

October 16, 2019

City of Mississauga Planning Department  
300 City Centre Drive,  
Mississauga, Ontario  
L5B 3C1

re: **Shadow/Shading Impact Study for 2207 Dixie Road, Mississauga, Ontario**

The following is a Shadow Impact Study relative to the proposed development at 2207 Dixie Road in the City of Mississauga, Ontario, Part of lot 5, concession 1 South of Queensway East. This study has been prepared by the architectural firm pml.A at 7283 Bendigo Circle, Mississauga, Ontario. The purpose of this study is, as outlined by the City of Mississauga Planning and Building Department, "to illustrate the impact of development in terms of sun and daylight access to the surrounding context" and to demonstrate that the location and height of a proposed 4 storey building "will not cause undue shade on the subject lands, and on surrounding context including building facades, private and public outdoor amenity and open spaces, public parklands, sidewalks and other components of the public realm".

The proposed development is a 4 storey townhouse building containing 4 residential units. The building has street access from Venta Ave at the South East end of the lot allowing vehicular and pedestrian access, and alternative pedestrian access off of Dixie Road on the South West side. The lot area is approximately 701.90 sqm (approx. 0.07 Hectares). The proposed development covering approximately 314.46 sqm, or 44.8% of the lot, and 852.85 sqm of Gross Floor Area for a Floor Area Index of 1.215.

#### **Shadow Testing Method**

The study was carried out using Trimble SketchUp modelling software. An image taken from the 'Mississauga Maps' online mapping service showing the site and adjacent properties was digitally inserted into the model to orient the proposed building to Astronomic North accurately and geo-located the lot using the coordinates 43°36'08.0"N 79°34'23.8"W.

The study was conducted at three separate times over four calendar days, one from each season as follows:

- **Summer** - June 21<sup>st</sup> at 7:07, 7:20, 8:20, 9:20, 10:20, 11:20, 12:20, 13:20(SN), 14:20, 15:20, 16:20, 17:20, 18:20, 19:20 and 19:33. (UTC -4:00)
- **Fall** - September 21<sup>st</sup> at 8:35, 9:12, 10:12, 11:12, 13:12(SN), 14:12, 15:12, 16:12, 17:12 and 17:48. (UTC -4:00)
- **Winter** - December 21<sup>st</sup> at 9:19, 10:17, 11:17, 12:17(SN), 13:17, 14:17 and 15:15. (UTC -5:00)

*As outlined in the 'Standards for Shadow Studies' the September 21 conditions are similar to March 21 (Spring) and are deemed to apply to March 21 and are therefore not provided separately.*

## **Shadow Test Analysis**

### **1. Residential Private Outdoor Amenity Spaces**

#### **Summer – June 21:**

A shadow from the proposed development enters the property across the street to the South East, 2201 Dixie Road, at 7:20 pm creating a minor impact in the No Impact Zone until sunset.

#### **Fall – September 21 (deemed similar to Spring – March 21):**

A shadow from the proposed development enters the neighbouring property to the North East, 1413 Venta Ave, at 2:12 pm creating a minor impact in the No Impact Zone. The shadow leaves the No Impact Zone by 5:12 pm.

### **2. Communal Outdoor Amenity Areas**

#### **Summer – June 21:**

The proposed development does not cast a shadow into any existing communal outdoor amenity areas as described in the 'Standards for Shadow Studies' during the summer test times. The proposed development does cast some shadow onto the proposed communal front yard amenity area during the summer times. The calculated Sun Access Factor for this amenity area at this time is 72%.

#### **Fall – September 21 (deemed similar to Spring – March 21):**

The proposed development does not cast a shadow into any existing communal outdoor amenity areas as described in the 'Standards for Shadow Studies' during the fall/spring test times. The proposed development does cast some shadow onto the proposed communal front yard amenity area during the spring and fall times. The calculated Sun Access Factor for this amenity area at this time is 90%.

#### **Winter- December 21:**

The proposed development does not cast a shadow into any existing communal outdoor amenity areas as described in the 'Standards for Shadow Studies' during the winter test times. The proposed development does not cast a shadow onto the proposed communal front yard amenity area during the winter test times. The calculated Sun Access Factor for this amenity area is 100%.

### **3. Public Realm During Shoulder Seasons (spring and fall)**

#### **a) Low and Medium Density Residential Streets:**

The proposed development does not cast a shadow onto the opposite boulevard or sidewalks until 5:48 pm.

#### **b) Mixed Use, Commercial, Employment and High Density Residential Streets:**

The proposed development does not cast a shadow onto any applicable areas.

#### **c) Public Open Spaces, parks and Plazas:**

The proposed development does not cast a shadow onto any applicable areas.

### **4. Turf and flower gardens in public parks**

The proposed development does not cast a shadow onto any turf or flower gardens of any surrounding public parks.

### **5. Building faces for solar energy.**

On September 21, the proposed development's shadow enters the No Impact Zone of the North West neighbour, 2221 Dixie Road, at sunrise, departing the No Impact Zone by 3:12 pm. The proposed development's shadow enters the No Impact Zone of the North East neighbour, 1413 Venta Ave, at 2:12 pm until sunset.

**Shadow Impact Test Conclusions**

During the fall test date the proposed development casts a shadow on a neighbouring property's rear yard amenity space for 3 consecutive test time periods, exceeding the maximum 2 consecutive hours outlined in the City of Mississauga's Standards for Shadow Studies guide. This being said, the proposed development only casts a shadow covering 4.6% of the No Impact Zone in the 2:12 time period. The following time periods, 3:12 and 4:12, cover 19.2% and 16.2% respectively, with a total combined average of 13.4% of the No Impact Zone being shaded during these 3 consecutive time periods. The portion of yard being covered is along the fence at the south-west side of the neighbour's property. Based on these findings it is our opinion that the proposed development's shadow causes very little to no negative impact to the overall ability to use and enjoy the rear yard amenity area during this test date.

During the fall test date the proposed development casts a shadow on portions of the neighbouring houses exterior side walls and roofs for more than 2 consecutive hours. Considering that the proposed development's lot is to the south west or south east of the adjacent properties, it is very likely that *any* new dwelling built on this property would cast shadows exceeding the Standards' guidelines for possible use of solar energy, even when being constructed in conformance to existing as-of-right zoning requirements. This being said it is our opinion that the proposed development's shadow causes no undue negative impact to the adjacent dwellings.

Based on our analysis, we feel the proposed four storey residential townhouse development conforms to the City of Mississauga's master plan and does not require any additional revisions to height or position on the lot to reduce its shadow impact.

Patrick Markus Luckie, Architect  
OAA, MRAIC

pml.A

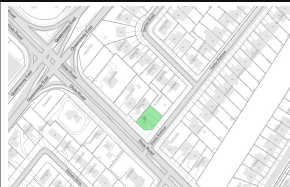






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December 21 - 9:19 am

2207 Dixie Road Shadow Impact Study

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2207 Dixie Road Shadow Impact Study

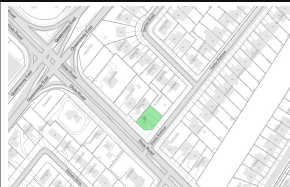
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December 21 - 11:17 am

2207 Dixie Road Shadow Impact Study

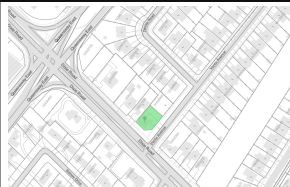
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December 21 - 12:17 pm (solar noon)

2207 Dixie Road Shadow Impact Study

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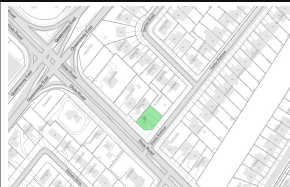
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December 21 - 1:17 pm

2207 Dixie Road Shadow Impact Study

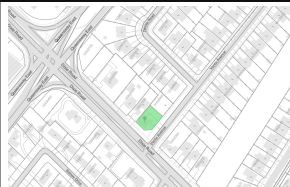
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December 21 - 2:17 pm

2207 Dixie Road Shadow Impact Study

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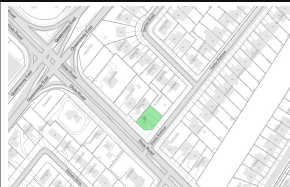
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December 21 - 3:15 pm

2207 Dixie Road Shadow Impact Study

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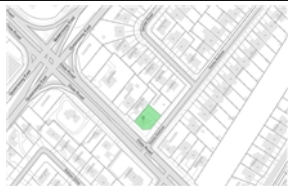






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June 21 - 7:07 am

2207 Dixie Road Shadow Impact Study

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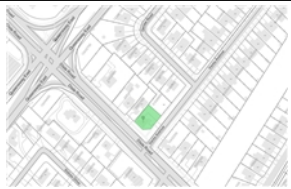
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June 21 - 7:20 am

2207 Dixie Road Shadow Impact Study

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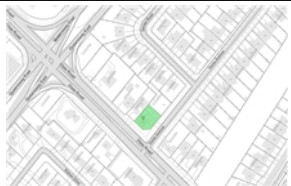
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June 21 - 8:20 am

2207 Dixie Road Shadow Impact Study

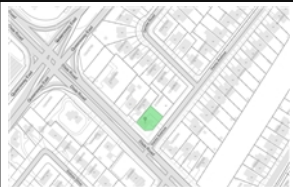
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2207 Dixie Road Shadow Impact Study

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June 21 - 10:20 am

2207 Dixie Road Shadow Impact Study

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June 21 - 11:20 am

2207 Dixie Road Shadow Impact Study

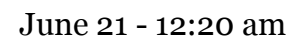
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2207 Dixie Road Shadow Impact Study

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June 21 - 1:20 pm (solar noon)

2207 Dixie Road Shadow Impact Study

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June 21 - 2:20 pm

2207 Dixie Road Shadow Impact Study

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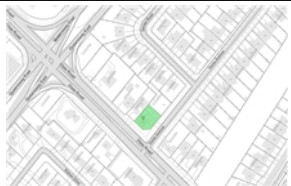
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June 21 - 3:20 pm

2207 Dixie Road Shadow Impact Study

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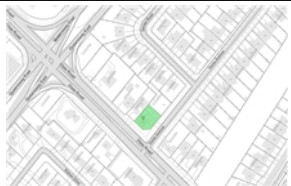
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June 21 - 4:20 pm

2207 Dixie Road Shadow Impact Study

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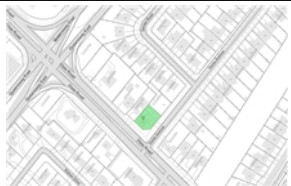
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June 21 - 5:20 pm

2207 Dixie Road Shadow Impact Study

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June 21 - 6:20 pm

2207 Dixie Road Shadow Impact Study

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June 21 - 7:20 pm

2207 Dixie Road Shadow Impact Study

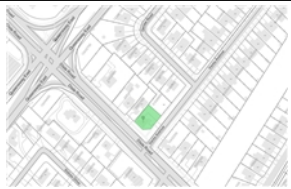
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June 21 - 7:33 pm

2207 Dixie Road Shadow Impact Study

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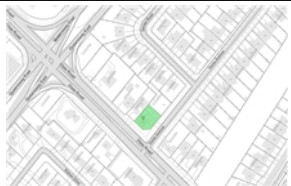






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September 21 - 7:05 am

2207 Dixie Road Shadow Impact Study

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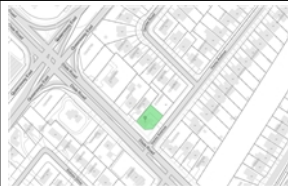
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September 21 - 8:35 am

2207 Dixie Road Shadow Impact Study

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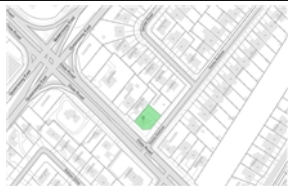
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September 21 - 9:12 am

2207 Dixie Road Shadow Impact Study

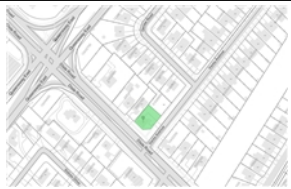
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September 21 - 10:12 am

2207 Dixie Road Shadow Impact Study

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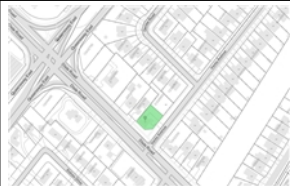
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September 21 - 11:12 am

2207 Dixie Road Shadow Impact Study

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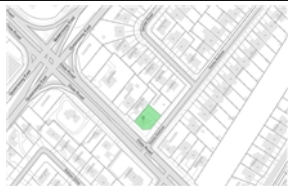
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September 21 - 12:12 pm

2207 Dixie Road Shadow Impact Study

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September 21 - 1:12 pm (solar noon)

2207 Dixie Road Shadow Impact Study

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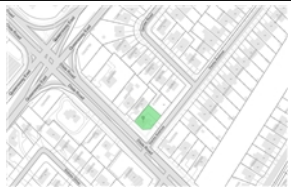
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September 21 - 2:12 pm

2207 Dixie Road Shadow Impact Study

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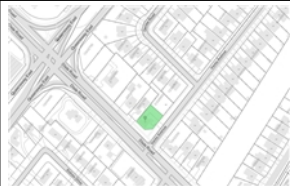
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September 21 - 3:12 pm

2207 Dixie Road Shadow Impact Study

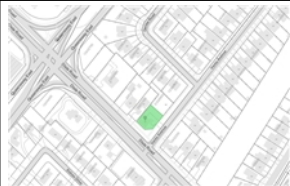
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September 21 - 4:12 pm

2207 Dixie Road Shadow Impact Study

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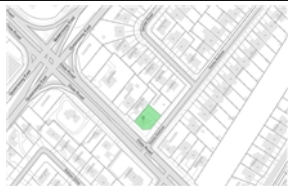
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September 21 - 5:12 pm

2207 Dixie Road Shadow Impact Study

#### REVISIONS

	MM/DD/YY	REMARKS	BY
1	10/09/19	ISSUED FOR REVIEW	S.N.
2	--/--/--	...	
3	--/--/--	...	
4	--/--/--	...	
5	--/--/--	...	

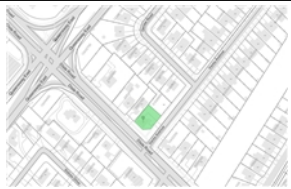
11

A



43°36'08.0"N 79°34'23.8"W

scale = 1:1000



September 21 - 5:48 pm

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2	--/--/--	...	
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5	--/--/--	...	

12

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