free access ramp and to accommodate emergency egress and air intake grates. The proposed request to vary the streetline setbacks from Hollis Street are necessary to accommodate the parking garage entrance. These variations are considered reasonable and in line with the intent of the Design Manual as they allow for vehicular and service access to have a minimal impact on the streetscape, building systems to be setback away from public streets, and safe pedestrian egress. Therefore, staff have no objection to this variance request.

Variance 2: Streetwall Height

Map 7 (Streetwall Heights) and section 9(2) of the LUB allows for a maximum streetwall height of 18.5 metres around the entire site. Section 9(3) of the LUB requires a minimum streetwall height of 11 meters. The applicant has requested that the maximum height be exceeded in locations along Hollis and Sackville Streets, up to 22.96 metres.

Section 9(8) of the LUB provides the ability to vary streetwall heights where the relaxation is consistent with the criteria of the Design Manual. Section 3.6.3 of the Design Manual allows for a variance to the streetwall height requirements subject to meeting certain conditions as outlined in Attachment D. Of the potential conditions for a variance, this application is being requested under the following provisions:

a. the streetwall height is consistent with the objectives and guidelines of the Design Manual; and
c. The streetwall height of abutting buildings is such that the streetwall height would be inconsistent with the character of the street;

As the applicant has outlined in their variance request, the building is surrounded by three different streets, each at a different elevation and each sloping to various degrees. The only abutting building is the HRM-owned MetroPark facility. The proposed Hollis Street streetwall is consistent with that of the MetroPark garage and will wrap around Sackville Street at the same height, to be consistent with the Granville streetwall where it meets the MetroPark. The variations allow for a uniform street wall consistent with the character of the street. Therefore, staff still have no objection to this variance request.

Variance 3: Streetwall Width

Section 9(5) of the LUB requires that the streetwall extend the full width of any lot within the Central Blocks. The applicant has requested a variance to this requirement to allow for a thru-block plaza.

Section 9(8) of the LUB provides the ability to vary streetwall width where the relaxation is consistent with the criteria of the Design Manual. Section 3.6.4 of the Design Manual allows for a variance to the streetwall width requirements subject to meeting certain conditions outlined in Attachment D. Of the potential conditions for a variance, this application is being requested under the following provisions:

3.6.4 a. the streetwall width is consistent with the objectives and guidelines of the design manual; and
b. the resulting gap in the streetwall has a clear purpose, is well-designed and makes a positive contribution to the streetscape;

Generally, a streetwall width variance is reasonable to allow for such matters as emergency egress, which are often required by the building code and associated regulations, and for elements of public benefit such as appropriately located and designed thru-block plazas or connections. However, given the length of the

site along Hollis and Granville Streets, the thru-block plaza is located too close to the street intersection to achieve its intended ("clear") purpose, as pedestrians would be more inclined to stay on the public sidewalk.

As with the previous application, staff advised that the plaza should be located further south along the block. A relocation of the plaza could coincide with alternate tower stepbacks and floor plate sizes so that the tower separation and plaza location are roughly at the midpoint of the site along Hollis and Granville Streets. That scenario would require minimal variances, would be more functional for pedestrians and would be much more in keeping with the LUB and Design Manual. Alternatively, a through-block connection could be located at the southern end of the site, next to MetroPark, thereby allowing for a linkage to Blowers Street.

Staff have continued concern with the lack of opportunities for connections (entries) into and out of the building other than the rear door for secondary residential access near Hollis Street, and a lack of engaging pedestrian experiences. Therefore, it is again recommended that this variance request be refused, due to the fact that this space, as proposed, does not have a clear purpose and due to the lack of details on how this space will be animated and interesting for pedestrians.

Variance 4: Streetwall Stepback

Section 9(7)(a) and (b) of the LUB stipulate minimum stepbacks above the streetwall of 3 metres and 4.5 metres for portions of a building that are a maximum of 33.5 metres in height or greater than 33.5 metres in height, respectively. Section 10(13) stipulates that balconies shall be permitted encroachments into a stepback, provided that the protrusion of the balcony is no greater than 2 metres from the building face and the aggregate length of such balconies does not exceed 50% of the horizontal width of that building face.

In this case the exterior walls of the north tower have a 2 metre stepback from Granville and a portion of Sackville Streets and 1.5 metre stepback from Hollis Street and the remaining portion of Sackville Street. The south tower has a 2.62 metre stepback from Hollis Street. However, the balconies on both towers extend 100% of the building width, and slightly beyond that if counting the corner balconies. Therefore, with respect to the balconies, the overall effect is a lack of streetwall stepbacks altogether.

Section 9(8) of the LUB provides the ability to vary the streetwall stepback where the relaxation is consistent with the criteria of the Design Manual. Section 3.6.5 of the Design Manual allows for a variance to the upper storey streetwall stepback requirements subject to meeting certain conditions outlined in Attachment D. Of the potential conditions for a variance, this application is being requested under the following provisions:

3.6.5 a. the upper storey streetwall setback is consistent with the objectives and guidelines of the Design Manual; and
b. the modification results in a positive benefit such as improved heritage preservation or the remediation of an existing blank building wall.

In this case the building walls, combined with the wrap-around balconies, result in the absence of stepbacks altogether of the north tower from the three abutting streets and the south tower from Hollis Street. This is inconsistent with the built form (base/ middle/ top) objectives of the DHSMPS, LUB and Design Manual. The south tower is located too close to Hollis Street while the north tower is needlessly close to all abutting streets. Staff previously advised that alternate floor plates could allow for stepbacks from all streets by relocating the central corridors, stair and elevators slightly further back. Likewise, such a redesign could resolve other variance requests (refer to Variance 5: Tower Width and Separation below) and result in efficient and reasonable floor plate sizes for both towers. Stepbacks are a fundamental guiding principal of the Downtown Halifax Design Manual and there is no related "positive benefit" which results from the variance requests. Therefore, staff again recommend that this variance request be refused.

Variance 5: Upper Storey Side Yard Stepback (Mid-Rise and High-Rise)

Section 10(4) addresses mid-rise portions of the building and 10(7) addresses high-rise portions of the building. These sections stipulate that the mid-rise portion (from top of streetwall up to 33.5 metres) and high-rise portions of a building (above a height of 33.5 metres) shall be setback 5.5 metres and 11.5 metres,

respectively, from interior lot lines. Additionally, section 10(13) stipulates that balconies shall be permitted encroachments into a stepback, provided that the protrusion of the balcony is no greater than 2 metres from the building face and the aggregate length of such balconies does not exceed 50% of the horizontal width of that building face.

In this case, both the mid-rise and high-rise portions of the south tower are located as close as 2.2 metres to the side property line. The continuous, wrap around balconies are located 0.35 metres to the side property line.

Section10(14) of the LUB provides the ability to vary building setbacks and stepbacks where the relaxation is consistent with the criteria of the Design Manual. Section 3.6.6 of the Design Manual allows for a variance to the upper storey side yard stepback requirements subject to meeting certain conditions outlined in Attachment D. Of the potential conditions for a variance, this application is being requested under the following provisions:

3.6.6 a. the upper storey side yard stepback is consistent with the objectives and guidelines of the Design Manual; and
c. a reduction in setback results in the concealment of an existing blank wall with a new, well designed structure.

A portion of the MetroPark facility's northern wall will be concealed by the streetwall or base portion of the building. Further concealment of the existing blank wall may be achieved by varying the mid-rise stepback. While the reduced upper storey side yard stepback is quite substantial (instead of 11.5 metres, 2.2 metres for exterior walls and less than a metre for balconies), it can be considered reasonable in this case, as the site is next to the HRM-owned MetroPark facility, and due to the presence of the viewplane, which would eliminate any future development rights on the MetroPark property. Therefore, staff still have no objection to this variance request.

Variance 6: Tower Width and Separation

Section 10(11) stipulates that any portion of a building above a height of 33.5 metres located in the Central Blocks (Map 8) shall be a maximum width of 38 metres and a maximum depth of 27.5 metres. Section 10(9) stipulates that the high-rise portions of buildings above a height of 33.5 metres shall be separated a minimum of 23 metres, when both portions are used for residential purposes. If one or both towers are not used for residential purposes, then the minimum separation is 17 metres.

In this case, instead of the required 38 metres, the south tower is proposed to be 54.13 metres between outer walls and will be approximately 57.73 metres wide when factoring in the continuous balconies, which also require variances. Instead of the required minimum 23 metres tower separation, the towers are proposed to be separated by 18.9 metres between outer walls, and if factoring in the continuous balconies this separation would be further reduced to approximately 15.3 metres.

Section 10(14) of the LUB provides the ability to vary building setbacks and stepbacks where the relaxation is consistent with the criteria of the Design Manual. Section 3.6.7 of the Design Manual allows for a variance to the maximum tower width requirements subject to meeting certain conditions outlined in Attachment D. Of the potential conditions for a variance, this application is being requested under the following provisions:

3.6.7 a. the maximum tower width is consistent with the objectives and guidelines of the Design Manual; and
b. the modification results in a clear public benefit such as the remediation of an existing blank building wall;

Although the proposed south tower width has decreased slightly from the previous proposal, it remains unusually large and lacks adequate rationale for its dimensions. With the continuous balconies factored in, the towers effectively appear wider in all directions. The increased south tower width directly results in an undesirable separation distance between the north and south towers, thereby requiring another variance.

The proposed tower separation violates the DHSMPS and Design Manual objectives of providing sunlight penetration and sky view at street level, and adequate privacy for building tenants at the tower levels.

Staff have previously advised that there is ample room on this site, which is 98 metres long (323 ft.) and similar in length to most central blocks, to accommodate two towers which meet the minimum separation distance of 23 metres between residential buildings. The north tower floor plate (footprint) could be stepped back and made larger, the appropriate separation distance could be applied, and the south tower could be reduced in width and slightly increased in depth. A high number of alternative design options and flexibility exists on a site this large which would still yield a substantial amount of gross square footage.

There is no clear public benefit, as the through-building plaza is unrelated to the width of towers and, in staff's view, has been proposed in an undesirable location (refer to variance #2). Therefore, staff continue to not support this requested variance and it is recommended that this variance request be refused.

Wind Assessment

A quantitative pedestrian wind impact assessment was prepared by Cermak Peterka Petersen (CPP) for the proposal and is included in Attachment E. The purpose of the study is to assess the effect of the proposed development on local site conditions, specifically pedestrian areas such as building entrances, surrounding sidewalks, and amenity terraces, and to recommend wind control measures for any adverse effects. Wind conditions are rated in terms of relative comfort for different pedestrian activities such as "sitting", "standing", "strolling" and "walking." Wind tunnel testing was conducted based on current conditions and also with the proposed buildings in place.

The CPP study indicates that the pedestrian wind conditions for the proposed development are expected to meet or surpass suitable conditions and meet the comfort and safety criterion for each of the test locations, except for the roof levels of the north and south towers. In these outdoor amenity locations, higher-than desired wind speeds and comfort levels were predicted. As outlined in the wind study addendum, these wind conditions will be improved with the incorporation of a high wind screen that extends around the roof perimeter, several large high wind screens placed within seating areas and arranged to intercept winds that flow across the terrace, a large canopy above the main entrance to the terrace to provide localized protection from down washing winds, and a series of high landscaping planters along the east edge of the terrace.

Proposed Public Benefit

The Downtown Halifax LUB specifies a maximum pre-bonus height and a maximum post-bonus height. Projects that propose to exceed the maximum pre-bonus height are required to provide a public benefit. The LUB lists the required public benefit categories, and establishes a public benefit value that, with adjustments for inflation, is the equivalent of $5.57 for every 0.1 square metres of gross floor area created by extending above the pre-bonus height. The maximum pre-bonus height for the proposal is 51 metres and the post-bonus height is 66 metres. The gross floor area to be gained is approximately 10,760 square metres. A preliminary calculation of the value of the required public benefit is approximately $599,332. The applicant has outlined the elements proposed for public benefit in Attachment B.

The applicant proposes that the public benefit category include the *undergrounding of overhead electrical and communication distribution systems*.

On each of the streets/ sidewalks surrounding this site, there are several existing poles and wires which comprise some of the last remaining above-grade electrical and telecommunication infrastructure in the "central block" portion of downtown. If the Committee approves the proposed qualitative elements and variance requests, then it is suggested that the Committee recommend that the Development Officer accept the proposed public benefit.

Conclusion

Staff advise that the proposed development and the requested variances are not reasonably consistent with the objectives and guidelines of the Design Manual. Therefore, it is recommended that the substantive site plan approval application be refused, for the reasons outlined in this report and in Attachment D.

FINANCIAL IMPLICATIONS

The HRM cost associated with processing this planning application can be accommodated with the approved 2023-2024 operating budget for C310 Urban and Rural Planning Applications.

RISK CONSIDERATION

There are no significant risks associated with the recommendations contained within this report.

ENVIRONMENTAL IMPLICATIONS

No implications have been identified.

ALTERNATIVES

1. The Design Review Committee may choose to approve the proposed variances outlined in Attachment B, accept the findings of the quantitative wind assessment included in Attachment E, recommend the Development Officer accept the public benefit as described in Attachment B, and approve the application as proposed, without conditions. An appeal of the Design Review Committee's decision can be made to Regional Council.

2. The Design Review Committee may choose to approve the application with conditions. An appeal of the Design Review Committee's decision can be made to Regional Council.

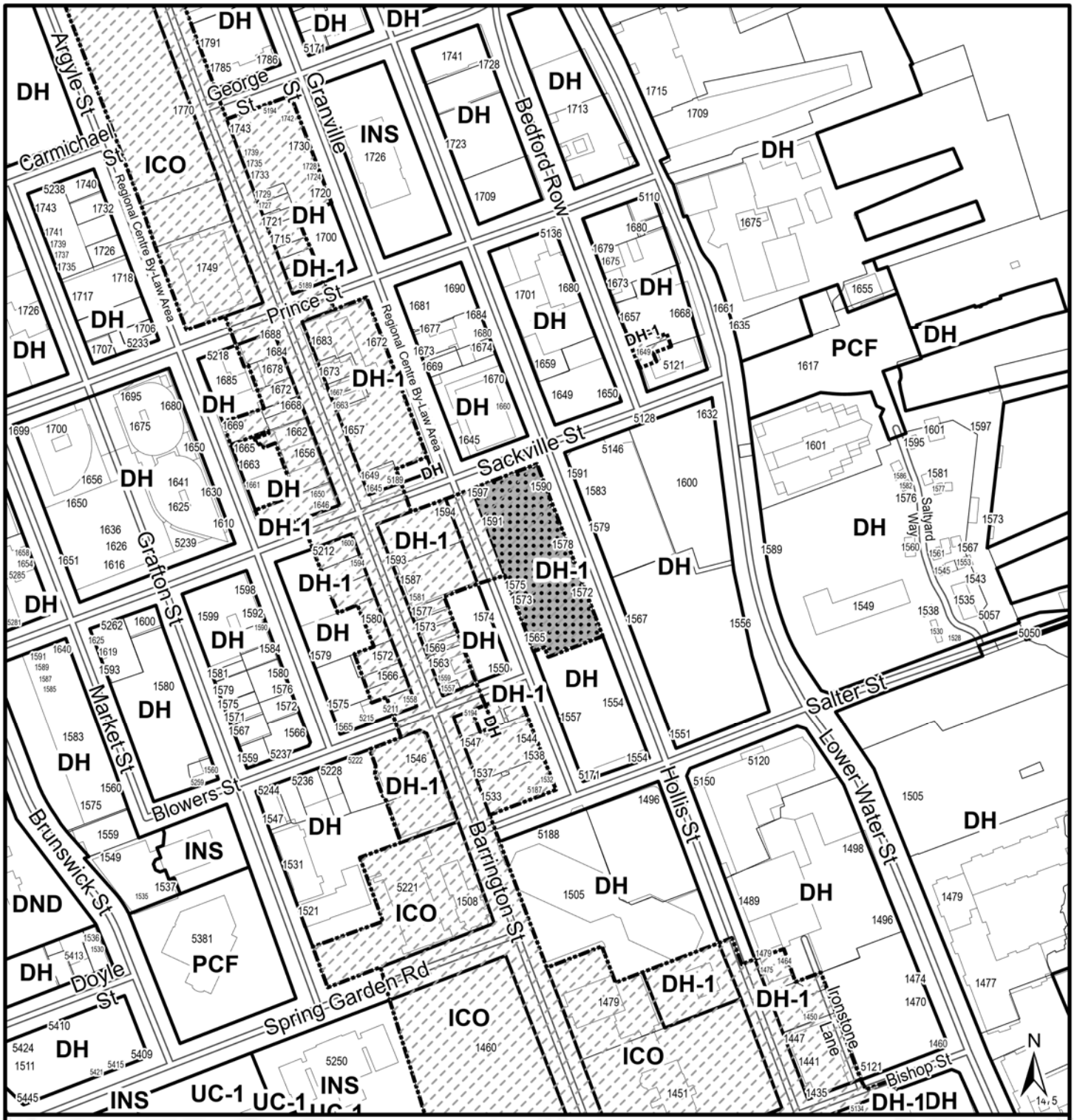
ATTACHMENTS

Map 1 Location and Zoning

Attachment A Site Plan Approval Plans
Attachment B Design Rationale and Variance Requests
Attachment C Renderings, Floorplates and Cross Sections
Attachment D Design Manual Checklist
Attachment E Pedestrian Wind Impact Assessment

A copy of this report can be obtained online at halifax.ca or by contacting the Office of the Municipal Clerk at 902.490.4210.

Report Prepared by: Dean MacDougall, Planner III, Development Services, 902.240.7085



Map 1 - Zoning and Location

PID 00003954,
Halifax

Subject Property

Downtown Halifax By-Law Area

Downtown Halifax
Land Use By-Law Area

Zone

Downtown Halifax

DH-1	Downtown Halifax
ICO	Institutional, Cultural and Open Space

Regional Centre

DND	Department of Natural Defense
DH	Downtown Halifax
INS	Institutional
PCF	Parks and Community Facilities
UC-1	University and College 1

HALIFAX

0 20 40 60 80 Meters

This map is an unofficial reproduction of a portion of the Zoning Map for the plan area indicated.

The accuracy of any representation on this plan is not guaranteed.

SACKVILLE STREET

PID 00003954
3657 m2

NORTH TOWER
774.25 m2

SOUTH TOWER
1840.75 m2

PID 41188723
2670.6 m2

GRANVILLE STREET

HOLLIS STREET

FACE OF THE BUILDING ABOVE

Ralston Building

Green Lantern Building/
Keith's Building

Sieverts
Tobacco Building

Viewplane

Pacific Building

— —	Site Boundary
	Other Property Boundaries
	Sidewalk
	Proposed Building

Properties	PID 00003954
Owner	United Gulf Developments Ltd.
Drawn by	Arvind Gopalakrishnan
Checked by	Ian Watson
Date	18.11.2022
Project No	180901
Scale	1:500

Projected Coordinate System: ATS_77_MTM_Zone_5N
Projection: Transverse_Mercator
False_Easting: 5500000.00000000
False_Northing: 0.00000000
Central_Meridian: -64.50000000
Scale_Factor: 0.99960000
Latitude_Of_Origin: 0.00000000
Linear Unit: Meter
Data Sources: Halifax Regional Municipality
Architects: architectsAlliance

UPLAND

01

SITE PLAN

SKYE HALIFAX

NO	ISSUED	DATE

Floor Area												Parking		Hotel Units		Condominium Units								
Level	Total Levels	Ht / flr	Total Ht (m)	GCA Podium & NorthTower / Level	GCA South Tower / Level	Total GCA	Retail	Hotel	Multi-Use	Residential	Total	Resident Vehicle Parking	Commercial Vehicle Parking	per floor	total	5 per level	S total	1b per level	1b total	2b per level	2b total	3b per level	3b total	Total Units
P5	1	2,75	2,75	3 531		0						83	0											
P2-P4	3	2,75	8,25	3 531		0						251	0											
P1	1	5,05	5,05	3 531		0						27	28											
Subtotal Below Grade	5			17 657		0						361	28											
Lower Ground	1	5,40	5,40	3208		3208	1076	433			1509													
Mezzanine				582		582																		
Upper Ground	1	5,90	5,90	2674		2674	1456	269		639	2364													
Levels 3-4	2	2,90	5,80	3113		6225		4354	342	1529	6225			23	46	0	**0**	0	**0**	1	**2**	4	**8**	10
Level 5	1	4,10	4,10	3113		3113		2020	342	751	3113			23	23	0	**0**	0	**0**	1	**1**	4	**4**	5
Level 6	1	2,90	2,90	714	1416	2130				2130	2130					3	**3**	6	**6**	10	**10**	2	**2**	21
Levels 7-11	5	2,90	14,50	714	1438	10763				10763	10763					3	**15**	6	**30**	10	**50**	2	**10**	105
Levels 12-13	2	3,05	6,10	714	1438	4305				4305	4305					3	**6**	6	**12**	10	**20**	2	**4**	42
Levels 14-20	7	2,90	20,30	714	1438	15068				15068	15068					3	**21**	6	**42**	10	**70**	2	**14**	147
Level 21 MPH 1	1	3,80	3,80	714	1438	2153				2153	2153					3	**3**	6	**6**	9	**9**	1	**1**	19
Level 22 (MPH 2 South Tower)		4,80		223	511	734					734													
Level 23 (MPH 2 North Tower)		6,60		223	511	734					734													
Subtotal Above Grade	21					51689	2532	7076	684	37339	49098													
Project Totals	**21**		**65,48**			**51 689**	**2 532**	**7 076**	**684**	**37 339**	**49 098**	**361**	**28**		**69**		**48**		**96**		**162**		**31**	**349**

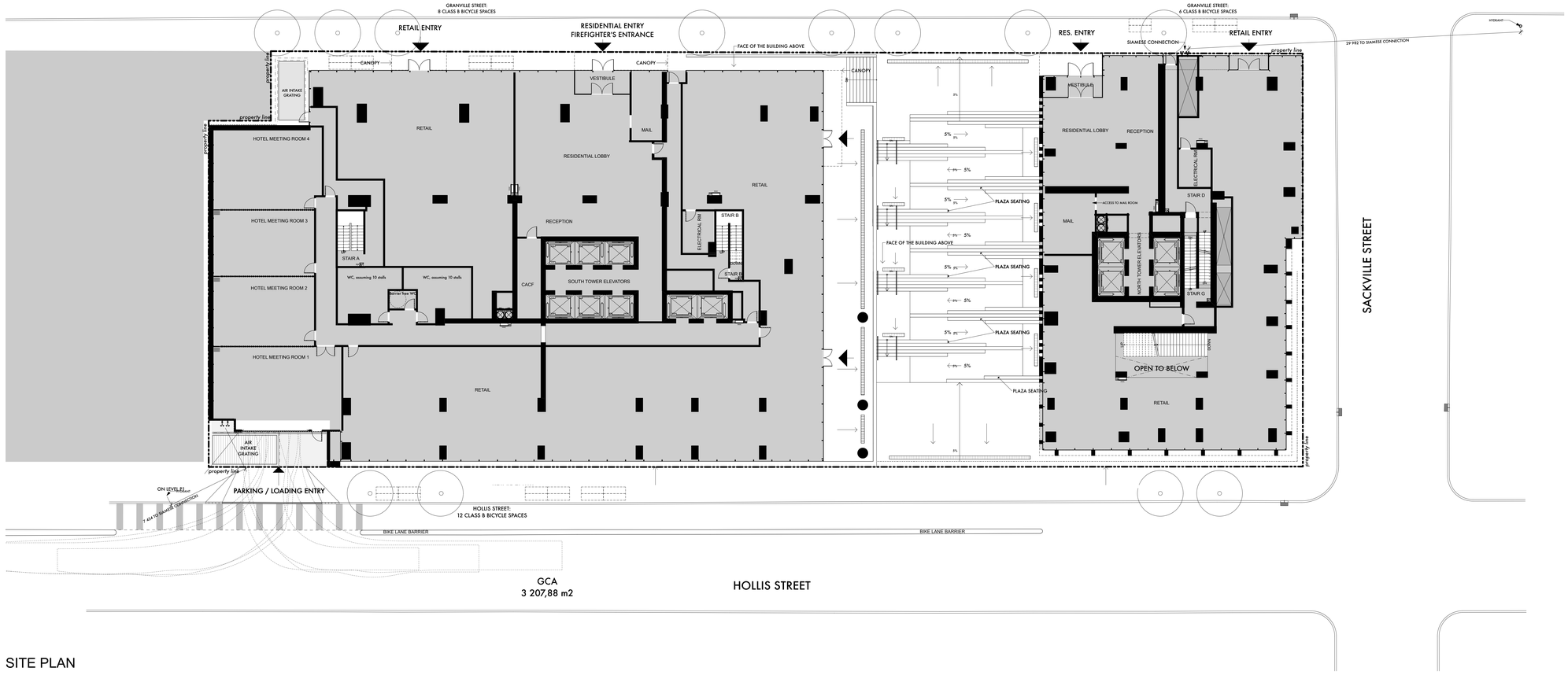
528 298 sf

Floor Area Summary	
Site Area	3 656
Total Residential Units	349
Non Residential Area Above Grade	10 292
Hotel Rooms	69

Vehicular Parking Summary			
	Proposed		
Resident Parking	361		
Visitor/Comm. Parking	28		
Totals	**389**		

Bicycle Parking Summary						
			Required		Proposed	
	Units	Floor Area	Class A	Class B	Class A	Class B
Residential	349		138	35	138	35
Hotel	69		2	2	2	2
Retail	13	2 532	1	8	1	10
Totals			141	45	**141**	**47**
			186		**188**	

PROJECT STATISTICS



SITE PLAN

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United Gulf Developments Limited

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Nova Scotia B3N 2L4
T. 902.493.3070

SITE PLAN & STATISTICS

1:150

21806

15/06/2023

A1.8

NO	ISSUED	DATE

Top of Mechanical Roof

MPH Mezzanine
+82,450

10,93

7,68

Top of Roof

66m maximum building height

L22 MPH
+78,650

L21
+74,850

L20
+71,950

L19
+69,050

L18
+66,150

51m maximum pre-bonus height

L17
+63,250

L16
+60,350

L15
+57,450

L14
+54,550

L13
+51,500

L12
+48,450

33.5m high rise

L11
+45,550

L10
+42,650

L9
+39,750

L8
+36,850

L7
+33,950

L6
+31,050

4,10

L5
+26,950

2,90

L4
+24,050

L3
+21,150

8,80

UPPER GROUND
+15,250

2,36

MEZZANINE
+12,890

+13,17m
Average Grade

3,04

OWER GROUND
+9,850

3,32

PROPERTY LINE

66,00

PRE-FINISHED ALUMINUM PANELS ON STEEL FRAME, ALL SIDES

FRITTED GLASS PRE-FINISHED ALUMINUM CURTAIN WALL SYSTEM

CLEAR GLASS PRE-FINISHED ALUMINUM WINDOW WALL SYSTEM

FRITTED GLASS BALCONY GUARDRAIL

CLEAR GLASS PRE-FINISHED ALUMINUM CURTAIN WALL SYSTEM

VERTICAL ALUMINUM FINS

CLEAR GLASS PRE-FINISHED ALUMINUM CURTAIN WALL SYSTEM

GUARD: PROJECTED CURTAIN WALL

STONE FINISHED STAIR

AWNING

AWNING

AWNING

HIGH SPEED RUBBER OVERHEAD COILING DOOR

STONE CLADDING

CLEAR GLASS PRE-FINISHED ALUMINUM CURTAIN WALL SYSTEM

FULLY GLAZED ENTRANCE DOOR TO BE PHANTOM DOORS PER TYPE C2 ON A1.07

STONE CLADDING

FULLY GLAZED ENTRANCE DOOR TO BE PHANTOM DOORS PER TYPE C2 ON A1.07

FULLY GLAZED ENTRANCE DOOR TO BE PHANTOM DOORS PER TYPE C2 ON A1.07

CLEAR GLASS PRE-FINISHED ALUMINUM CURTAIN WALL SYSTEM

GROUND FLOOR FACADE TRANSPARENCY PERCENTAGE = 77%

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EAST ELEVATION

1:100

21806

15/06/2023

A3.1

NO	ISSUED	DATE

Top of Mechanical Roof

MPH Mezzanine
+84,650

7,58

Top of Roof
66m maximum building height

L22 MPH
+78,650

L21
+74,850

L20
+71,950

L19
+69,050

L18
+66,150

51m maximum pre-bonus height

L17
+63,250

L16
+60,350

L15
+57,450

L14
+54,550

L13
+51,500

L12
+48,450

33.5m high rise

L11
+45,550

L10
+42,650

L9
+39,750

L8
+36,850

L7
+33,950

L6
+31,050

L5
+26,950

L4
+24,050

L3
+21,150

66,00

3,32

UPPER GROUND
+15,250

MEZZANINE
+12,890

OWER GROUND
+9,850

PROPERTY LINE

SACKVILLE STREET

+13.17m
Average Grade

21,00

10,93

Top of Mechanical Roof

DIGITAL NUMBERS INTEGRATED INTO CURTAIN WALL SYSTEM

FRITTED GLASS PRE-FINISHED ALUMINUM CURTAIN WALL SYSTEM

CLEAR GLASS PRE-FINISHED ALUMINUM WINDOW WALL SYSTEM

FRITTED GLASS BALCONY GUARDRAIL

CLEAR GLASS PRE-FINISHED ALUMINUM CURTAIN WALL SYSTEM

VERTICAL ALUMINUM FINS

FRITTED GLASS BALCONY GUARDRAIL

CLEAR GLASS PRE-FINISHED ALUMINUM CURTAIN WALL SYSTEM

CLEAR GLASS PRE-FINISHED ALUMINUM WINDOW WALL SYSTEM

CLEAR GLASS PRE-FINISHED ALUMINUM CURTAIN WALL SYSTEM

AWNING

AWNING

AWNING

AWNING

FULLY GLAZED ENTRANCE DOOR TO BE PHANTOM DOORS PER TYPE C2 ON A1.07

ARCHITECTURAL LOUVERS

13,55 m²

FULLY GLAZED ENTRANCE DOOR TO BE PHANTOM DOORS PER TYPE C2 ON A1.07

AWNING TO BE FULLY GLAZED SUSPENDED BY SPIDER FITTINGS ON SS FRAME SUPPORTED BACK TO CURTAIN WALL (TYP)

STONE CLADDING

CLEAR GLASS GUARDRAIL

ALUMINUM PANELS

FULLY GLAZED RESIDENTIAL ENTRANCE

CLEAR GLASS PRE-FINISHED ALUMINUM CURTAIN WALL SYSTEM

FULLY GLAZED RETAIL ENTRANCE

PRE-FINISHED ALUMINUM CLADDING

GROUND FLOOR FACADE TRANSPARENCY PERCENTAGE = 77%

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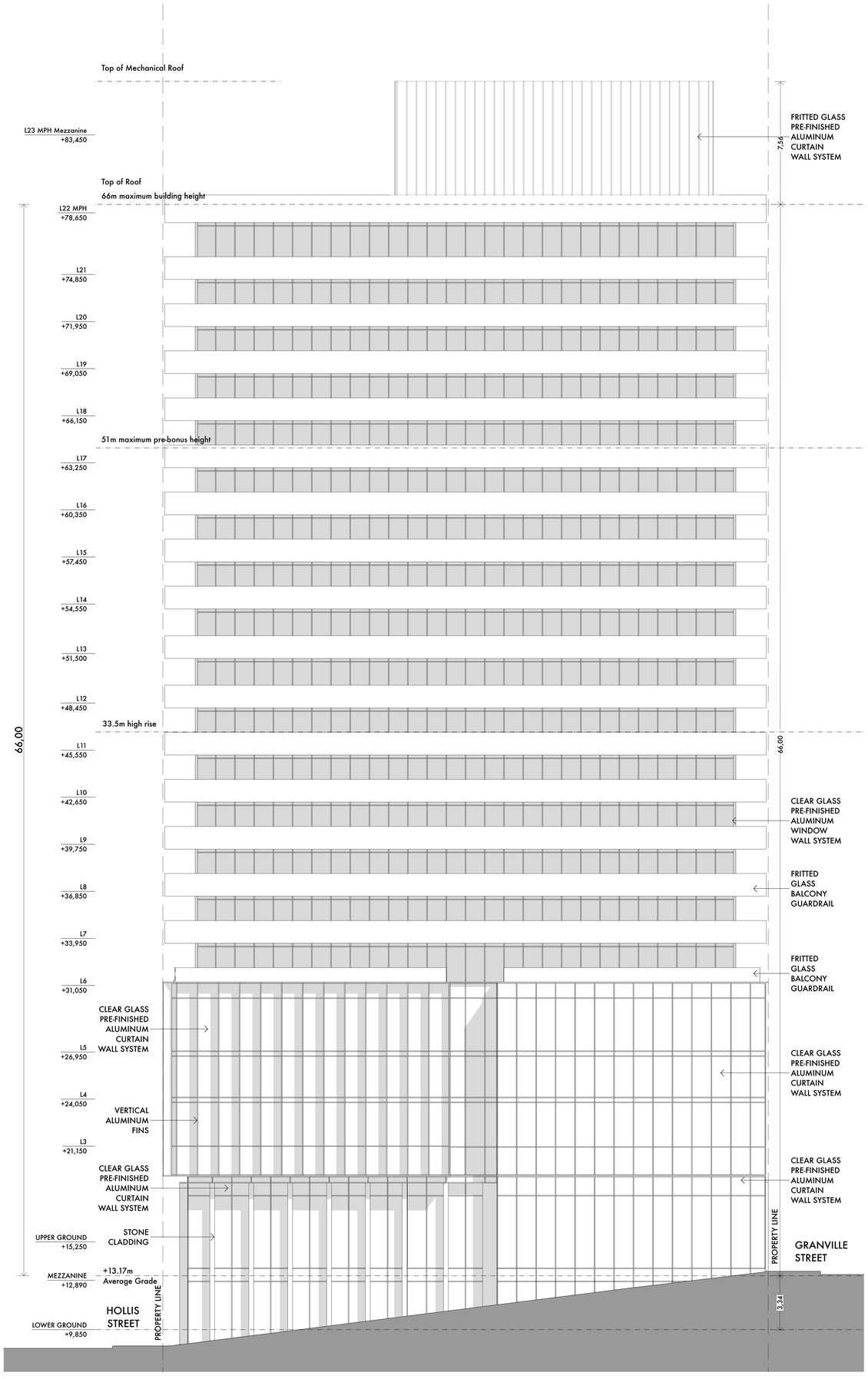
WEST ELEVATION

1:100

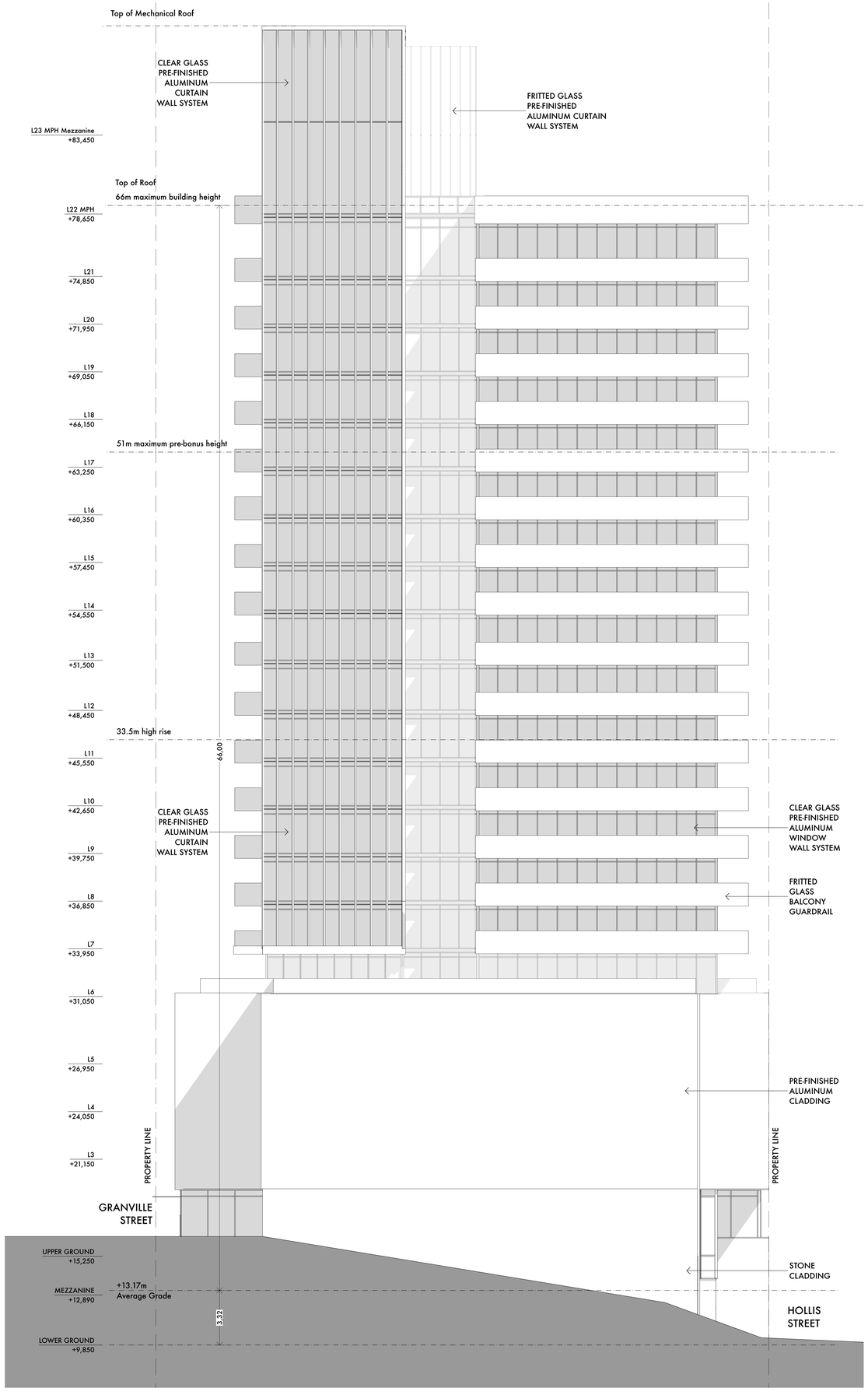
21806

15/06/2023

A3.2



GROUND FLOOR FACADE TRANSPARENCY PERCENTAGE = 89%



GROUND FLOOR FACADE TRANSPARENCY PERCENTAGE = 3%

NO	ISSUED	DATE

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NORTH & SOUTH ELEVATIONS

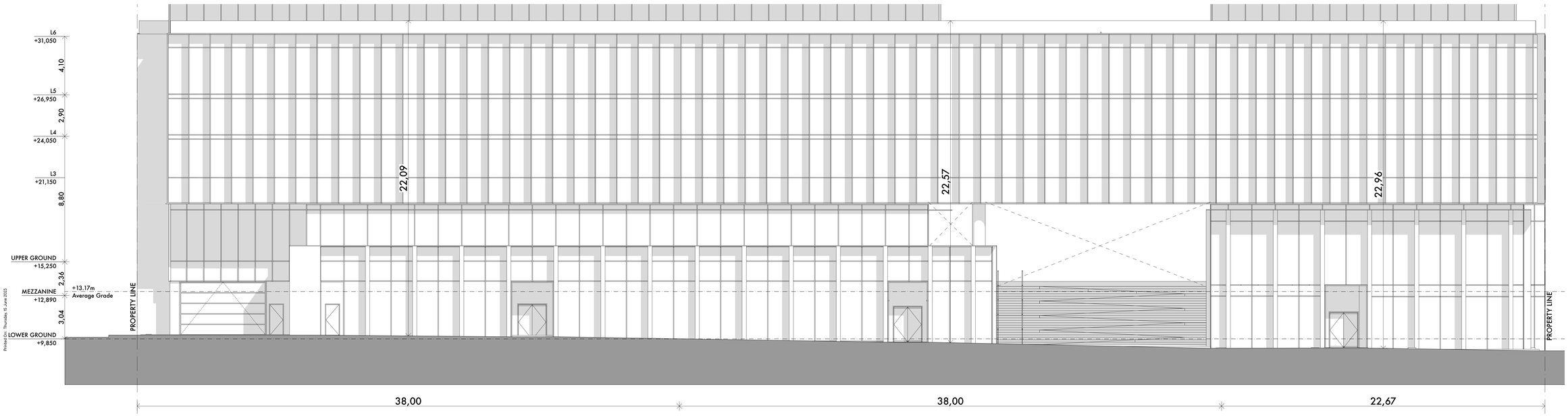
1:100

21806

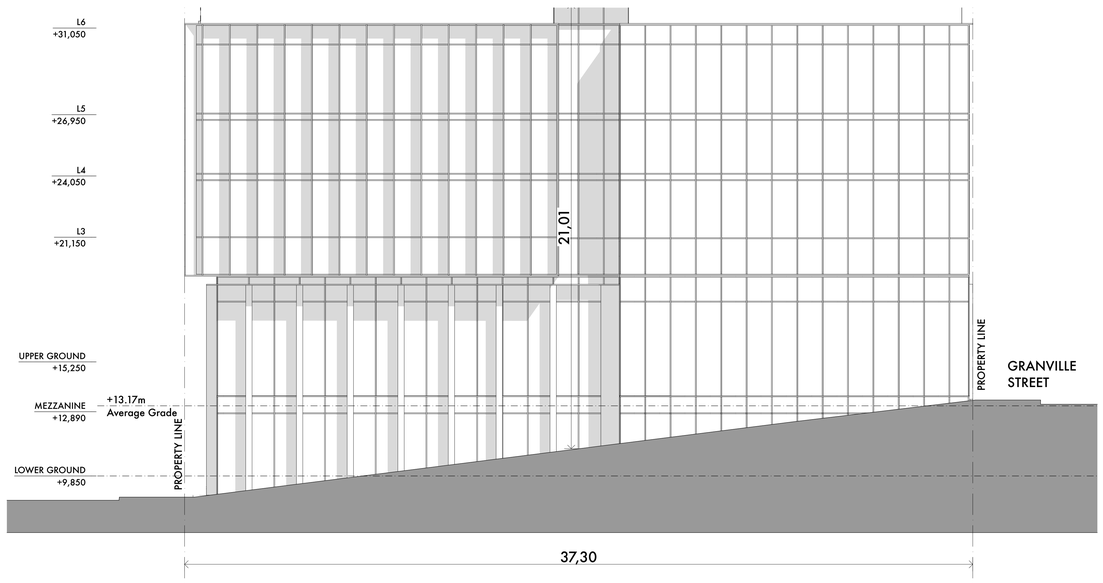
15/06/2023

A3.3

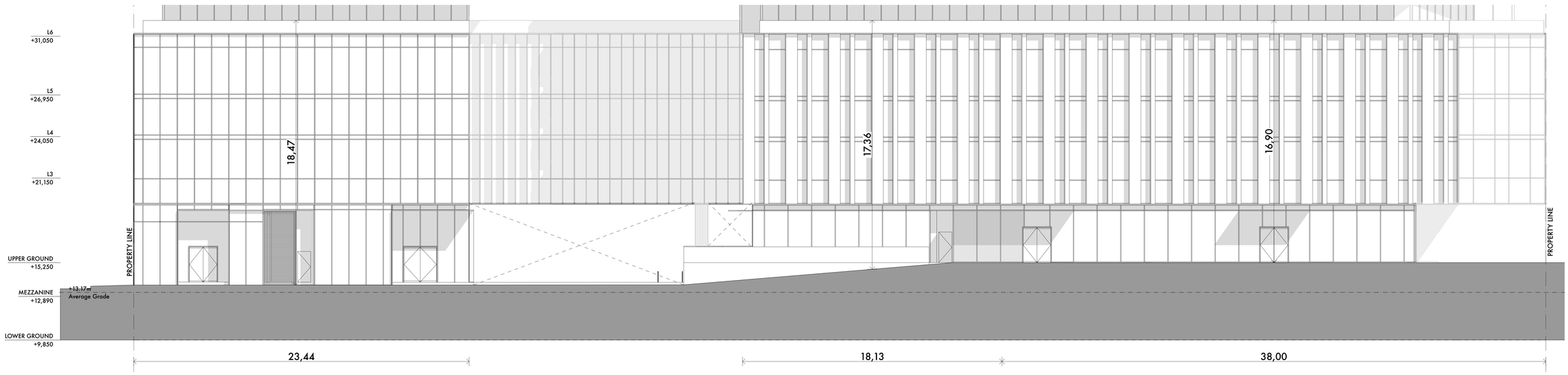
NO.	ISSUED	DATE



East Elevation



North Elevation



West Elevation

aA

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STREET WALL ELEVATIONS

1:100

21806

15/06/2023

A3.4

SITE PLAN APPROVAL | 2023.10.11 | APPLICATION

SKYE HALIFAX

Attachment B:Design Rationale and Variance Requests

UPLAND

on behalf of

United Gulf Developments Limited

Table of Contents

Project Introduction

Skye Halifax is an ambitious proposal to develop one of the most significant vacant sites in the heart of downtown Halifax.

With 349 residential units, 69 hotel rooms, and 2,656 m^2 of retail floor area, Skye Halifax promises to bring new life and activity to an entire city block. The proposal is also key to activation of three street frontages, with 230 metres of road frontage on Hollis Street, Granville Street, and Sackville Street.

At the heart of the proposal is a through-block pedestrian connection that serves to increase route options for pedestrians and reduce the perceived block length, while also providing public space where people are invited to gather on the seating "stairs" and watch the pulse of the city.

The building itself is located on a block with its neighbour—the MetroPark Garage—providing little existing architectural context. Skye Halifax is therefore both freed from existing architectural precedent and shouldered with the task of positively defining the character of a prominent city block. The building achieves this with the careful use of materials and form to visually define the building's mix of uses; to complement the pedestrian realm; and to create a "base", "middle", and "top" without resorting to the "layer cake" architecture that has become common in the Downtown Plan Area.

Key Project Stats

PID:	00003954
Zoning:	Downtown Halifax 1 (DH-1)
Precinct:	Precinct 4 – Lower Central Downtown
Lot Area:	3,657 m^2
Street Frontage:	93 m + 37 m + 99 m = 229 m
Max. Pre-Bonus Height:	51 m
Max. Post-Bonus Height:	66 m
Building Height:	65.48 m
Penthouse Roof Height (North Tower):	73.56 m
Penthouse Roof Height (South Tower):	76.93 m
Residential Units:	349
Hotel Rooms:	69
Retail Floor Area:	2,656 m^2
Gross Floor Area:	48,918 m^2
Automobile Parking Spaces:	394
Bicycle Parking Spaces (Class A):	141
Bicycle Parking Spaces (Class B):	47

Comparison to Approved Design

In November of 2019, the Design Review Committee (DRC) approved a previous iteration of the Skye Halifax proposal, along with associated variances and a recommendation for underground power lines as the public benefit for bonus height. The DRC at the time also provided direction for the separation distance between the towers to be increased to 15 metres clear (*i.e.* measured from balcony extent) and to improve the accessibility of the through-block pedestrian space.

Since that time, United Gulf Developments Ltd. has been negotiating a Bonus Density Agreement with Regional Council; discharging an old development agreement on the site; conducting asbestos abatement on the existing commercial building on the site; hiring a complete suite of design professionals to produce full construction drawings; developing construction drawings; and applying for permits to begin demolition, excavation, and sub-grade construction.

In the process of developing permit-ready building plans, architectsAlliance, engineering consultants, and United Gulf identified needed tweaks to building dimensions to accommodate mechanical and structural considerations. At the same time, this was an opportunity to improve the functionality of floor plans and re-visit the overall architecture of the building to ensure it best contributes to the vitality and character of the city. The design presented here is an iteration on the November, 2019 design that improves the function and aesthetics of the building, while fulfilling the spirit of what the DRC initially approved.

At the time of this writing a building permit (BP-2020-00559) and demolition permit (GP-2021-08022) have been issued. This will allow demolition of the existing office building and sub-grade work to commence on the site under the terms of the previous site plan approval, expediting the overall construction timeline.

The updated design presented here has numerous minor tweaks intended to improve the overall functionality of the building. However, there are a few more-substantive changes that are worth highlighting.

Tower Design

The most striking difference between the 2019 and 2023 proposals is the substantial re-design of the south tower and associated penthouse. The off-set pattern of balconies has been removed in favour of a more cohesive approach, tied together by a dark vertical band wrapping the tower and mechanical penthouse.

The south tower has also been narrowed by 2.1 metres and shifted to the south, as well as slightly to the west, reducing the scope of required variances.

2019 Proposal

2023 Proposal

Through-block Pedestrian Space

The 2019 proposal included a through-block pedestrian connection as a landmark element of the podium design. While the DRC at the time appreciated this design feature, they were concerned that it was not barrier-free.

The updated proposal includes a complete re-work of the through-block pedestrian space to add a separate set of code-compliant stairs along with a barrier-free ramp integrated into the seating area of the space.

2019 Proposal

2022 Proposal

Podium Design

The new podium proposal includes many minor tweaks to material placement and the “push and pull” of building planes to improve functionality and overall aesthetics.

However, the most major change is on the Granville side. The 2019 proposal include a perforated metal screen on floors 2 and 3 in order to create a false streetwall for Granville Street. The 2023 proposal includes a re-work of the podium floor plans that eliminates the need for the metal screen (and associated streetwall height variance) and improves the building’s presence on Granville Street.

2019 Proposal

2022 Proposal

Design Manual Objectives

Precinct 4: Lower Central Downtown
The following general criteria shall apply:

a. Allow for mixed-use high-rise infill development on large opportunity sites.

The development proposal is mixed-use (residential / commercial / hotel) with a high-rise building on one of downtown's largest opportunity sites.

b. Prohibit new surface parking lots of any kind.

The proposed development does not include any new surface parking lots.

c. Ensure that existing surface parking lots and vacant sites are developed.

The proposal is the development of an existing surface parking lot.

d. Vacant sites shall be developed in a way that provides a continuous streetwall and uninterrupted pedestrian experience.

Except for the valuable pedestrian amenities provided by the through-block connection, the proposed development provides a continuous streetwall and an uninterrupted pedestrian experience.

e. The precinct is to be characterized by animated streetscapes.

The proposal includes a high proportion of at-grade commercial uses, including outdoor café seating at the Granville Street elevation. It also includes a through-block pedestrian connection with public seating.

f. Focus pedestrian activities at sidewalk level through the provision of weather protected sidewalks using well-designed canopies and awnings.

Building entries are sheltered by awnings or are inset into the façade.

g. East-west streets shall continue to provide views between the Citadel and the Harbour.

The proposal does not impede views down Sackville Street.

h. to m.

Not applicable.

Guideline 3.1.1
Pedestrian-Oriented Commercial

A: Retail shop fronts are located close to sidewalks and pedestrian plazas. The footprint of the building is broken into many smaller retail units interspersed with lobby entrances.

B: The ground floors are clad primarily in clear glazing, with stone and metal detailing. Transparency exceeds 77% on Hollis and Granville and 89% on Sackville.

C: Entries are located frequently along both the Granville Street and Hollis Street frontages. The steep grade and short frontage along Sackville Street prevent entrances from being accommodated here; however, the clear glazing allows for pedestrian interest and visual interaction with the interior activities of the building.

D: The Land Use By-law does not identify the site for any required pedestrian-oriented commercial frontages. Awnings are provided over any protruding building entrances.

E: Spill-out activity is encouraged by the use of portions of the pedestrian through-block connection as stepped seating. The raised area in the through-block connection also includes space for outdoor seating for the hotel café.

F: The only non-commercial uses proposed at grade are the hotel and residential lobbies. They have sufficient floor-to-ceiling height to be converted to commercial uses in the future.

Guideline 3.1.2
Streetwall Setback

The streetwall setback of the building is typically 0 metres to 1.73 metres, though short sections extend to 6.66 metres.

Along Hollis Street, the building continues the streetwall defined by the MetroPark garage, except for a deeper setback to accommodate safe turning radii and sightlines for the garage access.

On Granville Street, the building ranges from 0 metres at the north tower (the established setback) to 1.73 metres at the south tower, which allows for a barrier-free access ramp, and a small area with a setback of 6.66 metres for emergency egress and air intake. The setbacks in excess of 1.5 metres are addressed by Variance Request 1.

The proposal includes the entirety of this block of Sackville Street, and therefore defines the streetwall for that block.

Guideline 3.1.3
Streetwall Height

All streetwalls exceed the minimum height of 11 metres.

Due to the large site, various slopes on the site, and the need to match internal floorplates, some streetwalls exceed the maximum streetwall height. This is addressed by Variance Request 2.

Guideline 3.2.1
Design of the Streetwall

A: The lower half of the streetwall is differentiated into vertical sections through the use of projections and recesses, vertical stone-clad bays, alternating materials (glass, aluminum, and stone), the through-block pedestrian connection, and the locations of entrances. The upper half of the streetwall includes a regular pattern of vertical fins.

B: The streetwall occupies 100% of the frontage along each street, except for the areas dedicated to providing a through-block pedestrian connection, and a small outdoor seating area for the hotel café.

C: Granville Street has a right-of-way width of 15.2 metres, with a proposed streetwall ranging from 16.9 metres to 18.47 metres high with the slope of the road. Hollis Street has a right-of-way width of 16 metres. The streetwall here is proposed to range from 22.09 metres to 22.96 metres with the slope of the street, which keeps the streetwall in line with that established by MetroPark.

D: Not applicable.

E: The streetwall is designed with high-quality glazing, aluminum curtain wall, and stone.

F: The streetwall has high transparency provided by the extensive use of glazing.

G: All grade-level frontages are a mix of glazing and stone and metal detailing that excludes blank walls. Utility functions are contained within the building.

Guideline 3.2.2
Building Orientation and Placement

A & B: The building is oriented to all three street edges and, with the exception of plaza space, is placed at all three street edges. Primary access points are clearly defined by awnings and/or changes of material and have direct access to the sidewalk or plaza spaces.

C: No side yard setbacks are proposed.

Guideline 3.2.3
Retail Uses

A: Not applicable.

B: The Land Use By-law does not apply mandatory retail frontages to the subject site. Building entrances are sheltered with awnings or recesses.

C: At-grade uses are retail and lobbies for the hotel and residential uses. Lobby spaces could easily be converted to retail spaces in the future.

D: Retail uses are located immediately adjacent to the sidewalk.

E: Retail frontages are not hidden by deep columns or large building projections.

F: Retail entrances are located at grade.

G: Commercial signage to be determined depending on the retail provider, in compliance with design guidelines.

Guideline 3.2.4
Residential Uses

A: Not applicable.

B: Residential units are accessed by at-grade lobbies, distinguished from the exterior by awnings.

C: Ground-floor, individually-accessed residential units are not contemplated due the priority of ground-floor retail in this portion of downtown.

D: The building contains a high proportion of two- and three-bedroom units. All residential units have immediate access to private balconies, and shared access to the rooftop outdoor amenity space.

E: Not applicable.

F: Not applicable.

Guideline 3.2.5
Sloping Conditions

The subject site encompasses three street frontages, with Granville and Hollis at different elevations and Sackville sloping between them. Given the block proportions (*i.e.* running north-south), and the existing roles these three streets play in the function of downtown, the architectural design of the building treats Granville and Hollis as the primary frontages. As a result, the relatively short and steep stretch of Sackville is unable to be effectively utilized for access to the building. The retail display of the Hollis and Granville frontages are wrapped around to Sackville as much as practicable and the Sackville frontage is clad in transparent glazing that allows for a visual interface between the interior and street activities.

Guideline 3.2.6
Pedestrian Walkways

Not applicable.

Guideline 3.2.7
Other Uses

A: The residential and hotel lobbies include a high proportion of glazing and contribute to frequent entries along the Hollis and Granville frontages.

Guideline 3.3.1
Building Articulation

A: The building is articulated into a “base” created by the hotel podium, a “middle” created by the towers, and a “top” created by the mechanical penthouses.

B: The building borrows materials (*e.g.* glazing, aluminum panels) found in other buildings in the area (The Maple, *etc.*) while adding to the variety of architectural expression in the area through the use of massing, orientation (two opposing towers), and detailing.

C: The massing is articulated through features and changes in materials, such as the dark aluminum cladding on the band of hotel rooms making up the top portion of the streetwall.

D: All facades, with the exception of the fire wall adjacent to (*i.e.* hidden by) the MetroPark Garage, are treated with the same high level of design quality.

Guideline 3.3.2
Materials

A: The building is clad in glass, aluminum curtain wall systems, aluminum paneling, and stone detailing. All of these materials systems are designed to be of high quality, durable, aesthetically-pleasing, and easy to install with a high degree of precision.

B: The building uses a limited and unified palate of materials, with careful changes in materials used to delineated changes in the different functions of the building.

C: Materials are consistent across facades.

D: Materials are consistent around building corners.

E: The building uses stone, glass, concrete, and aluminum.

F: The materials are not intended to mimic other materials.

G - J: None of these materials are proposed.

Corner design treatments

Guideline 3.3.3
Entrances

A: The building has multiple entrances to serve the various functions of the building (residential, hotel, retail). These entrances are emphasized in various ways, including the use of recesses in the building facade, awnings, signage, and materials detailing.

B: Awnings and recesses provide pedestrian weather protection over the building's various entrances.

Guideline 3.3.4
Roof Line and Roofscapes

A: The "tops" of the buildings differ from the building "middle" through the massing and materials of the penthouse levels, and through the contrast of the horizontal balconies and the vertical cladding of the penthouses.

B: The building "top" of the south tower is tied into the "middle" through the use of the dark metal bad that vertically wraps the whole tower.

C: Landscaped amenity space is provided both on the roof of the podium and on the top of the towers.

D: Rooftop mechanical features and rooftop access points are enclosed (screened from view) within the penthouses.

E: Not applicable.

F: Parapet treatment is consistent around all sides of each roof.

Guideline 3.4.1
Prominent Frontages and View Termini

A: Not applicable.

B: The Sackville frontage is defined as a prominent civic frontage on Map 1 of the Design Manual. This frontage, as well as all frontages on the building, has a high quality of streetwall design.

Guideline 3.4.2
Corner Sites

The building includes two corners; one at Hollis and Sackville and one at Granville and Sackville. These two corners are given the same high quality of materiality and design afforded to the rest of the building, but are differentiated from the overall building and from each other through changes in material and through the use of a recess on the lower levels of the northeast corner (see images to left).

Guideline 3.4.3
Civic Buildings

Not applicable.

Guideline 3.5.1
Vehicular Access, Circulation, Loading and Utilities

A: All motor vehicle parking is located underground.

B: The width of the garage access is the smallest it can functionally be, is recessed, and is located adjacent to the non-pedestrian streetscape created by the MetroPark Garage.

C: Loading, storage, utilities, and solid waste pickup are all accessed from inside the parking garage, out of view from public streets and spaces and residential uses.

D: Not applicable.

E: Utilities, meters, and mechanical equipment are integrated in interior service rooms and within the screened rooftop penthouses.

F: Ventilation is not located facing public streets. Utility hookups are contained within the building and within underground vaults.

Guideline 3.5.2
Parking Structures

Not applicable.

Guideline 3.5.3
Surface Parking

Not applicable.

Guideline 3.5.4
Lighting

The lighting concept includes a variety of lighting methods, including up-lighting, edge lighting along landscaping and other distinctive features, and a back-lit perforated metal screen. The lighting concept highlights key elements of the building, and is designed to be glare-free and without light trespass onto neighbouring properties.

Guideline 3.5.5
Signs

Signage will be designed once retail tenants and the hotel provider have been established. Signs will be wall signs (*i.e.* not pylons, rooftop signs, or billboards) and will be of materials in keeping with the design of the building.

Land Use By-law Requirements

7(1)	**Permitted Land Uses**	**Yes.** Proposed uses are commercial uses, residential uses, and uses accessory to the foregoing.
7(4a)	**Residential Dwelling Mix**	**Yes.** The residential unit mix includes 349 units, of which 205 (58.7%) include two or more bedrooms.
7(5)	**Residential Access**	**Yes.** The residential lobbies are located at ground level on Granville Street and are separate from non-residential uses.
8(1)	**Lot Frontage**	**Yes.** All lots have frontage on a street.
8(2)	**Number of Buildings**	**Yes.** There is only one lot, with one building located on it.
8(7)	**Post-bonus Height**	**Yes.** Maximum post-bonus height is 66 metres on the site (measured from average grade), with exemptions for certain rooftop features. The building is 65.48 metres high as measured from average grade. Exempt features are addressed in 8(8).
8(8)	**Rooftop Features**	**Yes.** Elevator access, penthouses, and mechanical equipment occupy 28.2% of the building roof.
8(10)	**Rooftop Feature Setback**	**Yes.** Most rooftop features meet or exceed the 3-metre setback from the roof edge. The south tower has a metal architectural screen that wraps around the tower and mechanical penthouse and is not set back. However, the By-law exempts such architectural features from the setback.
8(12)	**Landscaping for Flat Roofs**	**Yes.** Flat rooftops not required for mechanical equipment are landscaped to provide amenity space for residents and guests.
8(13)	**Land Uses at Grade**	**Yes.** All ground floors of the building have a floor-to-floor height greater than 4.5 metres.

8(14)	**View Plane Requirements**	**Yes.** View Plane 6 extends over the southwest corner of the site. The proposed building does not protrude through the view plane.
8(20)	**Cladding Materials**	**Yes.** Proposed exterior materials do not include any on the prohibited list.
9(1)	**Streetline Setbacks**	**Variance.** Streetline setbacks range from 0 metres to 6.66 metres, with the Granville side of the south tower exceeding the maximum 1.5-metre setback in order to accommodate a barrier-free ramp, and small areas on Hollis and Granville exceeding the maximum to accommodate emergency egress and air intake, and safe sightlines for the garage entrance. See Variance Request 1.
9(2)	**Maximum Streetwall Height**	**Variance.** The maximum streetwall height permitted on the site is 18.5 metres. The proposed streetwall is up to 22.96 metres high. See Variance Request 2.
9(3)	**Minimum Streetwall Height**	**Yes.** The lowest portion of streetwall is 16.9 metres high, which exceeds the minimum of 11 metres.
9(5)	**Streetwall Width**	**Variance.** The continuity of the Hollis and Granville streetwalls are broken by a through-block pedestrian space. The streetwall on Granville is also reduced for a small area for outdoor seating for the hotel café, and a small area adjacent to the MetroPark garage for emergency egress. See Variance Request 3.
9(7)	**Streetwall Stepbacks**	**Variance.** Stepbacks above the streetwall range from 0 metres to 5.52 metres. A variance is needed for all stepbacks of less than 3 metres at heights below 33.5 metres, and less than 4.5 metres at heights above 33.5 metres. See Variance Request 4.
10(4)	**Mid-Rise Setback**	**Yes.** Section 10(6) exempts buildings within the Central Blocks.

10(5) Mid-Rise Overhangs	**Yes.** The mid-rise portion of the building does not project beyond the low-rise portion.
10(7) High-Rise Setback	**Variance.** The high-rise portion of the south tower is set back from interior lot lines by 2.2 and 5.34 metres; less than the required 11.5 metres. A variance is needed. See Variance Request 4.
10(9) Tower Separation	**Variance.** The high-rise portion of the two towers are separated from each other by 18.9 metres; less than the 23 metres required for residential towers. See Variance Request 5.
10(11) Tower Width and Depth	**Variance.** The south tower has a width of 54.13 metres, which exceeds the maximum tower width of 38 metres. A variance is needed. See Variance Request 5. The north tower has a depth of 33.3 metres in relation to Hollis/ Granville Street, which exceeds the maximum tower depth of 27.5 metres. See Variance Request 6.
10(12) Permitted Encroachments	**Yes.** All minor features (gutters etc.) encroach less than 0.6 metres.
10(13) Balconies	**Variance.** Balconies encroach into setbacks, stepbacks, and separation distances. None are more than 2 metres. However, all balconies exceed more than 50% of the horizontal width of their respective building face. A variance is needed. See Variance Request 7.
14(15) Bicycle Parking	**Yes.** Bicycle parking is provided, with 141 Class A spaces and 45 Class B spaces.

Public Benefit

Map 4 indicates a pre-bonus maximum height on the site of 51 metres. The building includes five floors above or partially above this height, each with a gross floor area of 2,152 m^2.

The rate used is \$40.00/m^2 adjusted annually using the Statistics Canada, Halifax CPI data. As per the calculations of the LUB, the required public value is:

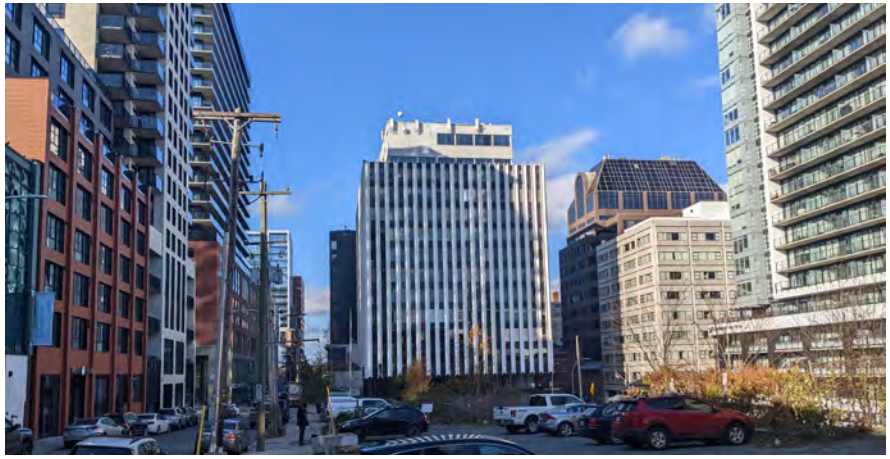
(5 floors)*(2,152 m^2/floor)*(\$53.80/m^2) = \$578,888

The public benefits proposed to meet these contribution include:

> *(j) the undergrounding of overhead electrical and communication distribution systems.*

Granville and Sackville Street are some of the last streets in the downtown to still contain above-ground overhead electrical and communication systems, which could be undergrounded as part of the Skye project.

The proposed scope of work includes engineering design, demolition of the existing poles and wiring surrounding the site, trenching and ducting of underground wires and transformers, provision of temporary power infrastructure during relocation, and the provision and installation of light poles.



Public Engagement

As part of the pre-application phase, we conducted public engagement on the proposal in the following ways:

- Project website (www.skyehalifax.ca) with proposal details and feedback forms.
- Information kiosks in the public areas of HRM offices.
- A public open house on September 20th, 2023.
- Advertising of the open house in the Chronicle Herald on September 2nd and September 9th, 2023.

There were no attendees at the open house. We left the comment period open for two weeks following the open house. We received no public comments during this time.

Variance Request 1
Streetline Setback

Subsection 9(1) and Map 6 of the LUB require a setback of 0 to 1.5 metres between the streetline and the streetwall. Most portions of the proposed building meet this setback; however, the Granville Street streetwall of the south tower does not, with a setback of 1.73 metres for the bulk of its length and a small area where the setback is 6.66 metres. The Hollis Street garage entrance has a setback of 3.22 metres and 4.21 metres.

Subsection 3.6.1 of the Design Manual permits a variance for the streetwall setback, where:

a. the streetwall setback is consistent with the objectives and guidelines of the Design Manual;
b. [...]; or
c. [...].

In the case of Granville, the additional 0.23 metres are necessary to adequately provide a barrier-free access ramp. Such ramps require a landing area of at least 1.5 metres square at the top and bottom of the ramp. This, plus the thickness of the ramp structure (*i.e.* the outside wall) equates to the required setback. While barrier-free design is not an explicit objective of the Design Manual, we believe accessibility is important and is an implicit objective in the Design Manual's thrust towards pedestrian-oriented streetscapes.

The extra deep setback at the southwest corner of Granville accommodates emergency egress, as well as an air intake grate. Clause 3.5.1(f) of the Design Manual states:

Locate heating, venting and air conditioning vents away from public streets. [...]

This setback avoids having to place the air intake vertically on the side of the building, facing a public street, supporting the guidelines of the Design Manual.

The requested setbacks on the southeast corner of the building are necessary to accommodate the parking entrance.

Subsection 3.5.1 of the Design Manual States:

[...]

a. Locate parking underground or internal to the building (preferred), or to the rear of buildings.

b. Ensure vehicular and service access has a minimal impact on the streetscape, by minimizing the width of the frontage it occupies, and by designing integrated access portals and garages.

[...]

The parking for the proposed building is underground and the entrance is integrated into the overall building design. Its setback and width is the minimum possible while maintaining safe turning radii and sightlines between cars exiting the garage and pedestrians travelling along Hollis Street.

Variance Request 2
Streetwall Height

Subsection 9(2) and Map 7 of the LUB establish a maximum streetwall height of 18.5 metres on the site. Subsection 9(3) establishes a minimum streetwall height of 11 metres. The building itself is surround by three different streets, each at a different elevation and each sloping to various degrees. As a result, the streetwall height (per the LUB definition) on Granville ranges from 16.9 metres to 18.47 metres, the streetwall height on Sackville Street is 21.01 metres, and Hollis ranges from 22.09 metres to 22.96 metres. Sackville and Hollis Streets require a variance to maximum streetwall height.

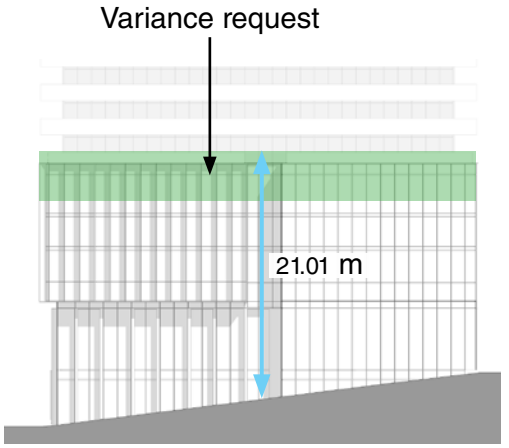
Subsection 3.6.3 of the Design Manual permits a variance for streetwall height where:

a) the streetwall height is consistent with the objectives and guidelines of the Design Manual; and

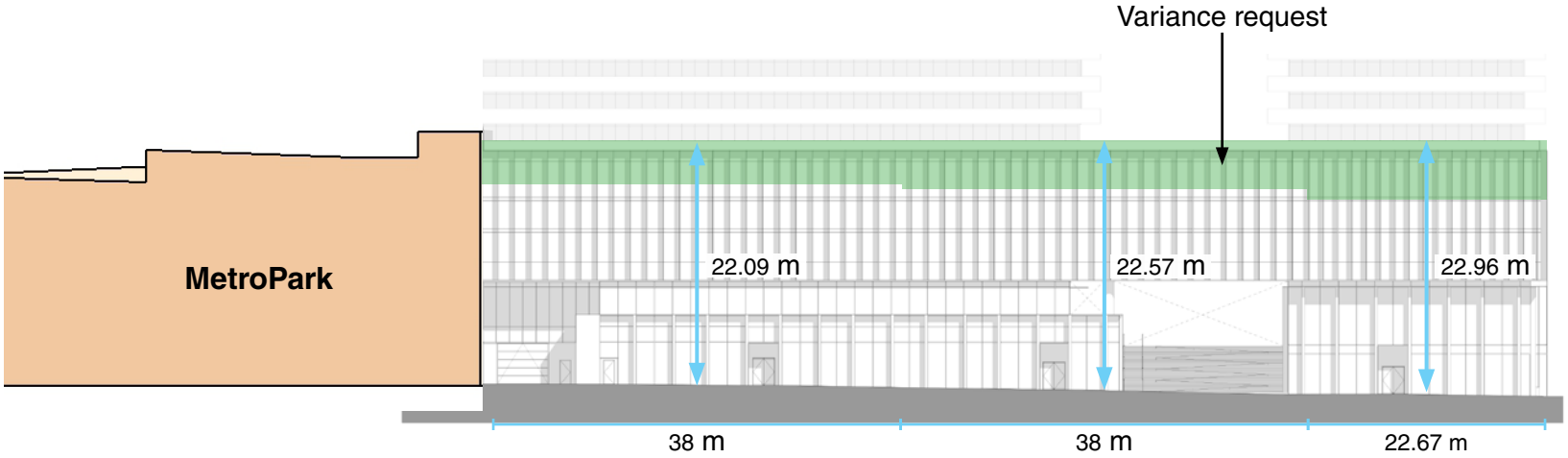
[...]; or

c) the streetwall height of abutting buildings is such that the streetwall height would be inconsistent with the character of the street; or [...]

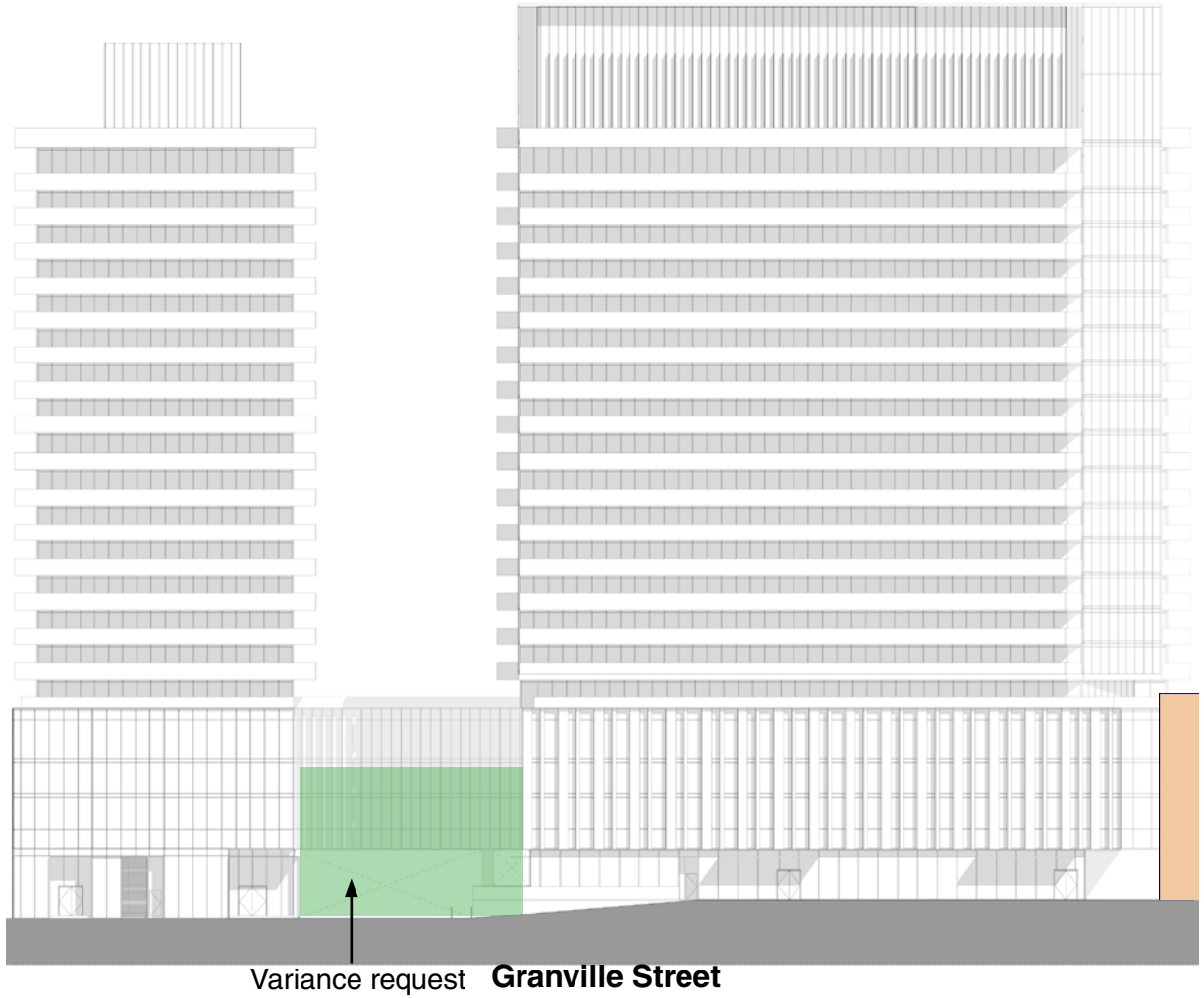
The guidelines of the Design Manual outline that streetwall height should *generally* form a 1:1 ratio with street widths, and sets maximum streetwall heights accordingly. However, the Design Manual clearly contemplates allowing a variance to this guideline, including situations where a variance would increase consistency with abutting streetwalls. In this case, the requested variance on Hollis Street brings the proposed building into better consistency with the streetwall height of the only abutting building, the MetroPark. On Sackville Street, the variance allows a smooth connection between the Hollis and Granville streetwalls. The variance also assists with guideline 3.2.4(d) (outdoor amenity space) by providing a consistent roof grade on the podium, thereby increasing its usability.



Sackville Street



Hollis Street



Variance Request 3
Streetwall Width

Subsection 9(5) of the LUB requires the streetwall to extend 100% of the width of the block. The proposed building design includes a through-block pedestrian connection and “seating stairs” between the north and south tower. It also includes a small adjacent outdoor area for hotel café seating. Combined these create gap for approximately 21% of the streetwall on the Granville Street frontage and 15.2% of the Hollis Street frontage.

Subsection 3.6.4 of the Design Manual permits a variance for the streetwall width, where:

a. the streetwall width is consistent with the objectives and guidelines of the Design Manual; and
b. the resulting gap in the streetwall has a clear purpose, is well-designed and makes a positive contribution to the streetscape.

Consistent with the variance criteria, a variance in this case would have a clear purpose and would contribute to the public realm, both in terms of pedestrian connections and in terms of places for pedestrians to “dwell” and bring activity to the street.

Variance Request 4
Stepbacks and Setbacks

Subsection 9(7) of the LUB requires stepbacks of 3 metres and 4.5 metres for the mid-rise and high-rise portions of towers, respectively. Subsection 10(7) requires the high-rise portion of towers to be set back from internal lot lines by 11.5 metres. The proposed building has stepbacks ranging from 0 metres to 5.52 metres, and the south tower is set back 2.2 metres from the south lot line and 5.34 metres from the south-west internal lot line.

Subsection 3.6.5 of the Design Manual permits variance of the upper storey streetwall stepbacks where:

> *a) the upper storey streetwall stepback is consistent with the objectives and guidelines of the Design Manual; and*
>
> *b) the modification results in a positive benefit such as improved heritage preservation or the remediation of an existing blank building wall.*

The need for stepbacks, and indeed the location and orientation of the towers, is heavily influenced by the provision of the through-block pedestrian connection.

Developing the dimensions and locations of the towers—particularly where mixed uses are present—is a delicate balancing act of aligning parking ramps, internal connections, emergency accesses, and elevators, while still ensuring floorplates have a workable size for their intended use.

Providing the through-block connection greatly reduces the flexibility around the other design factors and necessitates the reduction in stepbacks to accommodate the north tower. Or, conversely, varying the stepbacks on the north tower enables the positive benefit of providing a through-block pedestrian connection.

Reducing the stepbacks on the south tower allows the bulk of the building closer to Hollis, a major thoroughfare, and away from Granville, a secondary street.

Subsection 3.6.6 of the Design Manual permits variance of the upper storey side yard stepbacks where:

> *a) the upper storey side yard stepback is consistent with the objectives and guidelines of the Design Manual; and*
>
> *[...]; or*
>
> *c) a reduction in setback results in the concealment of an existing blank wall with a new, well designed structure.*

The proposed reduction in setbacks from the south and south-west property lines will ensure the blank wall on the MetroPark garage stairwell tower is obscured. Additionally, this variance will not prejudice development on the MetroPark site because that property is located under View Plane 6 and is not developable beyond its current height.


Lvl. 6 to 10
Sackville Street
Lvl. 11 to 21
Hollis Street
Variance request (3 m)
Variance request (1.5 m)
Variance request (1.0 m)
Variance request (0.38 m)
Variance request
(4.5 m)
Variance request (3 m)
Variance request (2.5 m)
Variance request (1.88 m)
Variance requests
(6.16 & 9.3 m)
11.5 m

Variance Request 5
Tower Width and Separation

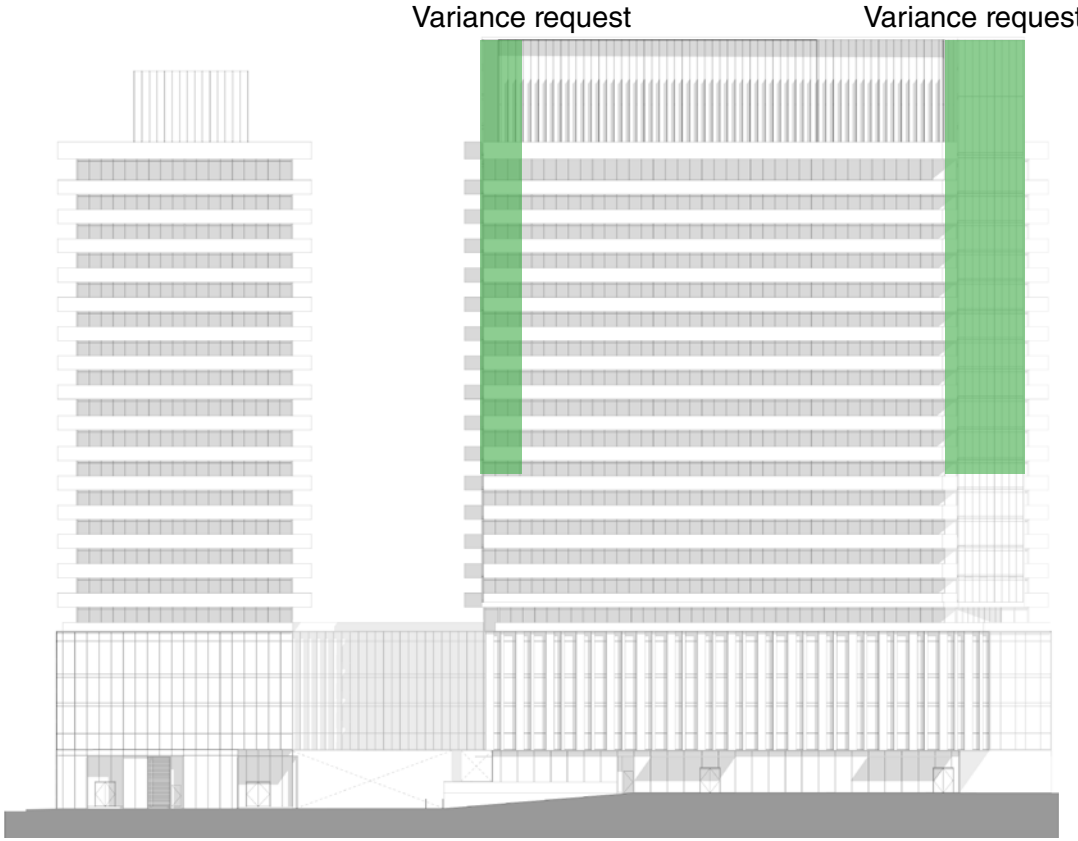
Subsection 10(9) requires a tower separation of 17 metres for commercial buildings and 23 metres for residential buildings. The proposal has a tower separation of 18.9 metres. Subsection 10(11) of the LUB restricts tower width (above 33.5 metres height) to 38 metres. The south tower has a width of 54.13 metres. These changes result from a reallocation of floor area assigned in an as-of-right scenario to the north tower, the mid-rise portion of the building, and the through-block pedestrian connection and public space (see image).

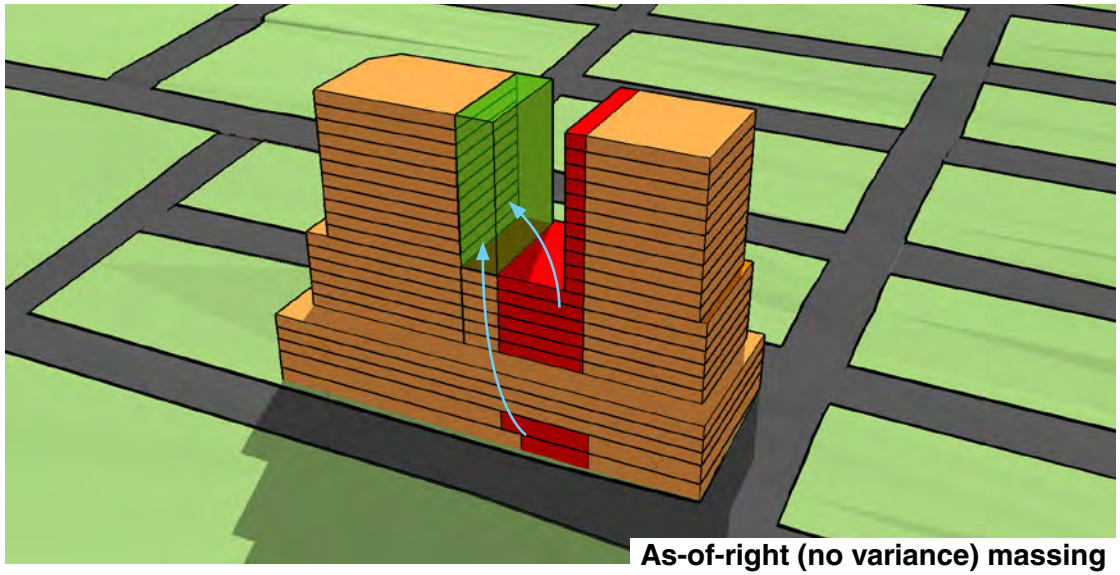
Subsection 3.6.7 of the Design Manual permits a variance where:

a) the maximum tower width is consistent with the objectives and guidelines of the Design Manual; and

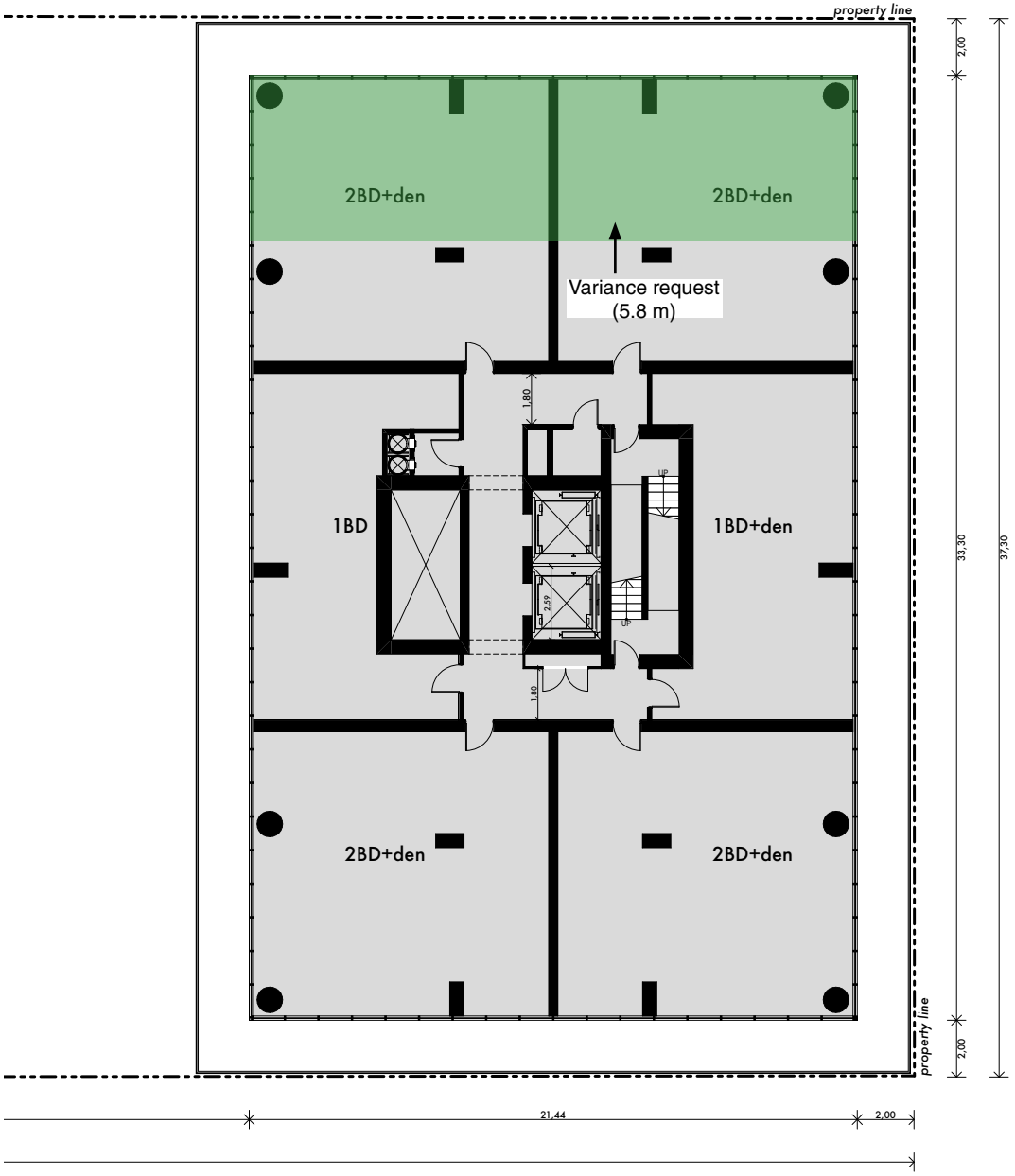
b) the modification results in a clear public benefit such as the remediation of an existing blank building wall

These proposed variances create a clear public benefit by enabling the through-block pedestrian connection and public space. The requested variances also improve the architectural expression of the building by creating two distinct towers instead of one large mass joined by a continuous mid-rise wall. Additionally, this is an improvement over the currently-approved proposal, which had a tower width of 56.23 metres.





As-of-right (no variance) massing



NORTH TOWER

Variance Request 6
Tower Depth

Subsection 10(11) of the LUB restricts tower width (above 33.5 metres height) to 38 metres and tower depth to 27.5 metres. The way the LUB defines tower width and depth means that they are only defined in relation to the street frontage, and not in relation to each other. The result of this is that on corner lots, a facade has “width” in relation to one street and “depth” in relation to the other.

The east-west dimension of the north tower is 33.3 metres. This meets the requirement for width in relation to Sackville Street, but exceeds the requirement for depth in relation to Hollis and Granville Streets. It appears as if this dual application of regulations was not intended in the drafting of the LUB, but out of abundance of caution we are requesting a variance.

Subsection 10(14) of the LUB allows such a variance where, “the relaxation is consistent with the criteria of the Design Manual.” The Design Manual does not include any explicit criteria for tower depth, so the requested variance is not inconsistent with the Design Manual. Importantly, this variance will enable a usable residential floor plate.

Variance Request 7
Balcony Length

Subsection 10(13) of the LUB allows balconies to project into required setbacks, stepbacks, and separation distances provided the projection is no more than 2 metres and the balconies do not exceed an aggregate length more than 50% of the building face width.

On the north tower balconies project into the streetwall stepback and the upper story setbacks by 2 metres, and the tower separation by 1.8 metres. The balconies cover 112% of the north tower Sackville and Salter elevations and 118.7% of the north tower Granville and Hollis elevations.

The south tower similarly has balconies that encroach into the stepbacks, side yard setbacks, and tower separation distance. In this case the encroachment is 1.8 metres. The south tower has an irregular shape, so the balcony coverage differs depending on the side:

Hollis elevation = 106.7%
Granville elevation = 86.8%
Salter elevation = 60.3%
Sackville elevation = 60.3%

A variance is not needed for balcony depth, but is needed for the balcony lengths since they all exceed 50% of their respective tower width/depth.

Subsection 10(14) of the LUB permits these requirements to be varied where the variation would be consistent with the Design Manual.

Subsection 3.6.5 of the Design Manual has criteria for considering variances to stepbacks:

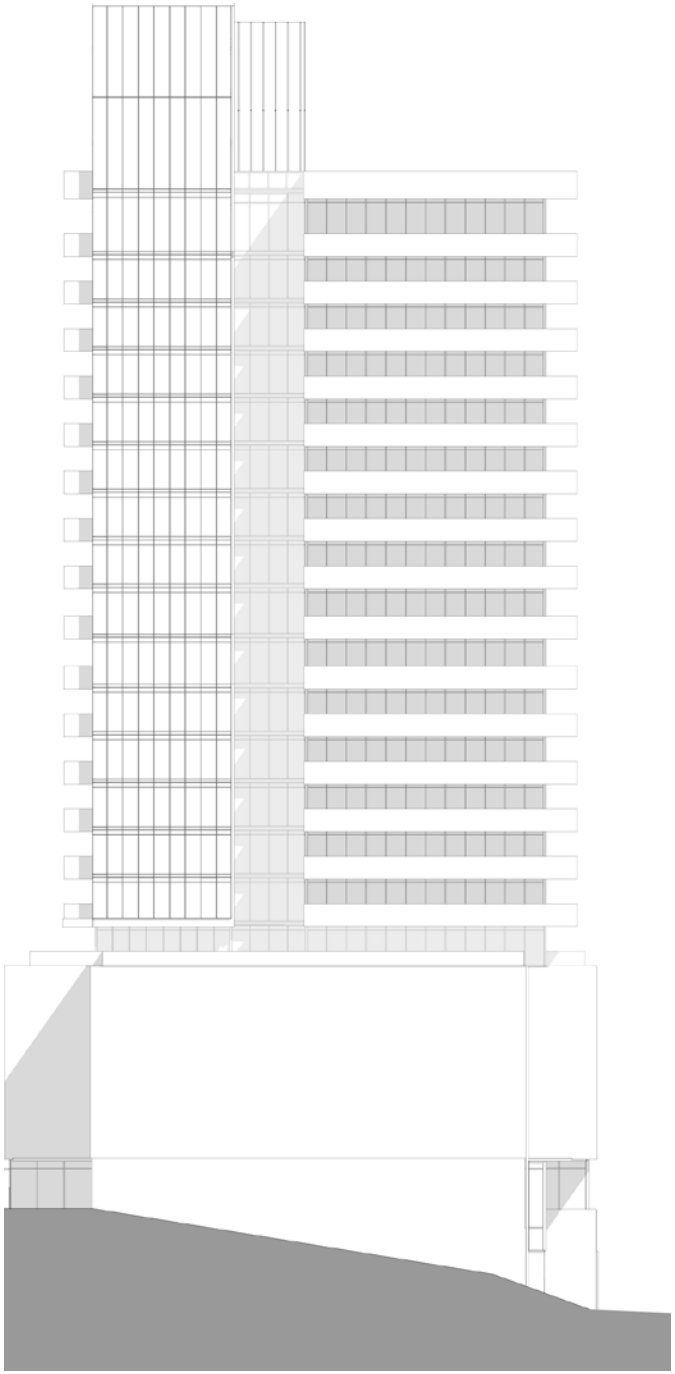
a. the upper storey streetwall setback is consistent with the objectives and guidelines of the Design Manual; and

b. the modification results in a positive benefit such as improved heritage preservation or the remediation of an existing blank building wall.

Subsection 3.6.6 of the Design Manual has criteria for considering variances to upper story setbacks:

a. the upper storey side yard stepback is consistent with the objectives and guidelines of the Design Manual; and
b. where the height of the building is substantially lower than the maximum permitted building height and the setback reduction is proportional to that lower height; or
c. a reduction in setback results in the concealment of an existing blank wall with a new, well- designed structure.

This variation would ensure every residential unit has the benefit of private outdoor amenity space, and would increase the visual interest of the building by providing a cohesive aesthetic across the towers. Additionally, this is consistent with obscuring the blank wall of the MetroPark building.



Salter Street


SKYE HALIFAX

SKYE HALIFAX

1568 HOLLIS STREET, HALIFAX

Client	United Gulf Developments Limited 51 Supreme Court, Commercial Unit 2 Halifax, Nova Scotia B3N 2L4
Architect	architectsAlliance 205 - 317 Adelaide Street West Toronto, Ontario M5B 1N9
Civil	Alderney Surveys Limited 12 Dawn Drive Dartmouth, Nova Scotia B3B 1H9
Structural	Entuitive Corporation 200 - 7 University Avenue Toronto, Ontario M5H 3C6
Mechanical	Lam & Associates Ltd. 25 - 160 Applewood Crescent Concord, Ontario L4K 4H2
Electrical	Lam & Associates Ltd. 25 - 160 Applewood Crescent Concord, Ontario L4K 4H2
Geotechnical	Stantec Consulting Ltd. 102 - 40 Highfield Park Drive Dartmouth, Nova Scotia B3A 0A3
Building Code	Senez Consulting Ltd. 219 - 208Evans Avenue Toronto, Ontario M8Z 1J7

aA

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HOLLIS STREET / SACKVILLE STREET VIEW

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A1.1

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HOLLIS STREET VIEW

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A1.2

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GRANVILLE STREET VIEW

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A1.3

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GRANVILLE STREET / SACKVILLE STREET VIEW

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GRANVILLE STREET VIEW

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A1.5

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GRANVILLE STREET NIGHT VIEW

SKYE HALIFAX
1568 Hollis Street, Halifax

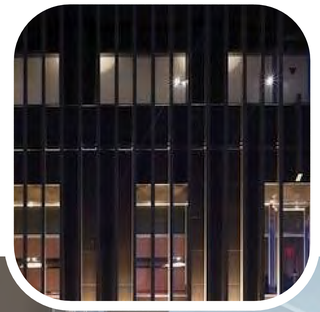
United Gulf Developments Limited
51 Supreme Court, Commercial #2
Nova Scotia B3N 2L4
T. 902.493.3070

A1.6

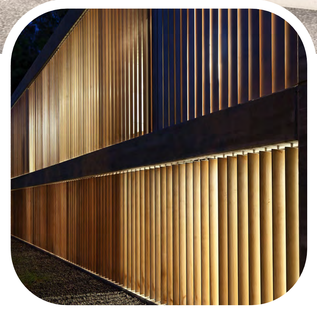
FACADE FINS
UP LIGHT

URBAN CEILING
LIGHT TROUGHS

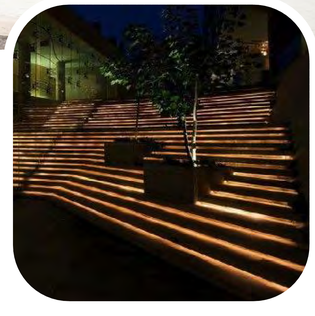
ENHANCED
BRIDGE FRAME



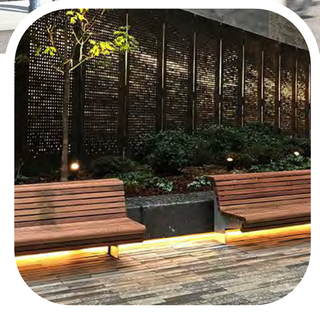
BACKLIT PERFORATED
FEATURE GRAPHIC



STREET LEVEL
AMBIANCE



EMBELLISHED
URBAN STEPS



LANDSCAPE
HIGHLIGHTS

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LIGHTING CONCEPT

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A1.7

LEGEND:

DH	DRILL HOLE
SM	SURVEY MARKER
Fd.	FOUND
N.S.H.P.M.	NOVA SCOTIA HIGH PRECISION MONUMENT
	BUS STOP, LIGHT STANDARD
	UTILITY POLE AND GUY WIRE
WV	FIRE HYDRANT, WATER VALVE
	MANHOLE, CATCHBASIN
	PERIMETER OF SUBJECT LANDS
	ADJOINING BOUNDARY
P.I.D.	PROPERTY IDENTIFICATION NUMBER
CALC.	CALCULATED
P, D, M, S, m	PLAN, DEED, MEASURED, SET, METRES
N.S.L.S.	NOVA SCOTIA LAND SURVEYOR
(CARR)	KENT R. CARRICK, N.S.L.S.
(ALD)	ALDERNEY SURVEYS LIMITED

COORDINATE SYSTEM INFORMATION			
HORIZONTAL DATUM:	NAD83 (CSRS)	EPOCH:	2010.0
VERTICAL DATUM:	CGVD2013	CALCULATED OFFSET BETWEEN CGVD28 TO CGVD2013:	-0.61m
PROJECTION:	3° MTM	ZONE:	5
COMBINED SCALE FACTOR:	0.999964		

TITLE INFORMATION:

1. P.I.D. 41036096
   LANDS OF
   UNITED GULF DEVELOPMENTS LIMITED
   DEED DOCUMENT No. 113311311

2. P.I.D. 00003954
   LANDS OF
   UNITED GULF DEVELOPMENTS LIMITED
   DEED DOCUMENT No. 113311311

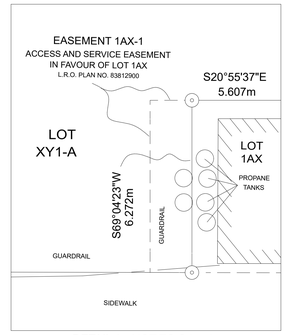
NOTES:

ALL BEARINGS ARE GRID, BASED ON THE 3° MODIFIED TRANSVERSE MERCATOR SYSTEM, CENTRAL MERIDIAN 64°30' WEST LONGITUDE, AND WERE DERIVED FROM NETWORK REAL TIME KINEMATIC GNSS OBSERVATIONS USING CAN-NET. OBSERVATION CHECKS WERE MADE ON NOVA SCOTIA HIGH PRECISION MONUMENT NUMBER 204842.

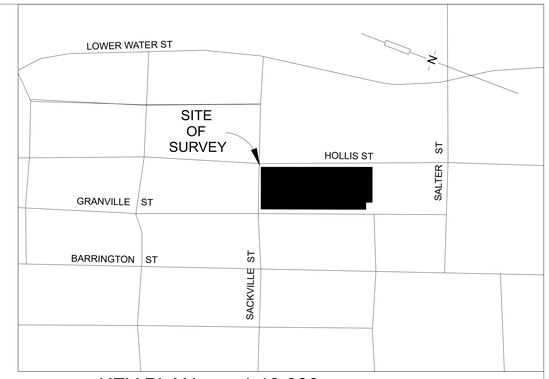
DISTANCES SHOWN ON THIS PLAN ARE GROUND DISTANCES UNLESS OTHERWISE NOTED.

FIELD SURVEYS WERE CARRIED OUT DURING THE PERIOD DECEMBER 15, 2020 AND JANUARY 18, 2021.

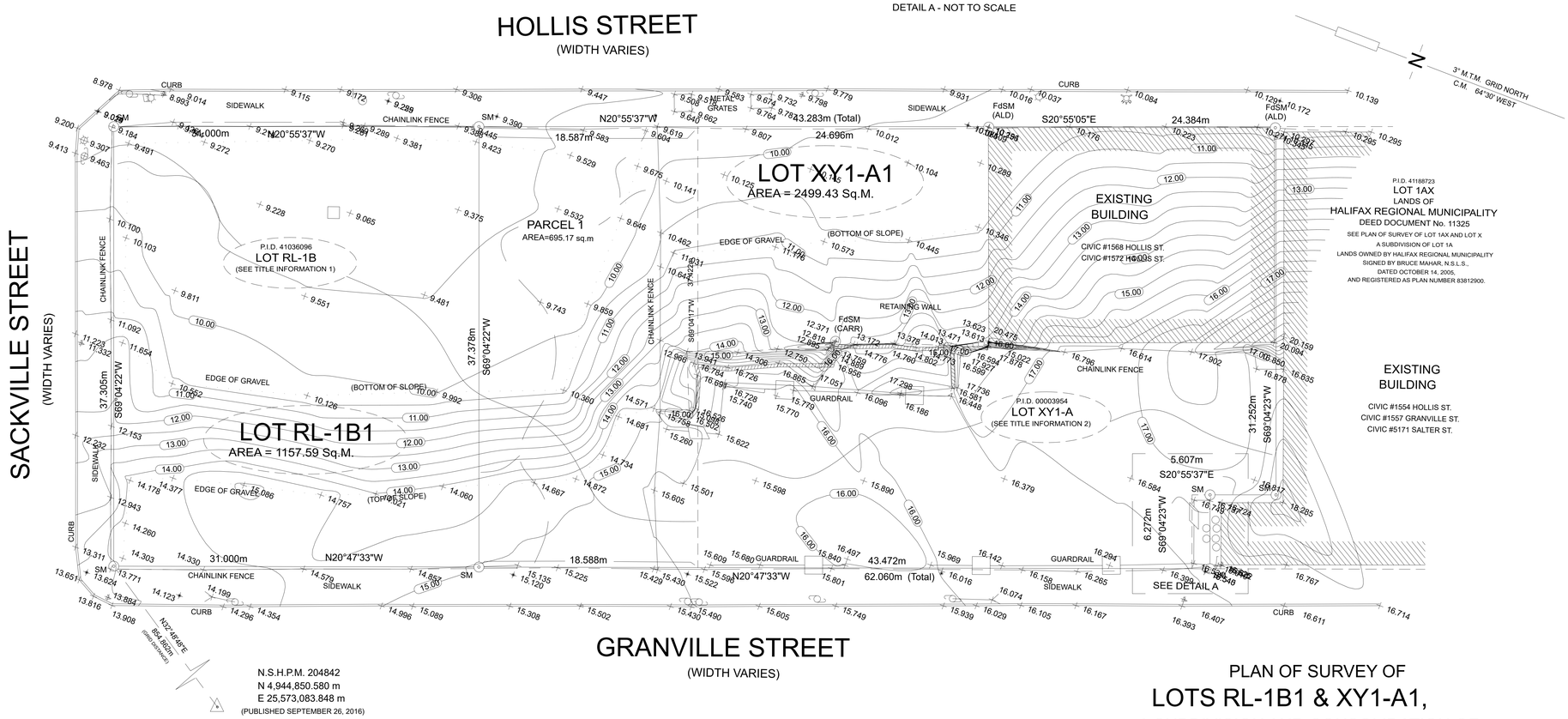
LOT IDENTIFIERS RL-1B1 AND XY1-A1 ORIGINATE WITH THIS PLAN.



DETAIL A - NOT TO SCALE



KEY PLAN 1:10,000



N.S.H.P.M. 204842
N 4,944,850.580 m
E 25,573,083.848 m
(PUBLISHED SEPTEMBER 26, 2016)

THE ASSOCIATION OF NOVA SCOTIA LAND SURVEYORS
FOUNDED 1951
JOSEPH R. ALCORN
522
MEMBER

OF NOVA SCOTIA
THE ASSOCIATION
LAND SURVEYORS
Nº 63507

ALDERNEY SURVEYS LIMITED
NOVA SCOTIA LAND SURVEYORS
12 DAWN DRIVE, DARTMOUTH, N.S.
Tel: 465-7300 Fax: 465-4834 alderney@bellaliant.com

Surveyor's Certificate

I, Joseph R. Alcorn, Nova Scotia Land Surveyor, hereby certify that the survey represented by this plan was conducted under my supervision, and that the survey and plan were made in accordance with the Land Surveyors Act, Regulations, and Standards made thereunder.

Dated this 15th day of January, 2021.

_____, N.S.L.S.

PLAN OF SURVEY OF

LOTS RL-1B1 & XY1-A1,

A SUBDIVISION AND CONSOLIDATION OF

LOT RL-1B & XY1-A,

LANDS OF

UNITED GULF DEVELOPMENT LIMIT

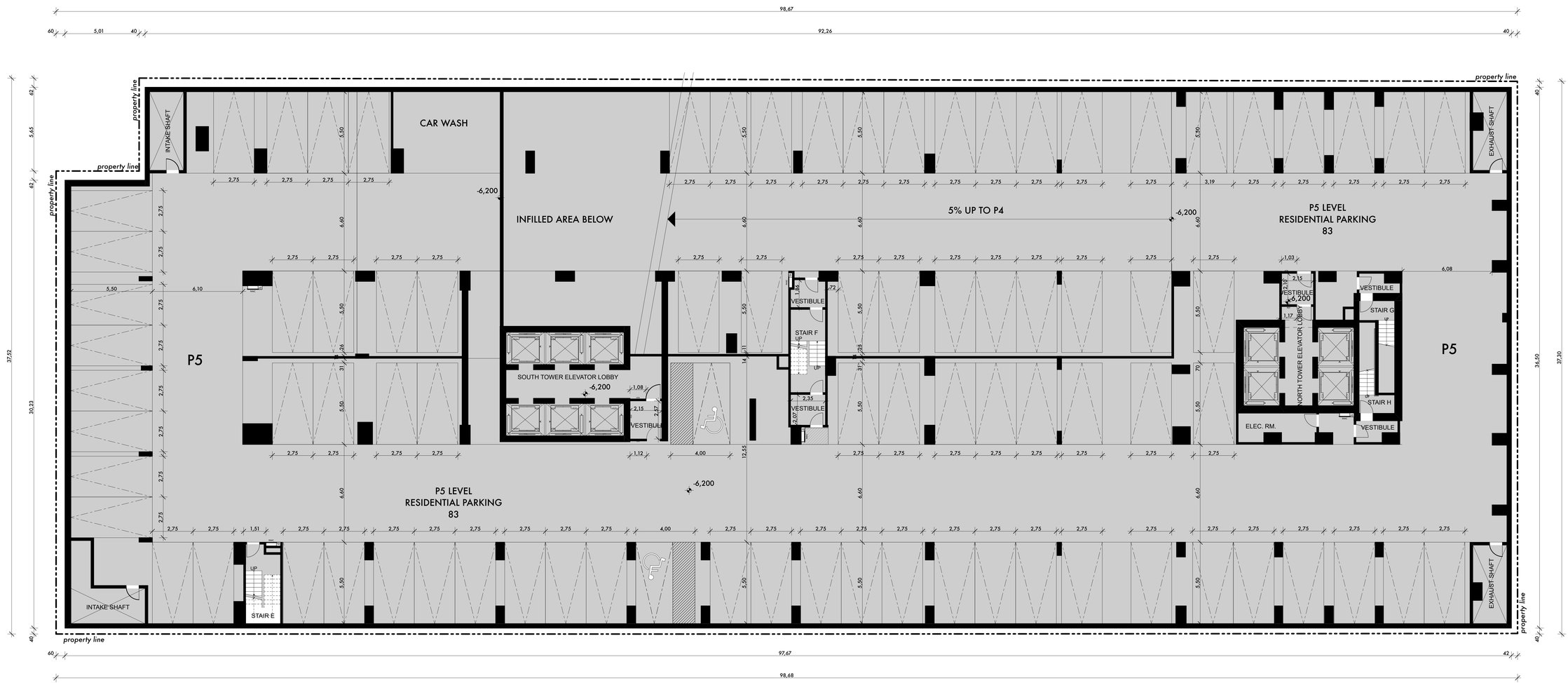
HOLLIS, SACKVILLE AND GRANVILLE STREETS,
DOWNTOWN HALIFAX,
HALIFAX COUNTY, NOVA SCOTIA

0
1 : 000

DRAWN: K.S.
DATE: JANUARY 15, 2021

DWG. No.
203937-1

NO	ISSUED	DATE



GCA
3 531,36 m2

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P5

1:100

21806

15/06/2023

A2.1

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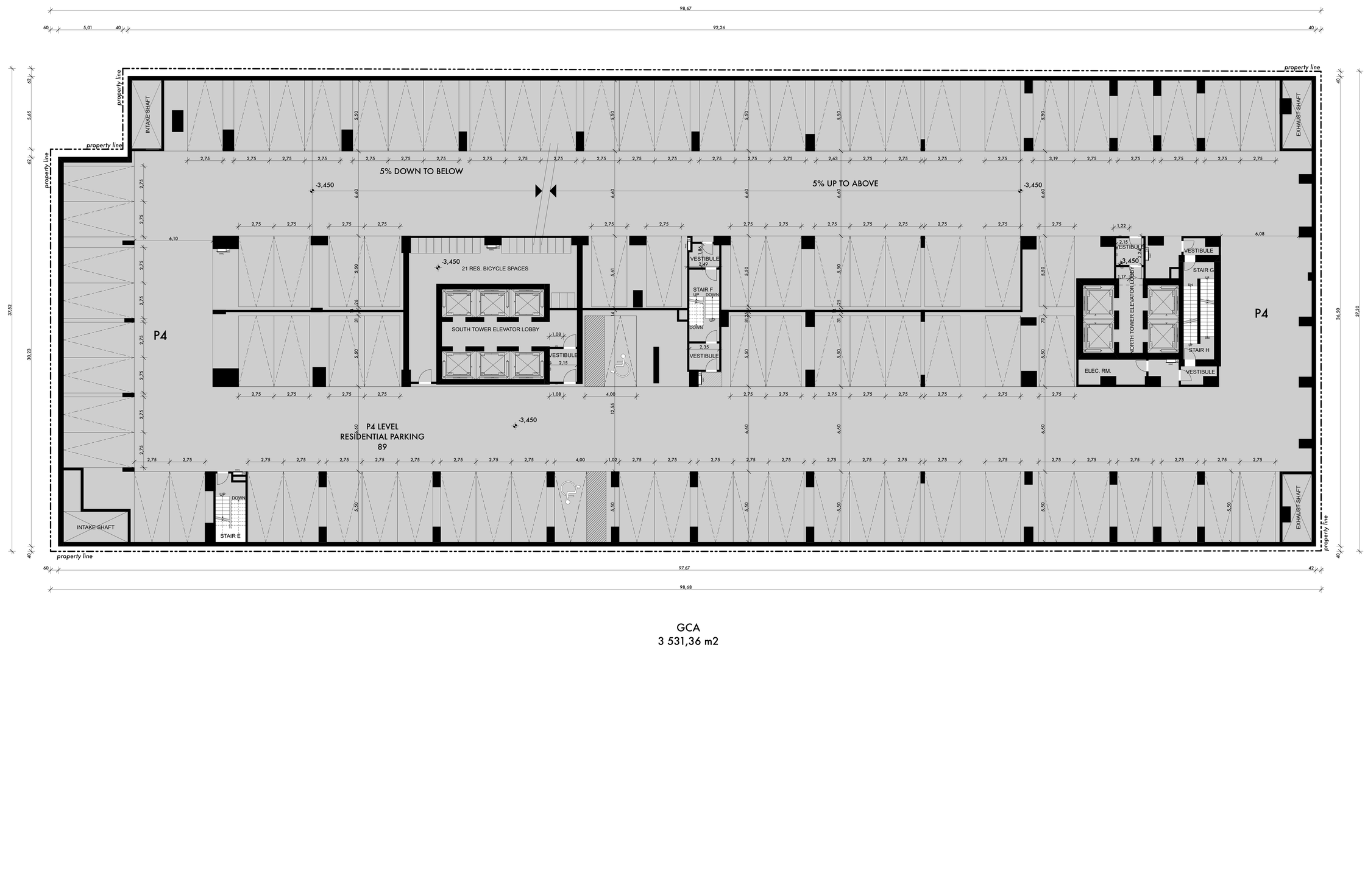

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A2.2

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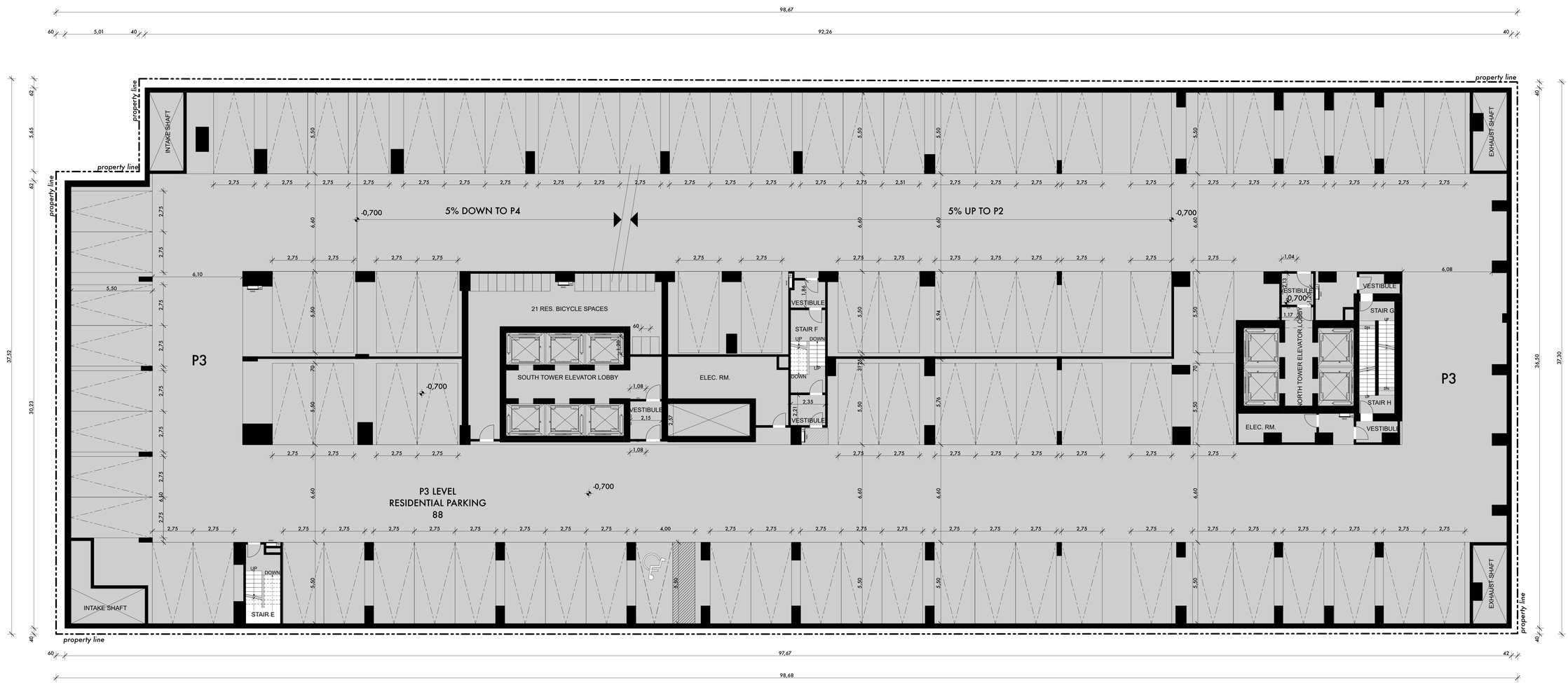

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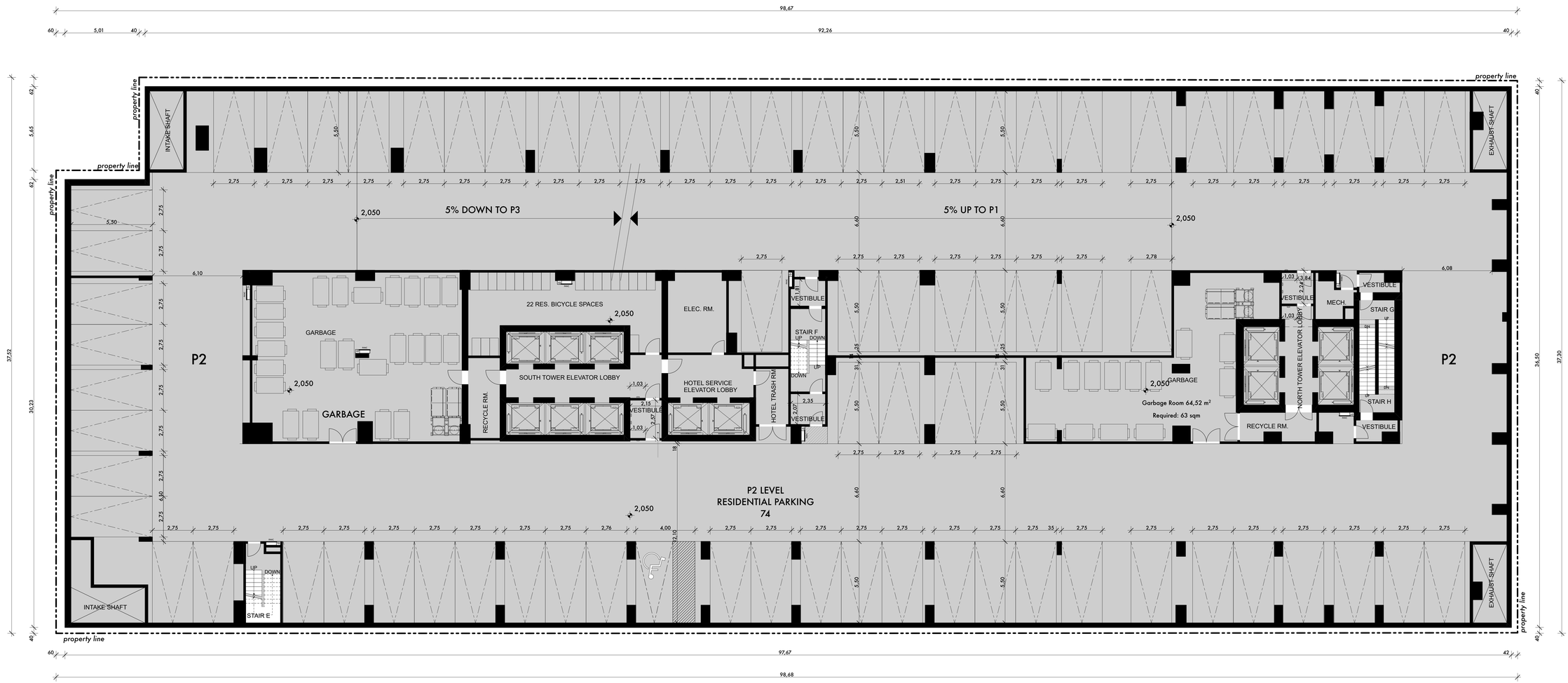
A2.3

NO.	ISSUED	DATE



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A2.4

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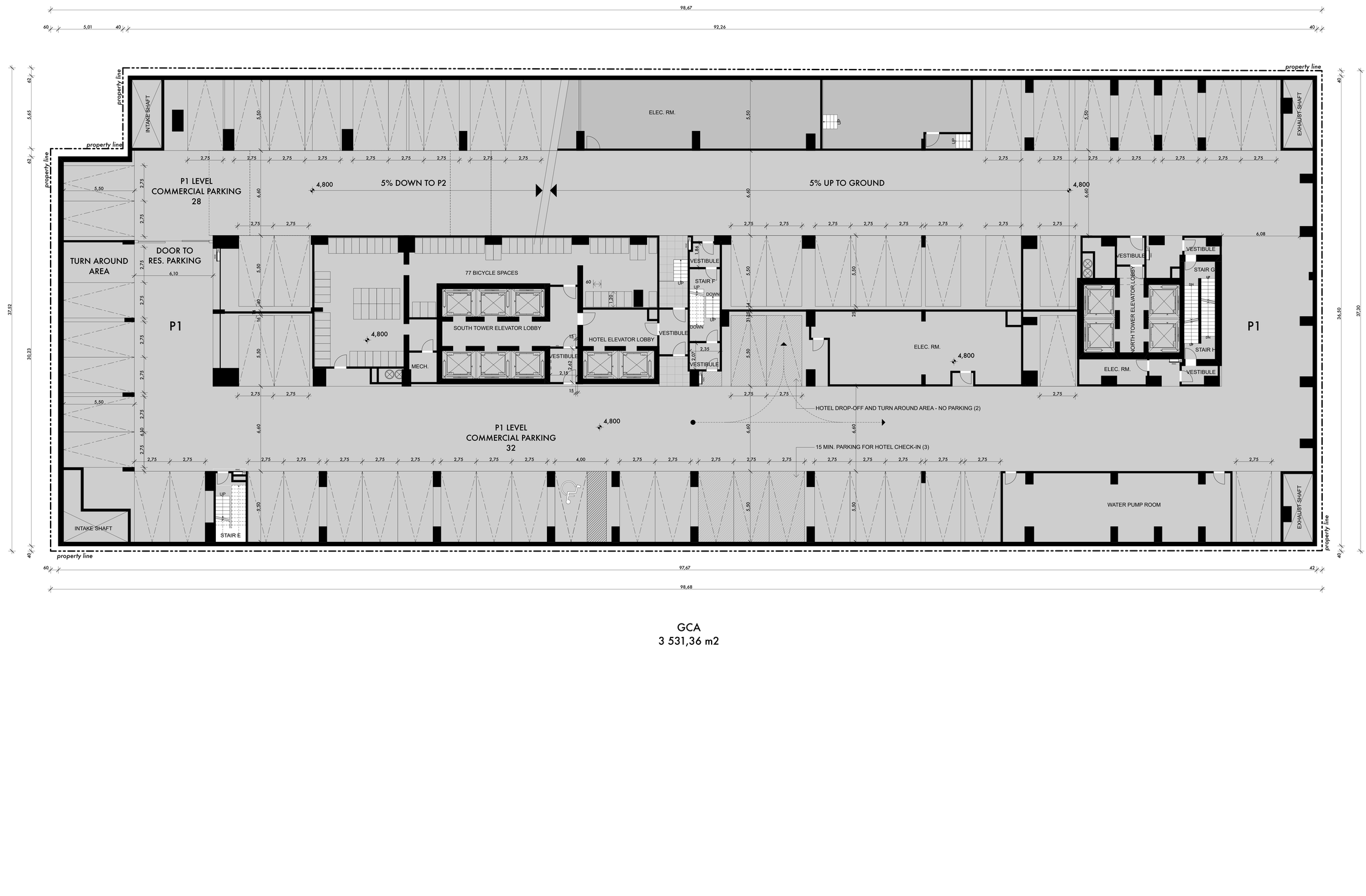

GCA
3 531,36 m2

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A2.5

NO	ISSUED	DATE

Printed On: Thursday 15 June 2023

BIMcloud: 2Assembly.architectsalliance.loc - BIMcloud Basic for ARCHICAD 24/Skye Halifax (OD Style_1

GRANVILLE STREET

98,67

5,61 40 92,66

property line

AIR INTAKE SHAFT

STAIR XX

ELECTRICAL ROOM

AIR EXHAUST SHAFT

-1,625 -2,550 0,411 -0,609

9,382

7.5% DOWN TO P1 15% DOWN TO P1 7.5% DOWN TO P1 5% DOWN TO P1

LOADING

TYPE G MIN. HEIGHT 6100

3.5% DOWN

TYPE B MIN. HEIGHT 4000

GARBAGE BINS

TYPE C MIN. HEIGHT 3000

5% UP 5% UP 5% DOWN

CORRIDOR

21 CLASS B BICYCLE SPACES

MOVING ROOM

STAIR G

9,635

STORAGE

STAIR B

MOVE IN #1

MOVING RM

HOTEL SERVICE

STAIR F

MECH

MOVE IN #2

NORTH TOWER ELEVATOR LOBBY

STAIR H

CORRIDOR

6,5% DOWN

LOADING DOCK

5% DOWN

STORAGE

AIR INTAKE GRATING

STAIR E

RETAIL

0,150 10,000 9,635

HOTEL LOBBY

RECEPTION

VESTIBULE

OPEN TO ABOVE

RETAIL

9,241

37,52 27,41 3,22 5,65 6,2 6,2 16,31 37,30 19,09 1,00

SIGNAGE: HOTEL DROP-OFF AREA ON LEVEL P1 PENDANT

7,43 TO SIAMESE CONNECTION

PARKING / LOADING ENTRY

10,150

RETAIL ENTRY

HOTEL ENTRY

RETAIL ENTRY

HOLLIS STREET: 12 CLASS B BICYCLE SPACES

BIKE LANE BARRIER BIKE LANE BARRIER

10,68 15,59 2,83 23,57 2,69 4,88 14,98 8,04 2,90 11,03 1,50

98,68

GCA
3 207,88 m2

HOLLIS STREET

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LOWER GROUND

1:100

21806

15/06/2023

A2.6

NO	ISSUED	DATE

GRANVILLE STREET

GCA
1 877,07 m2

HOLLIS STREET

GCA
796,73 m2

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UPPER GROUND

1:100

21806

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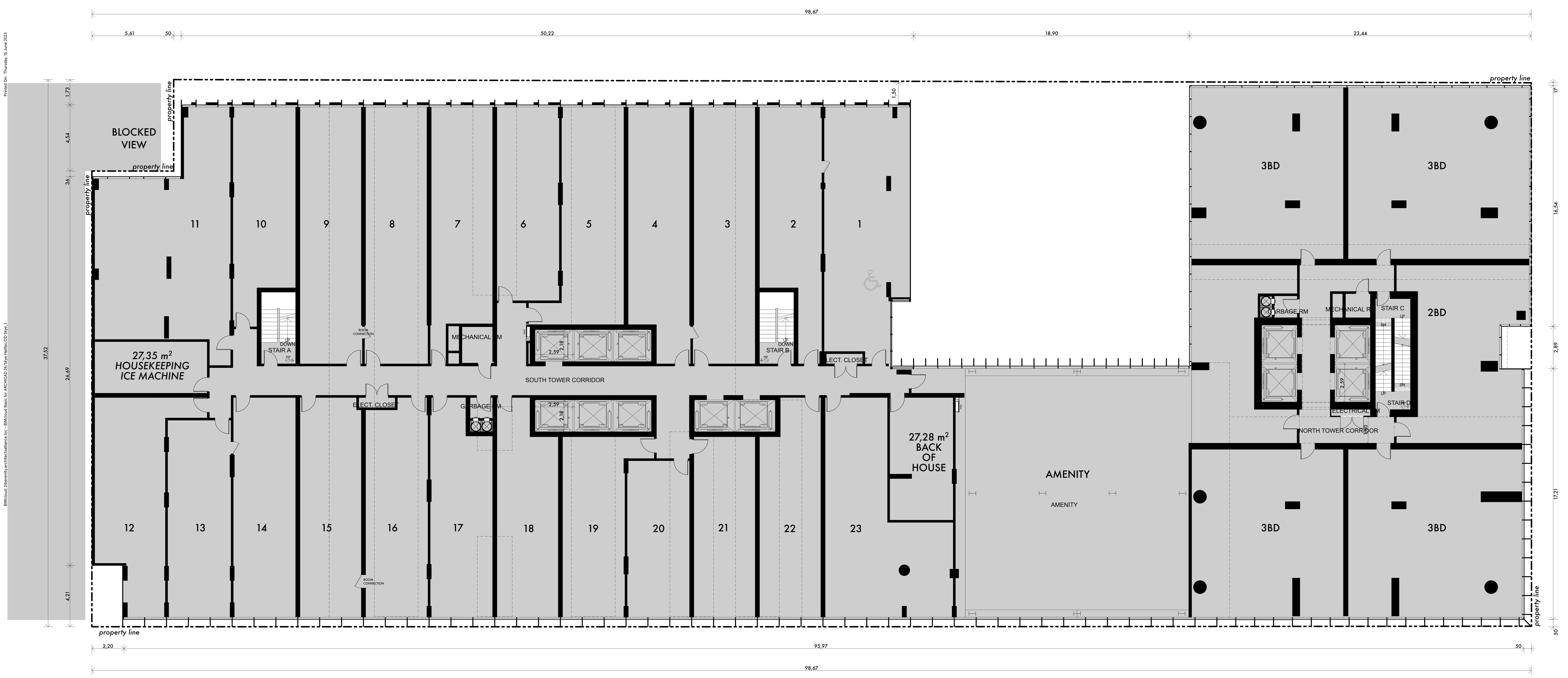
A2.7

NO	ISSUED	DATE



SOUTH TOWER 23 HOTEL UNITS

GCA
2 333,59 m2

NORTH TOWER

GCA
778,66 m2

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L3 - 5 HOTEL

1:100

21806

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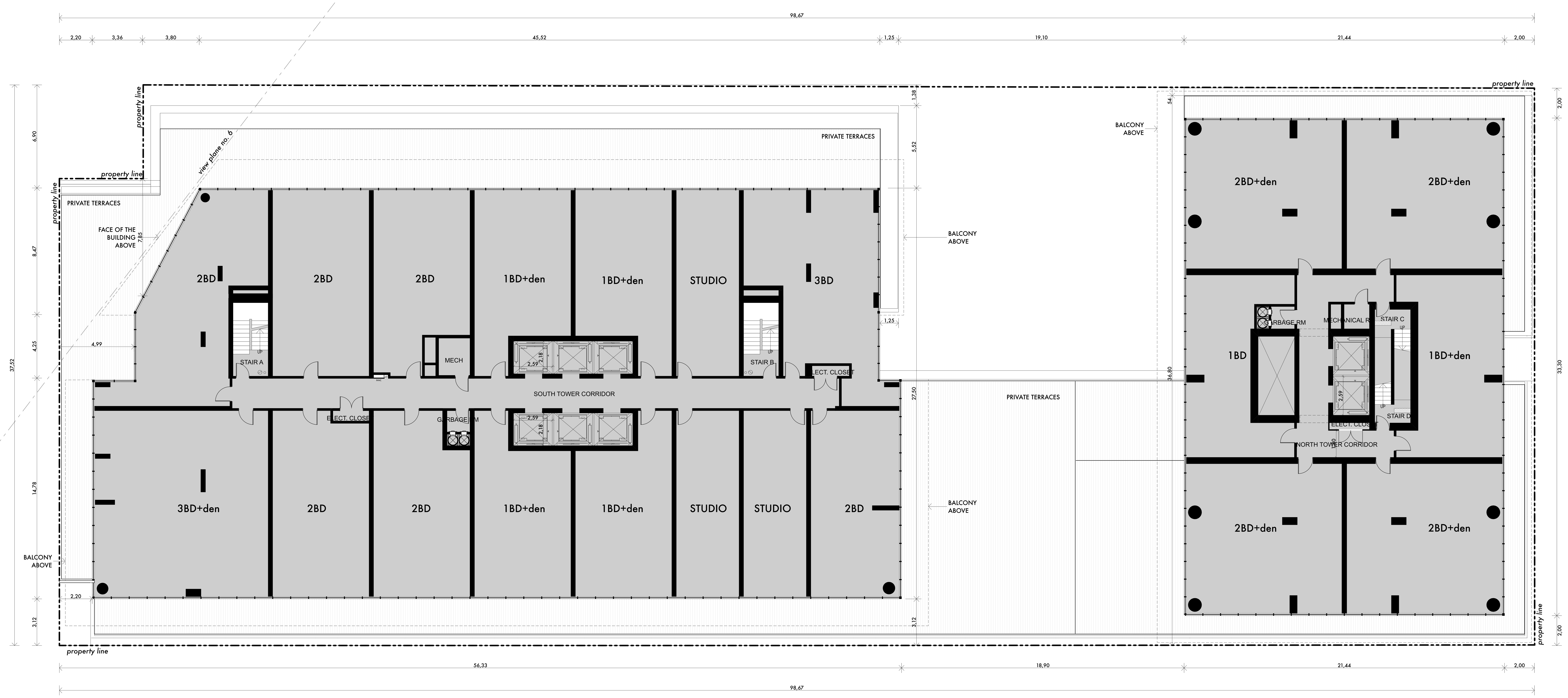
A2.8



SOUTH TOWER

GCA
1 416 m2

NORTH TOWER

GCA
713,9 m2

NO	ISSUED	DATE

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L6

1:100

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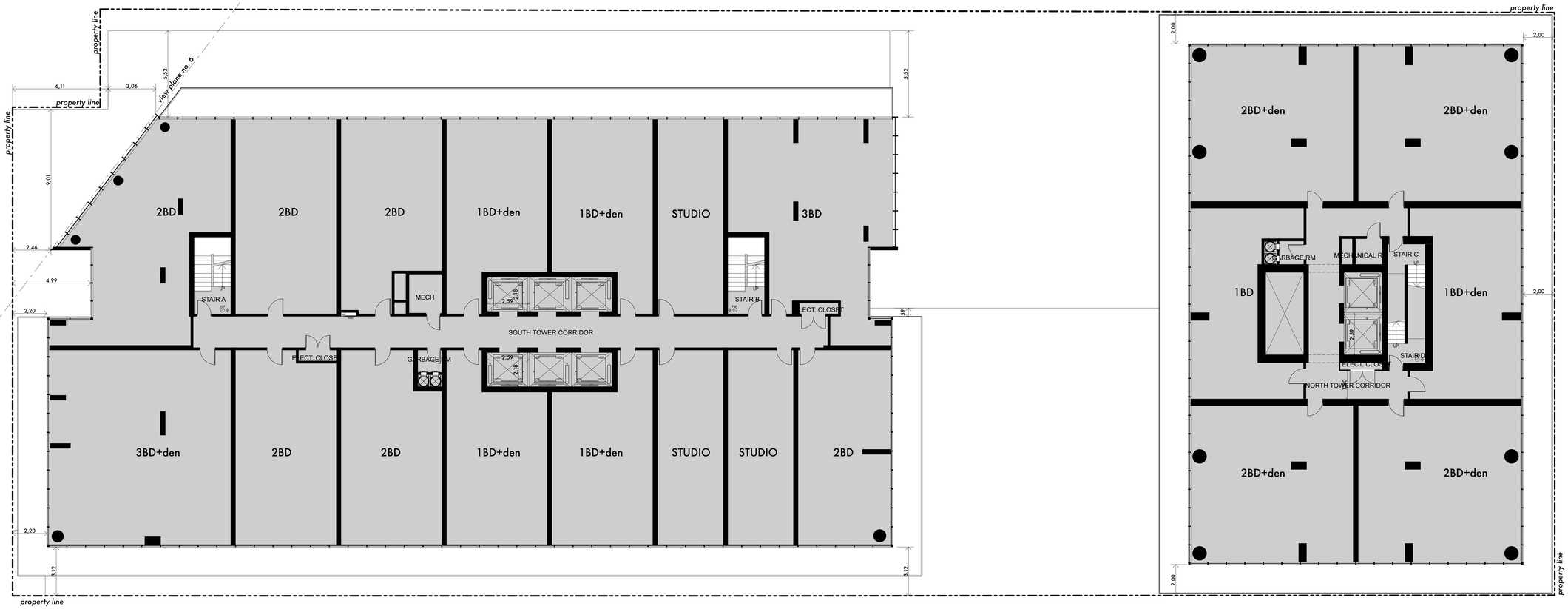

SOUTH TOWER

GCA
1 438,32 m2

NORTH TOWER

GCA
713,9 m2

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L7

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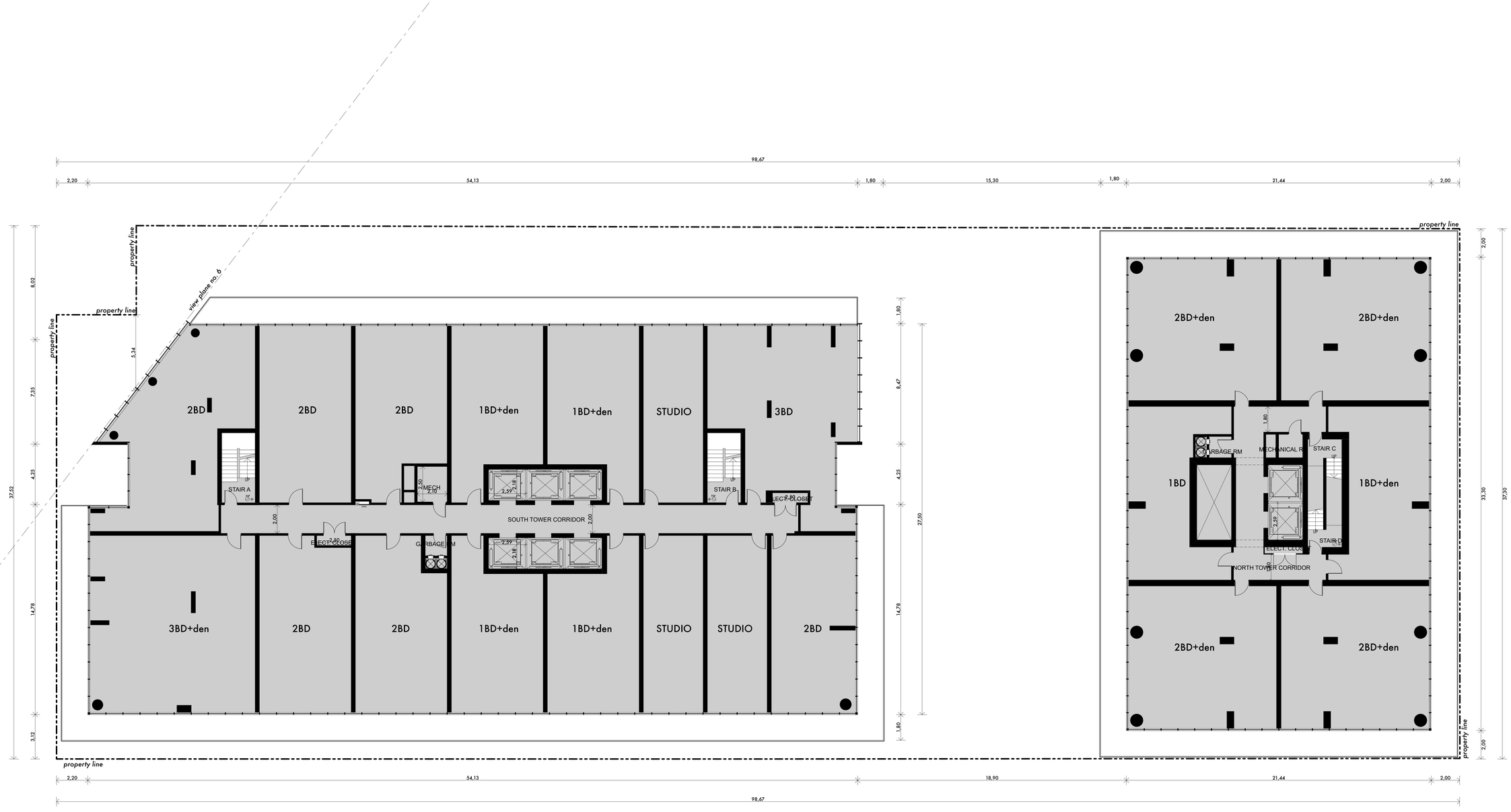

SOUTH TOWER

GCA
1 438,32 m2

NORTH TOWER

GCA
713,9 m2

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L8 - 20

1:100

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A2.11

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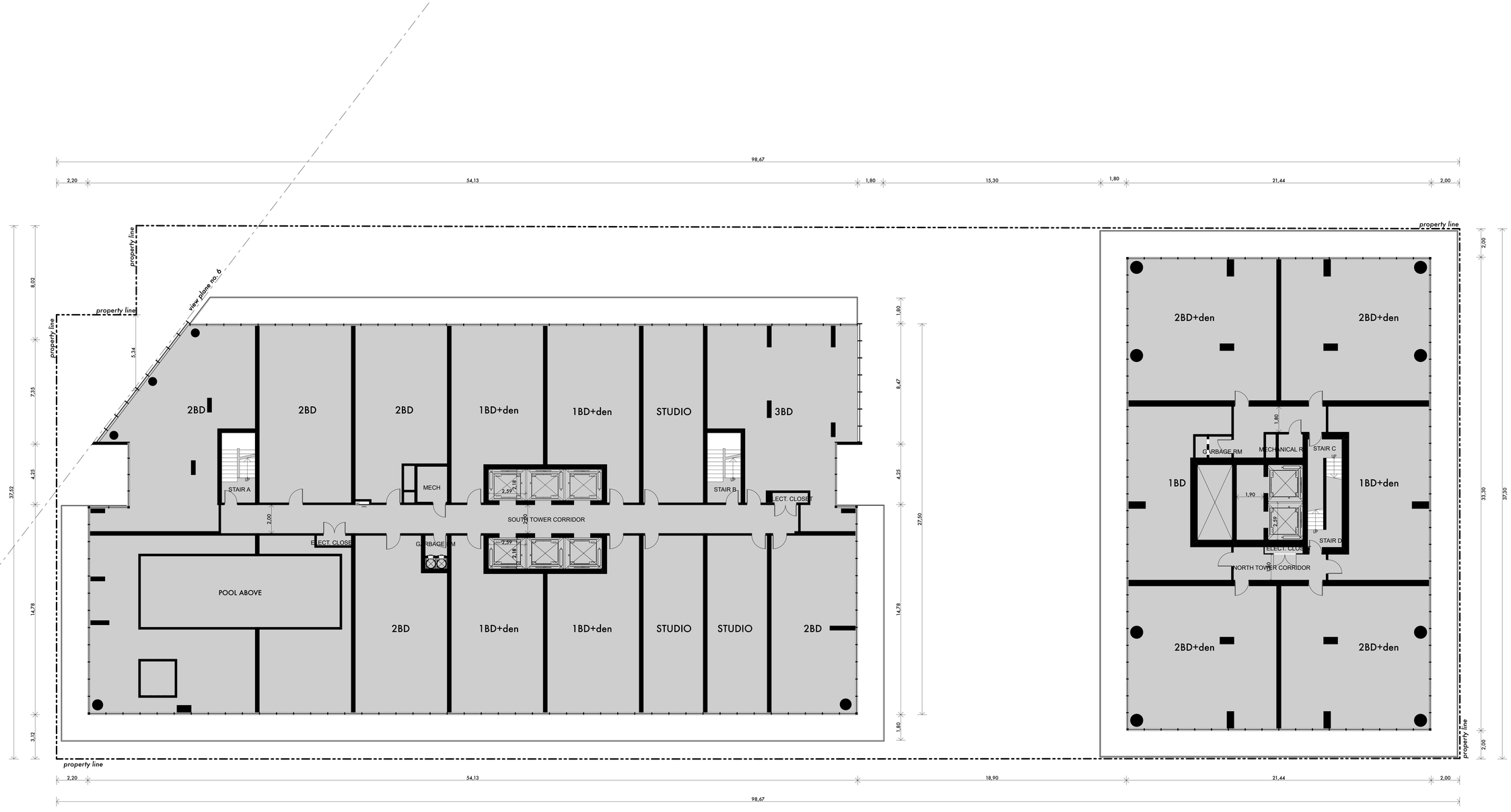

SOUTH TOWER

GCA
1 438,32 m2

NORTH TOWER

GCA
713,9 m2

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LEVEL 21

1:100

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A2.12

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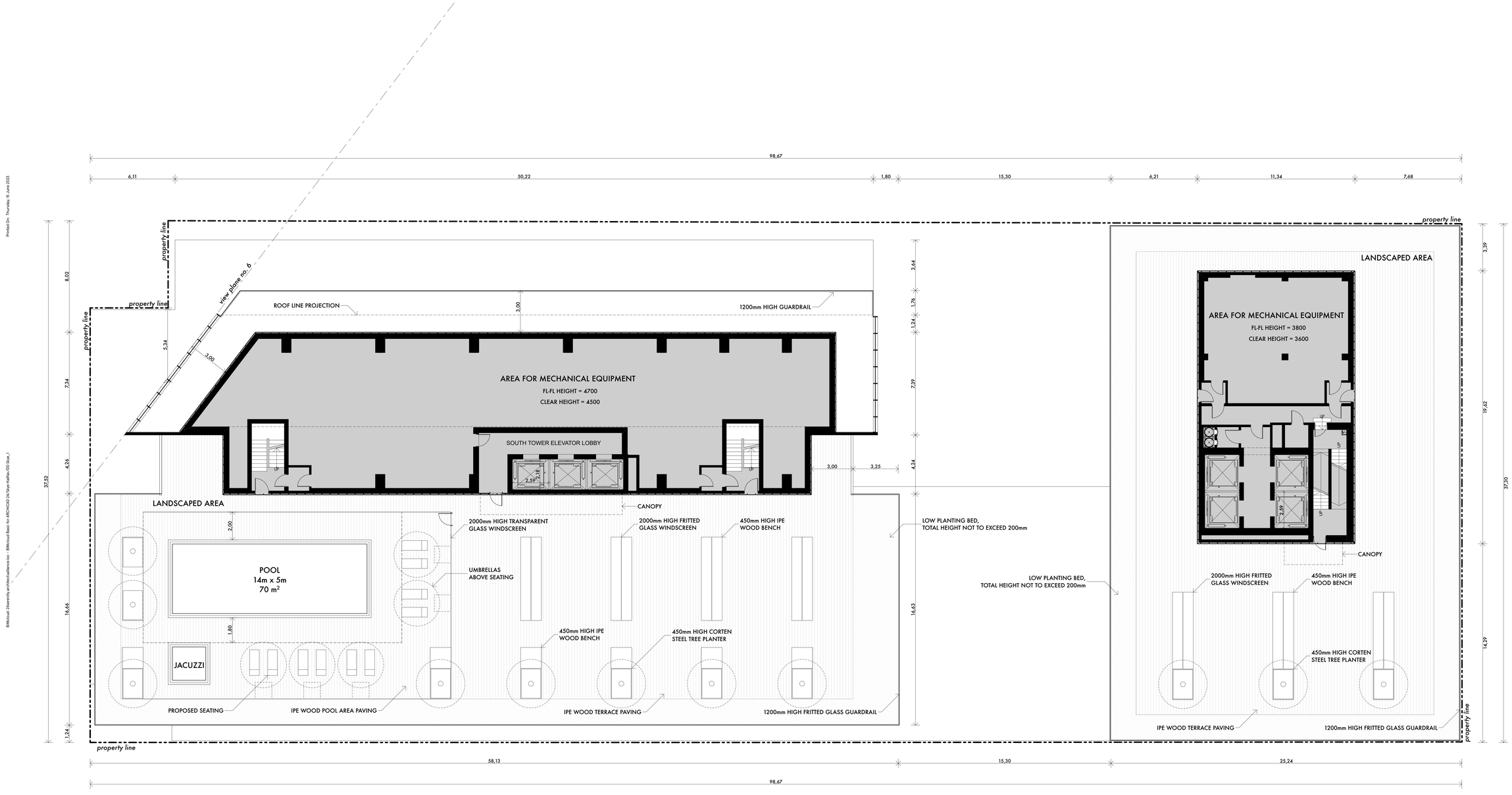

SOUTH TOWER

GCA
511,42 m2

NORTH TOWER

GCA
222,49 m2

TOTAL AREA OF ROOF	2,602.34 m^2
TOTAL ENCLOSED ROOF STRUCTURE	733.91 m^2
MAXIMUM ALLOWABLE (30% OF TOTAL ROOF AREA)	780.70 m^2

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LEVEL 22 LOWER MPH

1:100

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A2.13

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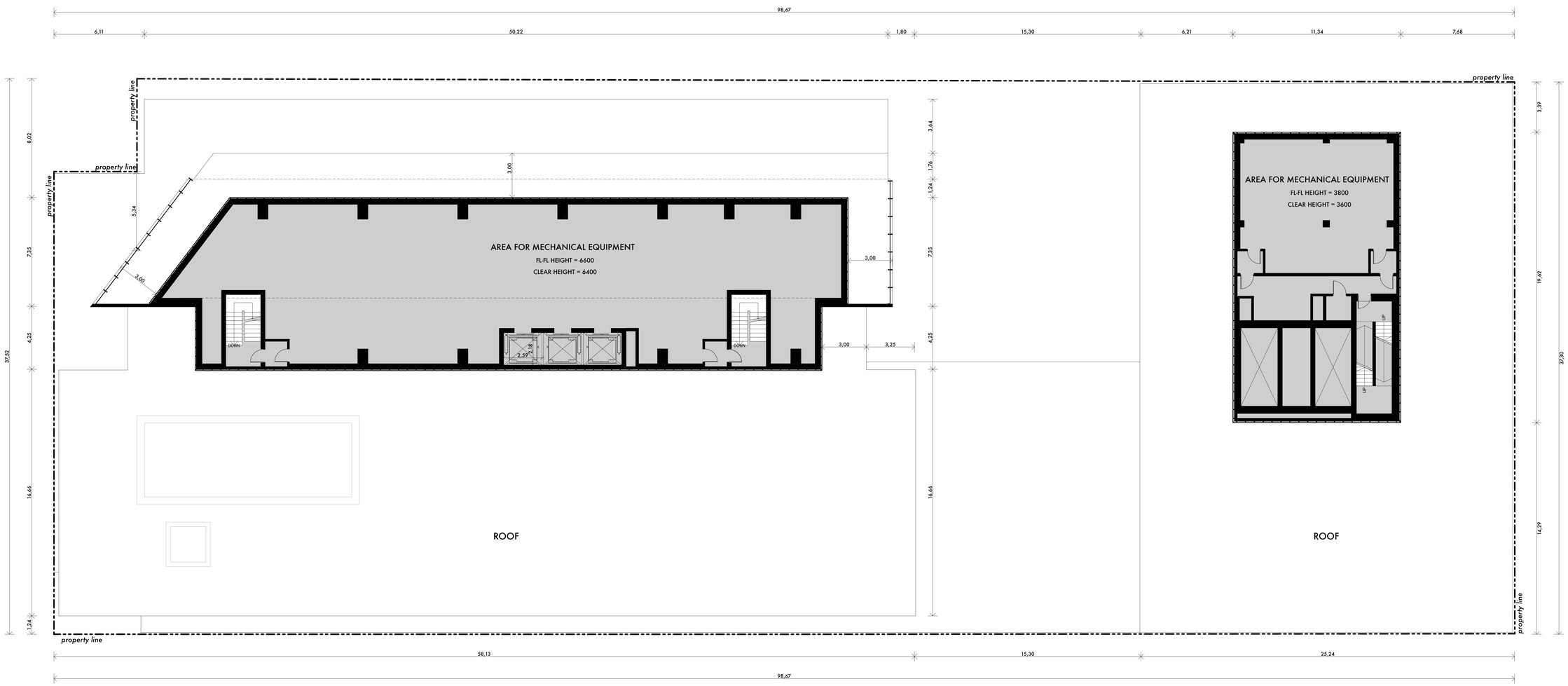

SOUTH TOWER

GCA
511,42 m2

NORTH TOWER

GCA
222,49 m2

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LEVEL 23 UPPER MPH

1:100

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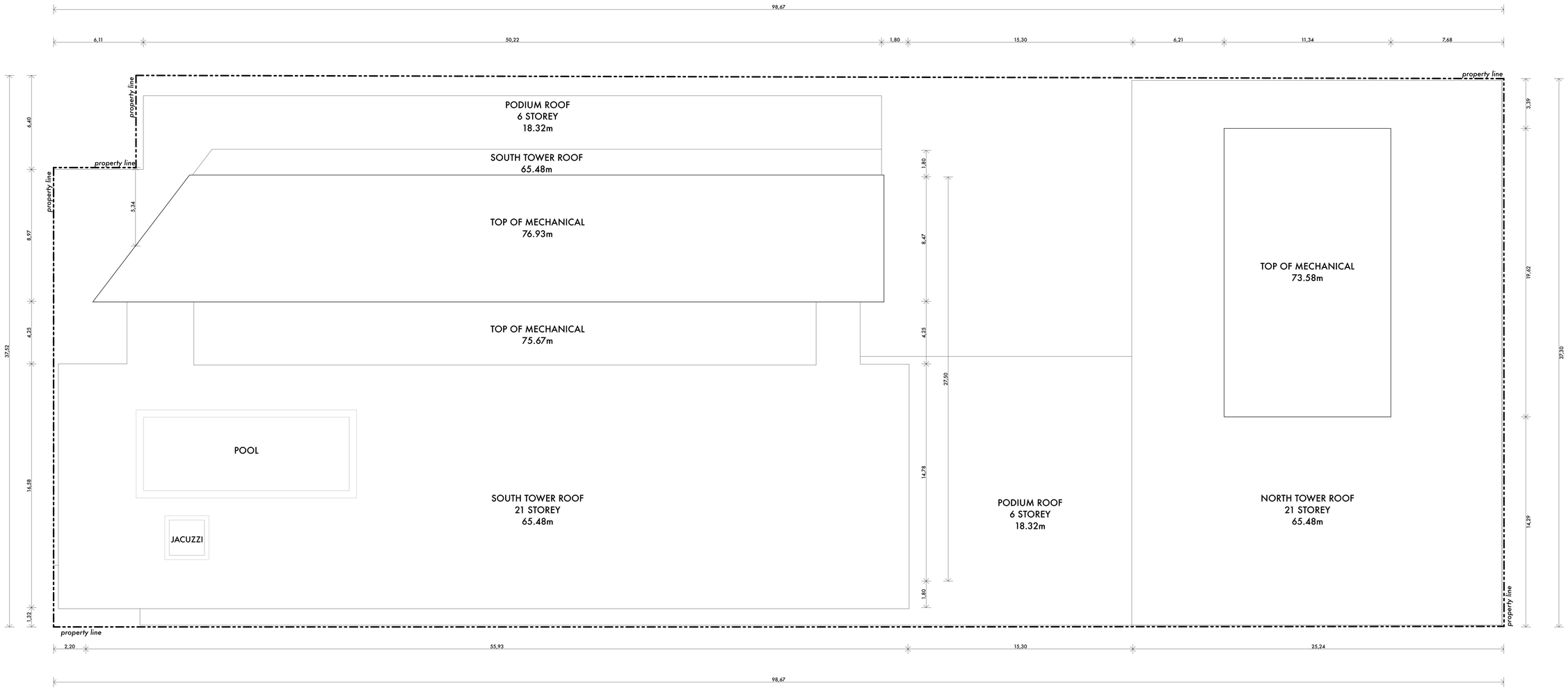
A2.14

NO.	ISSUED	DATE

GRANVILLE STREET



HOLLIS STREET

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ROOF PLAN

1:100

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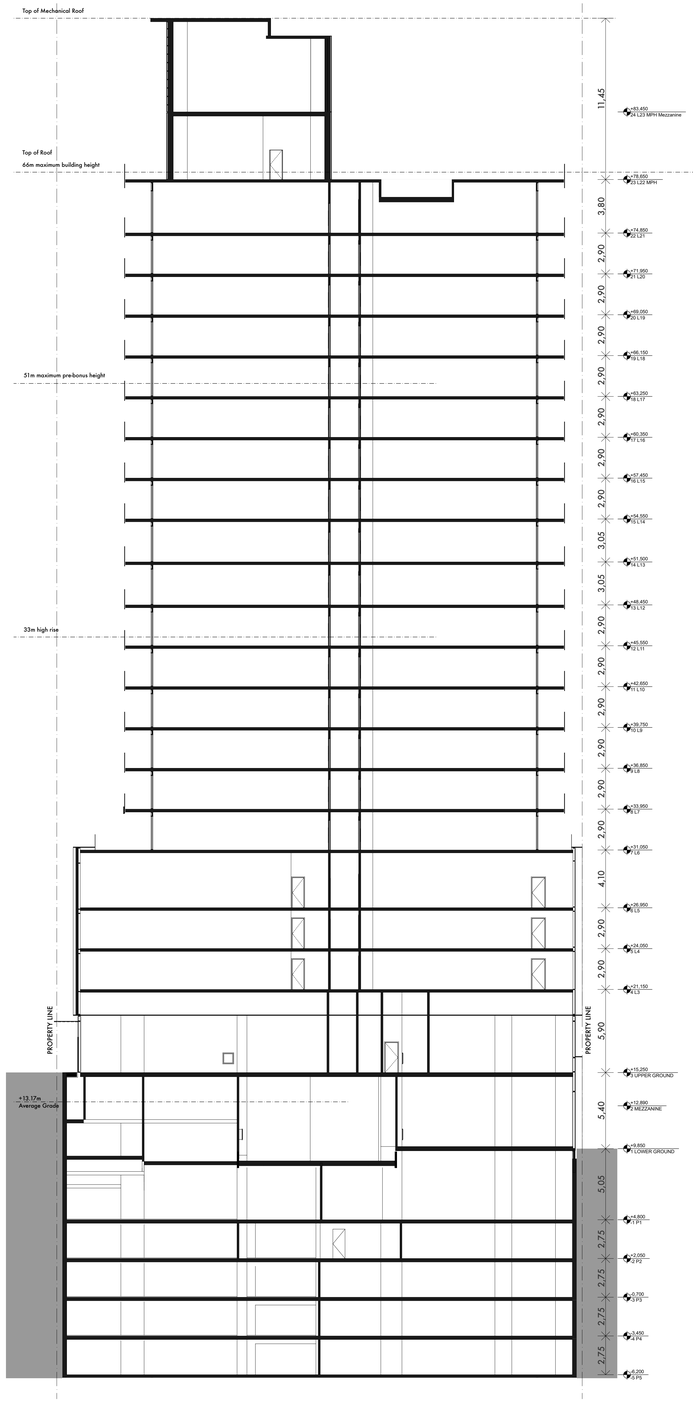
A2.15



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WEST EAST SECTION

1:150

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A4.1

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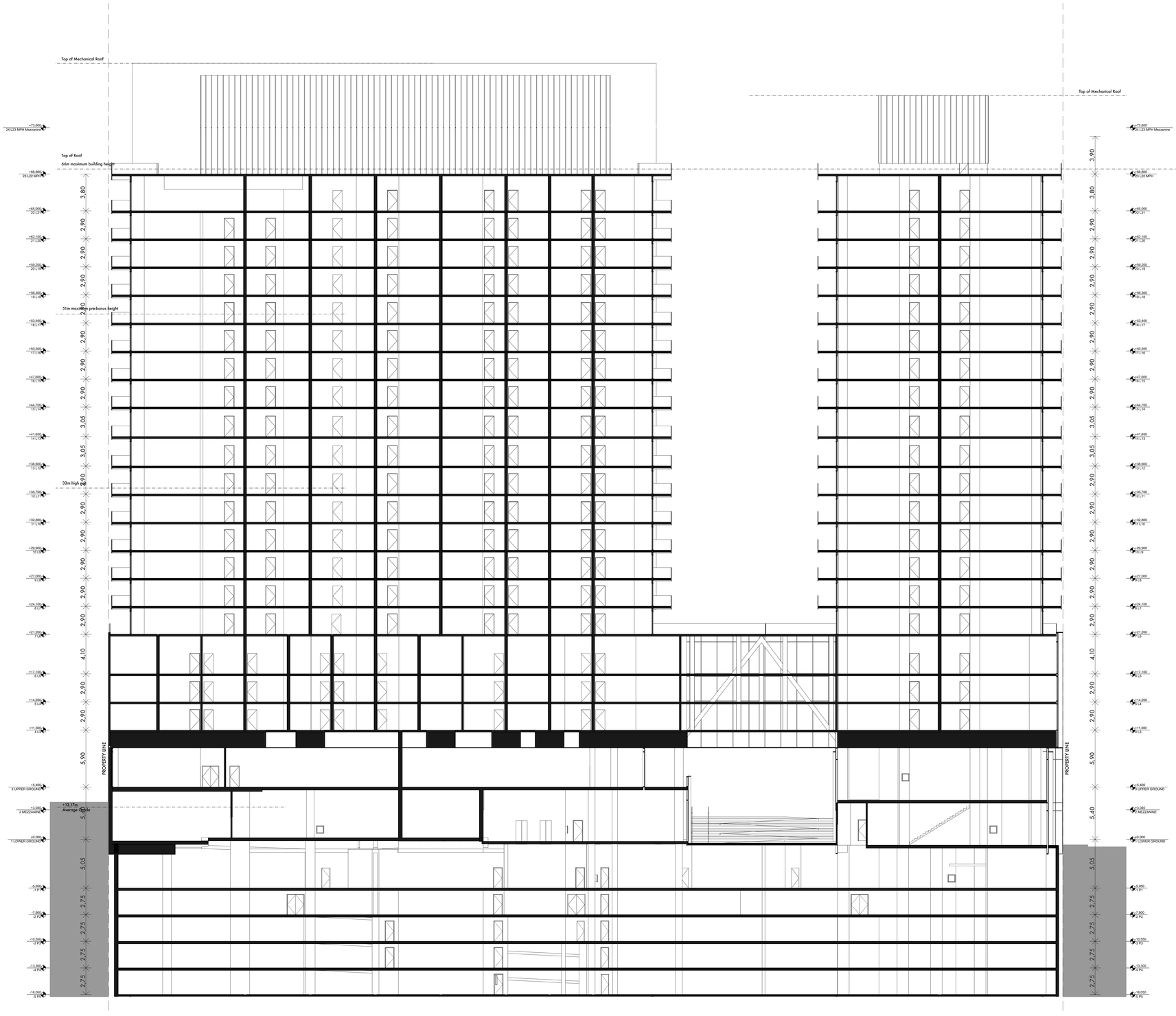

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SOUTH NORTH SECTION

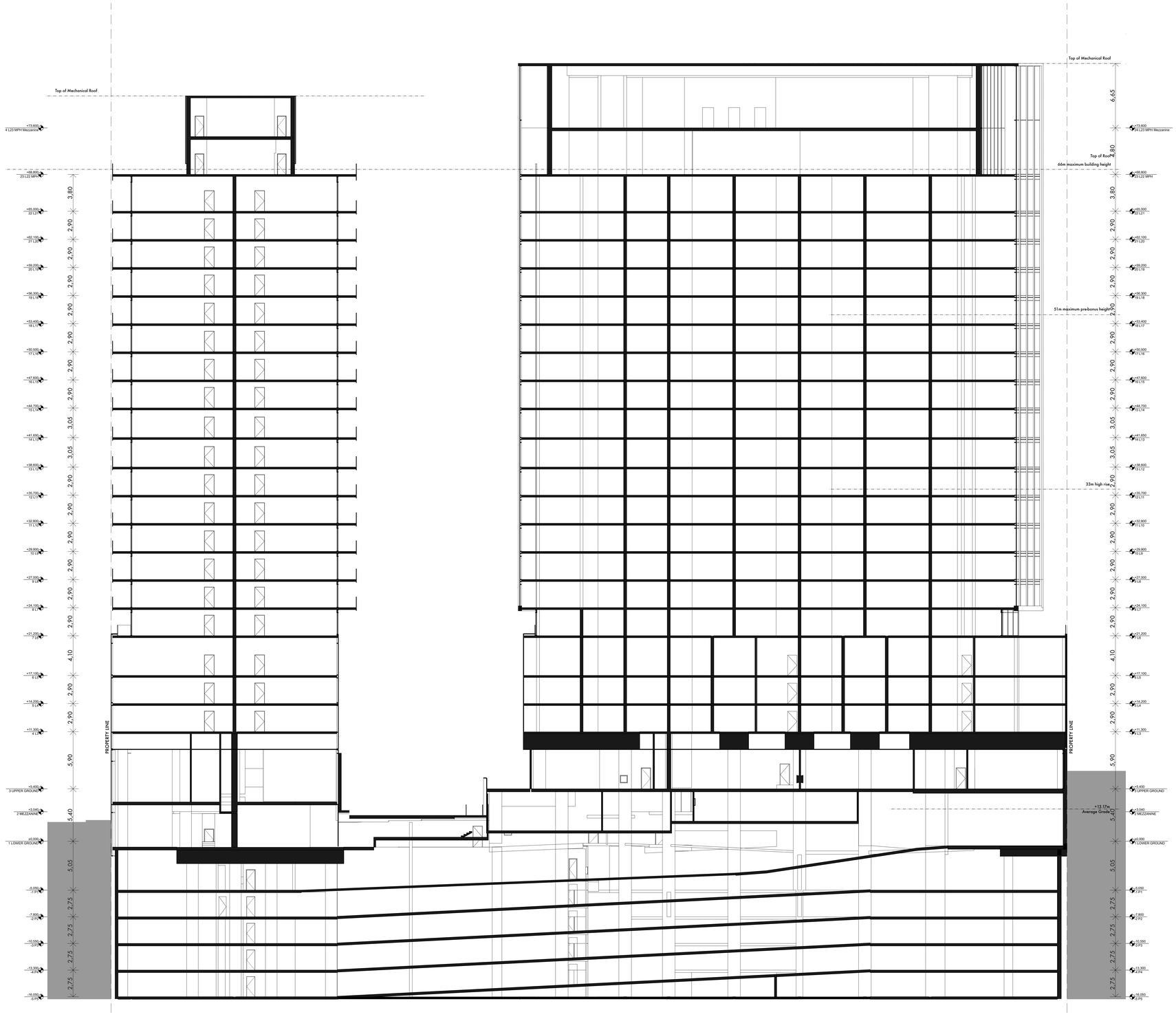
1:150

21806

15/06/2023

A4.2

NO.	ISSUED	DATE



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NORTH SOUTH SECTION

1:150

21806

15/06/2023

A4.3

Attachment D – Design Manual Checklist: PLANAPP 2023-01543				
Section	**Guideline**	**Complies**	**N/A**	**Discussion**
2	**DOWNTOWN PRECINCT GUIDELINES** *(refer to Map 2 of the LUB)*			
2.1	**Precinct 1: Southern Waterfront - REPEALED**			
2.2	**Precinct 2: Old South Suburb Heritage Conservation District – NOT APPLICABLE**			
2.3	**Precinct 3 - Spring Garden Road Area – NOT APPLICABLE**			
2.4	**Precinct 4: Lower Central Downtown**			
	The following general criteria shall apply:			
2.4(a)	Allow for mixed-use high-rise infill development on large opportunity sites.	Yes		
2.4(b)	Prohibit new surface parking lots of any kind.	Yes		
2.4(c)	Ensure that existing surface parking lots and vacant sites are developed.	Yes		
2.4(d)	Vacant sites shall be developed in a way that provides a continuous streetwall and uninterrupted pedestrian experiences.	No		The streetwall is not continuous. There is a break in the streetwall for a through block pedestrian connection. The through-block connection would be more effective for the pedestrian experience if relocated further south as the break is only about 25 metres from Sackville Street. A variance has been requested for the streetwall width. See notes under variance.
2.4(e)	The precinct is to be characterized by animated streetscapes.	Yes		
2.4(f)	Focus pedestrian activities at sidewalk level through the provision of weather protected sidewalks using well-designed canopies and awnings.	Yes		
2.4(g)	East-west streets shall continue to provide views between the Citadel and the Harbour.	Yes		
2.4(h)	Extensions of east-west streets between Lower Water Street and the Harbour are required as key.		✓	

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Section	**Guideline**	**Complies**	**N/A**	**Discussion**
2.4(i)	Establish the George Street and Carmichael Street corridor as a major east-west pedestrian connection, given the linkage between the Town Clock, the Grand Parade, and the Harbour.		✓	
2.4(j)	To ensure that the Halifax Harbour walk is of a width and quality to be an important open space linkage with other precincts.		✓	
2.4(k)	Ensure that Lower Water Street shall be developed with a continuous streetwall and public realm design that emphasizes its meandering qualities and its emergence as an important street.		✓	
2.4(l)	To retain isolated heritage properties and protect them from inappropriate redevelopment.		✓	
2.4(m)	New waterfront development shall adhere to Section 2.10 of the Design Manual.		✓	
2.5	**Precinct 5: Barrington Street Heritage Conservation District – NOT APPLICABLE**			
2.6	**Precinct 6: Upper Central Downtown - REPEALED**			
2.7	**Precinct 7: Historic Properties - REPEALED**			
2.8	**Precinct 8: Cogswell Area - REPEALED**			
2.9	**Precinct 9: North End Gateway - REPEALED**			
2.10	**Precinct 10: Downtown Halifax Waterfront - REPEALED**			
2.11	**REPEALED**			
3.1	**THE STREETWALL**			
3.1.1	**Pedestrian-Oriented Commercial – NOT APPLICABLE**			
3.1.2	**Streetwall Setback** *(refer to Map 6 of the LUB)*			
	To reinforce existing and desired streetscape and land use characteristics, streetwall placements are therefore categorized according to the following setback standards (see Map 6 of the Land Use By-law):			
	• Minimal to no Setback (0-1.5m): Corresponds to the traditional retail streets and business core of the downtown. Except at corners or where an entire block length is being redeveloped, new buildings should be	No		Variance requested.

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	consistent with the setback of the adjacent existing buildings.			
	• Setbacks vary (0-4m): Corresponds to streets where setbacks are not consistent and often associated with non-commercial and residential uses or house-form building types. New buildings should provide a setback that is no greater or lesser than the adjacent existing buildings.		✓	
	• Institutional and Parkfront Setbacks (4m+): Corresponds to the generous landscaped setbacks generally associated with civic landmarks and institutional uses. Similar setbacks designed as landscaped or hardscaped public amenity areas may be considered where new public uses or cultural attractions are proposed along any downtown street. Also corresponds to building frontages on key urban parks and squares where an opportunity exists to provide a broader sidewalk to enable special streetscape treatments and spill out activity such as sidewalk patios.		✓	
3.1.3	**Streetwall Height** *(refer to Map 7 of the LUB)*			
	To ensure a comfortable human-scaled street enclosure, streetwall height should generally be no less than 11 metres and generally no greater than a height proportional (1:1) to the width of the street as measured from building face to building face. Accordingly, maximum streetwall heights are defined and correspond to the varying widths of downtown streets – generally 15.5m, 17m or 18.5m. Consistent with the principle of creating strong edges to major public open spaces, a streetwall height of 21.5m is permitted around the perimeter of Cornwallis Park. Maximum Streetwall Heights are shown on Map 7 of the Land Use By-law.	No		Variance requested.
3.2	**PEDESTRIAN STREETSCAPES**			
3.2.1	**Design of the Streetwall**			

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Section	**Guideline**	**Complies**	**N/A**	**Discussion**
3.2.1(a)	The streetwall should contribute to the fine grained character of the streetscape by articulating the façade in a vertical rhythm that is consistent with the prevailing character of narrow buildings and storefronts.	Yes		The design expresses the idea of narrow shopfronts via the use of vertical stone-clad bays and vertically-oriented aluminum fins along the streetwall. This, combined with the presence of frequent entries and canopies or recessed entries, satisfies this guideline.
3.2.1(b)	The streetwall should generally be built to occupy 100% of a property's frontage along streets.	No		Variance requested. Pedestrian throughway through the site.
3.2.1(c)	Generally, streetwall heights should be proportional to the width of the right of way, a 1:1 ratio between streetwall height and right of way width. Above the maximum streetwall height, further building heights are subject to upper storey stepbacks.	No		Variance requested for streetwall heights. Streetwall heights proposed to be greater than width of streets.
3.2.1(d)	In areas of contiguous heritage resources, streetwall height should be consistent with heritage buildings.		✓	
3.2.1(e)	Streetwalls should be designed to have the highest possible material quality and detail.	Yes		Glazing, aluminium curtain wall, and stone.
3.2.1(f)	Streetwalls should have many windows and doors to provide eyes on the street and a sense of animation and engagement.	Yes		
3.2.1(g)	Along pedestrian frontages at grade level, blank walls shall not be permitted, nor shall any mechanical or utility functions (vents, trash vestibules, propane vestibules, etc.) be permitted.	Yes		Grade level frontages are a mix of glazing, stone, and metal detailing. There are no blank walls and utility functions are contained in the building.
3.2.2	**Building Orientation and Placement** *(refer to Maps 8 and 9 of the LUB)*			
3.2.2(a)	All buildings should orient to, and be placed at, the street edge with clearly defined primary entry points that directly access the sidewalk.	Yes		Although no entrances on Sackville Street due to slope and floor plates.
3.2.2(b)	Alternatively, buildings may be sited to define the edge of an on-site public open space, for example, plazas, promenades, or eroded	Yes		

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Section	**Guideline**	**Complies**	**N/A**	**Discussion**
	building corners resulting in the creation of public space. Such treatments are also appropriate for Prominent Visual Terminus sites identified on Map 9 of the Land Use By-law.			
3.2.2(c)	Sideyard setbacks are not permitted in the Central Blocks defined on Map 8 of the Land Use Bylaw, except where required for through-block pedestrian connections or vehicular access.	Yes		
3.2.3	**Retail Uses** *(refer to Map 3 of the LUB)*			
3.2.3(a)	All mandatory retail frontages (Map 3 of Land Use By-law) should have retail uses at-grade with a minimum 75% glazing to achieve maximum visual transparency and animation.		✓	
3.2.3(b)	Weather protection for pedestrians through the use of well-designed awnings and canopies is required along mandatory retail frontages (Map 3) and is strongly encouraged in all other areas.	Yes		While this site is not on Map 3, there are awnings over the entrances.
3.2.3(c)	Where retail uses are not currently viable, the grade-level condition should be designed to easily accommodate conversion to retail at a later date.	Yes		The lobbies to the hotel and residential are at grade and the floor-to-ceiling height allows future conversion.
3.2.3(d)	Minimize the transition zone between retail and the public realm. Locate retail immediately adjacent to, and accessible from, the sidewalk.	Yes		
3.2.3(e)	Avoid deep columns or large building projections that hide retail display and signage from view.	Yes		
3.2.3(f)	Ensure retail entrances are located at or near grade. Avoid split level, raised or sunken retail entrances. Where a changing grade along a building frontage may result in exceedingly raised or sunken entries it may be necessary to step the elevation of the main floor slab to meet the grade changes.	Yes		
3.2.3(g)	Commercial signage should be well designed and of high material quality to add diversity and interest to retail streets, while not being overwhelming.		✓	No signage proposed at this time.
3.2.4	**Residential Uses**			

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Section	**Guideline**	**Complies**	**N/A**	**Discussion**
3.2.4(a)	Individually accessed residential units (i.e., town homes) should have front doors on the street, with appropriate front yard privacy measures such as setbacks and landscaping. Front entrances and first floor slabs should be raised above grade level for privacy, and should be accessed through means such as steps, stoops and porches.		✓	
3.2.4(b)	Residential units accessed by a common entrance and lobby may have the entrance and lobby elevated or located at grade-level, and the entrance should be clearly recognizable from the exterior through appropriate architectural treatment.	Yes		
3.2.4(c)	Projects that feature a combination of individually accessed units in the building base with common entrance or lobby-accessed units in the upper building, are encouraged.		✓	
3.2.4(d)	Units with multiple bedrooms (2 and 3 bedroom units) should be provided that have immediately accessible outdoor amenity space. The amenity space may be at-grade or on the landscaped roof of a podium.	Yes		Private balconies are proposed for multi bedroom units and there is shared outdoor amenity space.
3.2.4(e)	Units provided to meet housing affordability requirements shall be uniformly distributed throughout the development and shall be visually indistinguishable from market-rate units through the use of identical levels of design and material quality.		✓	
3.2.4(f)	Residential uses introduced adjacent to pre-existing or concurrently developed eating and drinking establishments should incorporate acoustic dampening building materials to mitigate unwanted sound transmission.		✓	
3.2.5	**Sloping Conditions**			
3.2.5(a)	Maintain active uses at-grade, related to the sidewalk, stepping with the slope. Avoid levels that are distant from grade.	Yes		The Sackville Street frontage is on a slope. While there are no entrances proposed on this façade, the facade material is transparent so pedestrians can see the retail activity.

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Section	**Guideline**	**Complies**	**N/A**	**Discussion**
3.2.5(b)	Provide a high quality architectural expression along facades. Consider additional detailing, ornamentation or public art to enhance the experience.	Yes		The Sackville Street façade is broken into two distinct sections – clear glass curtain wall with vertical stone cladding and clear glass curtain wall.
3.2.5(c)	Provide windows, doors and other design articulation along facades; blank walls are not permitted.	Yes		
3.2.5(d)	Articulate the façade to express internal floor or ceiling lines; blank walls are not permitted.	Yes		
3.2.5(e)	Wrap retail display windows a minimum of 4.5 metres around the corner along sloping streets, where retail is present on the sloping street.	Yes		
3.2.5(f)	Wherever possible, provide pedestrian entrances on sloping streets. If buildings are fully accessible at other entrances, consider small flights of steps or ramps up or down internally to facilitate entrances on the slope.	Yes		Not possible. Entrances are better suited along other streets.
3.2.5(g)	Flexibility in streetwall heights is required in order to transition from facades at a lower elevation to facades at higher elevations on the intersecting streets. Vertical corner elements (corner towers) can facilitate such transitions, as can offset or “broken” cornice lines at the top of streetwalls on sloping streets.	Yes		Streetwall height variance requested. See below.
3.2.6	**Elevated Pedestrian Walkways – NOT APPLICABLE**			
3.2.7	**Other Uses**			
3.2.7(a)	Non-commercial uses at-grade should animate the street with frequent entries and windows.	Yes		Entrances to hotel and residential on Granville and Hollis Streets. Façade material is mostly clear glazing.
3.3	**BUILDING DESIGN**			
3.3.1	**Building Articulation**			
3.3.1(a)	To encourage continuity in the streetscape and to ensure vertical breaks in the façade, buildings shall be designed to reinforce the following key elements through the use of setbacks, extrusions, textures, materials, detailing, etc.:	No		The base of this building has been designed as the first five storeys. The base is clearly defined. The use of primarily a glass curtain wall

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Section	**Guideline**	**Complies**	**N/A**	**Discussion**
	• **Base**: Within the first four storeys, a base should be clearly defined and positively contribute to the quality of the pedestrian environment through animation, transparency, articulation and material quality. • **Middle**: The body of the building above the base should contribute to the physical and visual quality of the overall streetscape. • **Top**: The roof condition should be distinguished from the rest of the building and designed to contribute to the visual quality of the skyline.			provides good transparency and allows pedestrians to see activity inside the building. The residential towers in the building's middle are horizontal in their articulation as a result of the repetition of the continuous balconies that wrap around the towers which provide a visual contrast to the base. The penthouse on the south tower create a top that's visually differentiated from the middle. The north tower has no "top" and lacks interest and distinguishing characteristics and does not contribute to the visual quality of the skyline.
3.3.1(b)	Buildings should seek to contribute to a mix and variety of high quality architecture while remaining respectful of downtown's context and tradition.	Yes		Both a mix and a variety of build materials and architecture are provided.
3.3.1(c)	To provide architectural variety and visual interest, other opportunities to articulate the massing should be encouraged, including vertical and horizontal recesses or projections, datum lines, and changes in material, texture or colour.	Yes		There are changes in materials and there is good differentiation between the base and rest of the building. The use of the balconies helps articulate the massing however a variance is need with the current design.
3.3.1(d)	Street facing facades should have the highest design quality, however, all publicly viewed facades at the side and rear should have a consistent design expression.	Yes		There is consistent design expression around all sides of the building.

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Section	**Guideline**	**Complies**	**N/A**	**Discussion**
3.3.2	**Materials**			
3.3.2(a)	Building materials should be chosen for their functional and aesthetic quality, and exterior finishes should exhibit quality of workmanship, sustainability and ease of maintenance.	Yes		
3.3.2(b)	Too varied a range of building materials is discouraged in favour of achieving a unified building image.	Yes		
3.3.2(c)	Materials used for the front façade should be carried around the building where any facades are exposed to public view at the side or rear.	Yes		
3.3.2(d)	Changes in material should generally not occur at building corners.	Yes		
3.3.2(e)	Building materials recommended for new construction include brick, stone, wood, glass, in-situ concrete and pre-cast concrete.	Yes		Stone, glass, concrete, and aluminum materials proposed.
3.3.2(f)	In general, the appearance of building materials should be true to their nature and should not mimic other materials.	Yes		
3.3.2(g)	Stucco and stucco-like finishes shall not be used as a principle exterior wall material.	Yes		None used.
3.3.2(h)	Vinyl siding, plastic, plywood, concrete block, EIFS (exterior insulation and finish systems where stucco is applied to rigid insulation), and metal siding utilizing exposed fasteners are prohibited.	Yes		None used.
3.3.2(i)	Darkly tinted or mirrored glass is prohibited. Clear glass is preferable to light tints. Glare reduction coatings are preferred.	Yes		None used.
3.3.2(j)	Unpainted or unstained wood, including pressure treated wood, is prohibited as a building material for permanent decks, balconies, patios, verandas, porches, railings and other similar architectural embellishments, except that these guidelines shall not apply to seasonal sidewalk cafes.	Yes		None used.
3.3.3	**Entrances**			
3.3.3(a)	Emphasize entrances with such architectural expressions as height, massing, projection, shadow, punctuation, change in roof line, change in materials, etc.	Yes		Entrances are recessed or have a canopy and are emphasized through signage or change in material.

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Section	**Guideline**	**Complies**	**N/A**	**Discussion**
3.3.3(b)	Ensure main building entrances are covered with a canopy, awning, recess or similar device to provide pedestrian weather protection.	Yes		Main entrances are recessed and covered with an awning.
3.3.3(c)	Modest exceptions to setback and stepback requirements are possible to achieve these goals.	Yes		
3.3.4	**Roof Line and Roofscapes**			
3.3.4(a)	Buildings above six storeys (mid and high-rise) contribute more to the skyline of individual precincts and the entire downtown, so their roof massing and profile must include sculpting, towers, night lighting or other unique features.	No		See comments above for 3.3.1(a).
3.3.4(b)	The expression of the building top (see previous) and roof, while clearly distinguished from the building middle, should incorporate elements of the middle and base such as pilasters, materials, massing forms or datum lines.	No		See comments above for 3.3.1(a).
3.3.4(c)	Landscaping treatment of all flat rooftops is required. Special attention shall be given to landscaping rooftops in precincts 3, 5, 6 and 9, which abut Citadel Hill and are therefore pre-eminently visible. The incorporation of living green roofs is strongly encouraged.	Yes		Rooftop is landscaped.
3.3.4(d)	Ensure all rooftop mechanical equipment is screened from view by integrating it into the architectural design of the building and the expression of the building top. Mechanical rooms and elevator and stairway head-houses should be incorporated into a single well-designed roof top structure. Sculptural and architectural elements are encouraged to add visual interest.	Partially		The penthouses screen rooftop mechanical equipment, however, the “top” is lacking visual interest – see 3.3.1(a).
3.3.4(e)	Low-rise flat roofed buildings should provide screened mechanical equipment. Screening materials should be consistent with the main building design. Sculptural and architectural elements are encouraged for visual interest as the roofs of such structures have very high visibility.		✓	
3.3.4(f)	The street-side design treatment of a parapet should be carried over to the back-side of the parapet for a complete, finished look where they will be visible from other buildings and other high vantage points.	Yes		

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Section	**Guideline**	**Complies**	**N/A**	**Discussion**
3.4	**CIVIC CHARACTER**			
3.4.1	**Prominent Frontages and View Termini** *(refer to Map 9 of the LUB and Map 1 in the DM)*			
3.4.1(a)	***Prominent Visual Terminus Sites***: These sites identify existing or potential buildings and sites that terminate important view corridors and that can strengthen visual connectivity across downtown. On these sites distinctive architectural treatments such as spires, turrets, belvederes, porticos, arcades, or archways should be provided. Design elements (vertical elements, porticos, entries, etc.) should be aligned to the view axis. Prominent Visual Terminus Sites are shown on Map 9 in the Land Use By-law.		✓	
3.4.1(b)	***Prominent Civic Frontage:*** These frontages identify highly visible building sites that front onto important public open spaces such as the Citadel and Cornwallis Park, as well as important symbolic or ceremonial visual and physical connections such as the waterfront boardwalks, the proposed Grand Promenade linking the waterfront to the Town Clock, and other east-west streets that connect the downtown to the waterfront. Prominent Civic Frontages are shown on Map 1 in Appendix A of the Design Manual.	Yes		Sackville Street is a Prominent Civic Frontage. High quality building materials have been used and the glass curtain wall enhances the pedestrian experience.
3.4.2	**Corner Sites**			
3.4.2(a)	Provision of a change in the building massing at the corner, in relation to the streetwall.	Yes		Above the streetwall both articulation and materials change making the corner, at the ground, more pronounced.
3.4.2(b)	Provision of distinctive architectural treatments such as spires, turrets, belvederes, porticos, arcades, or archways.	Partially		The site has two corners, and the architectural treatment is carried around each corner. Each corner has different treatment.
3.4.2(c)	Developments on all corner sites must provide a frontal design to both street frontages.	Yes		There are no entrances on the Sackville Street side. The overall façade design on Hollis and Granville are carried around to the Sackville side. The window

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Section	**Guideline**	**Complies**	**N/A**	**Discussion**
				pattern and façade detailing are consistent on the frontages. Due to the grade of the site and floor plates, incorporating entrances into the Hollis side is challenging.
3.4.2(d)	Alternatively, buildings may be sited to define the edge of an on-site public open space, for example, plazas, promenades, or eroded building corners resulting in the creation of public space.		✓	
3.4.3	**Civic Buildings**			
3.4.3(a)	Civic buildings entail a greater public use and function, and therefore should be prominent and recognizable, and be designed to reflect the importance of their civic role.		✓	
3.4.3(b)	Provide distinctive architectural treatments such as spires, turrets, belvederes, porticos, arcades, or archways.		✓	
3.4.6(c)	Ensure entrances are large and clearly visible. Provide a building name and other directional and wayfinding signage.		✓	
3.4.6(d)	Very important public buildings should have unique landmark design. Such buildings include transit terminals, museums, libraries, court houses, performing arts venues, etc.		✓	
3.5	**PARKING, SERVICES AND UTILITIES**			
3.5.1	**Vehicular Access, Circulation, Loading and Utilities**			
3.5.1(a)	Locate parking underground or internal to the building (preferred), or to the rear of buildings.	Yes		All parking is underground.
3.5.1(b)	Ensure vehicular and service access has a minimal impact on the streetscape, by minimizing the width of the frontage it occupies, and by designing integrated access portals and garages.	Yes		Underground parking access is narrow and located beside the abutting parking garage.
3.5.1(c)	Locate loading, storage, utilities, areas for delivery and trash pick-up out of view from public streets and spaces, and residential uses.	Yes		All located inside the parking garage.
3.5.1(d)	Where access and service areas must be visible from or shared with public space, provide		✓	

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Section	**Guideline**	**Complies**	**N/A**	**Discussion**
	high quality materials and features that can include continuous paving treatments, landscaping and well-designed doors and entries.			
3.5.1(e)	Coordinate and integrate utilities, mechanical equipment and meters with the design of the building, for example, using consolidated rooftop structures or internal utility rooms.	Yes		Utilities, meters, and mechanical equipment are integrated in interior service rooms and within the screened rooftop penthouses.
3.5.1(f)	Locate heating, venting and air conditioning vents away from public streets. Locate utility hook-ups and equipment (i.e. gas meters) away from public streets and to the sides and rear of buildings, or in underground vaults.	Yes		Underground vault along Hollis Street.
3.5.2	**Parking Structures – NOT APPLICABLE**			
3.5.3	**Surface Parking – NOT APPLICABLE**			
3.5.4	**Lighting**			
3.5.4(a)	Attractive landscape and architectural features can be highlighted with spot-lighting or general lighting placement.	Yes		
3.5.4(b)	Consider a variety of lighting opportunities inclusive of street lighting, pedestrian lighting, building up- or down-lighting, internal building lighting, internal and external signage illumination (including street addressing), and decorative or display lighting.	Yes		
3.5.4(c)	Illuminate landmark buildings and elements, such as towers or distinctive roof profiles.	Yes		
3.5.4(d)	Encourage subtle night-lighting of retail display windows.	Yes		
3.5.4(e)	Ensure there is no ‘light trespass’ onto adjacent residential areas by the use of shielded “full cut-off” fixtures.	Yes		As per Application Letter, “The lighting concept highlights key elements of the building, and is designed to be glare-free and without light trespass onto neighbouring properties.”

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Section	**Guideline**	**Complies**	**N/A**	**Discussion**
3.5.4(f)	Lighting shall not create glare for pedestrians or motorists by presenting unshielded lighting elements in view.	Yes		See comment above.
3.5.5	**Signs**			
3.5.5(a)	Integrate signs into the design of building facades by placing them within architectural bay, friezes or datum lines, including coordinated proportion, materials and colour.		✓	N/A at this time as no signs have been proposed.
3.5.5(b)	Signs should not obscure windows, cornices or other architectural elements.		✓	See comment under (a).
3.5.5(c)	Sign scale should reinforce the pedestrian scale of the downtown, through location at or near grade level for viewing from sidewalks.		✓	See comment under (a).
3.5.5(d)	Large freestanding signs (such as pylons), signs on top of rooftops, and large scale advertising (such as billboards) are prohibited.	Yes		
3.5.5(e)	Signs on heritage buildings should be consistent with traditional sign placement such as on a sign band, window lettering, or within architectural orders.		✓	
3.5.5(f)	Street addressing shall be clearly visible for every building.		✓	See comment under (a).
3.5.5(g)	The material used in signage shall be durable and of high quality and should relate to the materials and design language of the building.		✓	See comment under (a).
3.6	**SITE PLAN VARIANCES**			
	Where all other conditions are met, and subject to the conditions set out here, clearly specified variances of certain land use by-law requirements may be considered. The following types of variances may be considered throughout downtown Halifax by Site Plan Approval:			
3.6.1	**Streetwall Setback Variance**			
	Streetwall setbacks may be varied by Site Plan Approval where:			
3.6.1(a)	the streetwall setback is consistent with the objectives and guidelines of the Design Manual;	Yes		Comments in DRC staff report.
3.6.1(b)	on an existing building, where an addition is to be constructed, the existing structural elements of the building or other similar features are prohibitive in achieving the streetwall setback requirement; or		✓	

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Section	**Guideline**	**Complies**	**N/A**	**Discussion**
3.6.1(c)	the streetwall setback of abutting buildings is such that the streetwall setback would be inconsistent with the character of the street.		✓	
3.6.2	**Side and Rear Yard Setback Variance**			
3.6.3	**Streetwall Height Variances**			
	Streetwall heights may be varied by Site Plan Approval where:			
3.6.3(a)	the streetwall height is consistent with the objectives and guidelines of the Design Manual; and	Yes		
3.6.3(b)	the modification is for a corner element that is used to join streetwalls of differing heights; or		✓	
3.6.3(c)	the streetwall height of abutting buildings is such that the streetwall height would be inconsistent with the character of the street; or	Yes		Comments in DRC staff report.
3.6.3(d)	where a landmark building element is called for pursuant to the Design Manual.		✓	
3.6.4	**Streetwall Width Variance**			
	Streetwall widths may be varied by Site Plan Approval where:			
3.6.4(a)	the streetwall width is consistent with the objectives and guidelines of the Design Manual; and	Yes		
3.6.4(b)	the resulting gap in the streetwall has a clear purpose, is well-designed and makes a positive contribution to the streetscape.	No		Comments in DRC staff report.
3.6.5	**Upper Storey Streetwall Stepback Variance**			
	Upper storey streetwall stepbacks may be varied by Site Plan Approval where:			
3.6.5(a)	the upper storey streetwall setback is consistent with the objectives and guidelines of the Design Manual; and	No		Comments in DRC staff report.
3.6.5(b)	the modification results in a positive benefit such as improved heritage preservation or the remediation of an existing blank building wall.	No		Comments in DRC staff report.
	Note: In cases where the maximum streetwall height is within two storeys of the maximum building height, the Design Review Committee may reduce the maximum streetwall height to ensure an appropriate proportion of streetwall height to upper building height.			
3.6.6	**Upper Storey Side Yard Stepback Variance**			
	The setbacks requirements of this section may be varied by Site Plan Approval where:			

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Section	**Guideline**	**Complies**	**N/A**	**Discussion**
3.6.6(a)	the upper storey side yard stepback is consistent with the objectives and guidelines of the Design Manual; and	Yes		This applies to the side yard abutting MetroPark.
3.6.6(b)	where the height of the building is substantially lower than the maximum permitted building height and the setback reduction is proportional to that lower height; or		✓	
3.6.6(c)	a reduction in setback results in the concealment of an existing blank wall with a new, well designed structure.	Yes		Comments in DRC staff report.
3.6.7	**Maximum Tower Width Variance**			
	The maximum tower dimensions may be varied by Site Plan Approval where:			
3.6.7(a)	the maximum tower width is consistent with the objectives and guidelines of the Design Manual; and	No		Comments in DRC staff report.
3.6.7(b)	the modification results in a clear public benefit such as the remediation of an existing blank building wall.	No		Comments in DRC staff report.
3.6.8	**Maximum Height Variance**			
3.6.9	**Landmark Element Variance**			
3.6.10	**Precinct 1 Built Form Variance (refer to Map 1 of the LUB)**			
3.6.11	**Precinct 4 Built Form Variance (refer to Map 1 of the LUB)**			
3.6.12	**Landscaped Open Space Variance**			
3.6.14	**Prohibited External Cladding Material Variance**			
3.6.15	**Land Uses at Grade Variance**			
4	**NEW DEVELOPMENT IN HERITAGE CONTEXTS – NOT APPLICABLE**			
4.2	**GUIDELINES FOR INFILL – NOT APPLICABLE**			
4.3	**GUIDELINES FOR ABUTTING DEVELOPMENT**			
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4.5	**GUIDELINES FOR FAÇADE ALTERATIONS ON REGISTERED HERITAGE BUILDING AND BUILDINGS IN THE BARRINGTON STREET HERITAGE CONSERVATION DISTRICT – NOT APPLICABLE**			
4.6	**GUIDELINS FOR SIGNS ON REGISTERED HERITAGE BUILDINGS AND BUILDINGS IN HERITAGE CONSERVATION DISTRICTS – NOT APPLICABLE**			

PEDESTRIAN WIND ASSESSMENT

CPP PROJECT 16214
AUGUST 9, 2022

Attachment E Pedestrian Wind Impact Assessment

SKYE HALIFAX
Halifax, Nova Scotia

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EXECUTIVE SUMMARY

A wind tunnel study of the Skye Halifax development to be located in Halifax, NS was conducted to assess pedestrian wind comfort and safety. Wind tunnel measured velocities were combined with local wind climate data to predict full-scale wind speeds and exceedance frequencies at the project site.

The results of the study can be summarized as follows:

Wind Comfort

- During the summer, wind comfort conditions around the existing site are generally conducive for a mix of passive uses (i.e., dining, seating, etc.) and active uses (i.e., strolling, window shopping etc.). Winter wind comfort conditions are primarily suitable for pedestrians to transit around the site and are less conducive to passive use due to the inherent seasonal increase in wind speeds.
- The addition of the proposed Skye Halifax development is generally expected to improve the wind conditions around the site, with reduced wind speeds expected primarily along Hollis Street and east along Sackville Street. The predicted wind comfort conditions around the site are similar to other developments in the Halifax area.
- Calm wind conditions conducive for passive pedestrian use (i.e., dining, seating etc.) are expected within the grade level breezeway of the development during the summer. During the winter months, wind speeds in the breezeway are higher, but still considered appropriate since passive activities such as dining are expected to be more limited during this season.
- Wind comfort conditions are predicted to be windier than is appropriate for passive amenity use on the Level 6 terraces and roof levels of north and south towers during the summer and winter.
- Conceptual recommendations for wind control (i.e., taller guardrails, canopies / trellises, planters, landscaping, wind screen elements etc.) have been presented for consideration.

Wind Safety

- All measurement locations at grade level are predicted to meet the wind safety criteria in the existing configuration and continue to meet the wind safety criteria with the addition of the Skye Halifax development.
- Measurement locations are predicted to meet the wind safety criterion at most terrace / roof levels of the development, with the exception of 1 location on the north tower roof terrace and 3 locations atop the south tower. Although these wind safety exceedances are likely expected to occur during the winter season when use of the roof terraces may be more limited, the wind control solutions presented to improve wind comfort would also be expected to help improve the wind safety conditions predicted in the terrace spaces of the development.

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1. INTRODUCTION

Pedestrian wind studies are conducted to predict, assess and, where necessary, mitigate adverse wind conditions that a building or development may have on pedestrian level wind conditions. This assessment of the acceptability of the wind environment around developments can inform designers about the suitability of outdoor areas for their intended uses. Where necessary, design modifications can be made, or intervention measures added, to mitigate areas with the potential for excessive wind speeds.

The proposed Skye Halifax development is to be constructed in Halifax, Nova Scotia south of Sackville Street between Granville and Hollis Streets (see Image 1 for reference). The study site is within the Downtown Halifax Land Use By-law area. However, this By-law is relatively non-prescriptive as to the methodology for quantitative wind studies and, as such, the methods outlined within the Halifax Regional Centre Land Use By-law have been used to assess the pedestrian wind impact around the development site.

The development includes two 22-story towers atop a 6-story podium with a grade level breezeway at the podium that includes areas for outdoor dining. In addition, the development includes rooftop amenity spaces on the north and south towers as well as atop the 6-story podium between the towers and at the southwest corner of south tower.

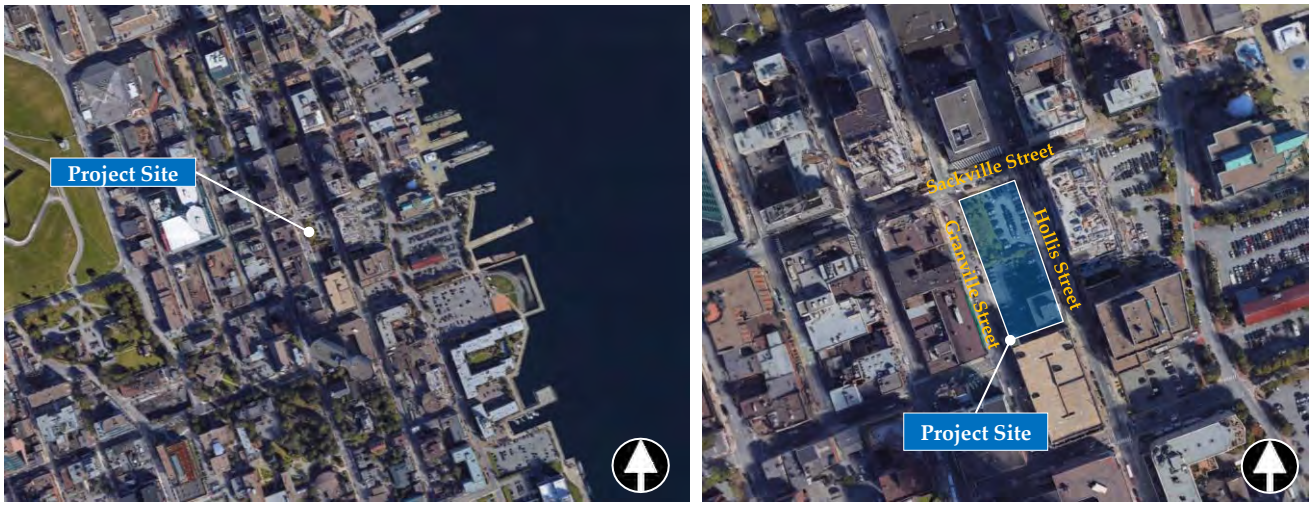


Image 1: Aerial Views of Project Site (Google Earth™)

This report includes a summary of the wind tunnel test procedures, test results, a discussion of the test results and recommendations to improve wind conditions in areas where any adverse wind conditions may be identified.

All data collection was performed in accordance with the American Society of Civil Engineers (ASCE) Standard 49-21 on Wind Tunnel Testing of Buildings and Other Structures (2021).

2. METHODOLOGY

2.1 WIND TUNNEL MODEL

The anticipated wind conditions around the proposed Skye Halifax development were quantitatively evaluated through wind tunnel testing of a 1:300 scale model of the development and surrounding area. This scale allowed for an adequate portion of surrounding developments and terrain to be included within an approximately 500 m radius of the site. This scale also allowed the relevant building details to be modeled accurately. The boundary-layer wind conditions beyond the modelled area were also appropriately simulated in CPP's wind tunnel.

MEASUREMENT POINTS

Wind speed (mean and turbulence) and direction were measured using Calibratable Pedestrian-level Pressure (CPP) probes at 92 locations (71 around the site, 4 through the project breezeway, 3 across the Level 6 terraces, 5 on the north tower roof terrace, and 9 on the south tower roof terrace). The placement of measurement points was focused towards areas of frequent pedestrian usage (ie. near entrances, sidewalks, crosswalks, plazas, outdoor dining areas etc.) as well as areas known to have unique wind flow conditions or are more susceptible to accelerated wind flows (ie. building corners, setback /recessed areas, between adjacent structures etc.). Measurements were made at the model-scale equivalent of 1.5 m above the surface for 36 wind directions in 10° increments at each of the CPP probe locations.

TEST CONFIGURATIONS

The following is a summary and description of the configurations tested to evaluate the impact of the development on the pedestrian wind conditions in the vicinity of the site.

Configurations		Description
A	Existing	Site and surroundings as they currently exist and any/all developments within the test radius currently under construction.
B	Project	Existing configuration plus the proposed Skye Halifax development.

As a pedestrians' perception of wind can often be subjective and vary depending on regional difference in wind climate and thermal conditions, a comparison of wind speeds for the existing site versus the site with the addition of the proposed development is often the most objective way to assess the local pedestrian wind conditions. Photographs of the test model within the wind tunnel are provided for each of the test configurations in Images 2A through 2B to follow.

Image 2A: Photographs of Wind Tunnel Test Model – Existing Configuration

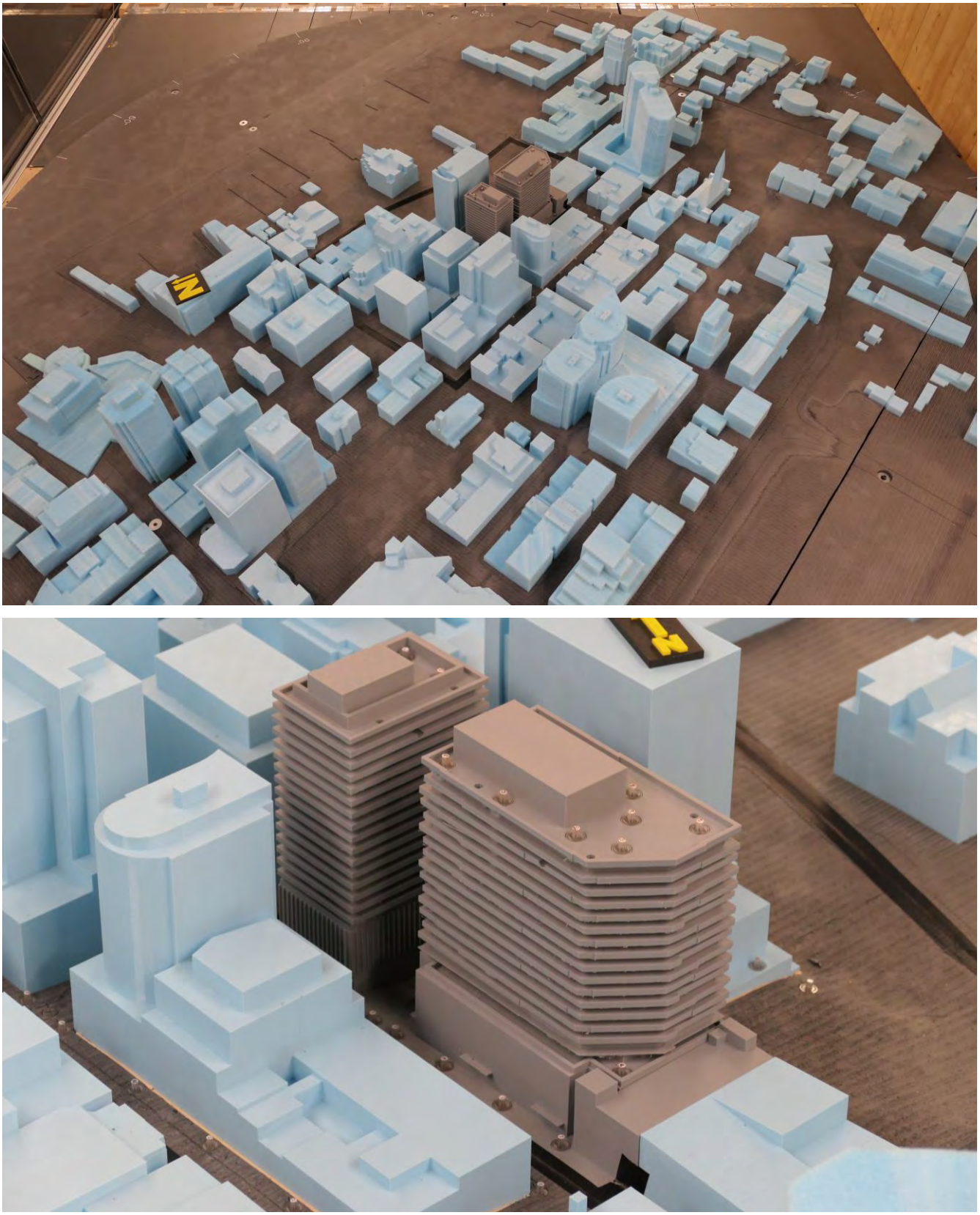


Image 2B: Photographs of Wind Tunnel Test Model – Project Configuration

2.2 WIND CLIMATE

The measured velocity data were normalized to an approach reference wind speed and then combined with a climatological model (wind frequency and direction) derived from data measured at a standard height of 10 m at the Halifax Shearwater Airport. The project site is located approximately 5.5 km west of the Halifax Shearwater Airport (see Image 3 for reference).

Image 3: Aerial View of Project Site Relative to the Halifax Shearwater Airport (Google Earth™)

The meteorological information of primary interest for this evaluation is the wind frequency distribution at the project site. The Regional Centre Land Use By-Law (2018) requires that the data within the last 30 years from Shearwater Airport be used as a reference for any project site within the Halifax Regional Municipality. Sufficient length and completeness (little to no missing hourly wind data) of the wind data record is crucial for this analysis because the hourly wind measurements are binned by direction and fit to a Weibull distribution. Generally, at least 10 years of hourly wind observations are needed to achieve a good data fit. The available Shearwater Airport data include hourly and sub-hourly observations of mean and gust wind speeds from 1984-2021. After 2004, the airport observations included are during daylight hours only (06:00-18:00). During nighttime hours, wind speeds are typically slower, so the dataset from 1984-2021 would be biased towards faster wind speeds, which is not representative of the airport nor the site. Therefore, the data from 1984-2004 were used for this analysis to properly capture the wind speed and directionality at the site.

This data is portrayed in the wind roses in Image 4 which can be interpreted as follows:

- The arms of the wind roses point in the direction from where the wind is blowing from;
- The width and colour of the arm represent the wind speed; and,
- The length of the arm indicates the percent of the time that the wind blows for that combination of speed and direction.

As approaching wind directions, frequencies and magnitudes can have distinct seasonal variations (especially in regions with colder climates like Halifax) wind roses for the summer (May through October) and winter (November through April) seasons are presented. As can be seen, predominant winds from the south through southwesterly directions occur during the summer, while during the winter, winds are more predominant from the northwesterly directions. In addition, seasonally stronger winds are more often associated with the winter season and are represented by the more prevalent yellow and orange bands in the winter wind rose in Image 4. This seasonal variation in the wind climate has been addressed in the wind comfort results presented in the contents of this report.

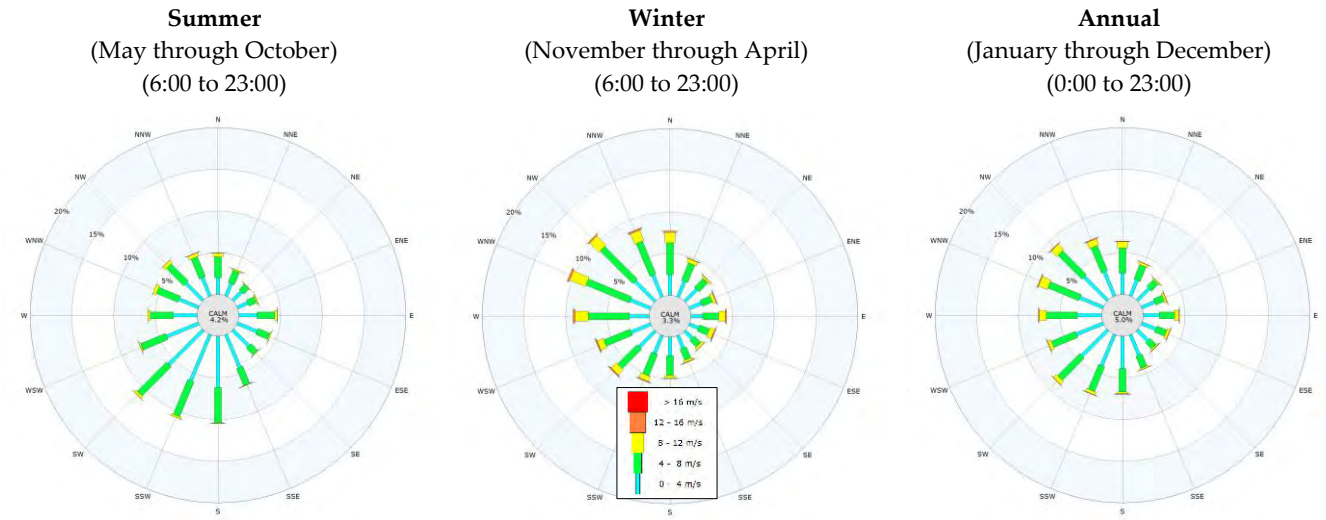


Image 4: Probability of Wind Speed by Direction – Halifax Shearwater Airport (1984 – 2004)

In addition to a seasonal analysis of winds, the distribution and frequency of winds on an annual basis were also leveraged to assess the project wind conditions against the City of Halifax's "Regional Centre Land Use By-Law" wind safety performance standards. Unlike the seasonal breakdown of winds shown in the summer and winter wind roses, which have been filtered between the hours of 6:00 to 23:00 (inclusive), the annual wind rose portrayed in Image 4 accounts for all hours (0:00 to 23:00 (inclusive)). Echoing the frequency and directionality of the winds during the summer and winter seasons, winds for the area are predominant from the southwesterly and northwesterly directions on an annual basis.

All climate data were adjusted to the site location using an analytical method to account for the exposure of the project site for each direction. The combination of the wind tunnel data and climatological data produced a cumulative probability distribution of wind speed for the site at each pedestrian measurement location which was then evaluated against the applicable pedestrian wind comfort and safety performance standards for the region.

2.3 WIND ASSESSMENT CRITERIA

The Skye Halifax development is within the Downtown Halifax Land Use By-law area. However, this By-law is relatively non-prescriptive as to the methodology for quantitative wind studies. The methods outlined within the Halifax Regional Centre Land Use By-law have been used to assess the pedestrian wind impact around the development site. As the project is taller than 20m, it has been evaluated in accordance with "*Appendix 1: Pedestrian Wind Impact Assessment Protocol and Performance Standards*" in the "*Regional Centre Land Use By-Law*" published by the City of Halifax:

> *"When an application is made for a new building or an addition to an existing building higher than 20.0 metres, a pedestrian wind impact assessment shall be conducted."*

CPP's evaluation of the development was conducted through detailed quantitative wind tunnel testing where wind speed ratios were acquired and combined with the local climate data to produce the predicted wind speeds. The predicted wind speeds were compared to the published Halifax wind comfort and safety performance standards. These performance standards are divided into separate categories of comfort and safety. The comfort criteria allow planners to assess the usability, with respect to the wind environment, of different locations for various purposes, such as for long-duration activities (e.g., sitting at an outdoor café) or strolling on walkways. The safety criteria help to identify locations where wind speeds may be potentially hazardous to pedestrians.

Comfort ratings are based on an equivalent wind speed (U_{Equiv}) (the larger of the mean wind speed (U_{Mean}) or the gust-equivalent mean (GEM) wind speed (U_{GEM}) which is equal to the gust wind speed divided by 1.85) that is exceeded seasonally 20% of the time. The wind comfort categories and criteria are defined as follows:

Comfort Category	U_{Equiv} (1,2)	Description
Sitting	≤ 10 km/h	Calm or light breezes suitable for outdoor restaurant uses, seating areas, and other amenities.
Standing	≤ 14 km/h	Gentle breezes suitable for main building entrances and bus stops where pedestrians may linger.
Strolling	≤ 17 km/h	Moderate winds appropriate for window shopping and strolling along a downtown street, or park.
Walking	≤ 20 km/h	Relatively high speeds that can be tolerated if one's objective is to walk, run, or cycle.
Uncomfortable	> 20 km/h	Strong winds unacceptable for all pedestrian activities; wind mitigation is typically required.

Notes:

(1) $U_{Equiv} = Max\ (U_{Mean}, U_{Gust} / 1.85)$

(2) *U_{Equiv} speeds are based on a seasonal exceedance of 20% between the hours of 6:00 to 23:00 (inclusive). Hours from 0:00 – 5:00 (inclusive) are excluded from the wind comfort analysis because nighttime usage of outdoor spaces is anticipated to be limited during these hours.*

The perception of wind speeds within these comfort categories can vary by individual, so opinions regarding the local wind environment should be taken into account when evaluating the Halifax wind comfort performance standards.

Safety ratings are based on gust wind speeds (U_{Gust}) that are exceeded annually 0.1% of the time and can be summarized as follows:

Safety Performance Standard	U_{Gust} (1)	Description
○ Pass	≤ 90 km/h	Meets wind safety performance standards.
● Exceeds	> 90 km/h	Excessive wind speeds that can adversely affect a pedestrian's balance and footing. Wind mitigation is required.

Notes:

(1) *U_{Gust} speeds are based on an annual exceedance of 0.1% between the hours of 0:00 to 23:00 (inclusive).*

The perception of wind speeds within these comfort categories can vary by individual, so opinions regarding the local wind environment should be taken into account when evaluating predicted wind comfort conditions. Note that the ratings of 'Uncomfortable' and 'Safety' are the words of the published wind criteria and may not apply directly to any particular project. High wind areas are certainly not unacceptable at all times; just on windier days. The word *uncomfortable*, in our understanding, refers to acceptability of the site by pedestrians for typical pedestrian use; i.e., on the windiest days, pedestrians will not find the areas 'acceptable' regardless of the regular intended use, and will tend to avoid such areas if possible. An exceedance of the safety criterion, as we understand it, indicates some unspecified potential for causing injury to a less stable individual who might be blown over. The likelihood of such an event is not well described in literature and is likely to be strongly affected by individual differences, presence of water, blowing dust or particulates, and other variables in addition to the wind speed.

3. DISCUSSION OF RESULTS

The results of the study are graphically presented in Figures 1A through 3B in which measurement locations for each configuration and season are displayed on a site plan and colour-coded to denote the predicted wind comfort / wind safety rating. This same information is numerically presented in Tables 1 and 2, where in addition to a rating being provided for each measurement location, the predicted wind speed and frequency of occurrence within each wind comfort and safety category are also presented.

In general, wind conditions comfortable for sitting and standing are considered appropriate for areas such as entrances or dining spaces where pedestrians will be apt to gather for longer durations, while wind conditions comfortable for strolling and walking are more appropriate for sidewalks where pedestrians are actively in transit. Locations rated as uncomfortable are generally less suitable for most pedestrian activities in most cityscapes and wind control solutions are often sought. Whether mitigation is needed at a location depends upon the intended pedestrian usage of the location.

3.1 GRADE LEVEL

During the summer, wind comfort conditions around the existing site are generally comfortable for standing or strolling, with some increased wind activity, rated as walking, occurring at the intersection of Sackville Street and Hollis Street (Figure 1A). With the addition of the proposed Skye Halifax development, wind comfort conditions are expected to remain similar, with most measurement points predicted to maintain a comfort rating of standing or strolling (Figure 1B). Reduced wind speeds and improved wind comfort ratings are, however, expected along Hollis Street and east along Sackville Street as a result of the Skye Halifax development (Figure 1B). These predicted wind conditions are considered appropriate for the intended use of the areas around the development during the summer.

During the winter, wind comfort conditions at measurement locations around the existing site are generally comfortable for strolling or walking. Increased wind activity, rated as uncomfortable, is also predicted along Hollis Street and at the intersection of Sackville Street and Hollis Street (Figure 2B). These wind conditions are the result of the inherent seasonal increase in wind speeds that occur during the winter for the Halifax area. Similar to the predicted wind conditions during the summer, the addition of the proposed development is generally expected to improve wind conditions in the vicinity during the winter. Wind comfort conditions are expected to remain similar to the existing site with measurement points predicted to maintain a comfort rating of strolling and walking, but with a far fewer number of locations comfortable for walking. In addition, the proposed development is expected to eliminate the 4 uncomfortable locations along Hollis Street in the Existing configuration (Locations 3, 4, 9 and 57) and only result in one location rated as uncomfortable at the northwest corner of the development (Location 11 in Figure 2B at the intersection of Sackville Street and Granville Street). These predicted wind conditions are considered appropriate for the intended use of the areas around the development during the winter and are considered typical for the Halifax area during the winter season.

All grade level measurement locations are predicted to meet the wind safety criteria in the existing configuration (Figure 3A) and continue to meet the wind safety criteria with the addition of the proposed development (Figure 3B).

3.2 BREEZEWAY / PLAZA

During the summer, calm wind conditions conducive for passive pedestrian use (i.e., dining, seating etc.) are expected in the dining area within the breezeway of the development (see Image 5 for reference). Along the passage / stairs through the breezeway, wind conditions are expected to be comfortable for standing / strolling.

During the winter, wind speeds at each measurement location are expected to increase by one comfort category due to seasonal changes in wind speeds. These predicted wind conditions during the summer and winter are considered appropriate for the intended use of the spaces.

In addition, all measurement locations in the grade level breezeway / plaza (Locations 72 through 75) are predicted to meet the wind safety criteria in the project configuration (Figure 3B).

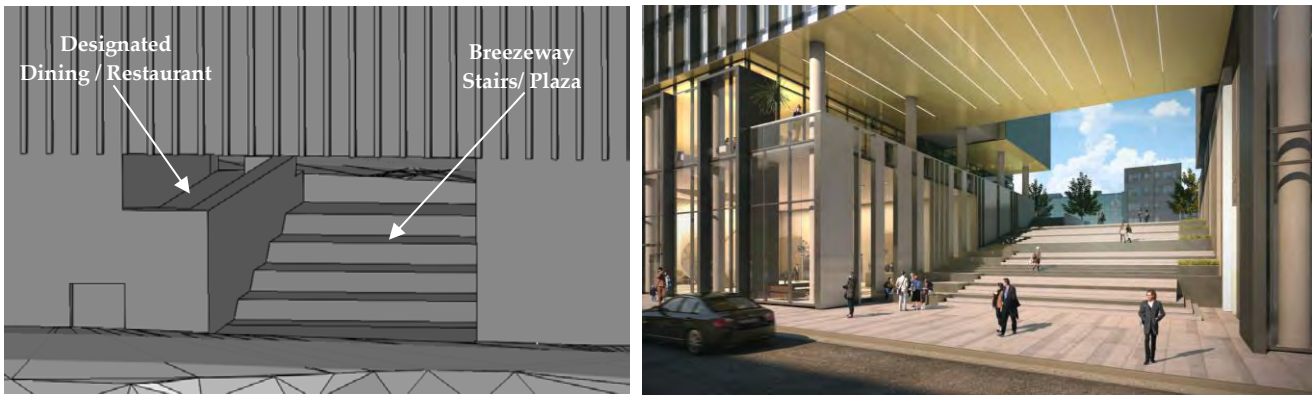


Image 5: 3D Model of Proposed Development (Left) and Conceptual Rendering of Breezeway Space (Right)

3.3 LEVEL 6 TERRACES

Wind comfort conditions on the Level 6 terraces (between the towers and at the southwest corner of the development), are expected to be rated comfortable for standing during the summer (Figure 1B).

During the winter, seasonally stronger winds are expected to increase wind speeds in these spaces with winds conditions rated comfortable for strolling predicted on the Level 6 terrace between the towers and wind conditions rated comfortable for walking predicted on the Level 6 terrace at the southwest corner of the building (Figure 2B).

All measurement locations on the Level 6 terraces are predicted to meet the wind safety criteria in the project configuration (Figure 3B).

Although there is likely no / limited use of these areas during the winter months, the following conceptual wind control measures could be considered to achieve improved wind conditions throughout the year (see examples in Images 9 and 10).

1 **Tall Guardrails**

- Tall glass balustrades (2.5 - 3m tall) along the eastern and western edges of the Level 6 terrace between the towers.
- A taller guardrail along the eastern edge is most critical for improved wind comfort conditions considering the prevailing easterly winds for the area. However, winds from the westerly directions do occur and this same element would also provide benefit along the western edge.
- Although porous elements have benefit in reducing the overall energy in approaching winds, it is CPP's opinion that solid glass guardrails would be most effective for this space.

2 **Canopy Extension**

- Extend the current canopy detail feature around the southwest corner of the building.
- A larger canopy at this location is expected to be more effective at intercepting winds descending down from façade.

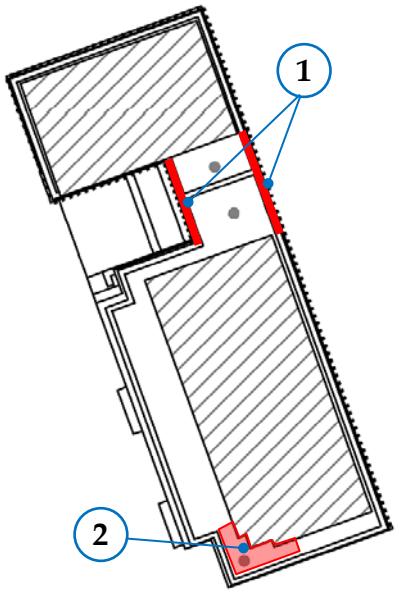


Image 6: Potential Wind Control Solutions - Level 6 Terraces

3.4 NORTH TOWER ROOF TERRACE

During the summer, wind comfort conditions on the north tower roof terrace are expected to range from being comfortable for sitting at the north side of terrace, to standing at the east side of terrace, to strolling at the northeast corner of the mechanical massing (Figure 1B).

During the winter, seasonally stronger winds are expected to increase by 1 comfort category in general. Wind conditions rated comfortable for standing (north side of terrace), strolling / walking (east side of terrace) and uncomfortable (northeast corner of the mechanical massing) are expected (Figure 2B).

Regarding the assessment of wind safety, 1 of 5 test locations is expected to exceed the criterion on the north tower roof terrace (Location 80 in Figure 3B). This wind safety exceedance is primarily expected to occur during the winter season when use of the roof terraces is assumed to be more limited.

The wind flows affecting this area are the result of the exposure of the roof terrace to approaching winds, since the development will be taller than most buildings in the immediate vicinity of the project. Although there is likely no / limited use of these areas during the winter, the following conceptual wind control measures could be considered to achieve improved wind conditions throughout the year (see examples in Images 9 and 10).

1 **Tall Guardrails**

- Tall glass balustrades (2.5 - 3m tall) along the eastern, northern, and western edges of the north tower roof terrace.
- Taller guardrails along these perimeters are most critical for improved wind comfort conditions considering the prevailing winds for the area. As winds from the southerly directions are less frequent, a taller guardrail element along the southern perimeter would be expected to provide relatively smaller benefit.
- Although porous elements have benefit in reducing the overall energy in approaching winds, it is CPP's opinion that solid glass guardrails would be most effective for this space.

2 **Landscaping**

- Landscaping elements (i.e., planters, hedges, trees etc.) interspersed through the terrace are expected to disrupt approaching winds and provide shelter.
- A mix of tall trees (located as close to the perimeter of the terrace as feasible) that allow the tree canopy to intercept winds shearing over the perimeter rail and smaller hedges to provide localized areas of protection in areas designated for seating.

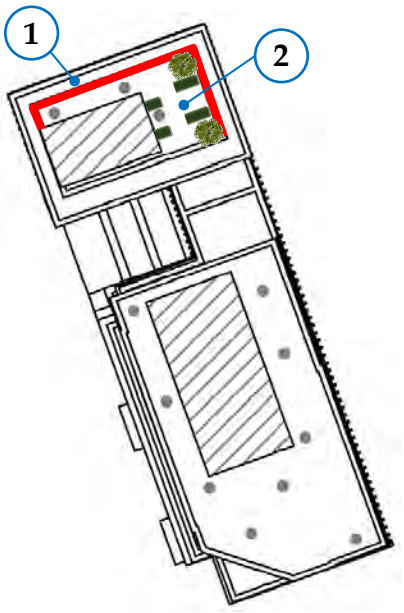


Image 7: Potential Wind Control Solutions – North Tower Roof Terrace

3.5 SOUTH TOWER ROOF TERRACE

During the summer, wind comfort conditions on the south tower roof terrace are primarily expected to be rated comfortable for strolling. However, conditions rated comfortable for walking are expected at the southeast and southwest corners of the mechanical projection (Figure 1B). These predicted wind conditions are higher than desired for passive pedestrian use. Wind control solutions are advised if the use of these spaces is intended for gathering, seating or lounging etc.

During the winter, seasonally stronger winds are generally expected to degrade wind comfort conditions to rating of uncomfortable (Figure 2B). In addition, regarding the assessment of wind safety, 3 of 9 test locations are expected to exceed the criterion on the south tower roof terrace (Locations 86, 89, and 90 in Figure 3B). These wind safety exceedances are primarily expected to occur during the winter season when use of the roof terraces is assumed to be more limited.

Similar to the north tower roof terrace, the wind flows affecting this area are the result of the exposure to approaching winds. Although there is likely no / limited use of these areas during the winter months, the following conceptual wind control measures could be considered to achieve improved wind conditions throughout the year (see examples in Images 9 through 12).

1 **Tall Guardrails**

- Tall glass balustrades (2.5 - 3m tall) along the eastern, northern, and western edges of the south tower roof terrace.

2 **Canopy**

- A canopy feature along the east side of the mechanical massing, positioned as close to the terrace as feasible.
- This type of element is expected to block winds which intercept and flow along the mechanical massing.

3 **Wind Screens**

- Interspersed wind screen elements (2.5-3m tall) that project perpendicular from the west face of the mechanical massing.
- These elements should be 20-30% porous to best dissipate energy from intercepted winds and provide the most improvement to wind comfort conditions downwind.

4 **Landscaping**

- Landscaping elements (i.e., planters, hedges, trees etc.) interspersed through the terrace are expected to disrupt approaching winds and provide areas of shelter.
- Landscaping should be a mix of taller trees and smaller interspersed planters / hedges to provide localized areas of protection in areas designated for seating.

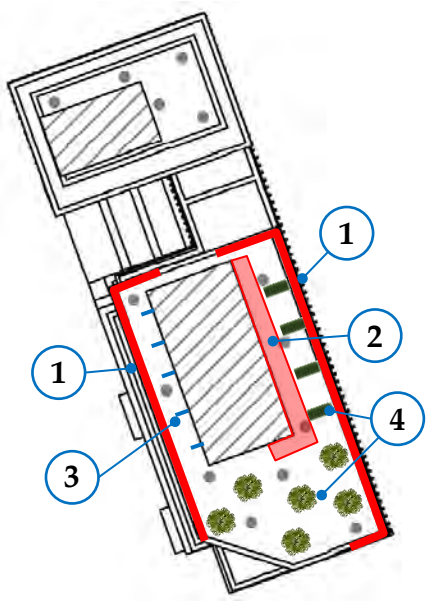


Image 8: Potential Wind Control Solutions – South Tower Roof Terrace

Image 9: Examples of Tall Guardrails for Wind Control

Image 10: Examples of Canopies for Wind Control

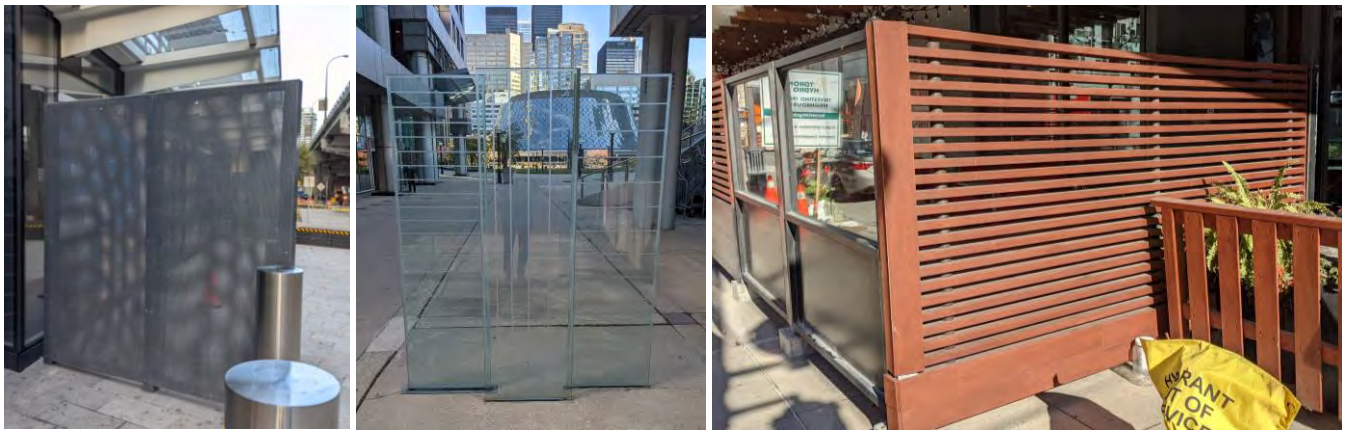


Image 11: Examples of Wind Screens for Wind Control

Image 12: Examples of Landscaping / Planters for Wind Control

3.6 BALCONIES

Although no measurement locations were taken within balconies of the development, the following is a qualitative assessment of the anticipated wind conditions within the balconies of the development, based on CPP's knowledge of wind flows and relevant experience for other projects in the Halifax area.

Overall, it is expected that the wind comfort conditions on the balconies of the development will be reasonable, and similar to other comparable developments in the Halifax area. The following provides some additional commentary on the anticipated wind conditions on the balconies of the development:

- In general, wind speeds increase with elevation. Therefore, balconies at the higher levels of the development are expected to be more exposed to higher wind speeds, relative to those at lower elevations.
- Wind speeds are expected to be higher for balconies located in proximity to the corners of the north and south towers, relative to balconies located more centrally on the facades.
- Due to the directionality of the wind climate for the Halifax area, the balconies along the north façade of the north tower and south facade of the south tower are expected to be more comfortable year-round than balconies positioned along the east and west façades of both towers that are more exposed to prevailing winds.
- The balconies on the façades between the towers (along the south façade of the north tower and along the north façade of the south tower) may be subject to increased wind speeds, as prevailing winds from the easterly and westerly directions channel between the building massings.
- Balconies that are recessed into the façade are expected to be more sheltered than balconies that project from the façade.

A pedestrian's perception of wind comfort on a balcony can vary depending on their positioning and use of the space (i.e., sitting close to the guardrail versus standing central in the balcony), level of clothing and duration of occupancy. In addition, the use of private balconies is at the discretion of the tenant. Landscaping, planters and/or trellis features which may be included by tenants would be expected to improve the overall wind comfort experienced in these spaces. However, considering the aforementioned variables, no wind control measures are recommended.

4. APPLICABILITY OF RESULTS

The results presented within this report are based on the drawings and 3D model information received by CPP on January 20, 2022, for the proposed Skye Halifax development. If changes to the design of the development have occurred beyond this date, it is recommended that CPP be contacted to evaluate the impact of any design changes relative to the wind conditions presented within this report.

The wind control solutions presented are conceptual in nature. The efficacy and combination of wind control solutions required in each of the areas of interest should be evaluated prior to any detail design or implementation. The detailed evaluation of wind control solutions should be conducted through additional wind tunnel testing in a workshop / charette type process with the design team under an additional scope of service.

CERMAK PETERKA PETERSEN

PEDESTRIAN WIND COMFORT CONDITIONS

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

Existing Configuration

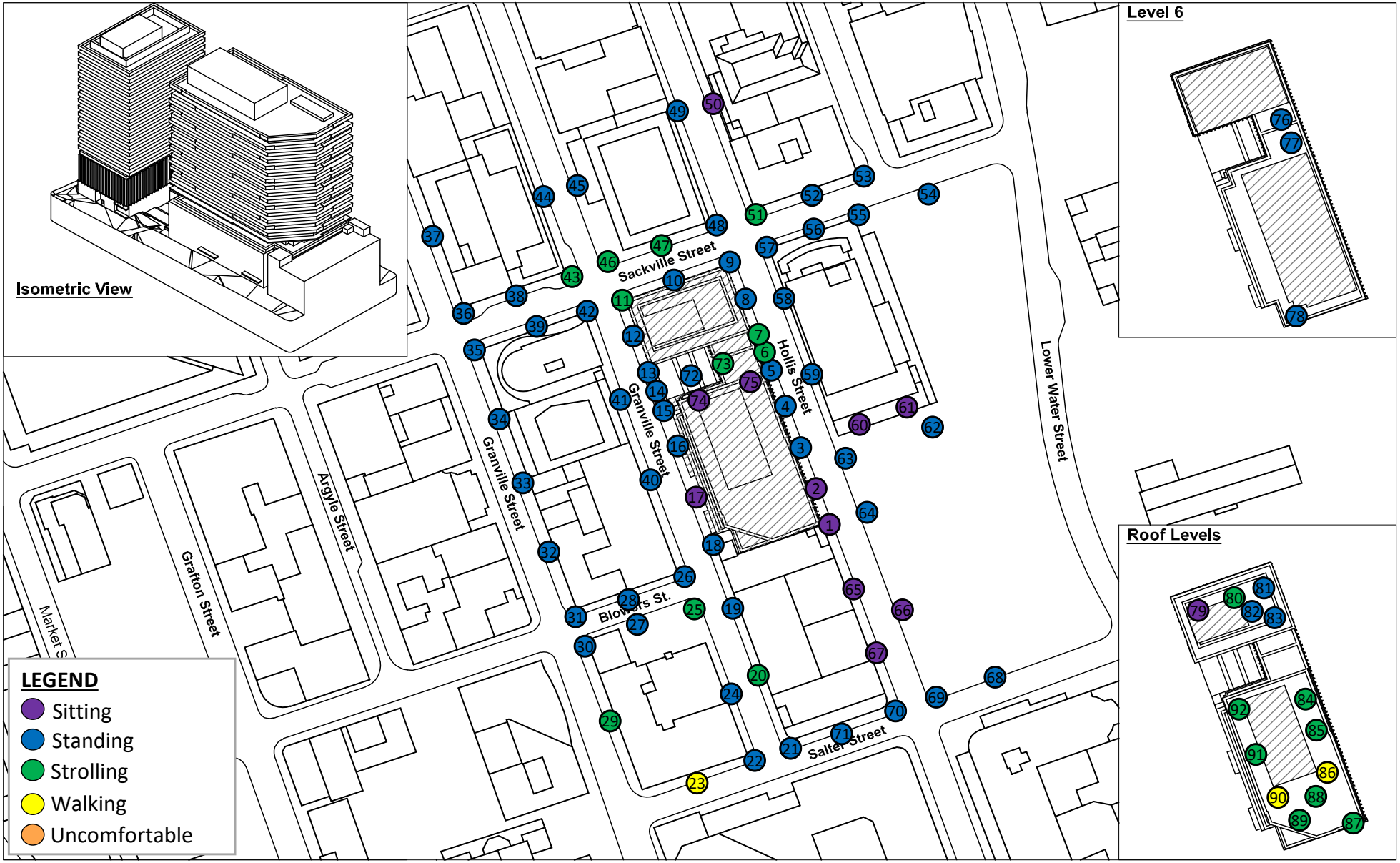
North

Figure: 1A

Project Name: Skye Halifax

Ref#: CPP-16214

Date: March 11, 2022



CERMAK PETERKA PETERSEN

PEDESTRIAN WIND COMFORT CONDITIONS

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

Project Configuration

North

Figure: 1B

Project Name: Skye Halifax

Ref#: CPP-16214

Date: March 11, 2022

CERMAK PETERKA PETERSEN

PEDESTRIAN WIND COMFORT CONDITIONS

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

Existing Configuration

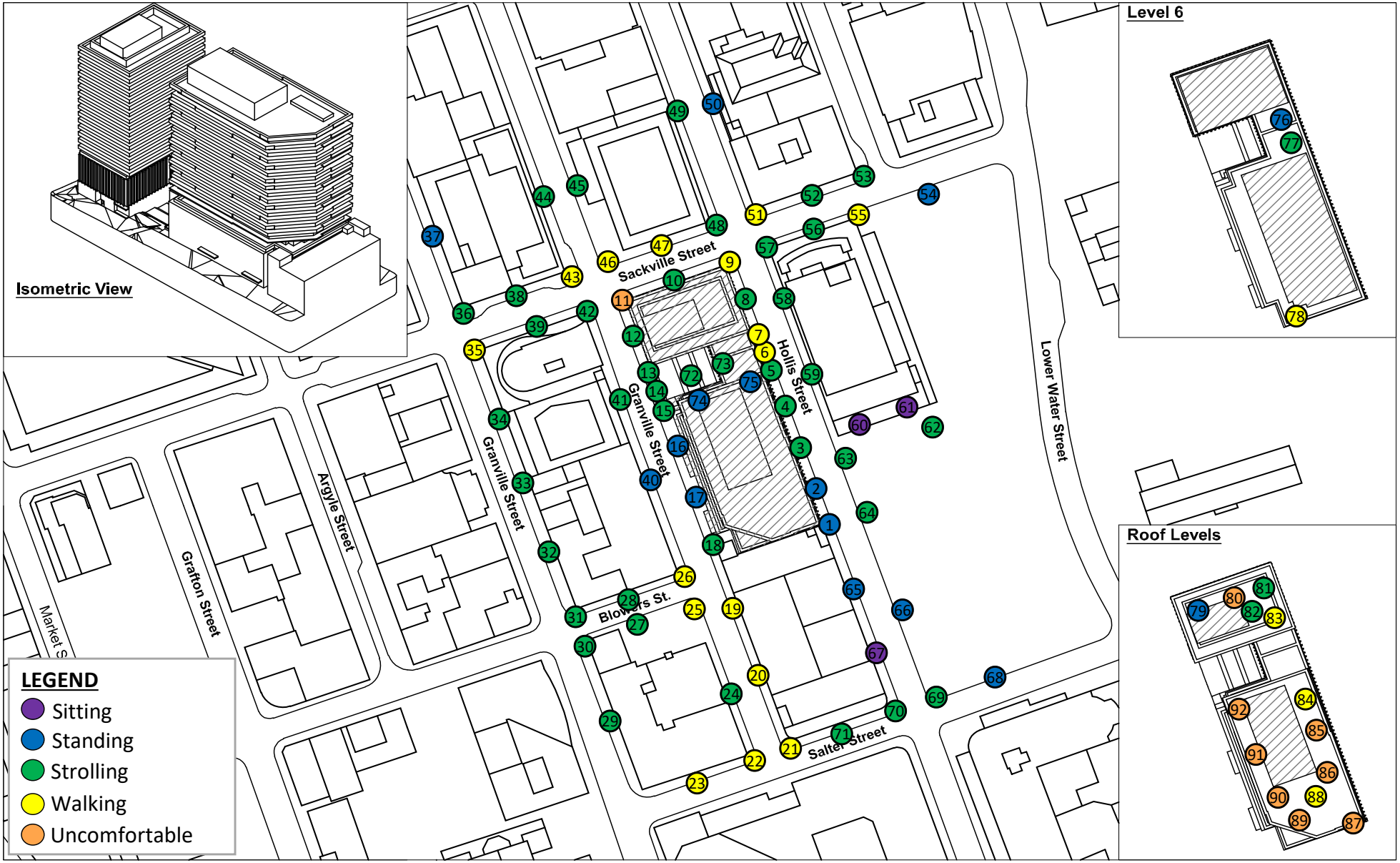
North

Figure: 2A

Project Name: Skye Halifax

Ref#: CPP-16214

Date: March 11, 2022



CERMAK PETERKA PETERSEN

PEDESTRIAN WIND COMFORT CONDITIONS

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

Project Configuration

North

Figure: 2B

Project Name: Skye Halifax

Ref#: CPP-16214

Date: March 11, 2022

CERMAK PETERKA PETERSEN

PEDESTRIAN WIND SAFETY CONDITIONS

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

Existing Configuration

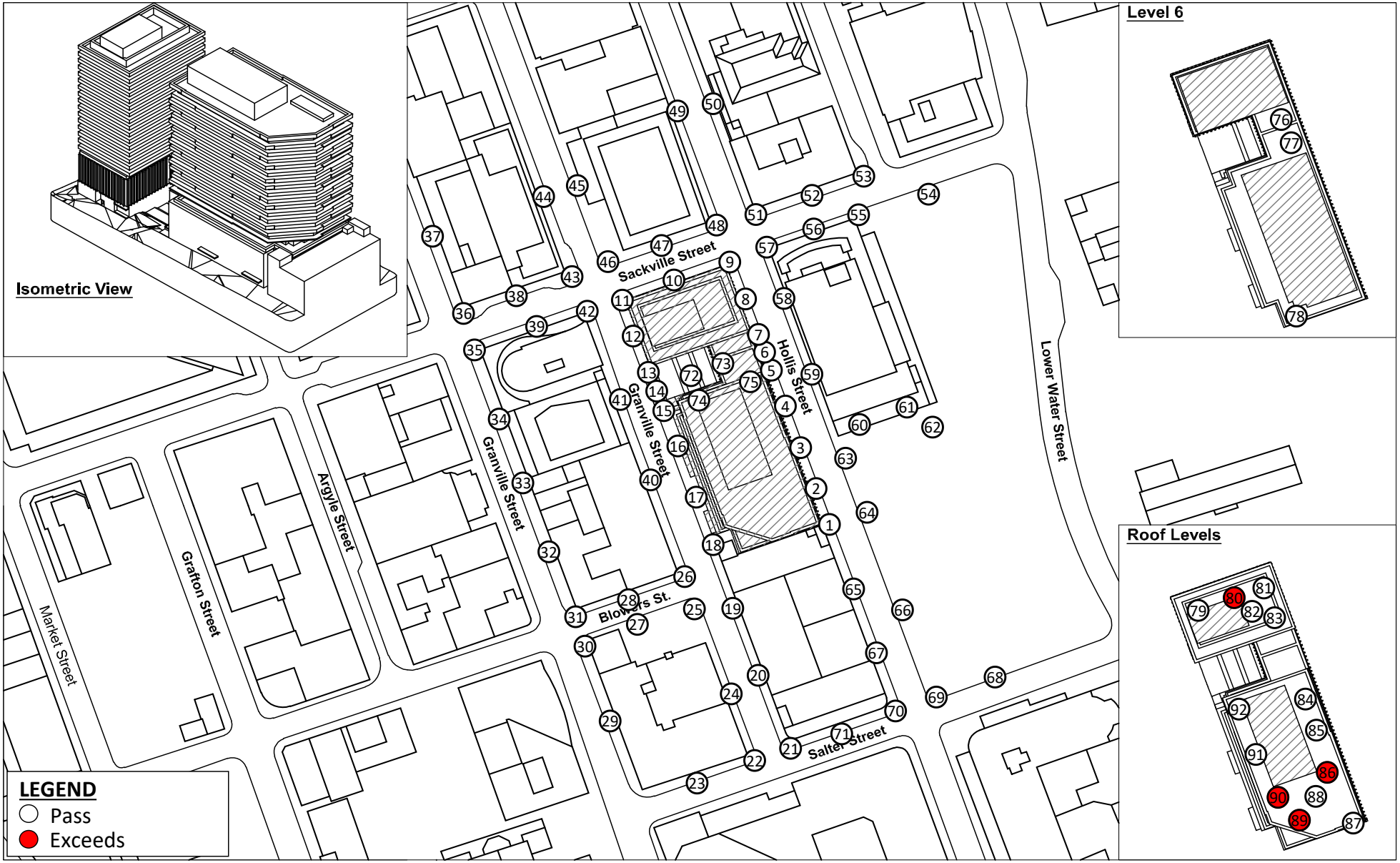
North

Figure: 3A

Project Name: Skye Halifax

Ref#: CPP-16214

Date: March 11, 2022



CERMAK PETERKA PETERSEN

PEDESTRIAN WIND SAFETY CONDITIONS

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

Project Configuration

North

Figure: 3B

Project Name: Skye Halifax

Ref#: CPP-16214

Date: March 11, 2022

Table 1. Pedestrian Wind Comfort Results

#	Season	Configuration	Speed (km/h)	Rating	Frequency of Occurrence (%)				
					Sitting	Standing	Strolling	Walking	Uncomfortable
1	Summer	Existing	13.1	Standing	64%	83%	92%	96%	4%
		Project	9.8	Sitting	81%	95%	98%	99%	1%
	Winter	Existing	17.1	Walking	48%	68%	79%	88%	12%
		Project	13.0	Standing	63%	84%	93%	97%	3%
2	Summer	Existing	14.6	Strolling	59%	77%	87%	93%	7%
		Project	10.0	Sitting	80%	94%	98%	99%	1%
	Winter	Existing	18.9	Walking	45%	63%	74%	83%	17%
		Project	13.5	Standing	61%	82%	91%	96%	4%
3	Summer	Existing	15.9	Strolling	51%	72%	83%	90%	10%
		Project	11.0	Standing	74%	90%	95%	98%	2%
	Winter	Existing	20.1	Uncomfortable	39%	58%	70%	80%	20%
		Project	14.9	Strolling	54%	76%	87%	93%	7%
4	Summer	Existing	16.0	Strolling	50%	72%	83%	90%	10%
		Project	11.6	Standing	72%	87%	92%	95%	5%
	Winter	Existing	20.4	Uncomfortable	39%	58%	69%	79%	21%
		Project	15.4	Strolling	54%	75%	84%	90%	10%
5	Summer	Existing	14.9	Strolling	53%	76%	87%	94%	6%
		Project	12.6	Standing	67%	84%	90%	94%	6%
	Winter	Existing	18.8	Walking	40%	61%	74%	83%	17%
		Project	16.4	Strolling	50%	71%	82%	88%	12%
6	Summer	Existing	14.3	Strolling	55%	78%	89%	95%	5%
		Project	15.7	Strolling	51%	73%	84%	91%	9%
	Winter	Existing	18.3	Walking	41%	62%	75%	85%	15%
		Project	19.0	Walking	40%	61%	73%	82%	18%
7	Summer	Existing	14.1	Strolling	56%	79%	90%	96%	4%
		Project	15.2	Strolling	53%	75%	86%	93%	7%
	Winter	Existing	18.2	Walking	41%	62%	76%	85%	15%
		Project	18.6	Walking	40%	62%	75%	84%	16%
8	Summer	Existing	14.9	Strolling	53%	76%	87%	94%	6%
		Project	11.1	Standing	76%	88%	93%	96%	4%
	Winter	Existing	19.4	Walking	37%	58%	71%	82%	18%
		Project	15.3	Strolling	58%	76%	84%	90%	10%

Table 1. Pedestrian Wind Comfort Results

#	Season	Configuration	Speed (km/h)	Rating	Frequency of Occurrence (%)				
						Sitting	Standing	Strolling	Walking	Uncomfortable
9	Summer	Existing	16.5	Strolling		48%	70%	82%	89%	11%
		Project	12.6	Standing		68%	84%	91%	95%	5%
	Winter	Existing	21.1	Uncomfortable		33%	53%	66%	77%	23%
		Project	17.2	Walking		47%	68%	79%	87%	13%
10	Summer	Existing	14.6	Strolling		56%	77%	87%	93%	7%
		Project	11.0	Standing		75%	90%	95%	97%	3%
	Winter	Existing	18.0	Walking		44%	65%	77%	85%	15%
		Project	15.0	Strolling		55%	76%	86%	92%	8%
11	Summer	Existing	13.0	Standing		62%	84%	92%	97%	3%
		Project	15.8	Strolling		51%	73%	84%	91%	9%
	Winter	Existing	17.7	Walking		42%	64%	77%	87%	13%
		Project	20.5	Uncomfortable		35%	55%	68%	78%	22%
12	Summer	Existing	12.7	Standing		64%	85%	93%	97%	3%
		Project	12.8	Standing		65%	85%	93%	97%	3%
	Winter	Existing	16.8	Strolling		45%	68%	80%	89%	11%
		Project	16.8	Strolling		48%	69%	81%	89%	11%
13	Summer	Existing	12.9	Standing		63%	84%	93%	97%	3%
		Project	13.0	Standing		62%	84%	93%	97%	3%
	Winter	Existing	16.8	Strolling		46%	68%	81%	89%	11%
		Project	16.6	Strolling		45%	68%	81%	90%	10%
14	Summer	Existing	12.8	Standing		63%	85%	93%	97%	3%
		Project	12.4	Standing		65%	87%	95%	98%	2%
	Winter	Existing	16.5	Strolling		47%	69%	81%	90%	10%
		Project	15.7	Strolling		49%	72%	85%	92%	8%
15	Summer	Existing	12.4	Standing		65%	86%	94%	98%	2%
		Project	13.1	Standing		63%	84%	92%	97%	3%
	Winter	Existing	15.9	Strolling		50%	72%	84%	91%	9%
		Project	16.2	Strolling		50%	71%	83%	90%	10%
16	Summer	Existing	11.3	Standing		72%	91%	96%	99%	1%
		Project	10.4	Standing		77%	94%	98%	99%	1%
	Winter	Existing	14.5	Strolling		56%	78%	88%	94%	6%
		Project	13.2	Standing		62%	83%	92%	97%	3%

Table 1. Pedestrian Wind Comfort Results

#	Season	Configuration	Speed (km/h)	Rating	Frequency of Occurrence (%)				
						Sitting	Standing	Strolling	Walking	Uncomfortable
17	Summer	Existing	11.2	Standing		73%	91%	97%	99%	1%
		Project	9.6	Sitting		82%	96%	99%	100%	0%
	Winter	Existing	14.4	Strolling		56%	78%	88%	94%	6%
		Project	12.3	Standing		67%	87%	94%	98%	2%
18	Summer	Existing	11.9	Standing		69%	88%	94%	97%	3%
		Project	11.4	Standing		72%	90%	95%	98%	2%
	Winter	Existing	15.1	Strolling		53%	75%	86%	92%	8%
		Project	14.7	Strolling		56%	77%	87%	93%	7%
19	Summer	Existing	11.8	Standing		69%	88%	95%	97%	3%
		Project	13.5	Standing		61%	82%	91%	95%	5%
	Winter	Existing	14.5	Strolling		56%	78%	88%	93%	7%
		Project	17.1	Walking		48%	68%	80%	88%	12%
20	Summer	Existing	14.1	Strolling		58%	79%	89%	95%	5%
		Project	14.5	Strolling		56%	78%	88%	94%	6%
	Winter	Existing	17.6	Walking		42%	65%	78%	87%	13%
		Project	18.1	Walking		41%	63%	76%	85%	15%
21	Summer	Existing	13.8	Standing		59%	81%	90%	96%	4%
		Project	13.6	Standing		59%	81%	91%	96%	4%
	Winter	Existing	17.2	Walking		43%	66%	79%	88%	12%
		Project	17.2	Walking		44%	66%	79%	88%	12%
22	Summer	Existing	14.9	Strolling		55%	76%	87%	93%	7%
		Project	14.0	Standing		59%	80%	89%	95%	5%
	Winter	Existing	18.1	Walking		43%	64%	76%	85%	15%
		Project	17.3	Walking		46%	67%	79%	87%	13%
23	Summer	Existing	17.0	Strolling		49%	69%	80%	87%	13%
		Project	17.4	Walking		49%	68%	79%	86%	14%
	Winter	Existing	19.2	Walking		42%	62%	74%	82%	18%
		Project	19.6	Walking		41%	61%	73%	81%	19%
24	Summer	Existing	12.2	Standing		69%	86%	93%	97%	3%
		Project	13.1	Standing		63%	83%	91%	96%	4%
	Winter	Existing	15.1	Strolling		57%	76%	85%	91%	9%
		Project	16.6	Strolling		49%	70%	81%	89%	11%

Table 1. Pedestrian Wind Comfort Results

#	Season	Configuration	Speed (km/h)	Rating	Frequency of Occurrence (%)				
					Sitting	Standing	Strolling	Walking	Uncomfortable
25	Summer	Existing	12.6	Standing	65%	85%	92%	96%	4%
		Project	14.1	Strolling	57%	79%	90%	95%	5%
	Winter	Existing	15.7	Strolling	51%	73%	84%	91%	9%
		Project	18.2	Walking	41%	62%	75%	85%	15%
26	Summer	Existing	12.2	Standing	67%	87%	94%	97%	3%
		Project	13.8	Standing	59%	81%	90%	95%	5%
	Winter	Existing	14.7	Strolling	55%	77%	87%	93%	7%
		Project	17.7	Walking	44%	66%	78%	86%	14%
27	Summer	Existing	12.4	Standing	66%	86%	94%	97%	3%
		Project	11.7	Standing	70%	89%	95%	98%	2%
	Winter	Existing	15.5	Strolling	51%	74%	85%	92%	8%
		Project	14.7	Strolling	55%	77%	87%	93%	7%
28	Summer	Existing	12.2	Standing	67%	87%	95%	98%	2%
		Project	11.7	Standing	70%	89%	95%	98%	2%
	Winter	Existing	14.9	Strolling	54%	76%	87%	93%	7%
		Project	14.3	Strolling	57%	78%	88%	94%	6%
29	Summer	Existing	14.8	Strolling	56%	77%	87%	93%	7%
		Project	14.3	Strolling	58%	78%	88%	94%	6%
	Winter	Existing	16.8	Strolling	48%	69%	81%	88%	12%
		Project	16.4	Strolling	50%	71%	82%	89%	11%
30	Summer	Existing	13.7	Standing	60%	81%	90%	95%	5%
		Project	12.4	Standing	67%	86%	93%	97%	3%
	Winter	Existing	16.0	Strolling	50%	72%	83%	90%	10%
		Project	14.6	Strolling	57%	78%	87%	93%	7%
31	Summer	Existing	12.2	Standing	66%	87%	95%	98%	2%
		Project	11.5	Standing	71%	89%	95%	98%	2%
	Winter	Existing	15.2	Strolling	52%	75%	86%	93%	7%
		Project	14.2	Strolling	58%	79%	88%	94%	6%
32	Summer	Existing	11.5	Standing	71%	90%	96%	99%	1%
		Project	11.3	Standing	72%	90%	96%	99%	1%
	Winter	Existing	14.6	Strolling	56%	77%	88%	94%	6%
		Project	14.3	Strolling	60%	79%	88%	94%	6%

Table 1. Pedestrian Wind Comfort Results

#	Season	Configuration	Speed (km/h)	Rating	Frequency of Occurrence (%)				
					Sitting	Standing	Strolling	Walking	Uncomfortable
33	Summer	Existing	11.9	Standing	69%	88%	96%	99%	1%
		Project	11.9	Standing	68%	88%	95%	98%	2%
	Winter	Existing	15.2	Strolling	56%	75%	86%	93%	7%
		Project	15.1	Strolling	55%	75%	86%	93%	7%
34	Summer	Existing	11.4	Standing	72%	90%	97%	99%	1%
		Project	11.8	Standing	69%	89%	96%	99%	1%
	Winter	Existing	14.8	Strolling	56%	77%	87%	94%	6%
		Project	15.1	Strolling	53%	75%	86%	93%	7%
35	Summer	Existing	12.8	Standing	64%	85%	93%	97%	3%
		Project	13.5	Standing	60%	82%	91%	96%	4%
	Winter	Existing	16.3	Strolling	47%	70%	82%	90%	10%
		Project	17.3	Walking	43%	66%	79%	88%	12%
36	Summer	Existing	13.1	Standing	62%	84%	93%	97%	3%
		Project	12.3	Standing	66%	87%	95%	98%	2%
	Winter	Existing	16.9	Strolling	45%	67%	80%	89%	11%
		Project	16.2	Strolling	48%	70%	83%	91%	9%
37	Summer	Existing	10.3	Standing	78%	94%	98%	100%	0%
		Project	11.0	Standing	74%	92%	98%	99%	1%
	Winter	Existing	13.4	Standing	61%	82%	91%	96%	4%
		Project	13.8	Standing	59%	81%	90%	96%	4%
38	Summer	Existing	12.4	Standing	67%	86%	93%	97%	3%
		Project	11.4	Standing	72%	90%	96%	99%	1%
	Winter	Existing	14.8	Strolling	57%	77%	86%	92%	8%
		Project	14.3	Strolling	57%	79%	89%	94%	6%
39	Summer	Existing	11.7	Standing	71%	88%	94%	97%	3%
		Project	11.8	Standing	72%	87%	93%	96%	4%
	Winter	Existing	16.6	Strolling	49%	70%	81%	89%	11%
		Project	16.9	Strolling	50%	69%	80%	88%	12%
40	Summer	Existing	8.6	Sitting	86%	95%	97%	99%	1%
		Project	10.3	Standing	78%	94%	98%	99%	1%
	Winter	Existing	11.2	Standing	74%	89%	94%	97%	3%
		Project	13.0	Standing	63%	84%	92%	97%	3%

Table 1. Pedestrian Wind Comfort Results

#	Season	Configuration	Speed (km/h)	Rating	Frequency of Occurrence (%)				
					Sitting	Standing	Strolling	Walking	Uncomfortable
41	Summer	Existing	9.0	Sitting	84%	95%	98%	99%	1%
		Project	11.9	Standing	68%	88%	95%	98%	2%
	Winter	Existing	12.3	Standing	68%	86%	93%	97%	3%
		Project	15.7	Strolling	49%	72%	85%	92%	8%
42	Summer	Existing	12.9	Standing	65%	84%	92%	96%	4%
		Project	12.5	Standing	65%	86%	94%	97%	3%
	Winter	Existing	16.9	Strolling	47%	68%	80%	88%	12%
		Project	16.9	Strolling	44%	67%	80%	89%	11%
43	Summer	Existing	14.3	Strolling	56%	79%	89%	95%	5%
		Project	15.7	Strolling	52%	73%	84%	91%	9%
	Winter	Existing	18.2	Walking	40%	62%	76%	85%	15%
		Project	20.0	Walking	36%	56%	70%	80%	20%
44	Summer	Existing	12.8	Standing	63%	85%	93%	97%	3%
		Project	10.9	Standing	74%	92%	97%	99%	1%
	Winter	Existing	16.9	Strolling	45%	67%	80%	89%	11%
		Project	14.6	Strolling	55%	77%	88%	94%	6%
45	Summer	Existing	11.0	Standing	75%	90%	95%	98%	2%
		Project	10.3	Standing	78%	92%	96%	98%	2%
	Winter	Existing	16.0	Strolling	53%	72%	83%	90%	10%
		Project	14.2	Strolling	60%	79%	88%	93%	7%
46	Summer	Existing	13.8	Standing	58%	81%	91%	96%	4%
		Project	14.1	Strolling	56%	79%	89%	95%	5%
	Winter	Existing	17.6	Walking	42%	64%	78%	87%	13%
		Project	18.3	Walking	39%	61%	75%	85%	15%
47	Summer	Existing	12.5	Standing	67%	85%	93%	97%	3%
		Project	14.4	Strolling	58%	78%	88%	93%	7%
	Winter	Existing	14.9	Strolling	60%	77%	86%	92%	8%
		Project	17.2	Walking	47%	68%	79%	86%	14%
48	Summer	Existing	14.7	Strolling	54%	77%	88%	94%	6%
		Project	12.5	Standing	65%	86%	93%	97%	3%
	Winter	Existing	18.2	Walking	41%	62%	76%	85%	15%
		Project	16.7	Strolling	46%	68%	81%	89%	11%

Table 1. Pedestrian Wind Comfort Results

#	Season	Configuration	Speed (km/h)	Rating	Frequency of Occurrence (%)				
					Sitting	Standing	Strolling	Walking	Uncomfortable
49	Summer	Existing	12.6	Standing	65%	86%	94%	97%	3%
		Project	10.2	Standing	79%	91%	96%	98%	2%
	Winter	Existing	16.4	Strolling	47%	70%	82%	90%	10%
		Project	14.2	Strolling	61%	79%	88%	93%	7%
50	Summer	Existing	13.1	Standing	64%	83%	92%	96%	4%
		Project	7.9	Sitting	88%	96%	99%	100%	0%
	Winter	Existing	16.2	Strolling	49%	71%	83%	90%	10%
		Project	12.0	Standing	70%	87%	94%	97%	3%
51	Summer	Existing	15.3	Strolling	52%	74%	85%	92%	8%
		Project	14.3	Strolling	57%	79%	88%	93%	7%
	Winter	Existing	19.6	Walking	40%	60%	72%	81%	19%
		Project	19.5	Walking	39%	60%	72%	81%	19%
52	Summer	Existing	15.7	Strolling	54%	74%	84%	90%	10%
		Project	11.8	Standing	70%	87%	93%	96%	4%
	Winter	Existing	17.8	Walking	48%	68%	78%	85%	15%
		Project	15.0	Strolling	55%	76%	86%	91%	9%
53	Summer	Existing	14.3	Strolling	57%	79%	88%	94%	6%
		Project	10.9	Standing	75%	90%	95%	98%	2%
	Winter	Existing	17.5	Walking	44%	66%	78%	87%	13%
		Project	14.8	Strolling	57%	77%	87%	93%	7%
54	Summer	Existing	12.7	Standing	66%	85%	92%	96%	4%
		Project	10.2	Standing	79%	93%	97%	99%	1%
	Winter	Existing	15.1	Strolling	53%	76%	86%	92%	8%
		Project	13.7	Standing	59%	81%	90%	95%	5%
55	Summer	Existing	15.5	Strolling	52%	74%	84%	91%	9%
		Project	13.1	Standing	65%	83%	90%	94%	6%
	Winter	Existing	19.4	Walking	39%	60%	72%	82%	18%
		Project	17.7	Walking	45%	66%	78%	86%	14%
56	Summer	Existing	12.9	Standing	64%	84%	92%	96%	4%
		Project	11.1	Standing	75%	89%	95%	97%	3%
	Winter	Existing	16.9	Strolling	48%	69%	80%	88%	12%
		Project	16.1	Strolling	52%	72%	83%	90%	10%

Table 1. Pedestrian Wind Comfort Results

#	Season	Configuration	Speed (km/h)	Rating	Frequency of Occurrence (%)				
						Sitting	Standing	Strolling	Walking	Uncomfortable
57	Summer	Existing	17.5	Walking		46%	66%	78%	86%	14%
		Project	11.9	Standing		70%	87%	93%	97%	3%
	Winter	Existing	21.6	Uncomfortable		34%	53%	65%	75%	25%
		Project	17.0	Strolling		47%	68%	80%	88%	12%
58	Summer	Existing	11.7	Standing		70%	89%	96%	98%	2%
		Project	12.1	Standing		67%	88%	95%	98%	2%
	Winter	Existing	15.3	Strolling		53%	74%	85%	92%	8%
		Project	16.3	Strolling		47%	70%	82%	90%	10%
59	Summer	Existing	10.5	Standing		77%	93%	97%	99%	1%
		Project	13.6	Standing		60%	81%	90%	95%	5%
	Winter	Existing	13.8	Standing		61%	81%	90%	95%	5%
		Project	16.7	Strolling		47%	69%	81%	88%	12%
60	Summer	Existing	10.7	Standing		76%	91%	96%	98%	2%
		Project	8.0	Sitting		88%	97%	99%	100%	0%
	Winter	Existing	13.3	Standing		63%	82%	90%	94%	6%
		Project	9.8	Sitting		81%	92%	96%	98%	2%
61	Summer	Existing	11.5	Standing		72%	89%	95%	98%	2%
		Project	8.0	Sitting		89%	97%	99%	100%	0%
	Winter	Existing	14.2	Strolling		61%	79%	88%	93%	7%
		Project	9.8	Sitting		81%	93%	97%	99%	1%
62	Summer	Existing	13.7	Standing		60%	81%	90%	95%	5%
		Project	10.8	Standing		76%	91%	96%	98%	2%
	Winter	Existing	17.8	Walking		44%	65%	77%	86%	14%
		Project	14.1	Strolling		58%	80%	89%	94%	6%
63	Summer	Existing	15.3	Strolling		52%	74%	85%	92%	8%
		Project	11.6	Standing		70%	89%	96%	98%	2%
	Winter	Existing	19.8	Walking		37%	57%	70%	81%	19%
		Project	15.8	Strolling		49%	72%	84%	92%	8%
64	Summer	Existing	12.8	Standing		65%	84%	93%	97%	3%
		Project	10.6	Standing		76%	92%	97%	99%	1%
	Winter	Existing	17.0	Strolling		48%	68%	80%	88%	12%
		Project	14.3	Strolling		56%	79%	89%	94%	6%

Table 1. Pedestrian Wind Comfort Results

#	Season	Configuration	Speed (km/h)	Rating	Frequency of Occurrence (%)				
					Sitting	Standing	Strolling	Walking	Uncomfortable
65	Summer	Existing	10.8	Standing	75%	92%	97%	99%	1%
		Project	9.2	Sitting	84%	95%	98%	99%	1%
	Winter	Existing	14.3	Strolling	58%	79%	88%	94%	6%
		Project	12.0	Standing	69%	87%	94%	97%	3%
66	Summer	Existing	9.0	Sitting	85%	95%	98%	99%	1%
		Project	9.4	Sitting	83%	96%	98%	99%	1%
	Winter	Existing	12.6	Standing	67%	85%	92%	96%	4%
		Project	12.2	Standing	68%	87%	94%	97%	3%
67	Summer	Existing	8.6	Sitting	87%	96%	98%	99%	1%
		Project	7.4	Sitting	90%	96%	98%	99%	1%
	Winter	Existing	10.8	Standing	76%	90%	95%	98%	2%
		Project	8.9	Sitting	84%	92%	96%	98%	2%
68	Summer	Existing	10.9	Standing	75%	92%	96%	99%	1%
		Project	10.6	Standing	76%	92%	97%	99%	1%
	Winter	Existing	14.2	Strolling	56%	79%	89%	95%	5%
		Project	14.0	Standing	57%	80%	90%	95%	5%
69	Summer	Existing	10.9	Standing	74%	91%	97%	99%	1%
		Project	11.1	Standing	74%	91%	96%	99%	1%
	Winter	Existing	13.9	Standing	58%	80%	90%	95%	5%
		Project	14.2	Strolling	57%	79%	89%	95%	5%
70	Summer	Existing	11.6	Standing	71%	88%	94%	96%	4%
		Project	11.9	Standing	71%	86%	92%	96%	4%
	Winter	Existing	14.8	Strolling	56%	77%	86%	92%	8%
		Project	15.3	Strolling	56%	75%	84%	90%	10%
71	Summer	Existing	13.3	Standing	61%	83%	92%	97%	3%
		Project	12.6	Standing	65%	86%	94%	97%	3%
	Winter	Existing	15.8	Strolling	50%	72%	84%	91%	9%
		Project	15.3	Strolling	53%	75%	85%	92%	8%
72	Summer	Existing	-	-	-	-	-	-	-
		Project	12.3	Standing	67%	86%	94%	97%	3%
	Winter	Existing	-	-	-	-	-	-	-
		Project	14.9	Strolling	55%	76%	86%	93%	7%

Table 1. Pedestrian Wind Comfort Results

#	Season	Configuration	Speed (km/h)	Rating	Frequency of Occurrence (%)					
						Sitting	Standing	Strolling	Walking	Uncomfortable
73	Summer	Existing Project	- 14.4	- Strolling	- 60%	- 78%	- 87%	- 93%	- 7%	
	Winter	Existing Project	- 16.7	- Strolling	- 53%	- 71%	- 81%	- 87%	- 13%	
74	Summer	Existing Project	- 8.1	- Sitting	- 89%	- 97%	- 99%	- 100%	- 0%	
	Winter	Existing Project	- 10.7	- Standing	- 77%	- 91%	- 96%	- 98%	- 2%	
75	Summer	Existing Project	- 8.9	- Sitting	- 85%	- 96%	- 99%	- 100%	- 0%	
	Winter	Existing Project	- 11.4	- Standing	- 73%	- 89%	- 95%	- 98%	- 2%	
76	Summer	Existing Project	- 12.4	- Standing	- 70%	- 85%	- 92%	- 96%	- 4%	
	Winter	Existing Project	- 14.0	- Standing	- 68%	- 80%	- 87%	- 91%	- 9%	
77	Summer	Existing Project	- 12.0	- Standing	- 71%	- 87%	- 93%	- 97%	- 3%	
	Winter	Existing Project	- 14.5	- Strolling	- 61%	- 78%	- 87%	- 92%	- 8%	
78	Summer	Existing Project	- 13.6	- Standing	- 61%	- 82%	- 91%	- 96%	- 4%	
	Winter	Existing Project	- 17.2	- Walking	- 50%	- 69%	- 79%	- 87%	- 13%	
79	Summer	Existing Project	- 8.3	- Sitting	- 85%	- 93%	- 97%	- 98%	- 2%	
	Winter	Existing Project	- 12.8	- Standing	- 69%	- 83%	- 90%	- 94%	- 6%	
80	Summer	Existing Project	- 16.2	- Strolling	- 55%	- 73%	- 82%	- 88%	- 12%	
	Winter	Existing Project	- 23.9	- Uncomfortable	- 33%	- 50%	- 61%	- 70%	- 30%	

Table 1. Pedestrian Wind Comfort Results

#	Season	Configuration	Speed (km/h)	Rating	Frequency of Occurrence (%)					
						Sitting	Standing	Strolling	Walking	Uncomfortable
81	Summer	Existing Project	- 11.9	- Standing	- 70%	- 88%	- 94%	- 98%	- 2%	
	Winter	Existing Project	- 15.3	- Strolling	- 57%	- 75%	- 85%	- 92%	- 8%	
82	Summer	Existing Project	- 11.1	- Standing	- 75%	- 89%	- 94%	- 97%	- 3%	
	Winter	Existing Project	- 15.0	- Strolling	- 57%	- 76%	- 85%	- 91%	- 9%	
83	Summer	Existing Project	- 13.5	- Standing	- 62%	- 82%	- 91%	- 96%	- 4%	
	Winter	Existing Project	- 17.5	- Walking	- 46%	- 67%	- 78%	- 87%	- 13%	
84	Summer	Existing Project	- 14.3	- Strolling	- 58%	- 79%	- 88%	- 93%	- 7%	
	Winter	Existing Project	- 19.1	- Walking	- 41%	- 61%	- 73%	- 82%	- 18%	
85	Summer	Existing Project	- 15.5	- Strolling	- 53%	- 74%	- 85%	- 91%	- 9%	
	Winter	Existing Project	- 20.7	- Uncomfortable	- 36%	- 56%	- 68%	- 78%	- 22%	
86	Summer	Existing Project	- 17.9	- Walking	- 42%	- 64%	- 77%	- 86%	- 14%	
	Winter	Existing Project	- 22.3	- Uncomfortable	- 30%	- 49%	- 62%	- 73%	- 27%	
87	Summer	Existing Project	- 15.8	- Strolling	- 49%	- 72%	- 84%	- 92%	- 8%	
	Winter	Existing Project	- 20.7	- Uncomfortable	- 34%	- 54%	- 67%	- 78%	- 22%	
88	Summer	Existing Project	- 14.3	- Strolling	- 55%	- 79%	- 89%	- 95%	- 5%	
	Winter	Existing Project	- 17.4	- Walking	- 44%	- 66%	- 78%	- 87%	- 13%	

Table 1. Pedestrian Wind Comfort Results

#	Season	Configuration	Speed (km/h)	Rating	Frequency of Occurrence (%)					
						Sitting	Standing	Strolling	Walking	Uncomfortable
89	Summer	Existing	-	-	-	-	-	-	-	-
		Project	16.1	Strolling		48%	71%	83%	91%	9%
	Winter	Existing	-	-	-	-	-	-	-	-
		Project	22.2	Uncomfortable		33%	51%	64%	74%	26%
90	Summer	Existing	-	-	-	-	-	-	-	-
		Project	17.3	Walking		45%	67%	79%	87%	13%
	Winter	Existing	-	-	-	-	-	-	-	-
		Project	24.5	Uncomfortable		30%	47%	59%	69%	31%
91	Summer	Existing	-	-	-	-	-	-	-	-
		Project	16.4	Strolling		50%	71%	82%	90%	10%
	Winter	Existing	-	-	-	-	-	-	-	-
		Project	21.8	Uncomfortable		38%	54%	66%	75%	25%
92	Summer	Existing	-	-	-	-	-	-	-	-
		Project	15.4	Strolling		52%	74%	85%	92%	8%
	Winter	Existing	-	-	-	-	-	-	-	-
		Project	20.7	Uncomfortable		36%	55%	68%	78%	22%

Table 2. Pedestrian Wind Safety Results

#	Season	Configuration	Speed (km/h)	Rating	Frequency of Exceedance	
					Pass	
					%	Hours
1	Annual	Existing	67.1	Pass	0.0015%	0.1
		Project	52.6	Pass	0.0000%	0.0
2	Annual	Existing	73.6	Pass	0.0068%	0.6
		Project	56.5	Pass	0.0003%	0.0
3	Annual	Existing	80.8	Pass	0.0357%	3.1
		Project	65.8	Pass	0.0056%	0.5
4	Annual	Existing	81.8	Pass	0.0395%	3.5
		Project	75.4	Pass	0.0191%	1.7
5	Annual	Existing	76.4	Pass	0.0191%	1.7
		Project	80.6	Pass	0.0378%	3.3
6	Annual	Existing	69.6	Pass	0.0038%	0.3
		Project	76.1	Pass	0.0194%	1.7
7	Annual	Existing	67.8	Pass	0.0017%	0.1
		Project	69.1	Pass	0.0031%	0.3
8	Annual	Existing	72.7	Pass	0.0056%	0.5
		Project	69.5	Pass	0.0048%	0.4
9	Annual	Existing	85.5	Pass	0.0611%	5.4
		Project	73.5	Pass	0.0133%	1.2
10	Annual	Existing	82.0	Pass	0.0412%	3.6
		Project	77.4	Pass	0.0278%	2.4
11	Annual	Existing	67.8	Pass	0.0021%	0.2
		Project	72.8	Pass	0.0074%	0.6
12	Annual	Existing	66.2	Pass	0.0018%	0.2
		Project	63.9	Pass	0.0007%	0.1
13	Annual	Existing	65.1	Pass	0.0012%	0.1
		Project	62.7	Pass	0.0013%	0.1
14	Annual	Existing	65.1	Pass	0.0015%	0.1
		Project	57.0	Pass	0.0000%	0.0
15	Annual	Existing	64.3	Pass	0.0013%	0.1
		Project	60.6	Pass	0.0001%	0.0
16	Annual	Existing	61.2	Pass	0.0009%	0.1
		Project	52.9	Pass	0.0001%	0.0

Table 2. Pedestrian Wind Safety Results

#	Season	Configuration	Speed (km/h)	Rating	Frequency of Exceedance	
					Pass	
					%	Hours
17	Annual	Existing	58.7	Pass	0.0003%	0.0
		Project	53.1	Pass	0.0002%	0.0
18	Annual	Existing	66.3	Pass	0.0046%	0.4
		Project	63.9	Pass	0.0026%	0.2
19	Annual	Existing	64.0	Pass	0.0024%	0.2
		Project	68.4	Pass	0.0058%	0.5
20	Annual	Existing	63.3	Pass	0.0006%	0.1
		Project	64.5	Pass	0.0010%	0.1
21	Annual	Existing	65.2	Pass	0.0018%	0.2
		Project	63.4	Pass	0.0009%	0.1
22	Annual	Existing	74.4	Pass	0.0092%	0.8
		Project	73.7	Pass	0.0092%	0.8
23	Annual	Existing	83.3	Pass	0.0455%	4.0
		Project	84.2	Pass	0.0512%	4.5
24	Annual	Existing	66.5	Pass	0.0037%	0.3
		Project	68.0	Pass	0.0048%	0.4
25	Annual	Existing	71.1	Pass	0.0096%	0.8
		Project	74.3	Pass	0.0167%	1.5
26	Annual	Existing	67.9	Pass	0.0037%	0.3
		Project	77.4	Pass	0.0250%	2.2
27	Annual	Existing	63.1	Pass	0.0010%	0.1
		Project	63.0	Pass	0.0017%	0.1
28	Annual	Existing	61.5	Pass	0.0008%	0.1
		Project	62.1	Pass	0.0013%	0.1
29	Annual	Existing	73.0	Pass	0.0092%	0.8
		Project	72.1	Pass	0.0073%	0.6
30	Annual	Existing	66.1	Pass	0.0018%	0.2
		Project	62.0	Pass	0.0005%	0.0
31	Annual	Existing	63.3	Pass	0.0025%	0.2
		Project	68.6	Pass	0.0068%	0.6
32	Annual	Existing	57.2	Pass	0.0001%	0.0
		Project	59.1	Pass	0.0005%	0.0

Table 2. Pedestrian Wind Safety Results

#	Season	Configuration	Speed (km/h)	Rating	Frequency of Exceedance	
					Pass	
					%	Hours
33	Annual	Existing	57.1	Pass	0.0001%	0.0
		Project	58.9	Pass	0.0005%	0.0
34	Annual	Existing	56.3	Pass	0.0001%	0.0
		Project	57.3	Pass	0.0001%	0.0
35	Annual	Existing	62.6	Pass	0.0006%	0.1
		Project	65.0	Pass	0.0016%	0.1
36	Annual	Existing	62.0	Pass	0.0006%	0.1
		Project	59.2	Pass	0.0001%	0.0
37	Annual	Existing	49.8	Pass	0.0000%	0.0
		Project	50.7	Pass	0.0000%	0.0
38	Annual	Existing	70.0	Pass	0.0081%	0.7
		Project	55.6	Pass	0.0000%	0.0
39	Annual	Existing	63.4	Pass	0.0005%	0.0
		Project	67.6	Pass	0.0037%	0.3
40	Annual	Existing	63.0	Pass	0.0023%	0.2
		Project	54.6	Pass	0.0002%	0.0
41	Annual	Existing	60.6	Pass	0.0013%	0.1
		Project	60.5	Pass	0.0009%	0.1
42	Annual	Existing	77.3	Pass	0.0253%	2.2
		Project	64.5	Pass	0.0011%	0.1
43	Annual	Existing	67.8	Pass	0.0026%	0.2
		Project	71.1	Pass	0.0040%	0.4
44	Annual	Existing	64.6	Pass	0.0025%	0.2
		Project	58.4	Pass	0.0001%	0.0
45	Annual	Existing	70.5	Pass	0.0056%	0.5
		Project	68.2	Pass	0.0035%	0.3
46	Annual	Existing	68.6	Pass	0.0055%	0.5
		Project	69.0	Pass	0.0039%	0.3
47	Annual	Existing	69.8	Pass	0.0061%	0.5
		Project	85.5	Pass	0.0664%	5.8
48	Annual	Existing	67.6	Pass	0.0020%	0.2
		Project	68.9	Pass	0.0060%	0.5

Table 2. Pedestrian Wind Safety Results

#	Season	Configuration	Speed (km/h)	Rating	Frequency of Exceedance	
					Pass	
					%	Hours
49	Annual	Existing	64.6	Pass	0.0022%	0.2
		Project	63.0	Pass	0.0014%	0.1
50	Annual	Existing	68.7	Pass	0.0038%	0.3
		Project	51.5	Pass	0.0000%	0.0
51	Annual	Existing	77.9	Pass	0.0240%	2.1
		Project	79.2	Pass	0.0281%	2.5
52	Annual	Existing	80.3	Pass	0.0283%	2.5
		Project	68.3	Pass	0.0057%	0.5
53	Annual	Existing	76.7	Pass	0.0179%	1.6
		Project	72.7	Pass	0.0134%	1.2
54	Annual	Existing	71.7	Pass	0.0070%	0.6
		Project	55.6	Pass	0.0001%	0.0
55	Annual	Existing	88.9	Pass	0.0906%	7.9
		Project	85.1	Pass	0.0639%	5.6
56	Annual	Existing	69.6	Pass	0.0056%	0.5
		Project	67.4	Pass	0.0028%	0.2
57	Annual	Existing	85.7	Pass	0.0608%	5.3
		Project	72.6	Pass	0.0096%	0.8
58	Annual	Existing	61.3	Pass	0.0003%	0.0
		Project	63.0	Pass	0.0006%	0.1
59	Annual	Existing	59.4	Pass	0.0009%	0.1
		Project	70.0	Pass	0.0077%	0.7
60	Annual	Existing	62.5	Pass	0.0014%	0.1
		Project	53.6	Pass	0.0002%	0.0
61	Annual	Existing	64.1	Pass	0.0016%	0.1
		Project	49.9	Pass	0.0000%	0.0
62	Annual	Existing	72.4	Pass	0.0071%	0.6
		Project	62.7	Pass	0.0016%	0.1
63	Annual	Existing	73.2	Pass	0.0064%	0.6
		Project	62.5	Pass	0.0012%	0.1
64	Annual	Existing	67.0	Pass	0.0012%	0.1
		Project	60.0	Pass	0.0008%	0.1

Table 2. Pedestrian Wind Safety Results

#	Season	Configuration	Speed (km/h)	Rating	Frequency of Exceedance	
					Pass	
					%	Hours
65	Annual	Existing	61.2	Pass	0.0008%	0.1
		Project	60.0	Pass	0.0011%	0.1
66	Annual	Existing	56.1	Pass	0.0001%	0.0
		Project	52.8	Pass	0.0000%	0.0
67	Annual	Existing	54.6	Pass	0.0001%	0.0
		Project	56.7	Pass	0.0004%	0.0
68	Annual	Existing	58.1	Pass	0.0002%	0.0
		Project	56.8	Pass	0.0001%	0.0
69	Annual	Existing	55.7	Pass	0.0001%	0.0
		Project	55.5	Pass	0.0001%	0.0
70	Annual	Existing	72.8	Pass	0.0127%	1.1
		Project	75.4	Pass	0.0182%	1.6
71	Annual	Existing	65.0	Pass	0.0016%	0.1
		Project	62.4	Pass	0.0009%	0.1
72	Annual	Existing	-	-	-	-
		Project	58.7	Pass	0.0002%	0.0
73	Annual	Existing	-	-	-	-
		Project	70.0	Pass	0.0047%	0.4
74	Annual	Existing	-	-	-	-
		Project	48.0	Pass	0.0000%	0.0
75	Annual	Existing	-	-	-	-
		Project	48.2	Pass	0.0000%	0.0
76	Annual	Existing	-	-	-	-
		Project	72.4	Pass	0.0108%	0.9
77	Annual	Existing	-	-	-	-
		Project	68.5	Pass	0.0033%	0.3
78	Annual	Existing	-	-	-	-
		Project	67.1	Pass	0.0014%	0.1
79	Annual	Existing	-	-	-	-
		Project	60.8	Pass	0.0003%	0.0
80	Annual	Existing	-	-	-	-
		Project	97.8	Exceeds	0.2267%	19.9

Table 2. Pedestrian Wind Safety Results

#	Season	Configuration	Speed (km/h)	Rating	Frequency of Exceedance	
					Pass	
					%	Hours
81	Annual	Existing Project	- 63.9	- Pass	- 0.0009%	- 0.1
82	Annual	Existing Project	- 70.9	- Pass	- 0.0071%	- 0.6
83	Annual	Existing Project	- 69.8	- Pass	- 0.0028%	- 0.2
84	Annual	Existing Project	- 77.3	- Pass	- 0.0158%	- 1.4
85	Annual	Existing Project	- 84.1	- Pass	- 0.0459%	- 4.0
86	Annual	Existing Project	- 90.4	- Exceeds	- 0.1055%	- 9.2
87	Annual	Existing Project	- 82.0	- Pass	- 0.0393%	- 3.4
88	Annual	Existing Project	- 68.6	- Pass	- 0.0030%	- 0.3
89	Annual	Existing Project	- 90.2	- Exceeds	- 0.1029%	- 9.0
90	Annual	Existing Project	- 97.1	- Exceeds	- 0.2211%	- 19.4
91	Annual	Existing Project	- 83.1	- Pass	- 0.0353%	- 3.1
92	Annual	Existing Project	- 82.4	- Pass	- 0.0416%	- 3.6

August 4, 2023

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Re: Massing Refinements and Expected Impact for Skye Halifax
CPP Project 16214

United Gulf retained Cermak Peterka Petersen (CPP) to conduct a detailed wind tunnel study to assess pedestrian wind comfort and safety for the proposed Skye Halifax development. The results of this assessment are detailed in a reported August 9, 2022. Following this study, several refinements have been made to the design of the development. Within this letter, CPP provides our professional opinion on the impact of these design changes on pedestrian wind comfort and safety conditions at grade level, and on accessible above grade amenity spaces.

INTRODUCTION

The proposed Skye Halifax development is to be constructed in Halifax, Nova Scotia south of Sackville Street between Granville and Hollis Streets (see Image 1 for reference). The study site is within the Downtown Halifax Land Use By-law area. However, this By-law is relatively non-prescriptive as to the methodology for quantitative wind studies and, as such, the methods outlined within the Halifax Regional Centre Land Use By-law have been used to assess the pedestrian wind impact around the development site, as detailed in the Pedestrian Wind Assessment dated August 9, 2022.

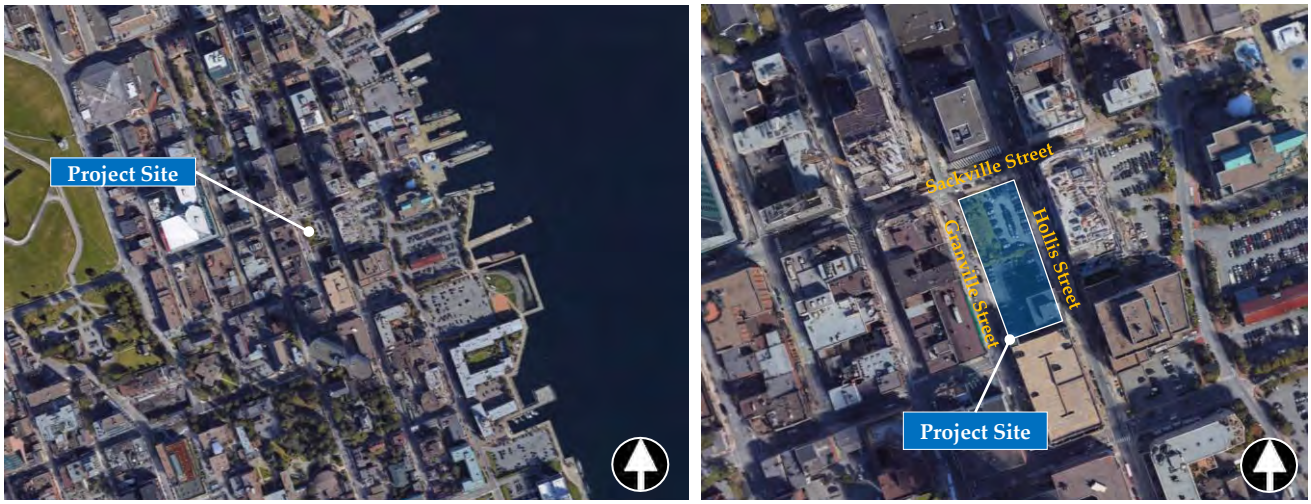

Image 1: Aerial Views of Project Site (Google Earth™)

The development includes two 22-story towers atop a 6-story podium with a grade level breezeway at the podium that includes areas for outdoor dining. In addition, the development includes rooftop amenity spaces on the south tower as well as atop the 6-story podium between the towers and at the southwest corner of south tower (see Image 2 and 3).

PLANNED DESIGN REFINEMENTS

Images 2 and 3 illustrate the previously evaluated baseline design (left images), and the current design of the development (right images). The overall height of the proposed development is the same as the previous design evaluated by CPP. Several refinements have been made to the podium structure and façade. More significant changes from a pedestrian wind comfort and safety perspective include the shifting of the mechanical penthouse to extend along the west perimeter edge of the south terrace. A vertical notch has also been incorporated into the south tower near the southwest corner, which extends from the podium to the top of the building.

Image 2: Baseline Massing Evaluated in the Wind Tunnel Study (Left) and Proposed Massing (Right)

EXPECTED IMPACT ON PEDESTRAIN WIND CONDITIONS

It is CPP's opinion that the changes in building massing are not expected to significantly alter both on-site and off-site grade level wind conditions documented in CPP's 9 August 2022 report. The most significant changes, from a pedestrian wind comfort and safety perspective is the relocation of the south tower mechanical penthouse. This feature is of equivalent height as the design previously evaluated, and is expected to have an insignificant impact on wind conditions at grade as these conditions are primarily the result of winds interacting with lower portions of the building.

South Tower Amenity Level

Relocating and extending the length of the mechanical penthouse on the south tower (see Images 2 and 3) is expected to shelter the amenity terrace from the strong prevailing winds from the south through northwest. This represents a positive design refinement from the baseline design from a pedestrian wind comfort and safety perspective.

Similar to the baseline design detailed in CPP's study, the amenity terrace will remain exposed to winds from the north through southeast. Without wind controls, conditions on the south tower roof terrace are primarily

expected to be rated as comfortable for standing or strolling, with locations near the corner of the mechanical penthouse rated as comfortable for walking during the summer when this area is expected to be most heavily used.

The project team has included a number of positive wind control elements to further improve wind conditions on the south tower roof terrace, as described in Image 3. These features include:

- A 2000 mm high wind screen that extends around the perimeter of the pool, including along the south edge of the terrace.
- Several large, 2000 mm high wind screens placed within seating areas and arranged to intercept winds that flow across the terrace.
- A large canopy above the main entrance to the terrace to provide localized protection from downwashing winds.
- A series of 450 mm high landscaping planters along the east edge of the terrace.

These features are expected redirect and reduce winds that flow across the roof level amenity deck. In addition, the wind screens placed along the terrace in seating areas are expected to provide localized areas of wind protection, while allowing users of the space to move to areas of greater, or lesser protection depending on meteorological conditions.

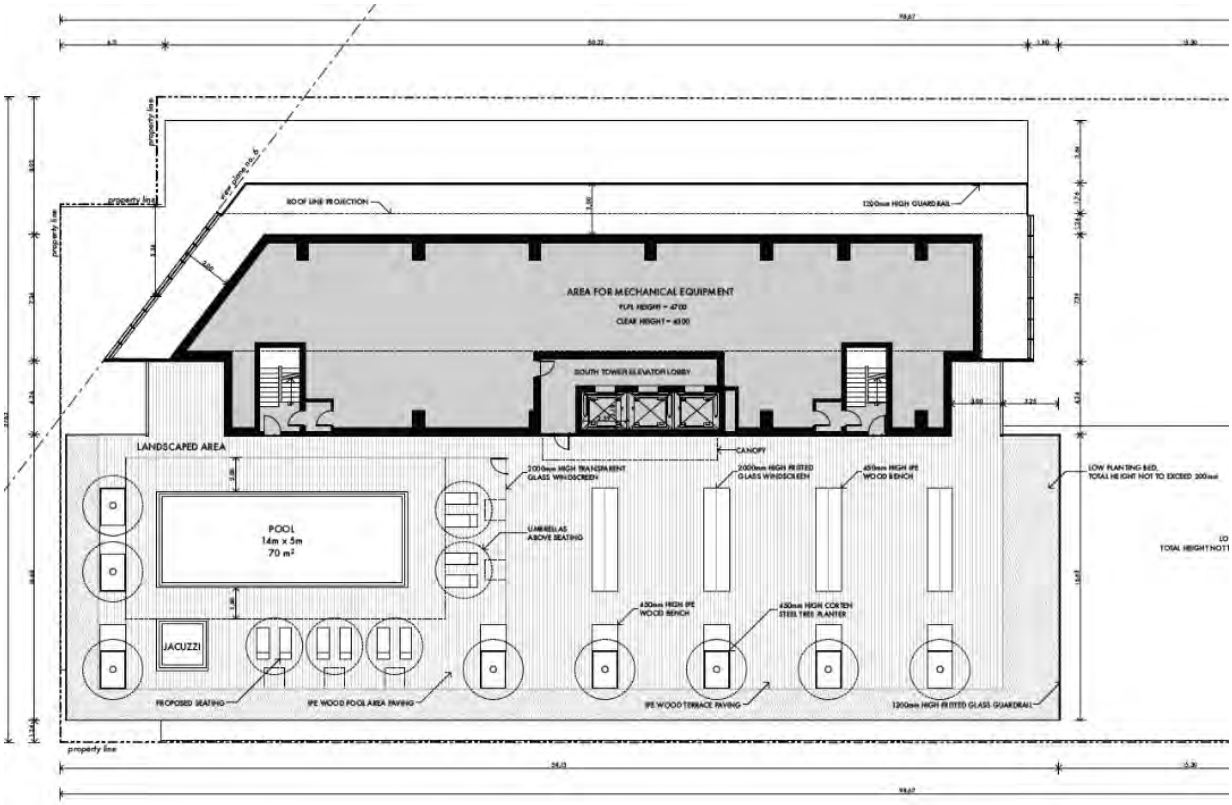

Image 3: South Tower - Level 22 Upper Mechanical Penthouse and Amenity Terrace

North Tower Amenity Level

Following CPP's wind tunnel test, the Level 22 mechanical penthouse and amenity space of the north tower has also undergone several modifications to the current design shown in Image 4.

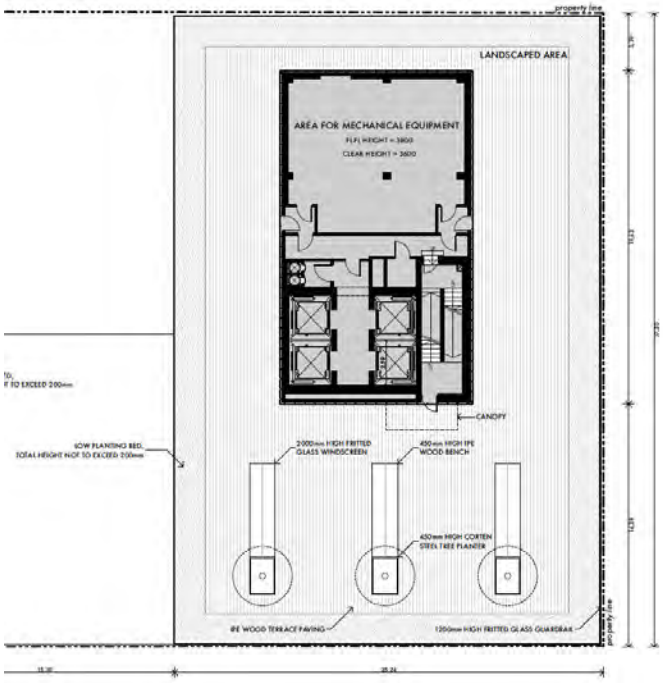

Image 4: North Tower - Level 22 Upper Mechanical Penthouse and Amenity Terrace

Wind conditions on this terrace as modelled and subsequently reported in the August 9, 2022 report were predicted to be suitable for standing or better across much of the amenity terrace, with strolling conditions anticipated near the northeast corner of the mechanical penthouse. In general, these wind comfort conditions are well suited to the space, as CPP understands winter use is not anticipated for this building occupant amenity terrace, when wind safety exceedances also tend to occur much more frequently in Halifax.

The current design, as shown in Image 4 above includes the following features:

- A 1200 mm high wind screen around the perimeter of the rooftop amenity terrace.
- Several large, 2000 mm high wind screens positioned to form seating areas and arranged to intercept winds that flow across the terrace.
- A canopy above the main entrance to the terrace to provide localized protection from downwashing winds.
- A series of 450 mm high landscaping planters along the east edge of the terrace.

The updates to the north roof amenity terrace to the current design may result in increased wind speeds at some measurement locations, while potentially reducing wind speeds at others due to the previously modelled parapets redirecting and channeling wind between the guardrail and mechanical penthouse.

The addition of the localized wind protection elements is expected to provide positive wind protection to areas of pedestrian use, while allowing users of the space to move to areas of greater, or lesser protection depending on meteorological conditions. If the project team wishes to further enhance wind conditions near the northeast corner of the mechanical penthouse, a localized wind screen may be placed near the corner to dissipate winds while limiting pedestrian access to this location.

As a rooftop amenity terrace is an elective pedestrian use space, wind comfort conditions during the summer are considered most important. This is in contrast to a main building entrance, for example, which pedestrians must use regardless of time of year or the weather within reason. It is also commonplace for roof amenity spaces to go unused or have access controlled during the winter months or periods of inclement weather when winds tend to be stronger, as is recommended in this case.

CONCLUSIONS

It is our opinion that the change in massing and the design refinements of the proposed massing are not expected to result in a significant change in wind conditions at both the on-site and off-site locations previously evaluated in CPP's Pedestrian Wind Assessment.

Several positive wind control features have been included in the design of the development, such as the relocation and extension of the south tower mechanical penthouse, and the incorporation of wind control features such as the perimeter wind screen around the pool, several large wind screens within the terrace, canopy above the entrance, and the planters along the east edge of the terrace. Several wind control features have also been incorporated into the design of the north tower amenity terrace. These features are expected to improve wind conditions from those predicted in CPP's Pedestrian Wind Assessment.

We trust this satisfies your requirements for the project. Should you have any questions or require additional information, please do not hesitate to contact us.

Yours very truly,

CPP Inc.

Albert Brooks, M.A.Sc., P.Eng.
Associate Principal