Attention: **Planning Department,**
City of Burlington
426 Brant Street, PO Box 5013
Burlington, Ontario L7R 3Z6

Date: July 11, 2022

Regarding: **355 Plains Road & 1010 Downsview Drive, Burlington - Shadow Study Written Analysis**

To whom it may concern,

The development proposal for 355 Plains Road East and 1010 Downsview Drive, Burlington meets the applicable shadow impact criteria in that it meets all the minimum sun access factors during the times of concern on March 21st for both adjacent private outdoor amenity areas, as well as public realms and sidewalks. Each of these adjacent areas are broken down below – specific calculations are broken down in Figures 1a and 1b below.

Private Outdoor Amenity Area – Residential Rear Yard
Requirements: Between the hours of 9:00am and 6:00pm on March 21st, the sun access factor must be minimum 0.22.
Times of Concern: Between the hours of 9:00am and 12:00pm on March 21st, the rear yards of adjacent residential areas have either full or partial shadows cast on them by the proposed development. However, the overall sun access factor for the day (from 9:00am to 6:00pm) is approximately 0.70, which exceeds the minimum requirement of 0.22 (refer to Figure 1a).

Public Realm and Sidewalks
Requirements: Between the hours of 9:00am and 6:00pm on March 21st, the sun access factor must be minimum 0.50. Sidewalks require either full sunlight 50 percent of the time, or 50 percent sun coverage at all times.
Times/Locations of Concern: Building 1 shades opposite sidewalks between the hours of 5:00pm and 6:00pm, but allows for full sunlight 80 percent of the time along both Downsview Drive and Plains Road East. Building 2 shades opposite sidewalks from 2:00pm to 6:00pm, allowing for full sun 50 percent of the day along Downsview Drive. The sidewalks along Plains Road East have no new shadows cast on them by either building until 4:00pm, allowing for full sun 70 percent of the day. All surrounding sidewalks combined have a sun access factor of 0.56, which exceeds the minimum requirement of 0.50 (refer to Figure 1b).

Cumulative shadows occur on March 21st in the early morning on the north-west residential buildings, and south-east buildings in the evening. On September 21st, cumulative shadows occur on the south-eastern buildings in the evening. On December 21st, cumulative shadows occur on the north-west residential buildings in the morning, and the north-east buildings in the evening. Finally, on June 21st, cumulative shadows occur on both the south-east, and north-east buildings in the evening.

279 King Street West, Suite 200 Kitchener, Ontario, N2G 1B1 519.885.5600 | srmarchitects.ca

The shadow study criteria are met in all instances as shown by the meeting of the minimum sun access factors. Through the design process, shadow impacts were mitigated through appropriate building separation, and building orientation on the respective sites, as well as through step-backs in the massing at the upper levels of the buildings. No further mitigation measures are required to meet the terms of the City of Burlington's shadow impact criteria.

355 PLAINS ROAD EAST AND 1010 DOWNSVIEW DRIVE, BURLINGTON - S.A.F. CALCULATIONS

S.A.F. - PRIVATE OUTDOOR AMENITY AREA - RESIDENTIAL REAR YARD	
TOTAL AREA =	2029.815
AREA EXPOSED TO SUN AT EACH HOURLY TEST TIME (m^2)	
9:00 AM	321.334
10:00 AM	759.91
11:00 AM	1366.277
12:00 PM	1774.357
1:00 PM	2029.815
2:00 PM	2029.815
3:00PM	1944.519
4:00PM	1573.511
5:00 PM	806.437
6:00 PM	596.271
AVERAGES FOR NINE ONE-HOUR INTERVALS	
9:00-10:00 AM	540.622
10:00-11:00 AM	1063.094
11:00 AM-12:00 PM	1570.317
12:00-1:00 PM	1902.086
1:00-2:00 PM	2029.815
2:00-3:00 PM	1987.167
3:00-4:00 PM	1759.015
4:00-5:00 PM	1189.974
5:00-6:00 PM	701.354
SUM OF AVERAGES =	12743.44
NUMBER OF INTERVALS =	9
AVERAGE AREA IN SUN =	SUM OF AVERAGES / NUMBER OF INTERVALS
=	1415.938
S.A.F. =	AVERAGE AREA IN SUN / TOTAL AREA
	0.69757
S.A.F. IS GREATER THAN 0.22, THEREFORE IT MEETS THE CRITERIA	

Figure 1a

S.A.F. - PUBLIC REALM AND SIDEWALKS - OPPOSITE BUILDING 1	
TOTAL AREA =	749.904
AREA EXPOSED TO SUN AT EACH HOURLY TEST TIME (m^2)	
9:00 AM	384.448
10:00 AM	629.093
11:00 AM	498.919
12:00 PM	466.565
1:00 PM	463.012
2:00 PM	516.887
3:00PM	516.518
4:00PM	338.73
5:00 PM	179.853
6:00 PM	0
AVERAGES FOR NINE ONE-HOUR INTERVALS	
9:00-10:00 AM	506.7705
10:00-11:00 AM	564.006
11:00 AM-12:00 PM	482.742
12:00-1:00 PM	464.7885
1:00-2:00 PM	489.9495
2:00-3:00 PM	516.7025
3:00-4:00 PM	427.624
4:00-5:00 PM	259.2915
5:00-6:00 PM	89.9265
SUM OF AVERAGES =	3801.801
NUMBER OF INTERVALS =	9
AVERAGE AREA IN SUN =	SUM OF AVERAGES / NUMBER OF INTERVALS
=	422.4223
S.A.F. =	AVERAGE AREA IN SUN / TOTAL AREA
	0.563302
S.A.F. IS GREATER THAN 0.50, THEREFORE IT MEETS THE CRITERIA	

Figure 1b

Kindest Regards,

Prepared by:

Jordyn Farquharson, Architectural Technologist

SRM Architects Inc.
T: 519.885.5600 x255
E: JFarquharson@srmarchitects.ca

As per the Supervising Architect:

Jeff Atchison, Architect

SRM Architects Inc.
T: 519.885.5600 x240
E: jatchison@srmarchitects.ca