**IBI GROUP**
101 – 410 Albert Street
Waterloo ON N2L 3V3 Canada
tel 519 585 2255
**ibigroup.com**

May 31, 2022

Ms. Wendy Fisher, MA, MCIP, RPP
Senior Development Planner
City of Waterloo
100 Regina St S
Waterloo, ON N2A 4J8

Dear Ms. Fisher:

**SHADOW STUDY ANALYSIS**
**HYGATE DEVELOPMENT CORPORATION**
**215 LEXINGTON ROAD, CITY OF WATERLOO**

On behalf of our client, Hygate Development Corporation, please accept this letter and attached Shadow Study diagrams as required by the City for the combined Official Plan and Zoning By-Law Amendment Application for the 215 Lexington Road development.

The following letter provides a description of the Shadow Study conducted by IBI Group for the proposed development, specifically looking at the impacts of shadows anticipated to be cast by the proposed building over the surrounding area.

## 1.0 BACKGROUND

Our client is proposing to develop the subject lands for the purpose of two residential buildings consisting of 453 total units (617 bedrooms). The applicant has already completed 'Phase 1' of the development which included a six-storey retirement home with 216 units (248 bedrooms) and associated parking. The applicant is now proposing an Official Plan Amendment and Zoning By-Law Amendment in support of 'Phase 2' which would see the demolition of the existing Long Term Care home with 84 units and the development of two additional residential buildings. Building A, as shown on the site plan, is a seven storey building fronting Lexington Road; and Building B is a tiered 'U' shaped building, proposed to be constructed at the rear of the site.

## 2.0 NEIGHBOURHOOD CONTEXT

The subject property is situated in a neighbourhood which contains a mix of residential, commercial and institutional uses within close proximity to the site (Figure 1). Abutting the subject property immediately to the northwest is a commercial Plaza with smaller, neighbourhood focused convenience stores and services. Abutting the northeast of the subject property is the Waterloo Mennonite Brethren Church which contains a large religious institutional building and an associated surface parking lot. Opposite the Waterloo Mennonite Brethren Church, on the north side of the Lexington Road/Davenport Road intersection is the Christ Lutheran Church. To the south exists green space that is identified as a 'Parks and Other Green Space' in Schedule A3 of the City's Official Plan.

The property is also in close proximity to nearby residential uses including a predominantly low rise residential subdivision to the northwest and townhouses to the southeast of the site. It is noted that the subject property does not directly abut residentially zoned properties that may be

IBI Group Professional Services (Canada) Inc. is a member of the IBI Group of companies.

directly impacted by the proposed development. The residential properties on the north side of Lexington Road, between the Highway and Davenport Road back onto Lexington Road, do not have vehicular access onto Lexington Street. Residential properties south of the Waterloo Mennonite Brethren Church do front Lexington Road.




**Figure 1:** 3D Aerial Image of the Subject Property and Surrounding Area (Source: Google Earth)

## 3.0 STUDY CRITERIA AND METHODOLOGY

'Section K' of the City of Waterloo's Site Plan Review Guidelines provide the Shadow Study Criteria for development applications. Shadow tests are required for the following dates and times:

| Date(s) | Times |
|---|---|
| • Spring shadows, March 21 (equinox): | 10am, 12 pm, 2 pm, 4 pm, 6 pm |
| • Summer shadows, June 21 (solstice): | 10am, 12 pm, 2 pm, 4 pm, 6 pm |
| • Autumn shadows, September 21 (equinox): | 10am, 12 pm, 2 pm, 4 pm, 6 pm |
| • Winter shadows, December 21 (solstice) | 10 am, 12 pm, 2 pm |

Further, the City has established the following two guidelines that a Shadow Study must demonstrate:

- As a principle, at least 50% or more of any property should not be shaded for more than two interval times (a four hour equivalency); or,
- As a principle, at least 50% of any property should be in full sun for at least two interval times (a four hour equivalency).

## 4.0 SHADOW ANALYSIS

### Spring: March 21 (10AM, 12PM, 2PM, 4PM, 6PM)

Shadows cast during the spring are greatest at both the 4:00 pm and 6:00 pm intervals. Shadows at these intervals mainly impact the Waterloo Mennonite Brethren Church property and low-rise residential dwellings to the east. Although these properties will have shadows impacting at least 50% or more of the parcel during the 4:00 pm and 6:00 pm intervals, the remaining three time intervals (10:00 am, 12:00 pm and 2:00 pm) during the day will have at least 50% of the lot in full sunlight.

Notwithstanding the above, all properties most affected by shadows during the Spring will have full sunlight for at least two time intervals during the day and will not be more than 50% shaded for more than two intervals. Based on this analysis it is anticipated that the shadows anticipated will adhere to City thresholds.

### Summer: June 21 (10AM, 12PM, 2PM, 4PM, 6PM)

Shadows cast from the proposed building during the summer will be minimal and the least significant in June. Majority of the shadows remain internal to the subject property.

Shadows are the strongest at the 6:00 pm interval, casting over the Waterloo Mennonite Brethren Church property and low-rise residential dwellings to the east. During the remaining four time intervals (10:00 am, 12:00 pm, 2:00 pm and 4:00 pm), the Waterloo Mennonite Brethren Church, low-rise residential dwellings, and surrounding properties will have at least 50% of the lot in full sunlight.

Notwithstanding the above, all properties most affected by shadows during the Summer will have full sunlight for at least two time intervals during the day and will not be more than 50% shaded for more than two intervals. Based on this analysis it is anticipated that the shadows anticipated will adhere to City thresholds.

### Fall: September 21 (10AM, 12PM, 2PM, 4PM, 6PM)

Fall shadows are very similar to those cast in the springtime, with the strongest shadows being cast at the 4:00 pm and 6:00 pm intervals.

At the 10:00 am interval, shadows cast by the proposed development are limited to Lexington Road and do not impact any adjacent properties.

Shadows during the 12:00 pm interval are internal and do not impact more than 50% of any adjacent properties. Likewise, the 2:00 pm interval casts shadows internally and will impact less than 50% of the Waterloo Mennonite Brethren Church property to the east.

At the 4:00 pm and 6:00 pm intervals, the proposed development will cast shadows on Waterloo Mennonite Brethren Church property and low-rise residential dwellings to the east. While more than 50% of these impacted properties will be shadowed during 4:00 pm and 6:00 pm, shadows during the remaining three time intervals are less than 50% of the lot area and allow for at least 50% of the property to be in full sun for at least two interval times.

Notwithstanding the above, all properties most affected by shadows during the Fall will have full sunlight for at least two time intervals during the day and will not be more than 50% shaded for more than two intervals. Based on this analysis it is anticipated that the shadows anticipated will adhere to City thresholds.

**Winter: December 21 (10AM, 12PM, 2PM)**

During the 10:00 am interval, shadows from the proposed development impact Lexington Road, Christ Lutheran Church, and the rear portion of low-rise residential housing to the north. During this interval, however, the shadows do not impact more than 50% of the parcels and will have at least 50% of the lot in full sunlight.

At the 12:00 pm interval, less than 50% of the Waterloo Mennonite Brethren Church parcel to the east is impacted by shadows from the proposed development. Shadows during this interval also impact Lexington Road.

During the 2:00 pm interval, more than 50% of the Waterloo Mennonite Brethren Church parcel is impacted by shadows, however, during the remaining 10:00 am and 12:00 pm time intervals less than 50% of the lot area is impacted by shadows and allow for at least 50% of the property to be in full sun for at least two interval times.

Notwithstanding the above, all properties most affected by shadows during the Winter will have full sunlight for at least two time intervals during the day and will not be more than 50% shaded for more than two intervals. Based on this analysis it is anticipated that the shadows anticipated will adhere to City thresholds.

**CONCLUSION**

This Shadow Study demonstrates that the proposed development is consistent with the Shadow Study Criteria set out in 'Section K' of the City's Site Plan Review Guidelines as the proposed building will not cause 50% or more of any adjacent property to be shaded for more than two interval times at different times throughout the year.

Should you have any questions or if you would like to discuss, please contact the undersigned.

Yours truly,

**IBI GROUP**

Christian Tsimenidis
Urban Planner

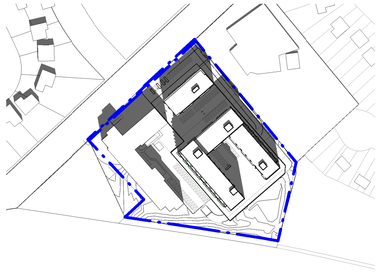
Dave Galbraith, MCIP, RPP
Associate – Manager, Planning

DG/CT/baw
Encl.

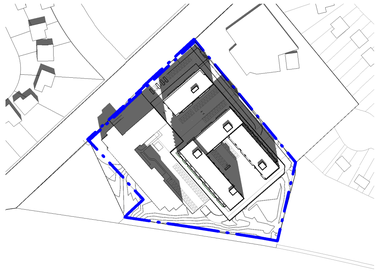
cc: Hygate Development Corporation

N

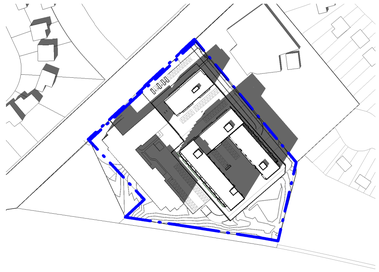
MARCH 21



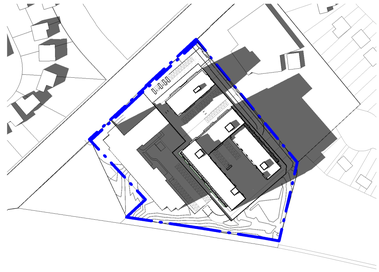
10:00 AM



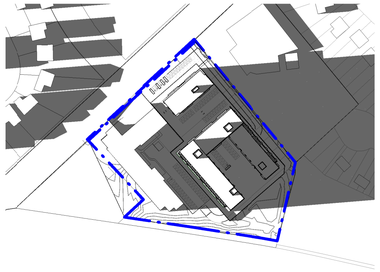
12:00 PM



2:00 PM

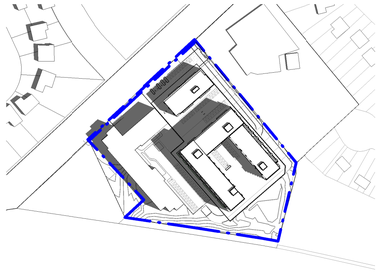


4:00 PM

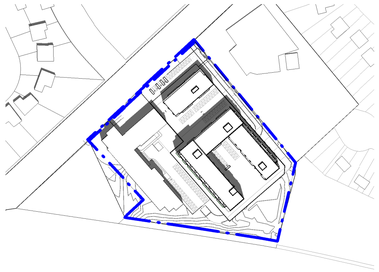


6:00 PM

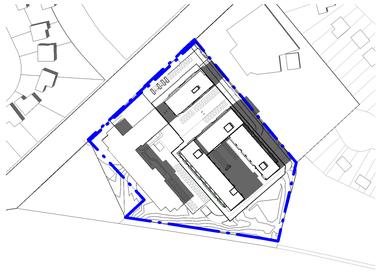
JUNE 21



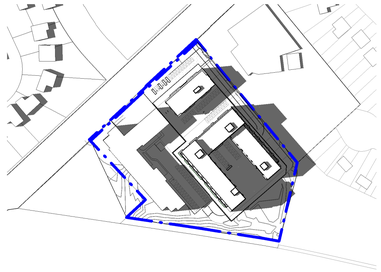
10:00 AM



12:00 PM



2:00 PM



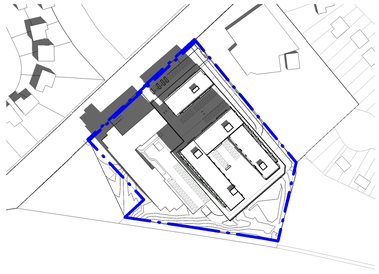
4:00 PM



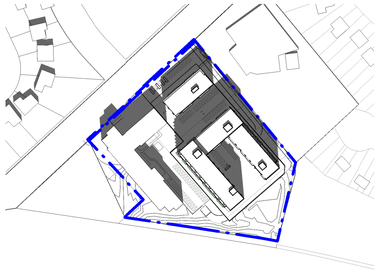
6:00 PM

SEPTEMBER 21

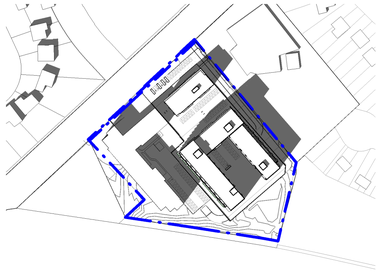
10:00 AM



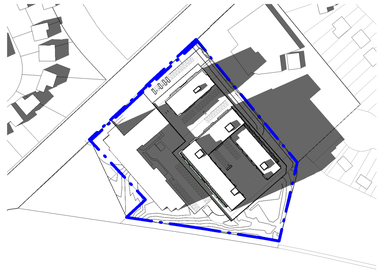
12:00 PM



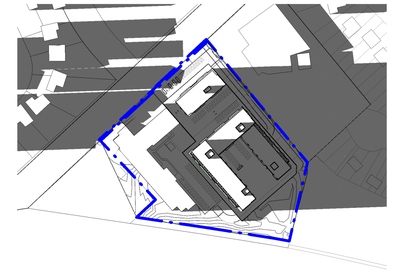
2:00 PM



4:00 PM

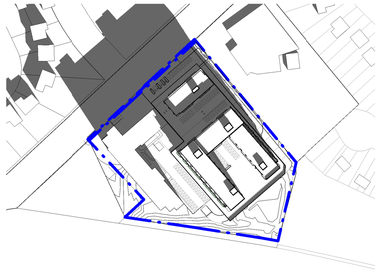


6:00 PM

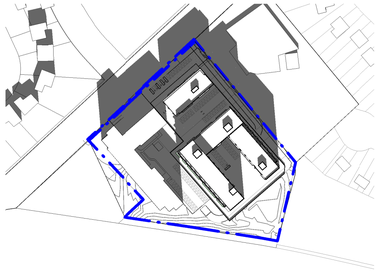


DECEMBER 21

10:00 AM



12:00 PM



2:00 PM



CLIENT

Hygate Living

COPYRIGHT:

Any reproduction or distribution for any purpose other than authorized by IBI Group is forbidden. Written dimensions shall have precedence over scaled dimensions. Contractors shall verify and be responsible for all dimensions and conditions on the job and IBI Group shall be informed of any variations from the dimensions and conditions shown on the drawing. Shop drawings shall be submitted to IBI Group for general conformance before proceeding with fabrication.

**IBI Group Architects (Canada) Inc.**
is a member of the IBI Group of companies

ISSUES

| NO. | ISSUANCE | STATUS | DATE |
|---|---|---|---|
| 1 | ISSUED FOR OPA | | 05/27/22 |

SEAL

SUB CONSULTANT

PRIME CONSULTANT

**IBI GROUP**
410 Albert St #101. Waterloo, ON
tel (519) 585-2255

**ibigroup.com**

PROJECT
215 Lexington Rd, Waterloo

| | |
|---|---|
| PROJECT NO: | 133176 |
| DRAWN BY: | Author |
| CHKD' BY: | Checker |
| SCALE: | 1 : 2500 |
| DATE: | 02/12/21 |

SHEET TITLE
Shadow Study

SHEET NUMBER
A-5001