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October 22, 2018

Mr. John Vos
Development Planner
Integrated Planning and Public Works
100 Regina St. S. PO Box 337,
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Dear Mr. Vos:

**UPDATED SHADOW STUDY ANALYSIS
635 ERB STREET WEST AND 12 WESTHILL DRIVE, WATERLOO
BEL COMMUNITIES INC.**

On behalf of our client, Bel Communities Inc., please accept this letter and the attached drawings as the updated Shadow Study as required by the City for the proposed 635 Erb Street West and 12 Westhill Drive Official Plan and Zoning By-Law Amendment applications.

This letter provides a description of the Shadow Study undertaken for the proposed development, which investigates the impact of shadows anticipated to be cast by the proposed building over the surrounding area.

PROPOSED DEVELOPMENT

The applicant is proposing to construct two (2) apartment buildings and six (6) stacked townhouse blocks at the properties municipally known as 635 Erb Street West and 12 Westhill Drive in the City of Waterloo. In total, the development is proposed to feature 335 residential units.

NEIGHBOURHOOD CONTEXT

The subject lands are located on the west side of the City of Waterloo near the recently developed “Boardwalk” commercial area on Ira Needles Boulevard, which features a broad range of retail stores, offices and personal service shops. Nearby commercial uses include a Costco, Canadian Tire, Freshii Restaurant, Boston Pizza Restaurant, Dutchies Grocery Store, Winners clothing/household store, and a Shoppers Drugmart Pharmacy.

The subject lands are also located within close proximity to a range of existing residential uses. East of the subject lands exists a residential subdivision comprised primarily of single-detached residences. Immediately west of the subject lands, exists a five-storey apartment building and a twelve storey apartment building geared to retirement living. Figure 1 illustrates the types of uses within close proximity to the site.

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STUDY CRITERIA AND METHODOLOGY

To fulfill the requirements set out in ‘Section K’ of the City of Waterloo’s Site Plan Review Guidelines, a shadow analysis was undertaken for the following periods which allow for the measuring of hours of sunlight intervals:

Date	Times
March 21 (equinox)	10 am, 12 pm, 2 pm, 4 pm, 6 pm
June 21 (solstice)	10 am, 12 pm, 2 pm, 4 pm, 6 pm
September 21 (equinox)	10 am, 12 pm, 2 pm, 4 pm, 6 pm
December 21 (solstice)	10 am, 12 pm, 2 pm

In accordance with the City’s Guidelines, a Shadow Study must demonstrate that:

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

Based on our analysis/review, it is our understanding that the proposed development conforms to these criteria, as demonstrated below.

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

Shadows cast during the 10 am interval will extend over Erb Street (north of the site) onto the very southern portion of the 636 Erb Street West townhouse development.

Shadows cast during the 12 pm and 2 pm interval times will be least impactful, with the majority of shadows/shading occurring over adjacent streets (i.e., Erb Street and Westhaven Drive). No adjacent residential properties will experience more than 50% shading during these time intervals.

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Shadows at the 4 pm interval will extend east of the site, and affect the rear yard of 400 Westcroft Drive.

As shown on Figure 2, Shadows cast during the spring will be greatest at the 6 pm interval. At 6 pm, the properties east of the site along Westcroft Drive will be most affected, however the sun will be setting fast at this time.

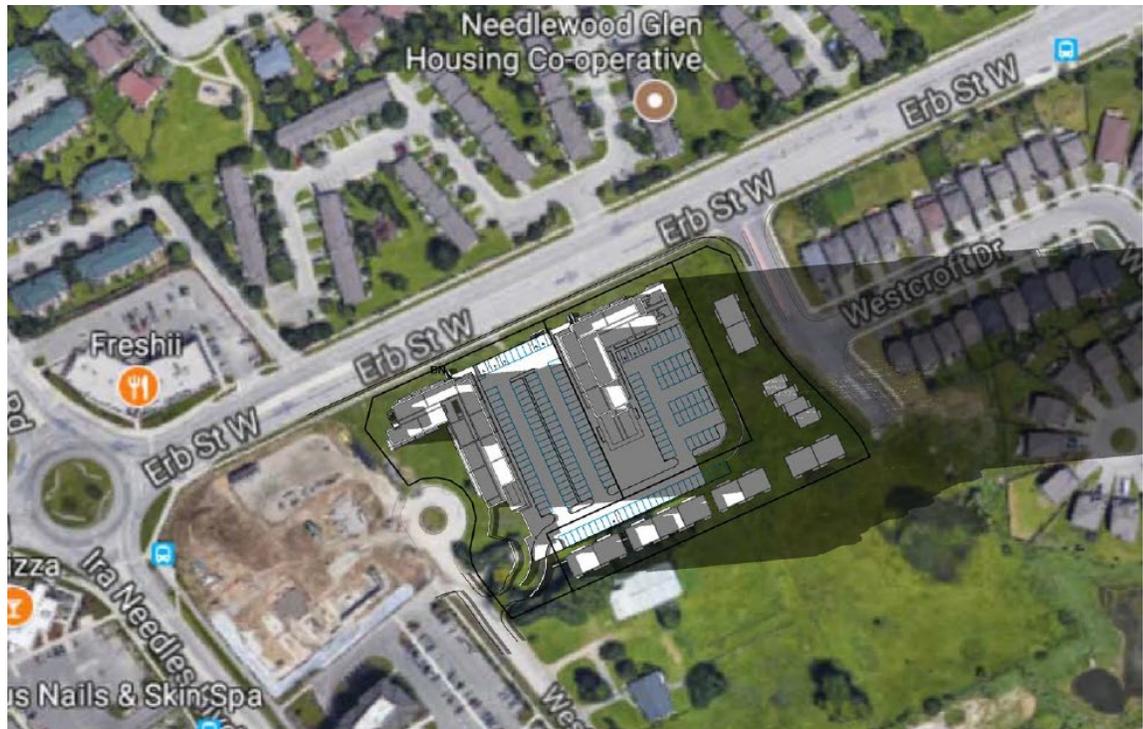


Figure 2: March 21, 6 pm shadow impacts

All properties that will be most affected by shadows will have at least 50% of their lot in full sunlight for three time intervals during the day. Likewise, no property will have more than 50% of the site in shadows at more than two (2) interval periods.

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

Shadow impacts from the proposed building will be minimal in June, compared to other times throughout the year. Shadows cast at the 10 am and 12 pm intervals will be limited to the southern portion of Erb Street West, as shown on Figure 3.

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Figure 3: June 21, 12 pm shadow impacts

Shadows cast at the 2 pm, 4 pm and 6 pm intervals will extend east, however most of the shadows will be limited to the site itself. Only a portion of 403 Westcroft Drive will be impacted by shadows at 6 pm, otherwise the areas east of the site are not expected to be impacted by shadows during this time.

All adjacent properties will have at least 50% of their lot in full sunlight for three time intervals during the day. Likewise, no property will have more than 50% of the site in shadows at more than two (2) interval periods.

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

Fall shadows are very similar to those cast in the springtime, with the strongest shadows being cast at the 6:00 PM interval. Shadows cast during the 10 am interval will extend onto the southern portion of the 636 Erb Street West townhouse development.

Shadows cast during the 12 pm and 2 pm interval times will be least impactful, with the majority of shadows/shading occurring over adjacent streets (i.e., Erb Street and Westhaven Drive).

At 4 pm and 6 pm, the properties east of the site along Westcroft Drive will be most affected, however the sun will be setting fast at this time. All properties adjacent to the site will have at least 50% of their lot in full sunlight for three time intervals during the day on September 21. Likewise, no property will have more than 50% of the site in shadows at more than two (2) interval periods.

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

The winter analysis shows that the building will cast shadow to the north of the site onto 634 and 636 Erb Street West at the 10 am, 12 pm, and 2 pm intervals. Notwithstanding this, no

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property adjacent to the site will be more than 50% shaded for more than two (2) interval periods as a result of the development.

CONCLUSION

This Shadow Study demonstrates that the proposed development is consistent with the Shadow Study Criteria set out in the 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.

Sincerely,

IBI GROUP



David Galbraith,
Planner

Encl.