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# **SHADOW STUDY**

1840 -1850 BLOOR STREET, MISSISSAUGA, ONTARIO

Date: NOVEMBER 01, 2022

Project No: 120303

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#### 1. INTRODUCTION

This report presents a Shadow Study Analysis of a planned in-fill residential rental development comprising of 2 new 18 storey buildings connected by a 4 storey podium located at 1840 – 1850 Bloor Street in the City of Mississauga.

This report has been prepared by IBI Group Architects on behalf of the applicant, Ranee Management.

The report addresses the specific criteria contained in the City of Mississauga Planning and Building Department's Standards for Shadow Studies (June 2014) and demonstrates that the proposed development will not cause undue impacts with respect to shade.

#### 1.1. Proposed Development

The proposed application is for 2 new 18 storey rental apartment buildings (identified as building C and building D) connected by a 4 storey podium contained on a 3.93 ha site with 2 existing 14 storey rental apartment buildings (identified as building A and building B).

The site is located south of Bloor Street within the Applewood NHD Character Area. It is bounded by residential apartment building (R4-1 Apartment Zone) to the east, Wajax Equipment commercial buildings to the south (Employment Zone) and Hydro Corridor to the west. Etobicoke creek is 200 m east of the site

The existing rental apartment buildings A and B are located on the north and west side of the site facing Bloor Street, the proposed rental apartment buildings C and D are to be located at the south and east side of the site. The proposed development will contain combined indoor and outdoor amenity for all buildings. Outdoor amenity will be located at grade between the buildings and at the 4th floor roof top of building C and D.

Proposed building C and D will be constructed at the same time.

#### 2. STANDARD REQUIREMENTS AND DATA USED

#### 2.1. Dates

Shadow Studies and Analyses in Appendix A are conducted for the following dates:

- ♦ June 21
- ♦ September 21 (similar to March 21, and therefore, criteria for September 21 are deemed to apply to March 21)
- ♦ December 21

#### 2.2. Times

Shadow Studies and Analyses in Appendix A are conducted for the following times:

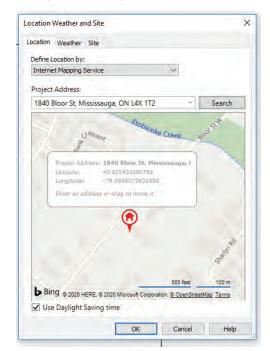
- ♦ Solar Noon (SN)
- ♦ Hourly intervals before and after Solar Noon (SN), up to and including 1.5 hours after sunrise and 1.5 hours before sunset

#### 2.3. Sun Angles

Sun Angles used in the Shadow Studies and Analyses in Appendix A are based on the latitude and longitude of 1840 – 1850 Bloor Street, Mississauga ON.

♦ Latitude: 43 degrees 37' 31" N

◆ Longitude: 79 degrees 35' 2" W



#### 2.4. Time Zone

Time Zone: Eastern

Standard Time: UT-5 hours was used for December study times (EDT)

Daylight Time: UT- 4 hours was used for June and September study times

(EST)

#### 2.5. Astronomic North

Astronomic north was based on topographical survey of 1840 – 1850 Bloor St, Lot 1, Registered Plan 775, City of Mississauga, Regional Municipality of Peel prepared by Speight, Van Nostrand & Gibson Ltd., Ontario Land Surveyors, dated May 22, 2019

#### 2.6. Origin / Source of Base Plan

AutoCAD file for base map 3D massing and terrain was downloaded from the City of Mississauga Open Data website:

https://mississauga.maps.arcgis.com/apps/webappviewer/index.html?id=499cc2269aa544049f47d222a11274e8

#### 2.7. Coverage Area

The base mapping includes a coverage area of 930m x 575m. Whereas the proposed building height from ground floor is 56.7m the coverage area is 4.0 times the building height to the north, east and west and 1.5 times the building height to the south.

Shadows were generated using Autodesk Revit 2020

#### 3. CRITERIA

3.1. Residential Private Outdoor Amenity Spaces

#### This criterion is met.

The proposed buildings C & D have no shadow impact for more than two consecutive hourly test times within the exterior amenity space (such as private rear yards, decks, patios and pools of surrounding residential dwellings on each of the following dates June 21 and September 21)surrounding neighboring low-rise dwellings.

Incremental shadows are only cast on low-rise private amenity areas of the townhouses fronting onto Kirkwall Crescent at sunrise (5:37 a.m.) on June 21st, and they move fully off this area by 7:07 a.m. No shadows are cast on low-rise residential buildings on September 21st

The line of "No Impact Zone" is shown as a line 7.5 m from the front rear wall or other appropriate exterior building wall of the dwelling that abuts the private amenity space.

#### 3.2. Communal Outdoor Amenity Areas

#### This criterion is met.

Existing neighboring Communal Outdoor Amenity Areas at 1900 Bloor Sr. that is impacted during spring, summer, fall and winter is outlined in magenta and has a Sun Access Factor of:

- ♦ June 21 91%
- ♦ September 21 78%
- ♦ December 21 88%

#### This criterion is met.

Common at grade outdoor amenity area A and additional area B that is part of the proposed development has a total Sun Access Factor of:

- ♦ June 21 63%
- ♦ September 21 50%
- ◆ December 21 38% \*\*

Part of the shadow cast on the outdoor amenity is due to the existing buildings.

\*\* Additional amenity area B is 438.4 m² whhich exceeded the minimum 55m² of outdoor space required at grade and has a sun factor access of 89% during December 21st. Therefore, the outdoor at-grade amenity space meets the required sun access factor.

Common roof top outdoor amenity area C at 4th floor that is part of the proposed development has a Sun Access Factor of:

- ♦ June 21 62%
- ♦ September 21 65%
- ♦ December 21 78%

#### 3.3. Public Realm

#### This criterion is met.

Low and Medium Density Residential Streets: Kirkwall Cr., Bridgewood Dr. and Steepbank Cr.

The proposed development casts no incremental shadowing on Kirkwall Cr., Bridgewood Dr. and Steepbank Cr. on September 21st.

Mixed Use, Commercial, Employment and High Density Residential Streets: Bloor St., Wharton Way, Sharlyn Rd., and Lenworth Dr.

The proposed development casts no incremental shadowing on Bloor Street at 9:12 a.m. on September 21st, meeting the criterion.

The proposed development casts no incremental shadowing on Sharlyn Court and Lenworth Drive until after 5:12 p.m. on September 21st, meeting the criterion.

The proposed development casts no incremental shadowing on Sharlyn Road.

Public Open Spaces, Parks and Plazas

No existing neighboring public open spaces, parks and plazas.

#### 3.4. Turf and flower gardens in Public Parks

#### This criterion is met.

No existing neighboring public open spaces, parks and plazas.

3.5. Building faces to allow for the possibility of using solar energy

#### This criterion is met.

On September 21st, incremental shadows from the new buildings do not fall on any properties containing low-rise residential buildings including townhouses, detached and semi-detached dwellings.



# **APPENDIX A**

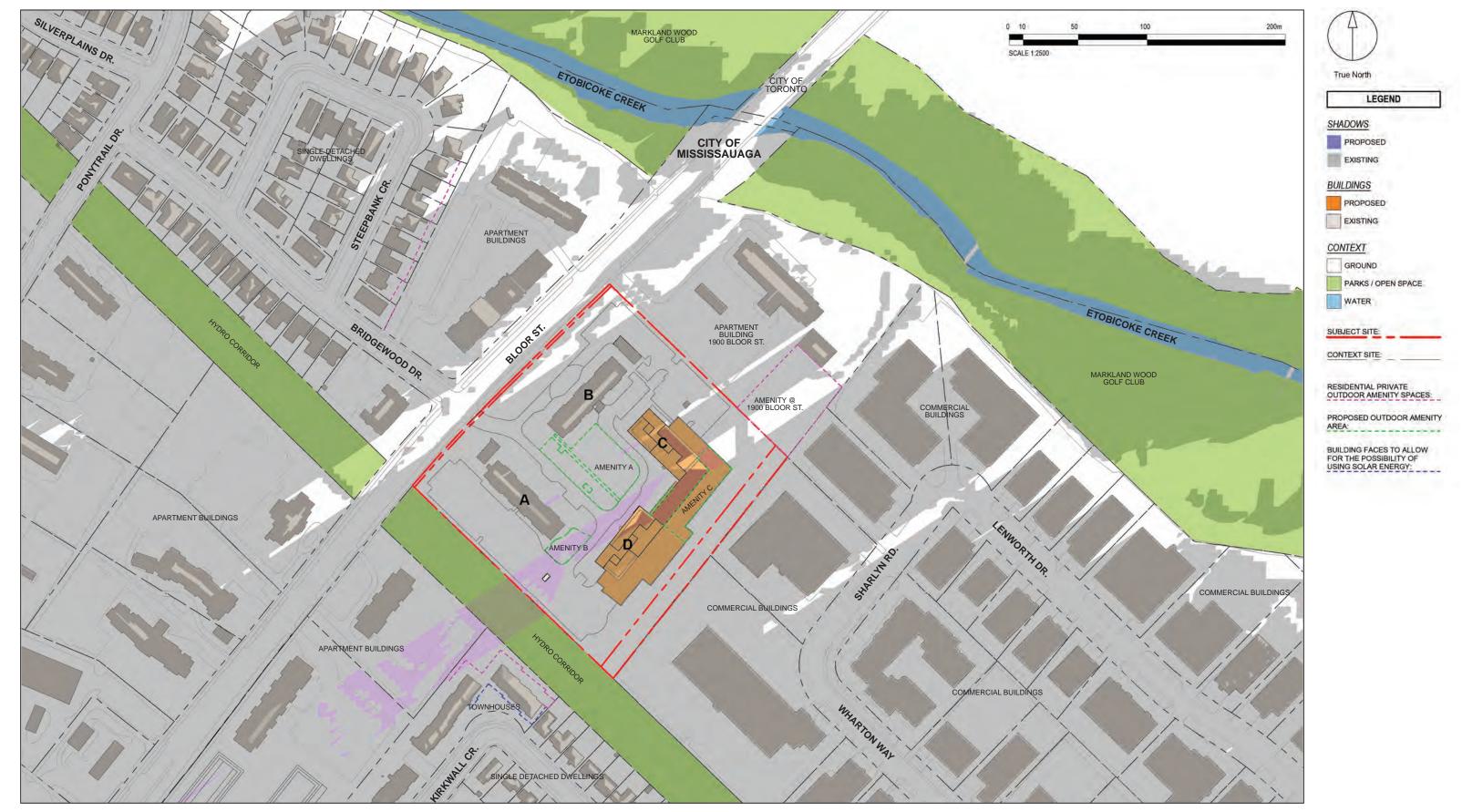
NAME

June 21			
<b>5.37</b> am	EDT	Sunrise	04
<b>7.07</b> am	EDT	Sunrise + 1.5h	05
<b>7.20</b> am	EDT	Solar Noon - 6h	06
<b>8.20</b> am	EDT	Solar Noon - 5h	07
<b>9.20</b> am	EDT	Solar Noon - 4h	08
<b>10.20</b> am	EDT	Solar Noon - 3h	09
<b>11.20</b> am	EDT	Solar Noon - 2h	10
<b>12.20</b> pm	EDT	Solar Noon - 1h	11
<b>1.20</b> pm	EDT	Solar Noon	12
<b>2.20</b> pm	EDT	Solar Noon + 1h	13
<b>3.20</b> pm	EDT	Solar Noon + 2h	14
<b>4.20</b> pm	EDT	Solar Noon + 3h	15
<b>5.20</b> pm	EDT	Solar Noon + 4h	16
<b>6.20</b> pm	EDT	Solar Noon + 5h	17
<b>7.20</b> pm	EDT	Solar Noon + 6h	18
<b>7.33</b> pm	EDT	Sunset - 1.5h	19
<b>9.03</b> pm	EDT	Sunset	20
Cantambara			
September 2		Ci.a.a.	0.4
<b>7.05</b> am <b>8.35</b> am	EDT		21
	EDT EDT		22 23
9.12 am			_
10.12 am	EDT		24
11.12 am			25
12.12 pm	EDT		26
1.12 pm	EDT		27
2.12 pm	EDT		28
3.12 pm	EDT		29
4.12 pm	EDT		30
<b>5.12</b> pm	EDT		31
<b>5.48</b> pm	EDT		32
<b>7.18</b> pm	EDT	Sunset	33
December 21	1		
<b>7.49</b> am	EST	Sunrise	34
<b>9.19</b> am	EST	Sunrise + 1.5h	35
<b>10.17</b> am	EST	Solar Noon - 2h	36
<b>11.17</b> am	EST	Solar Noon - 1h	37
<b>12.17</b> pm	EST	Solar Noon	38
1.17 pm	EST	Solar Noon + 1h	39
<b>2.17</b> pm	EST	Solar Noon + 2h	40
3.15 pm	EST	Sunset – 1.5h	41
<b>4.45</b> pm	EST	Sunset	42
1	•		

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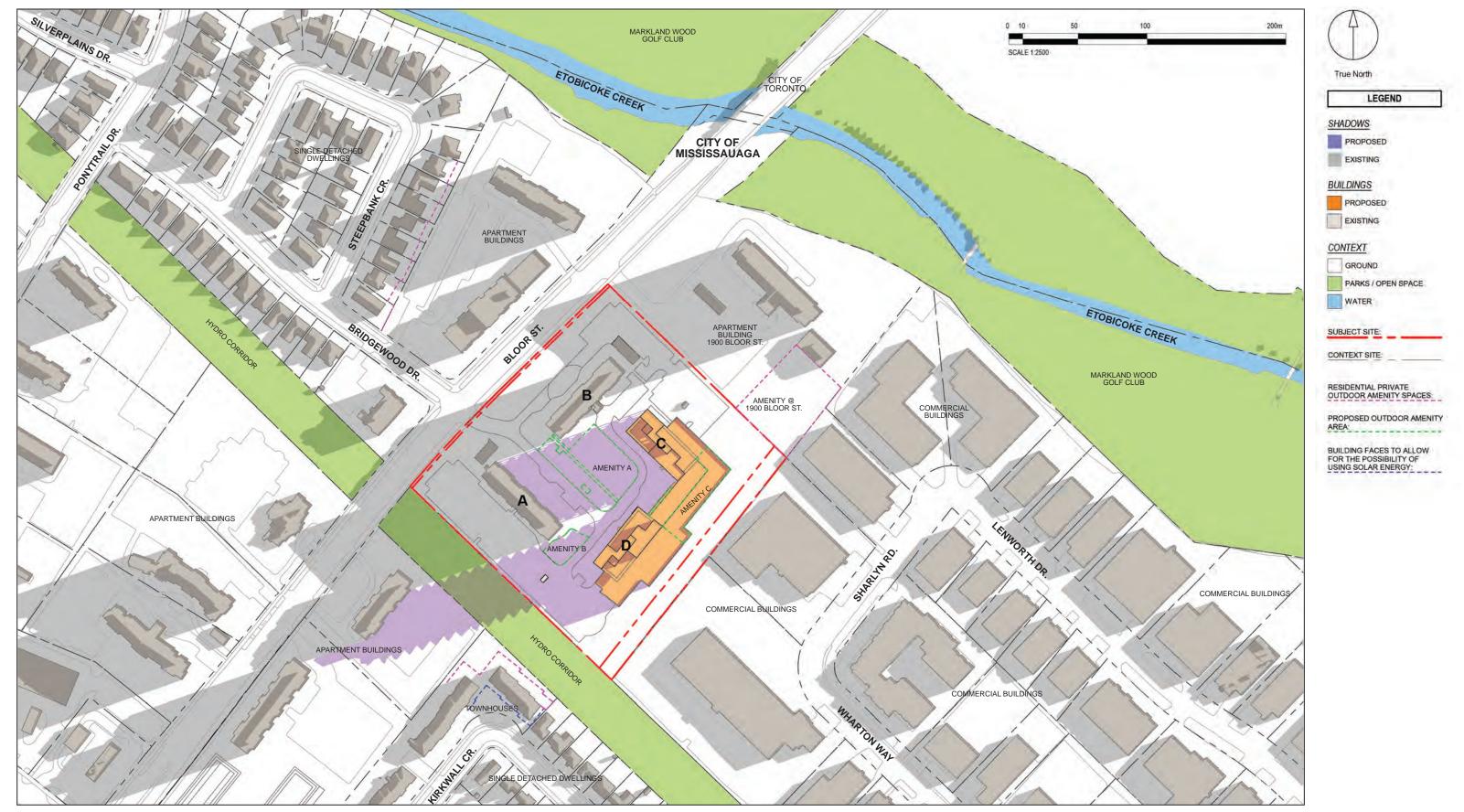


TOP VIEW SHADOW STUDY 1840 -1850 BLOOR ST., MISSISSAUGA. ON



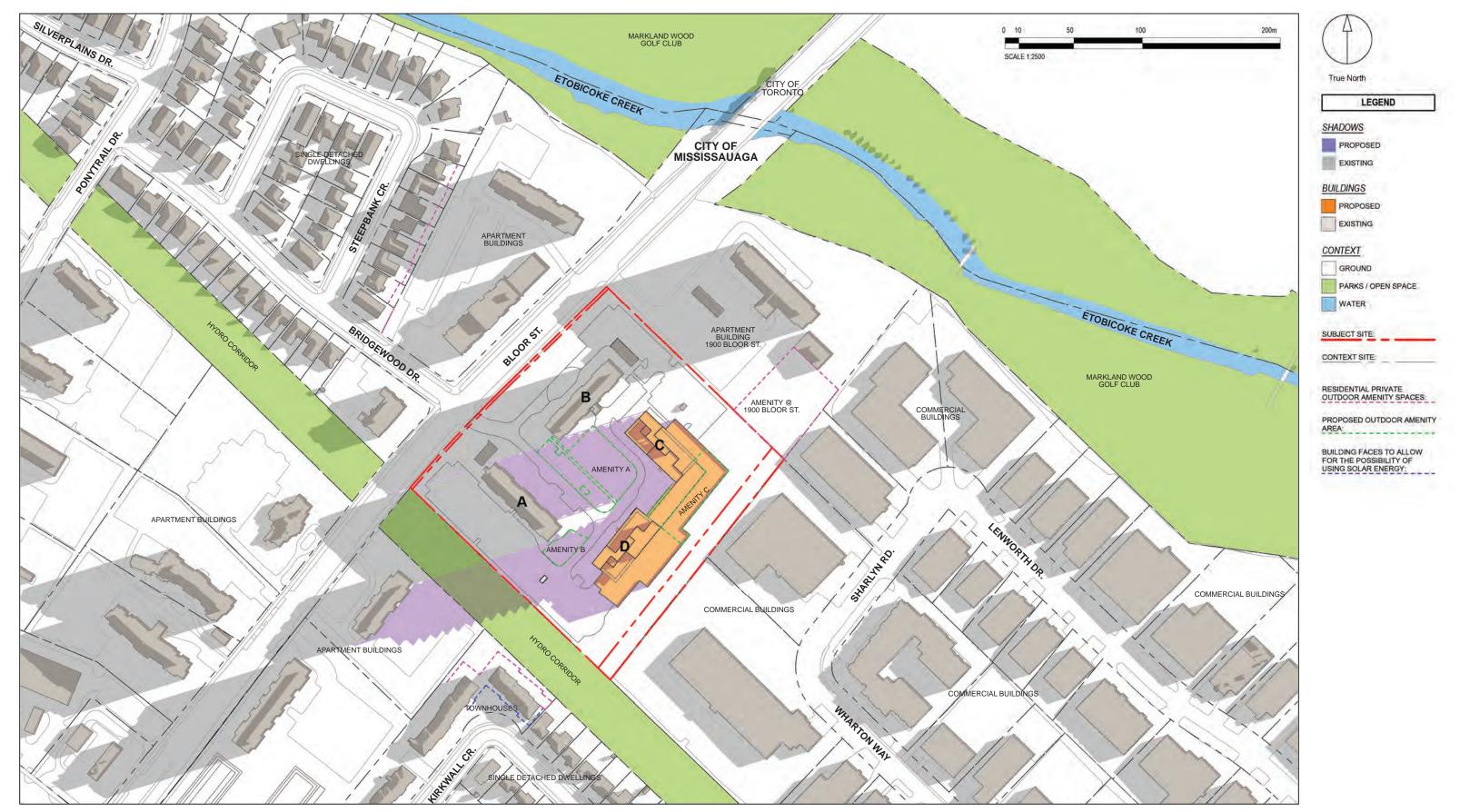
June 21 - 5.37 am EDT Sunrise





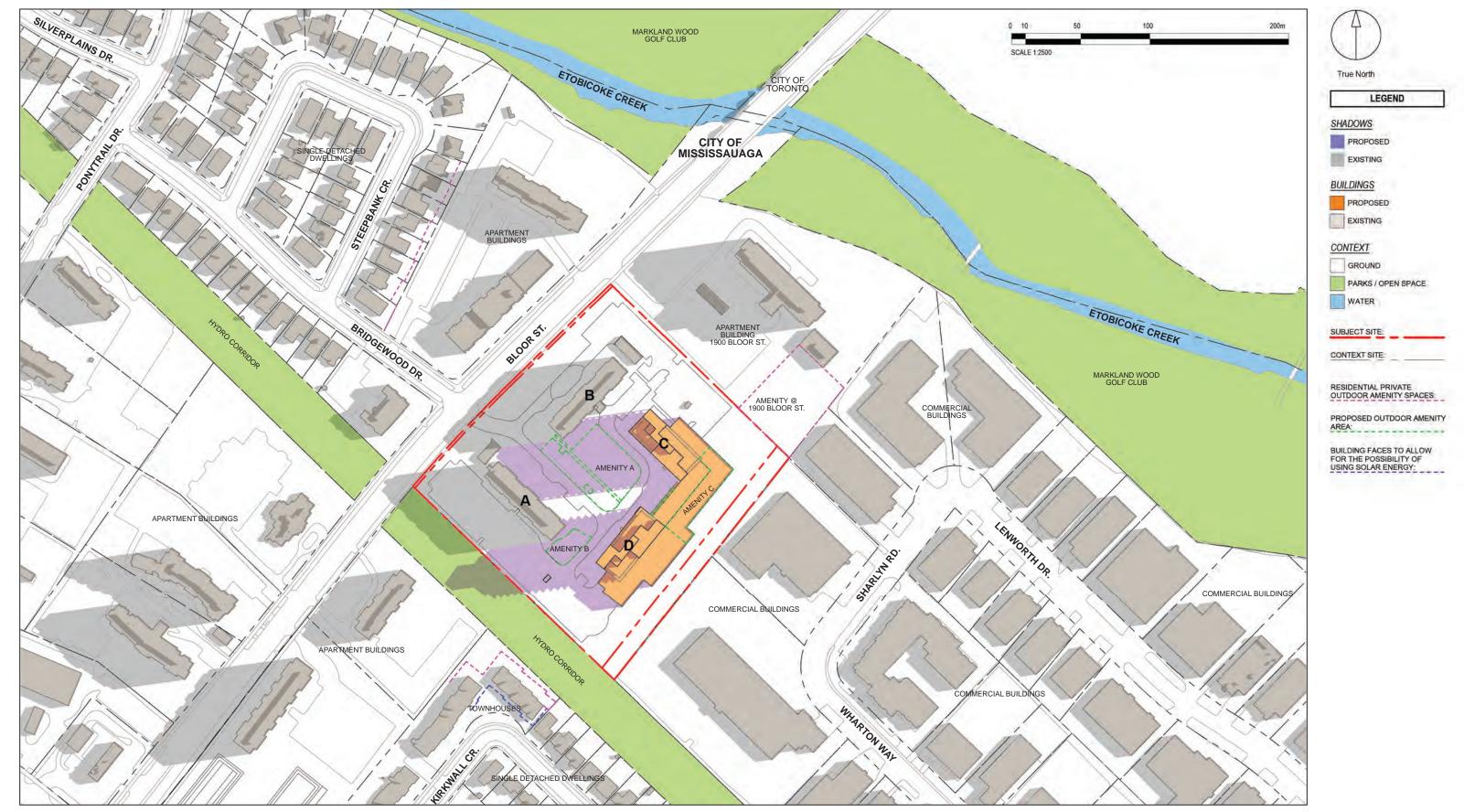
June 21 - 7.07 am EDT Sunrise + 1.5





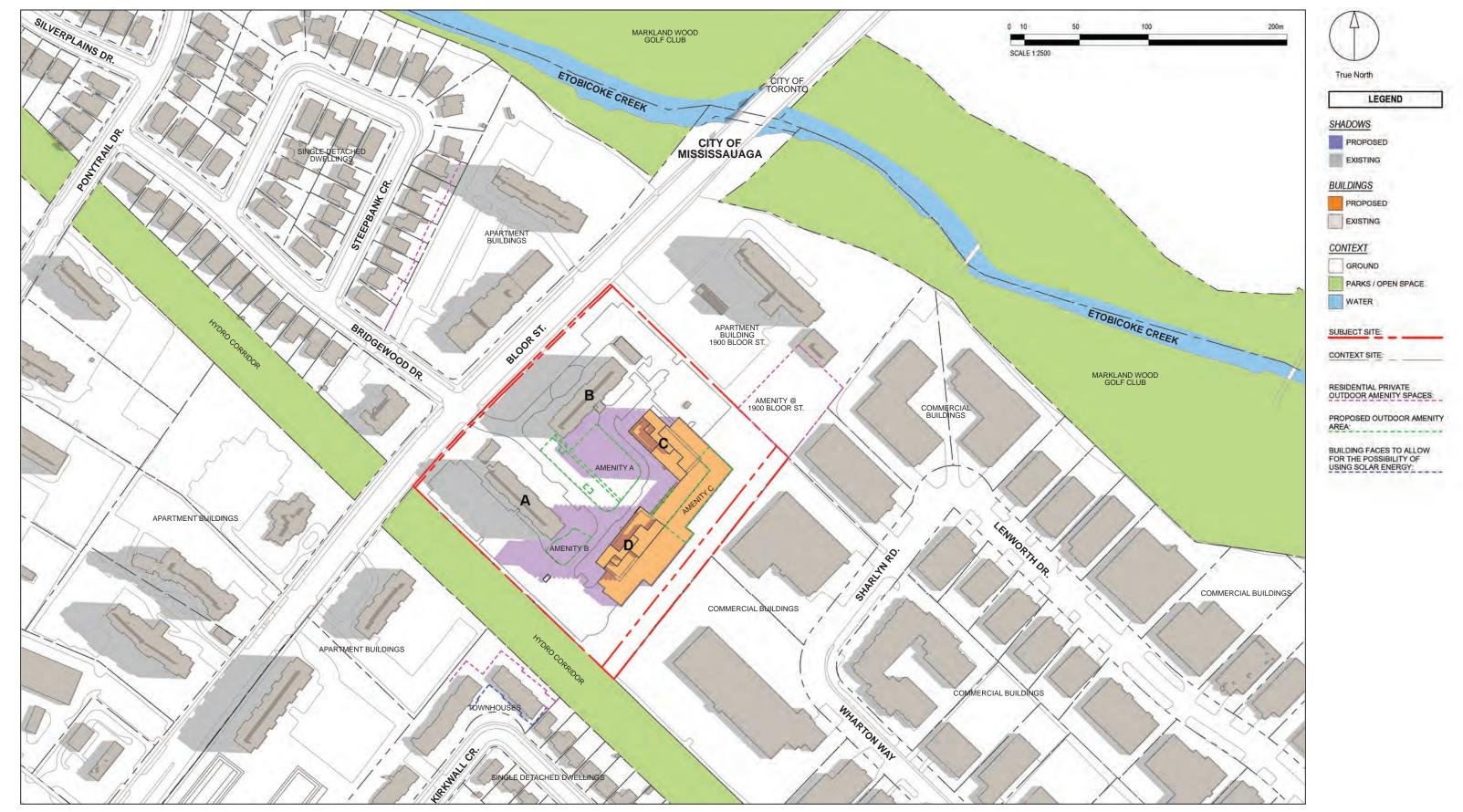
June 21 - 7.20 am EDT Solar Noon - 6h





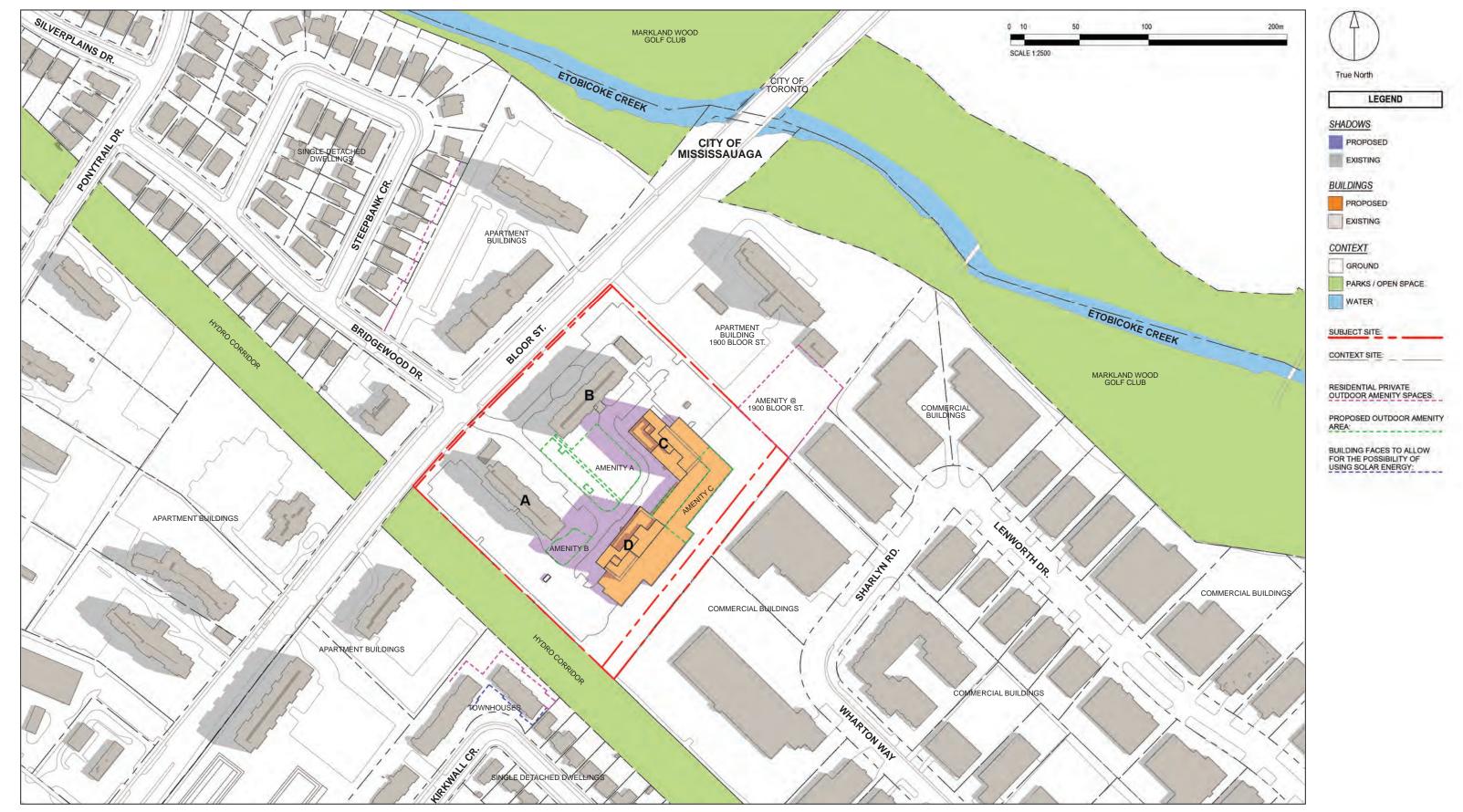
June 21 - 8.20 am EDT Solar Noon - 5h





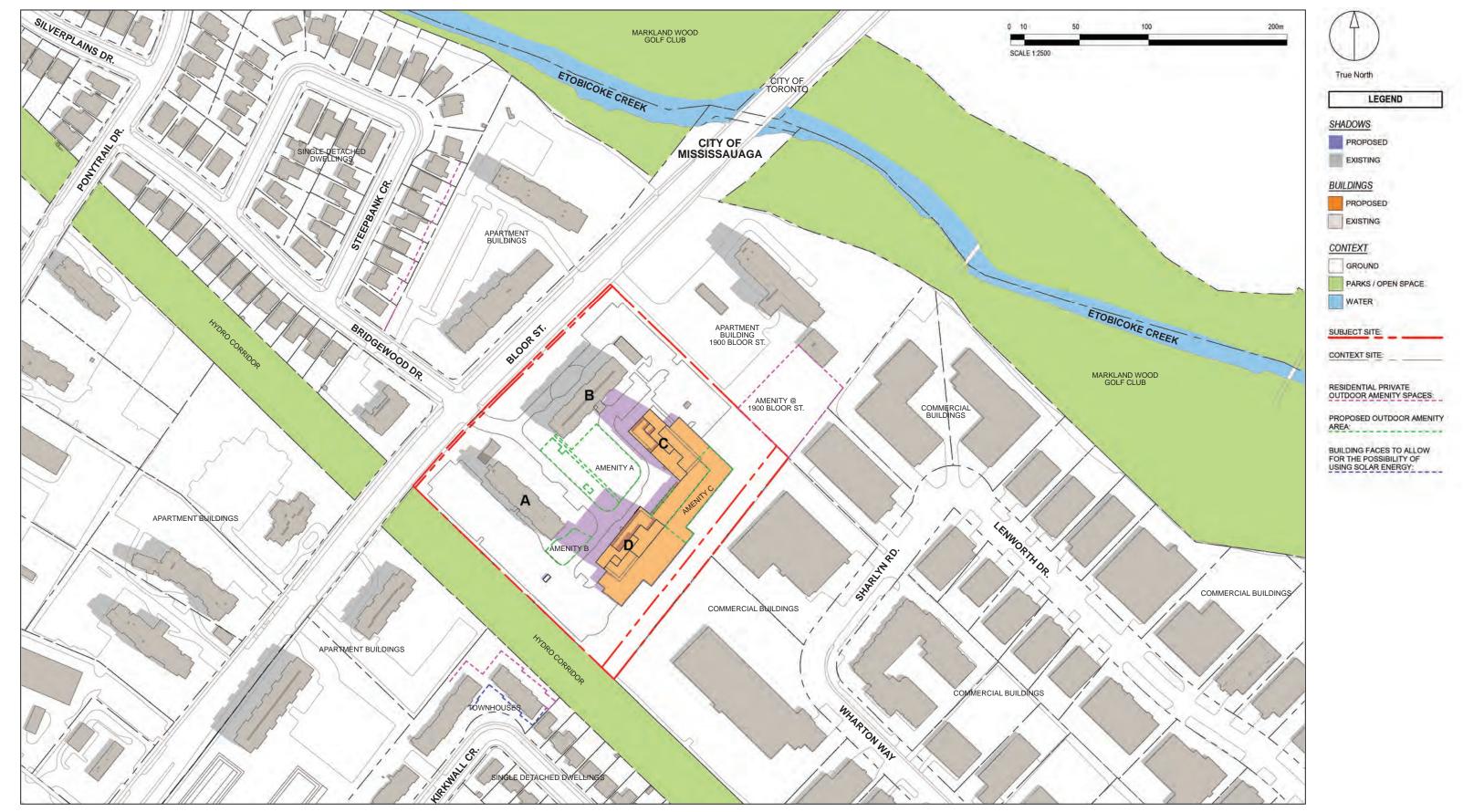
June 21 - 9.20 am EDT Solar Noon - 4h





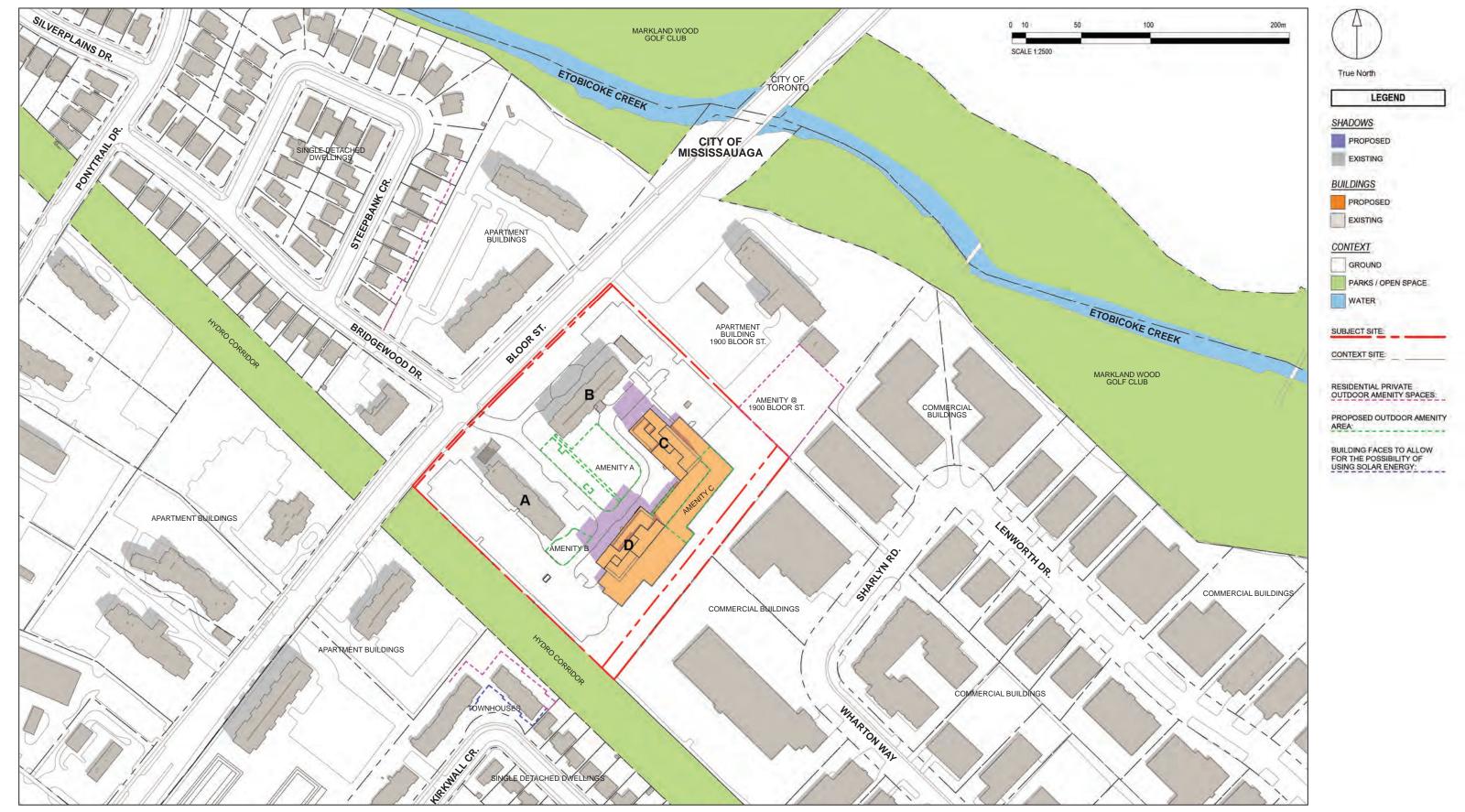






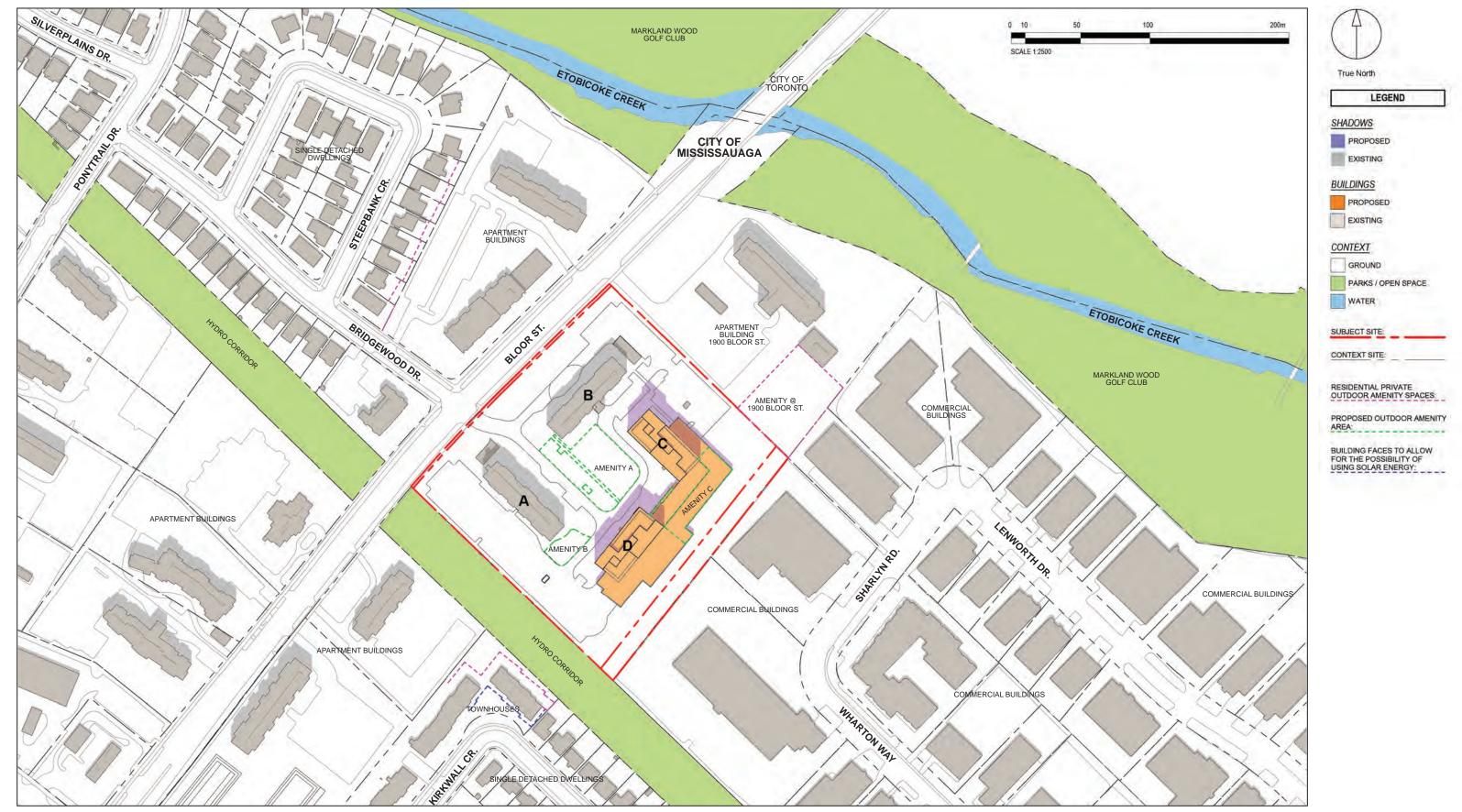






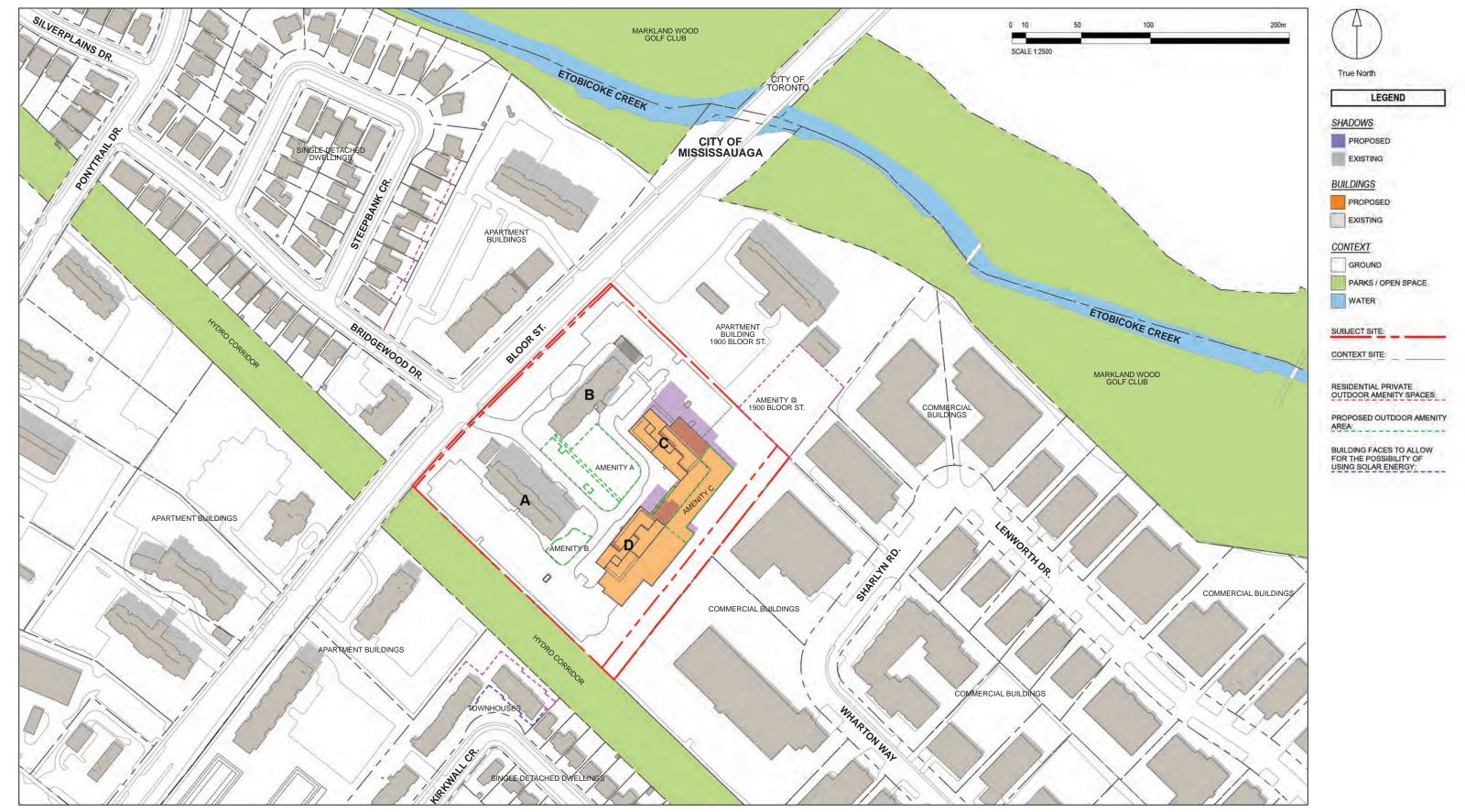






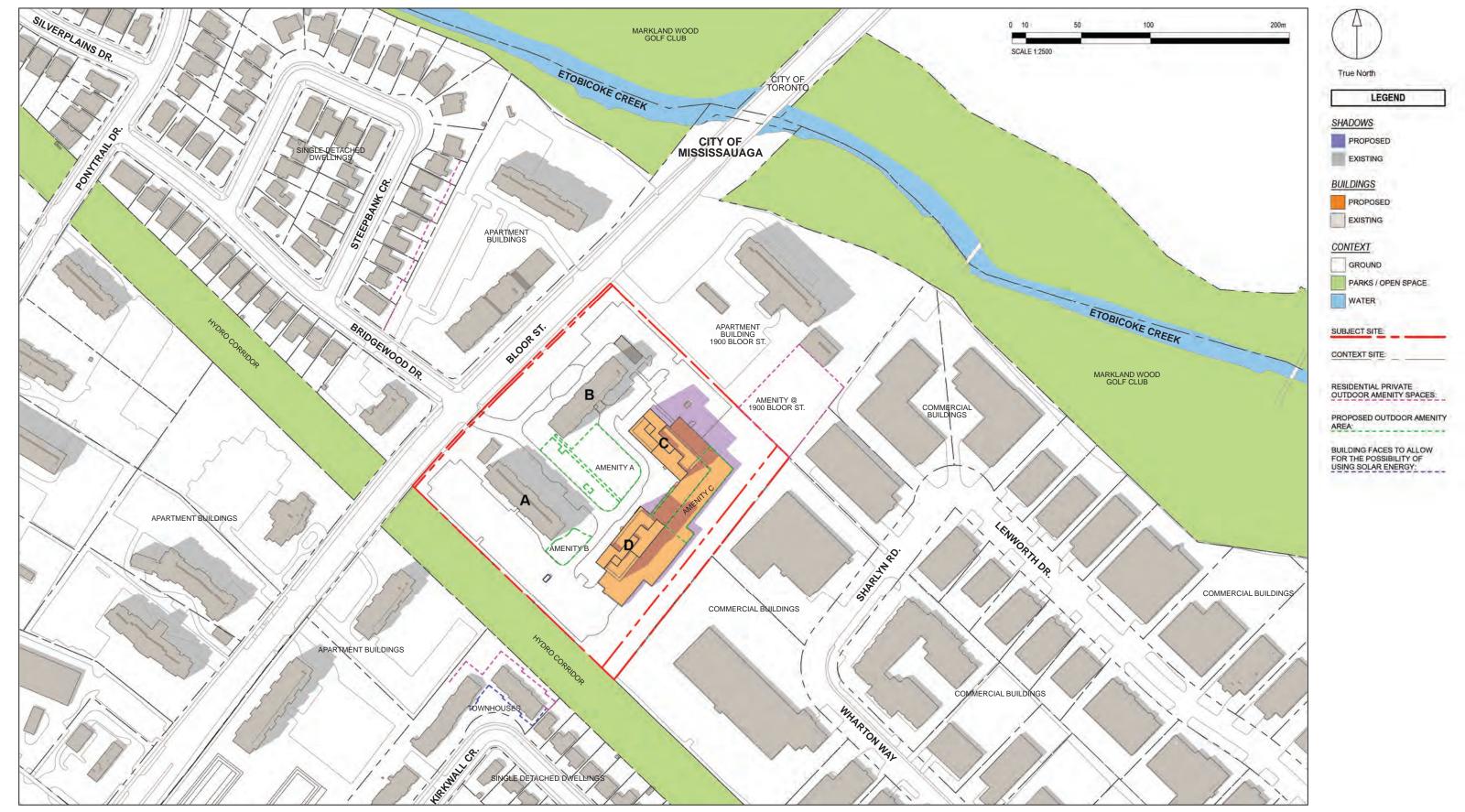
June 21 - 1.20 pm EDT Solar Noon





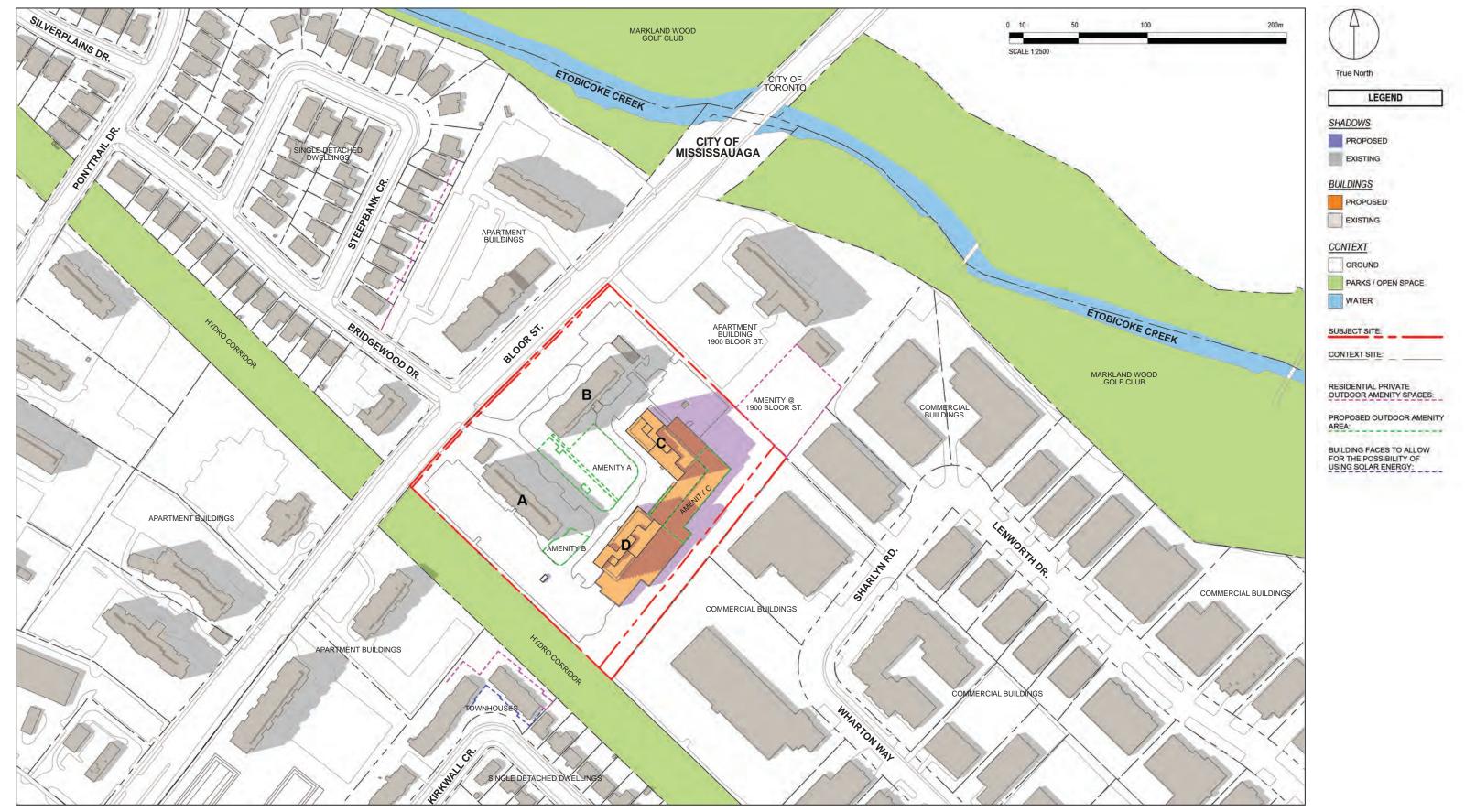
June 21 - 2.20 pm EDT Solar Noon + 1h





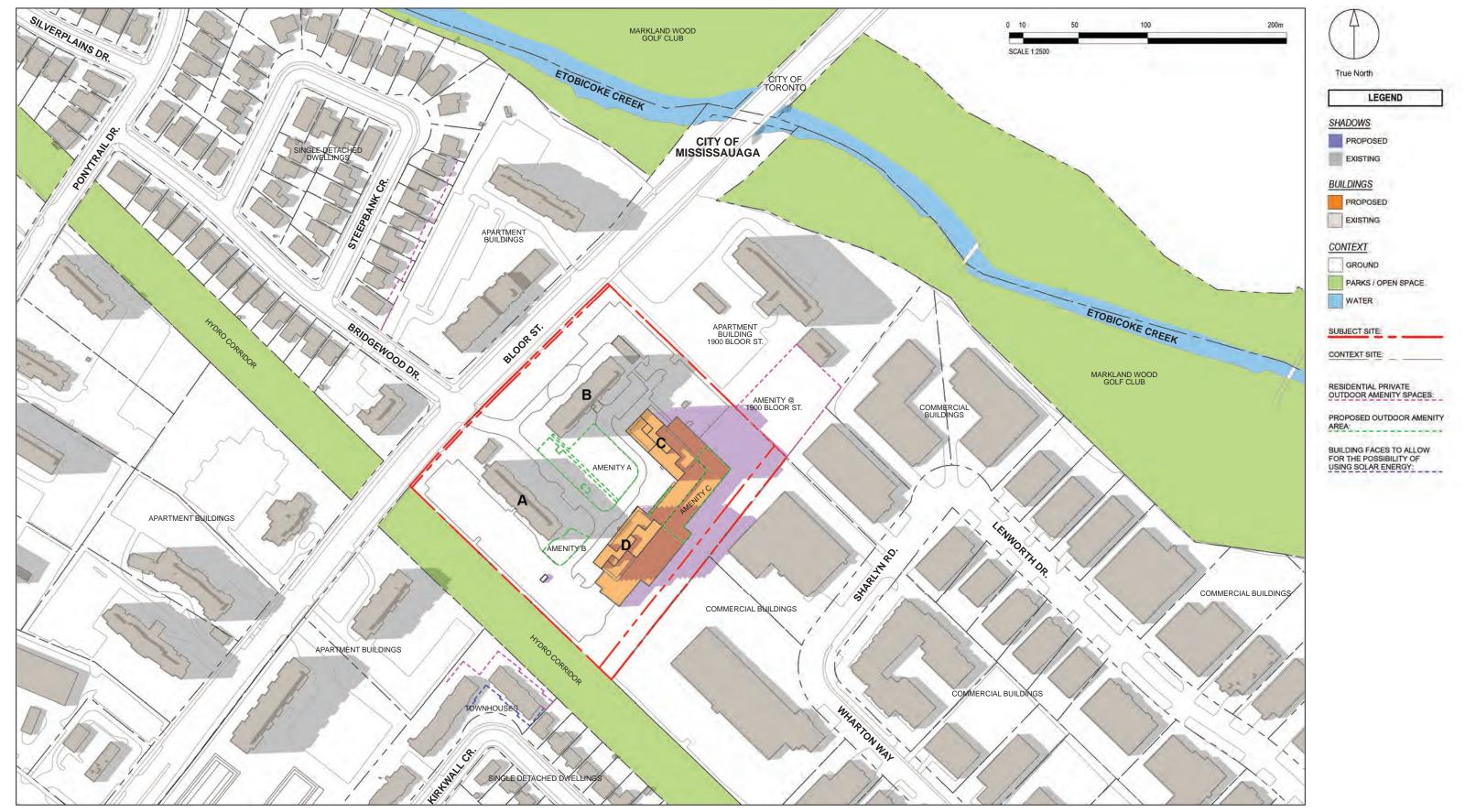
June 21 - 3.20 pm EDT Solar Noon + 2h





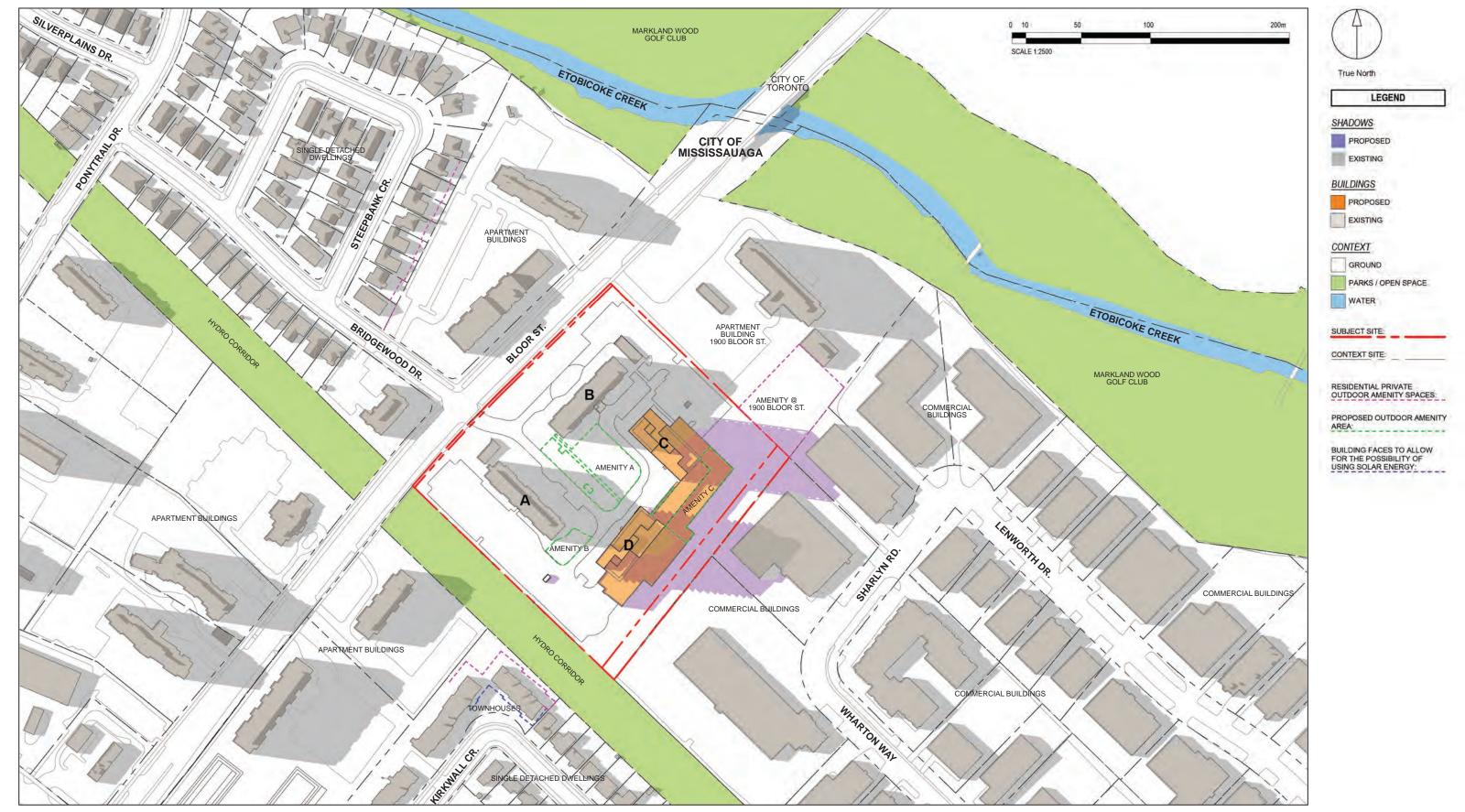
June 21 - 4.20 pm EDT Solar Noon + 3h





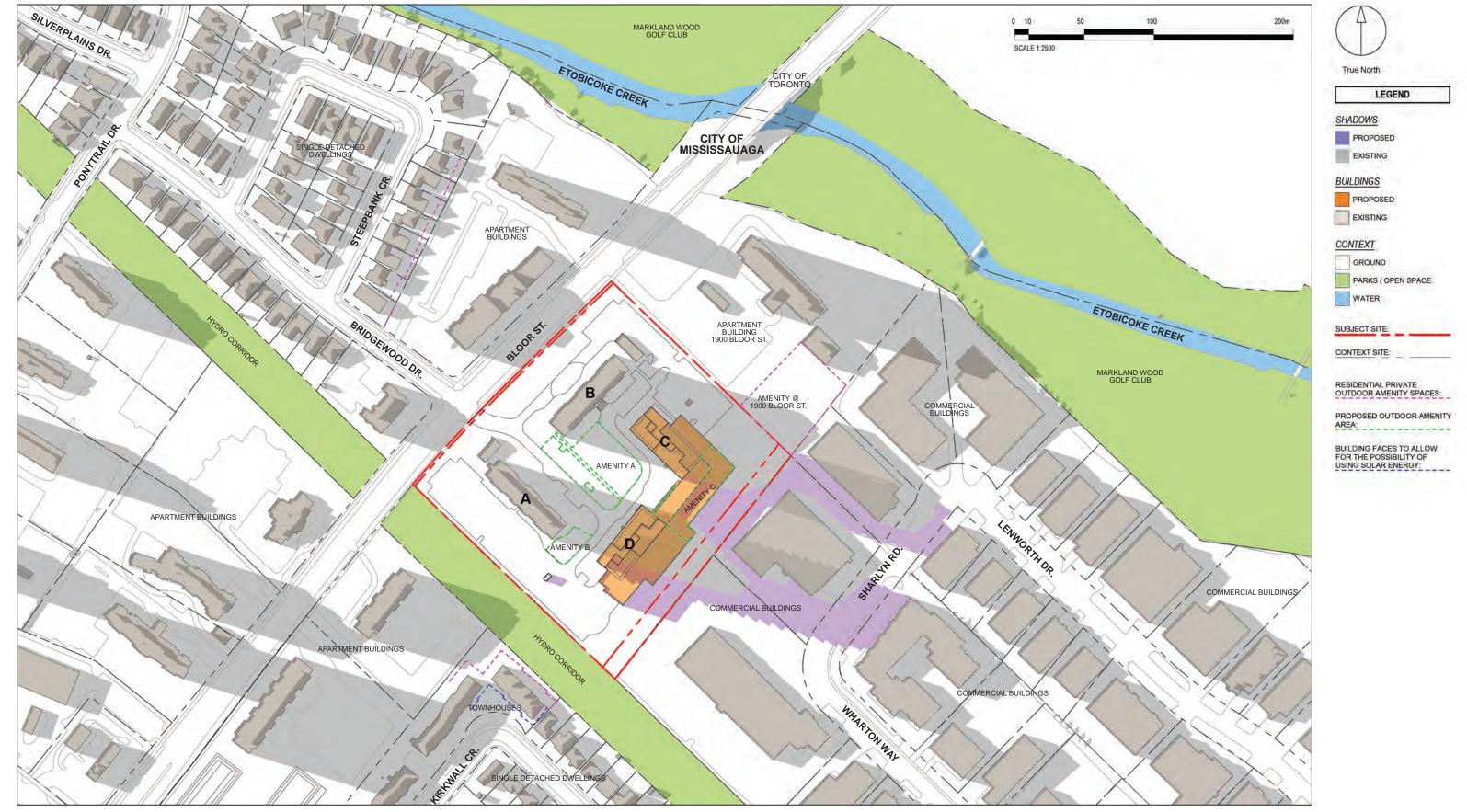
June 21 - 5.20 pm EDT Solar Noon + 4h





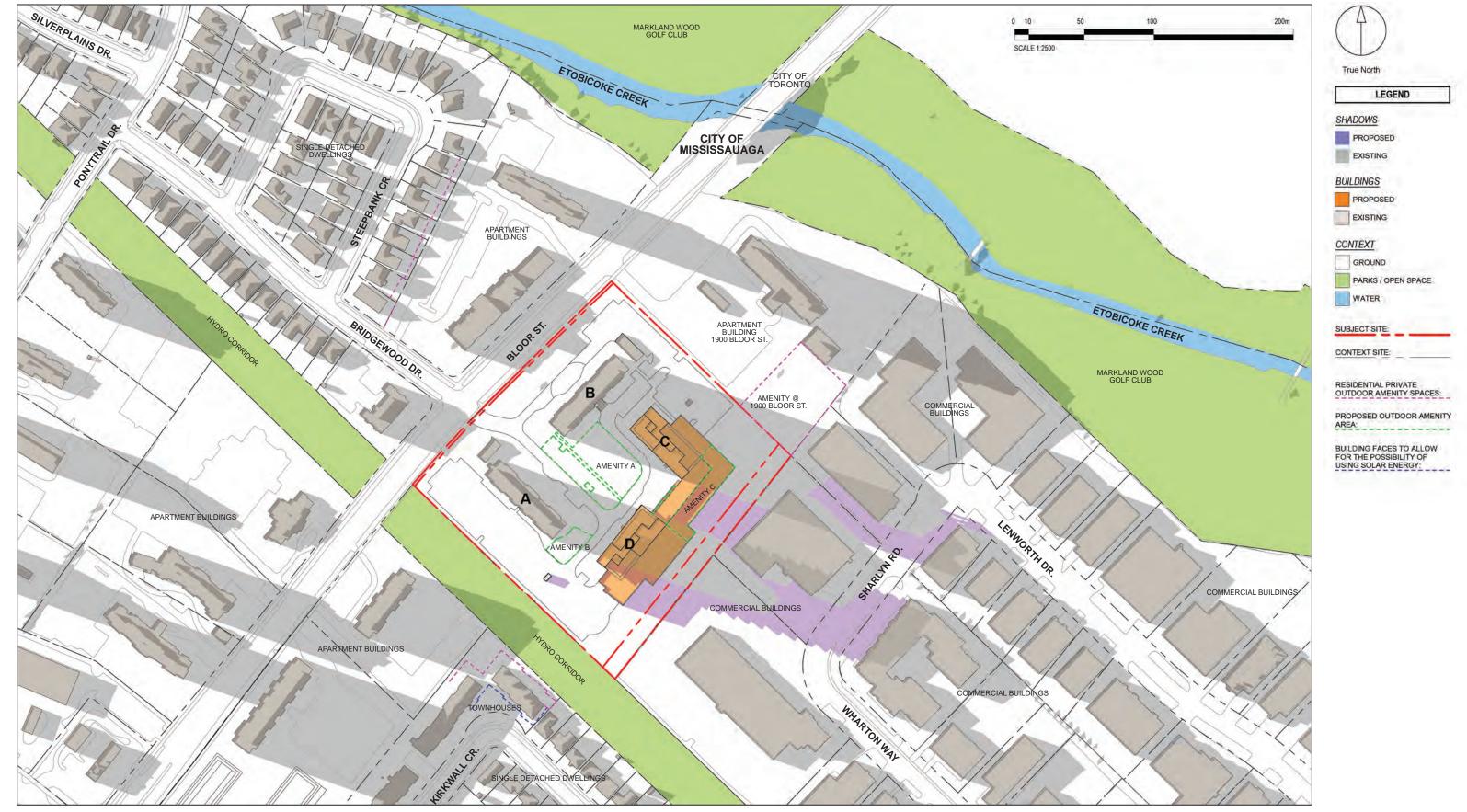
June 21 - 6.20 pm EDT Solar Noon + 5h





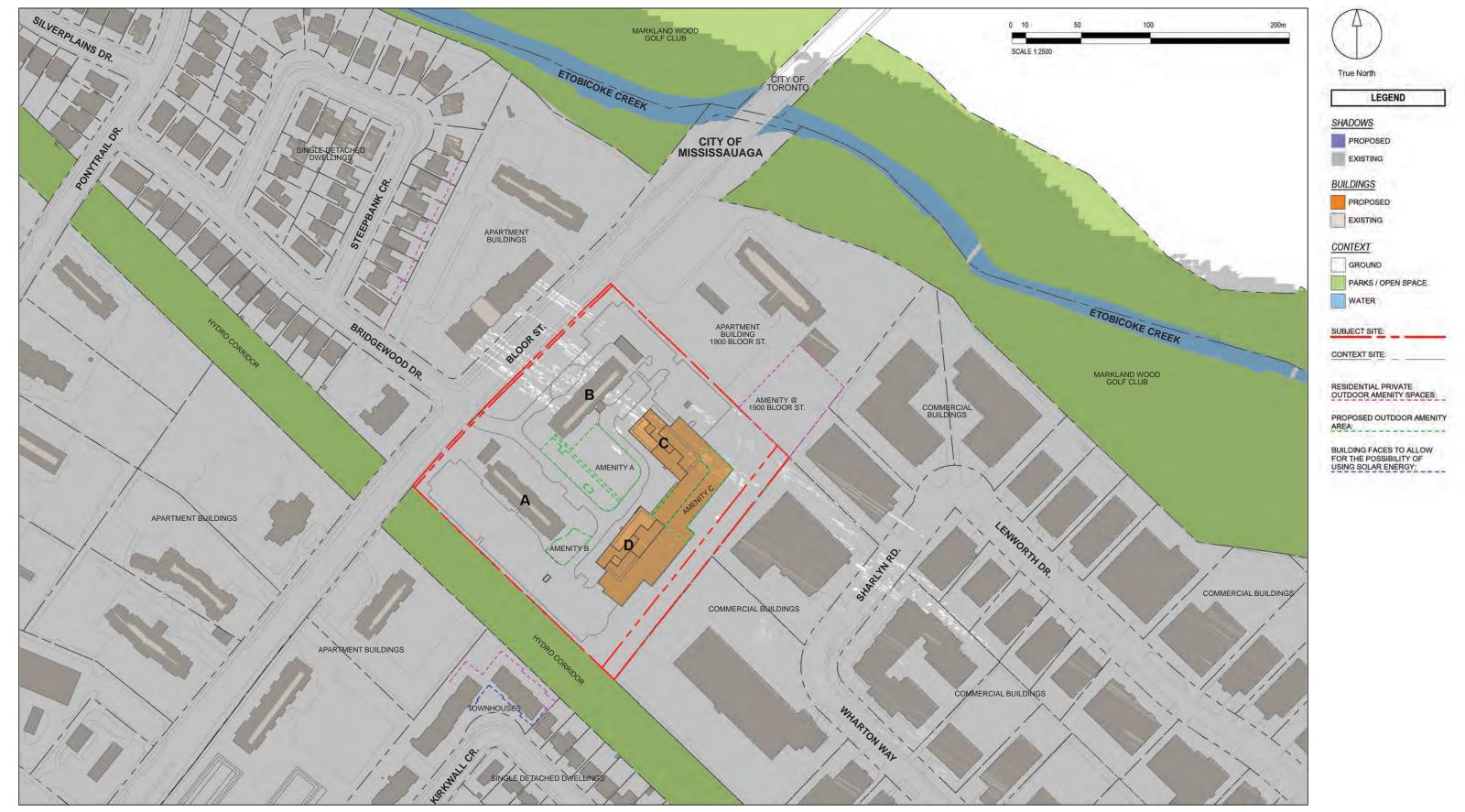






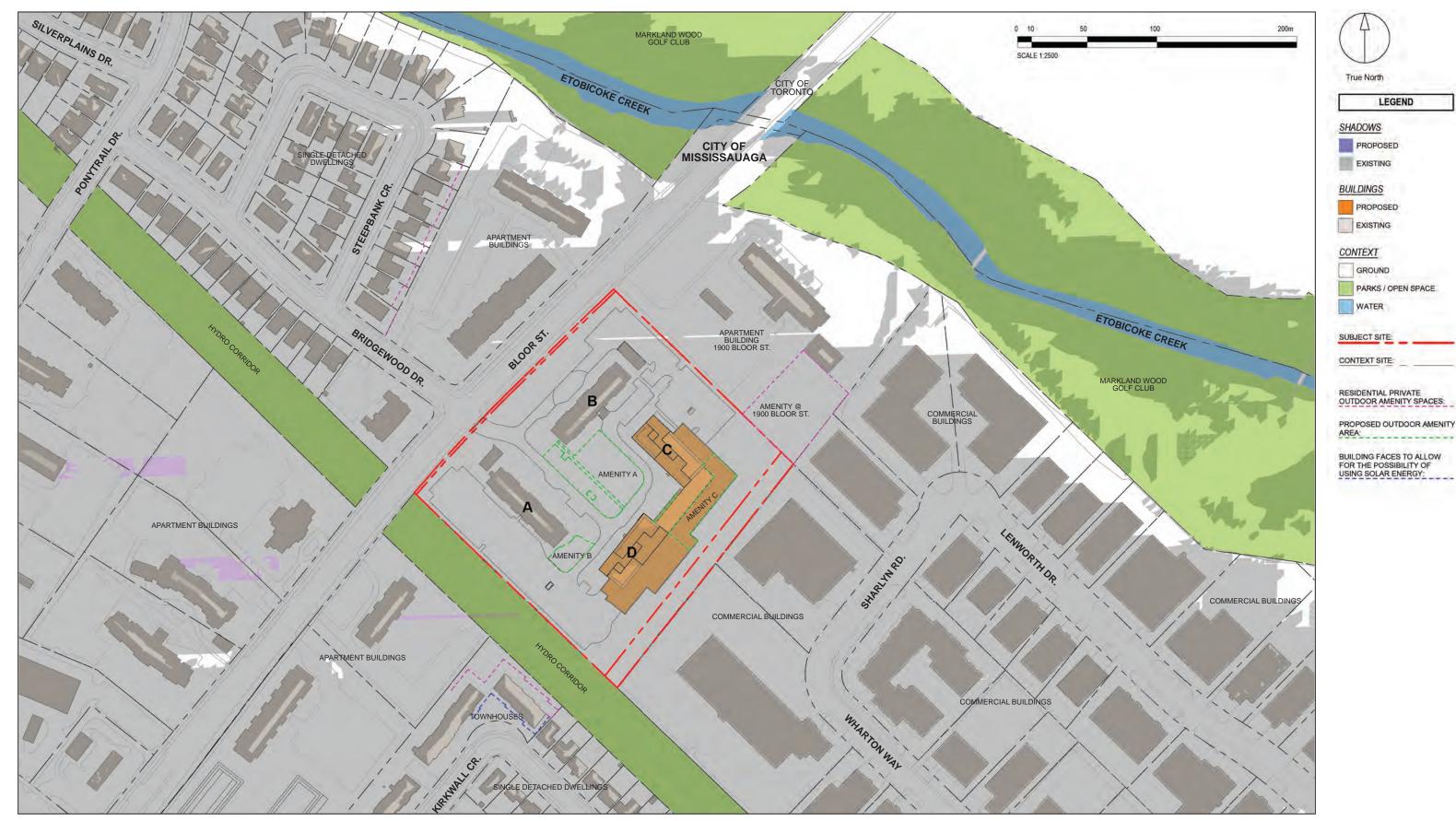






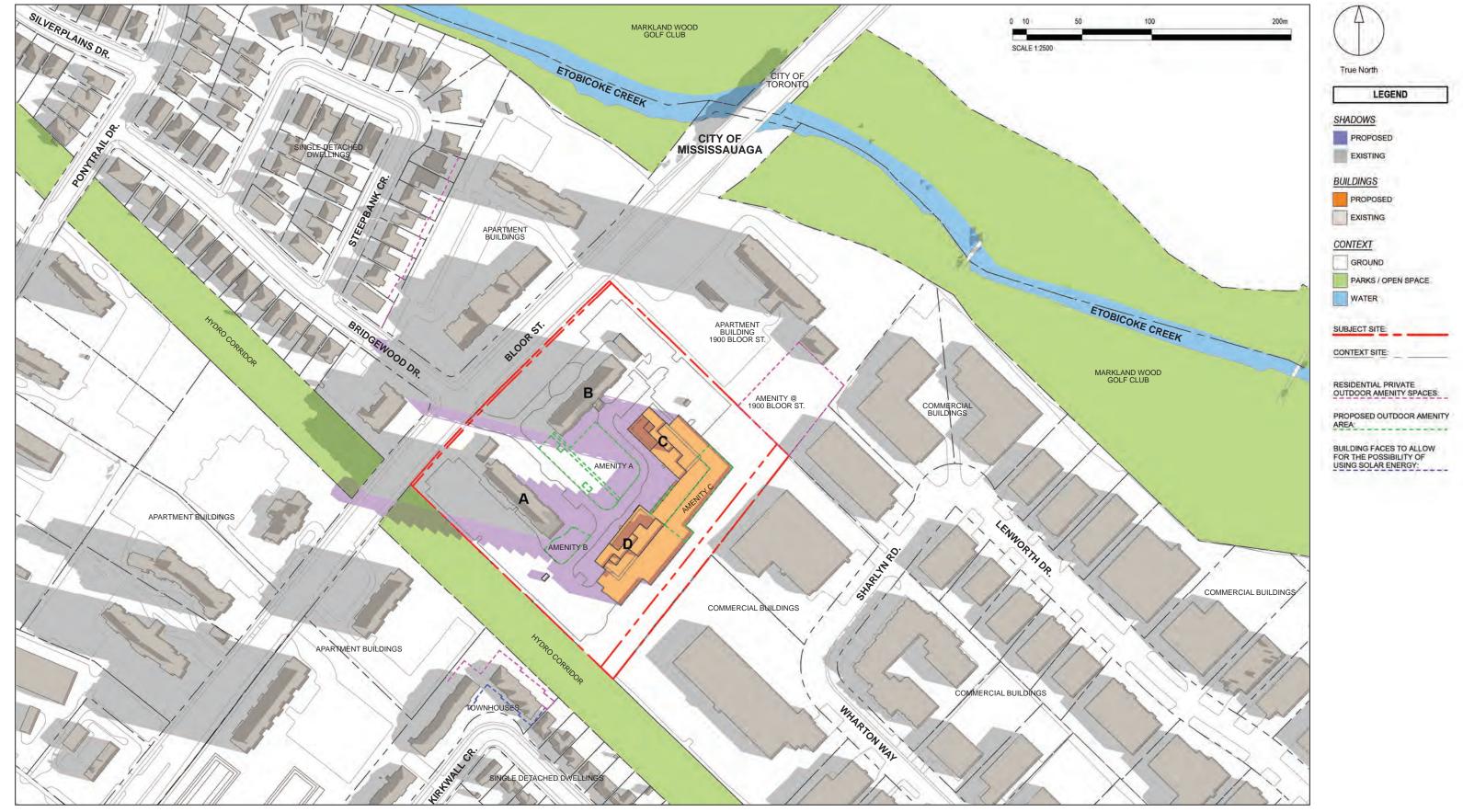
June 21 - 9.03 pm EDT Sunset





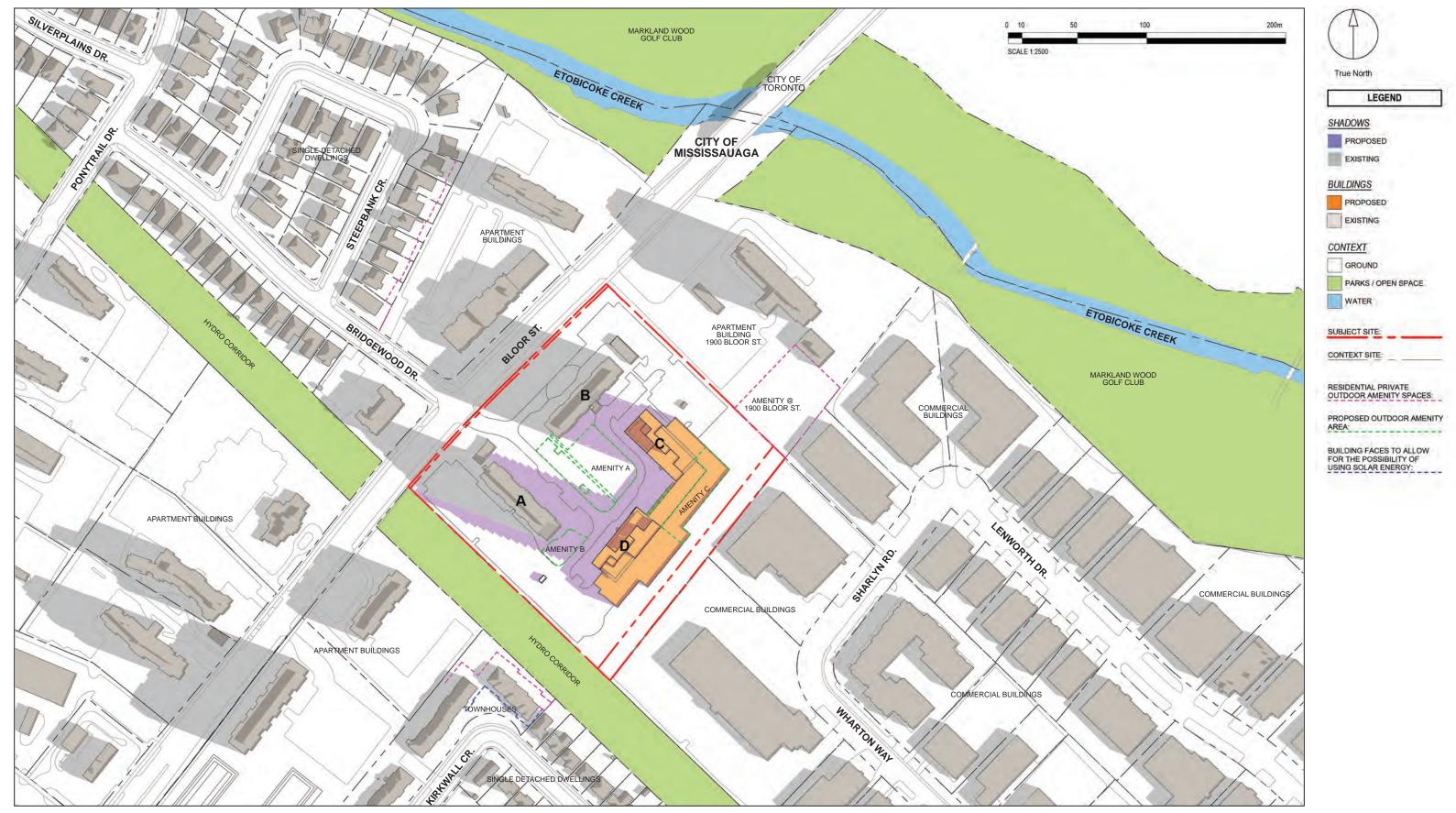
September 21 - 7.05 am EDT Sunrise





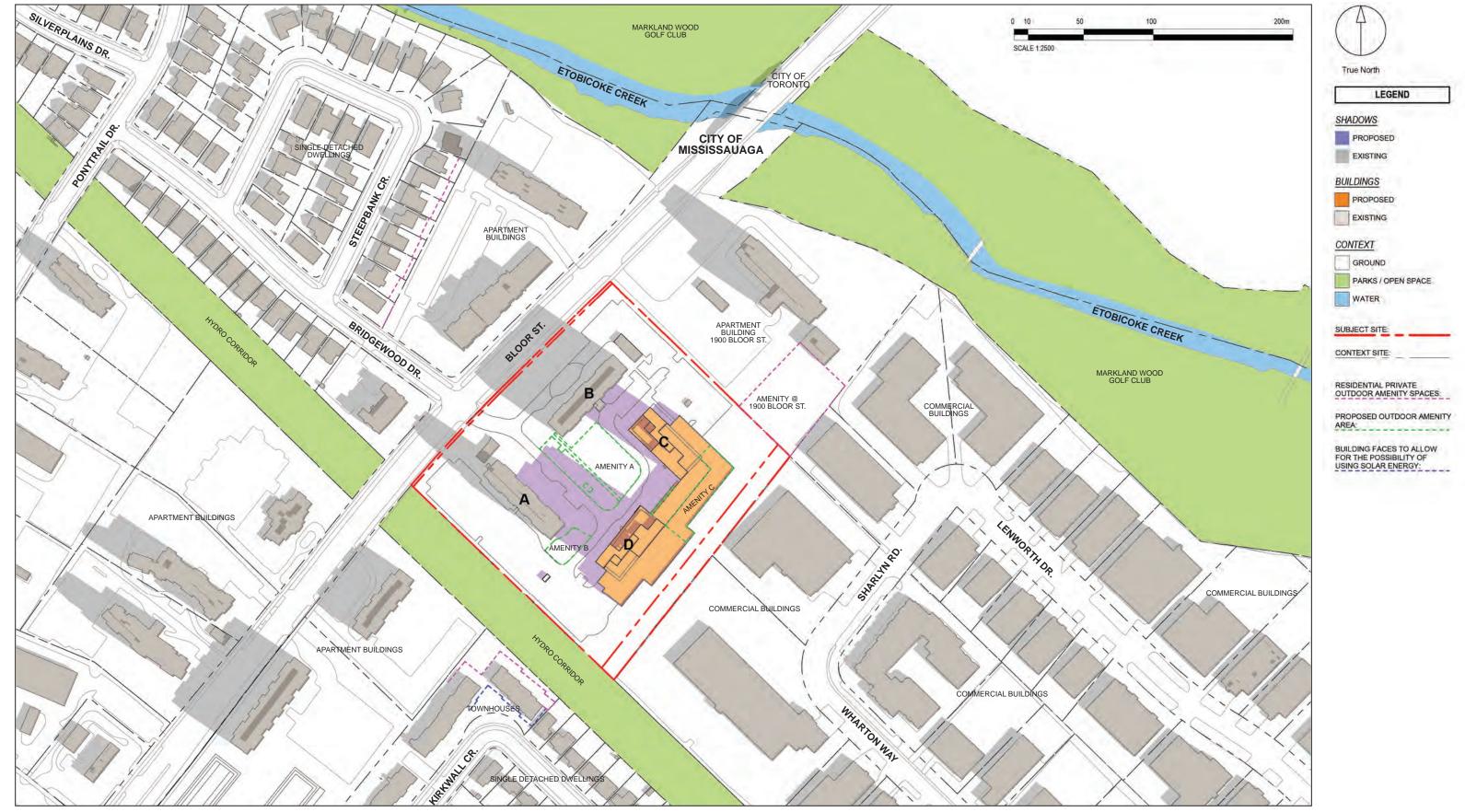
September 21 - 8.35 am EDT Sunrise + 1.5h





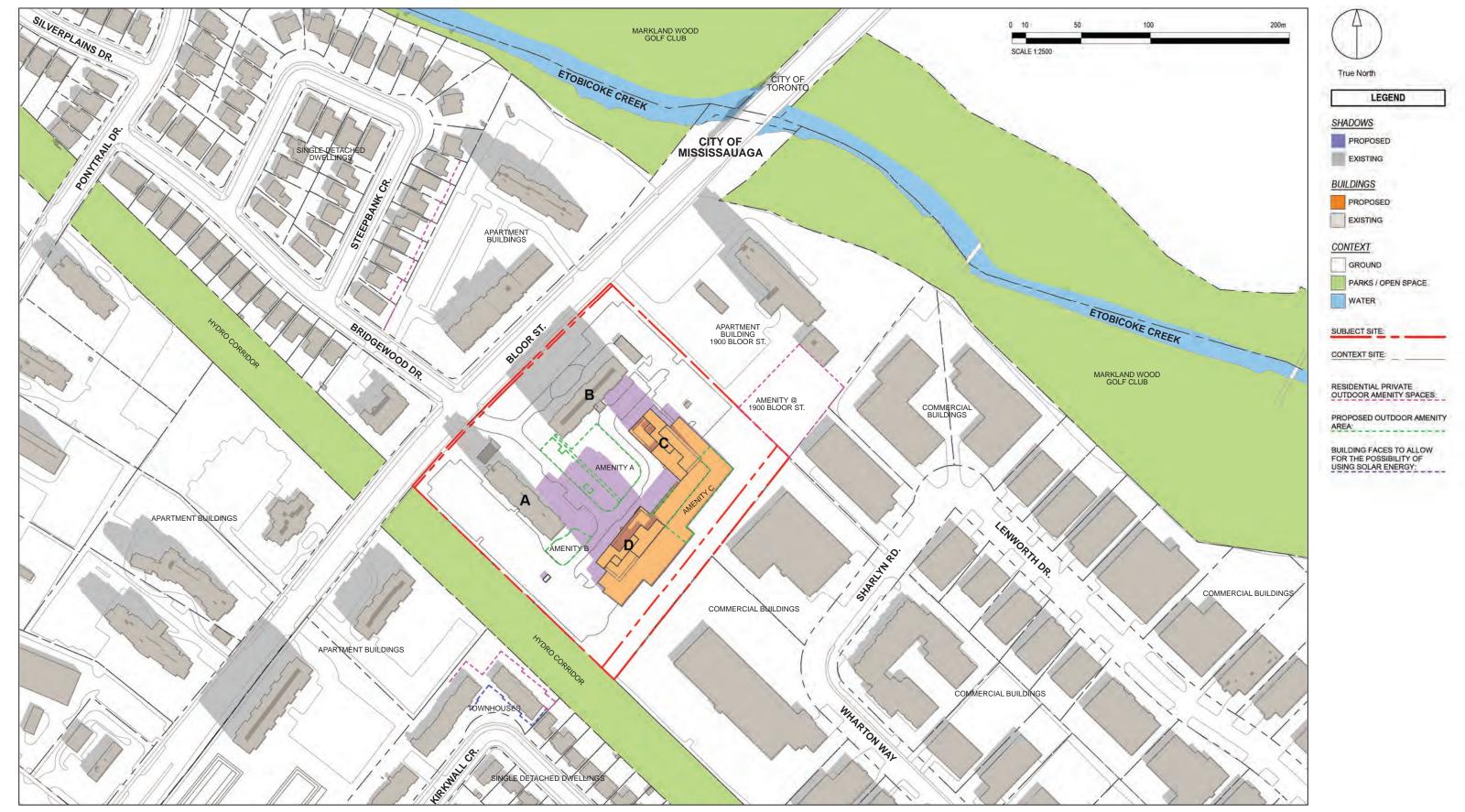
September 21 - 9.12 am EDT Solar Noon - 4h

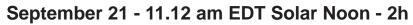




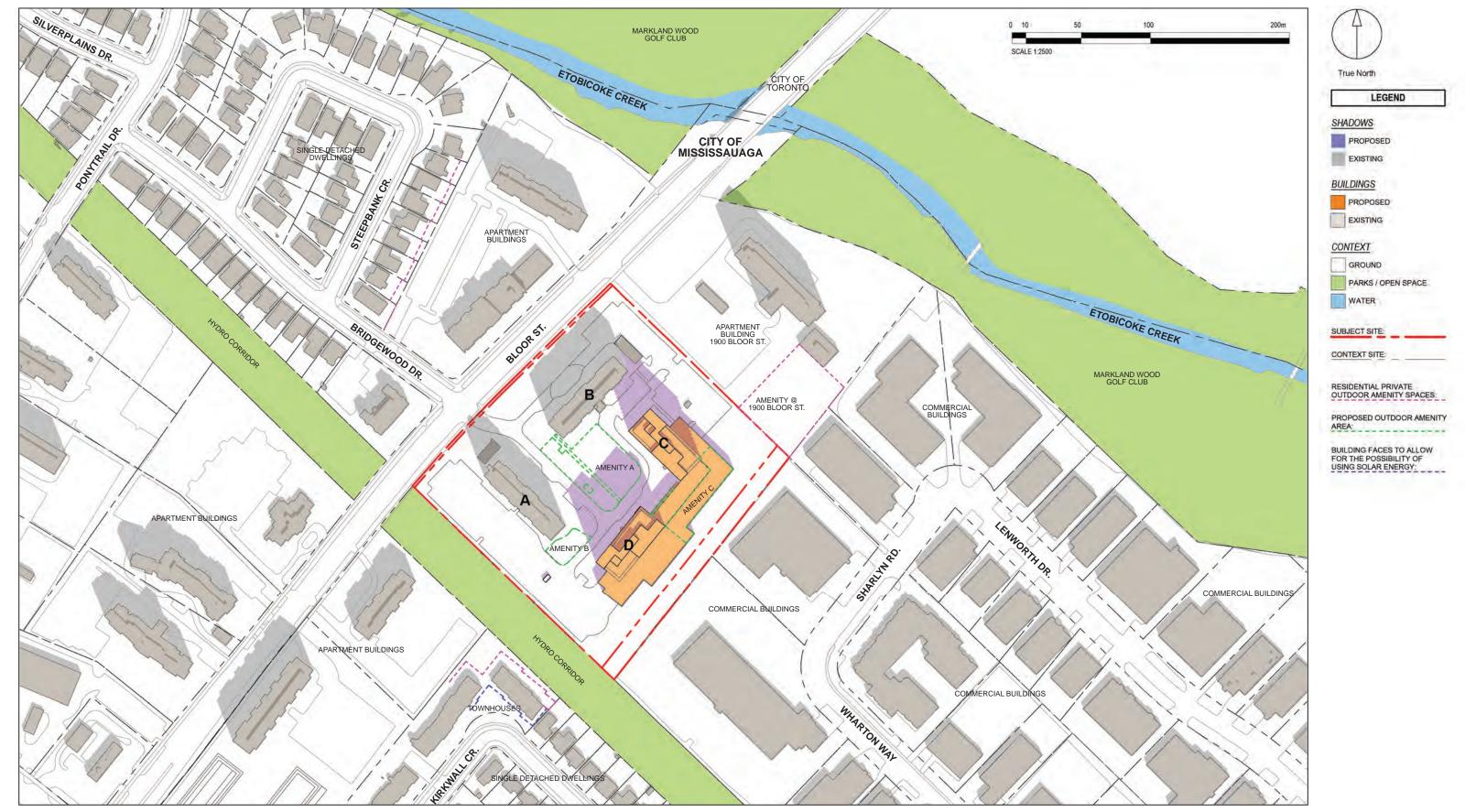






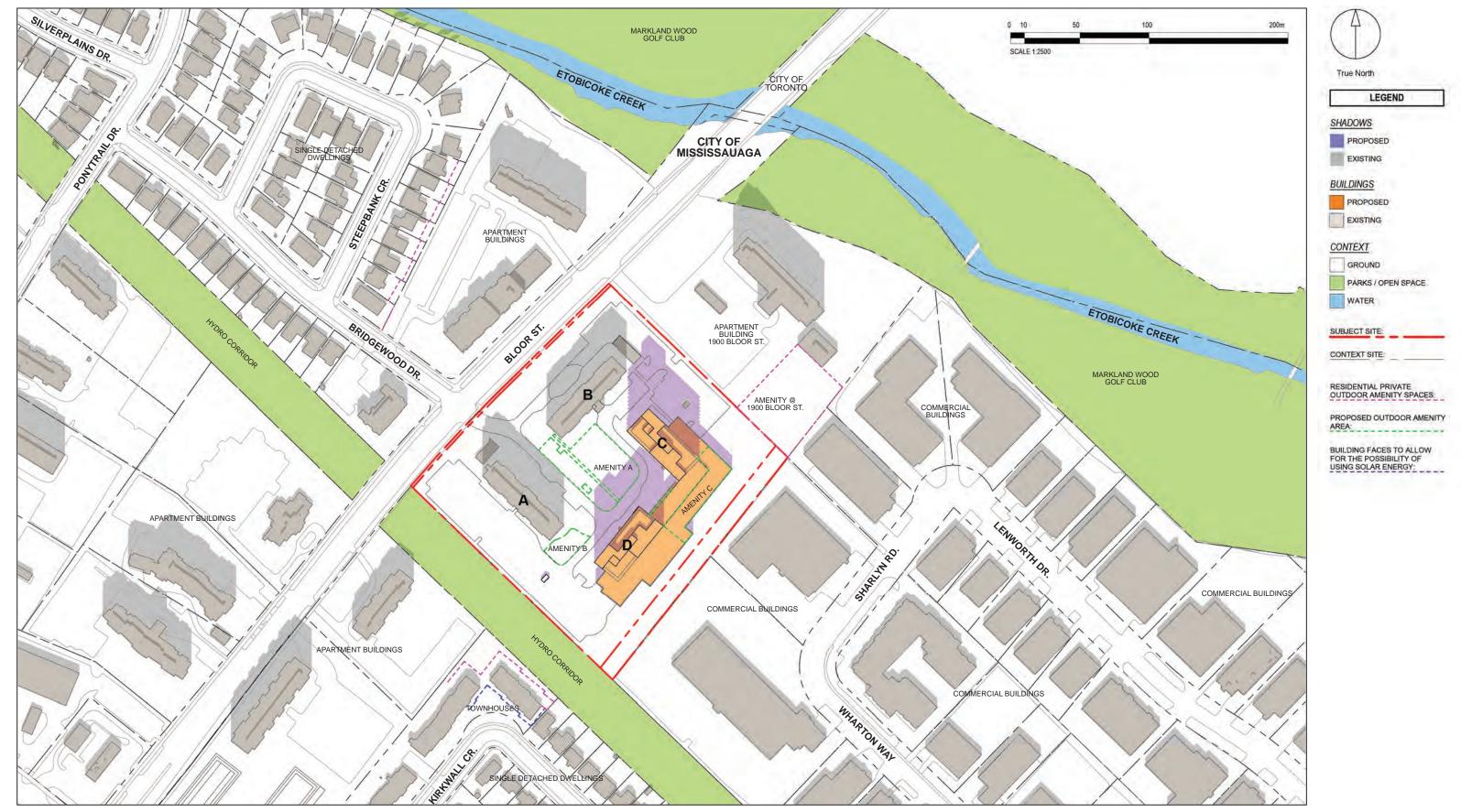


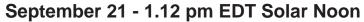




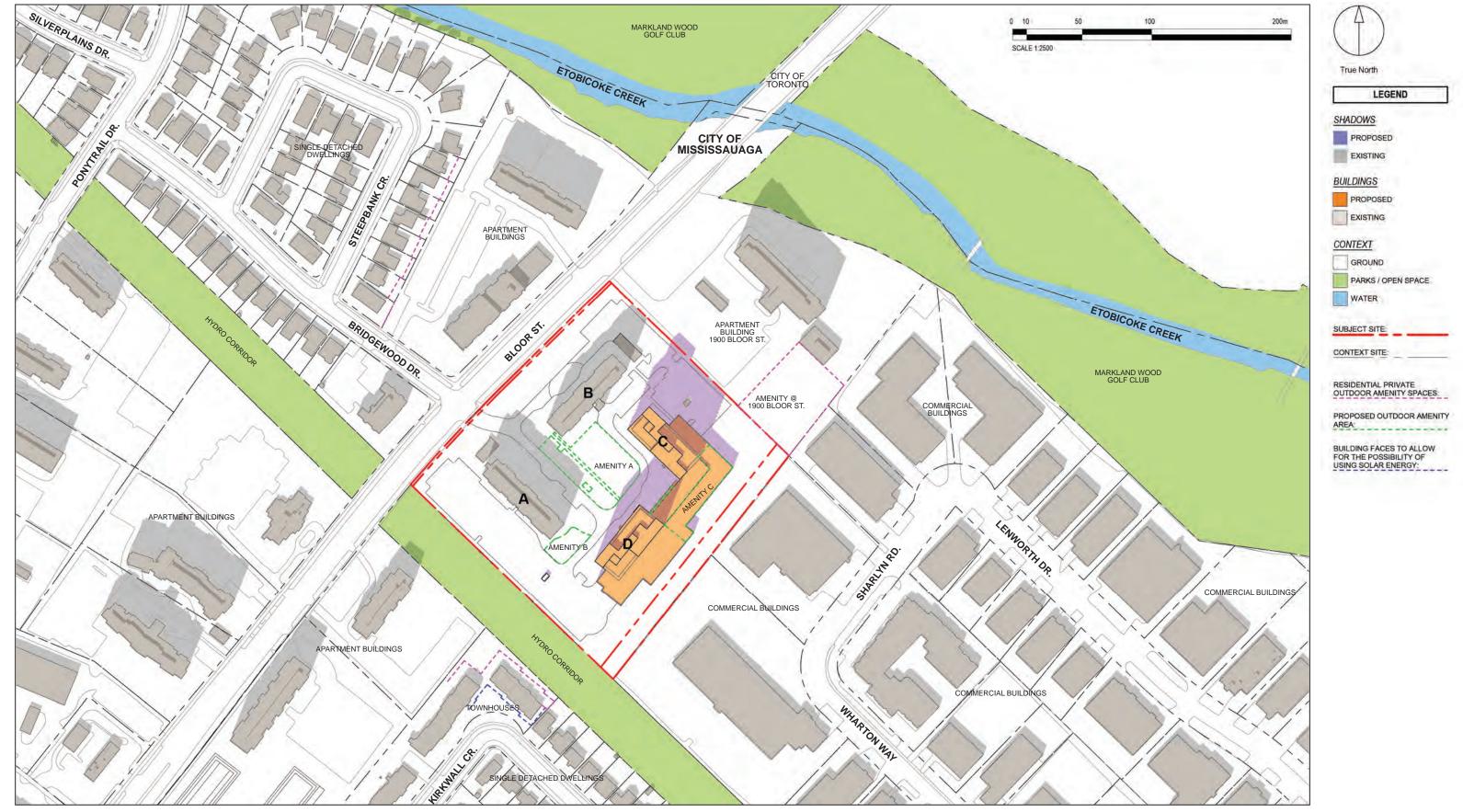






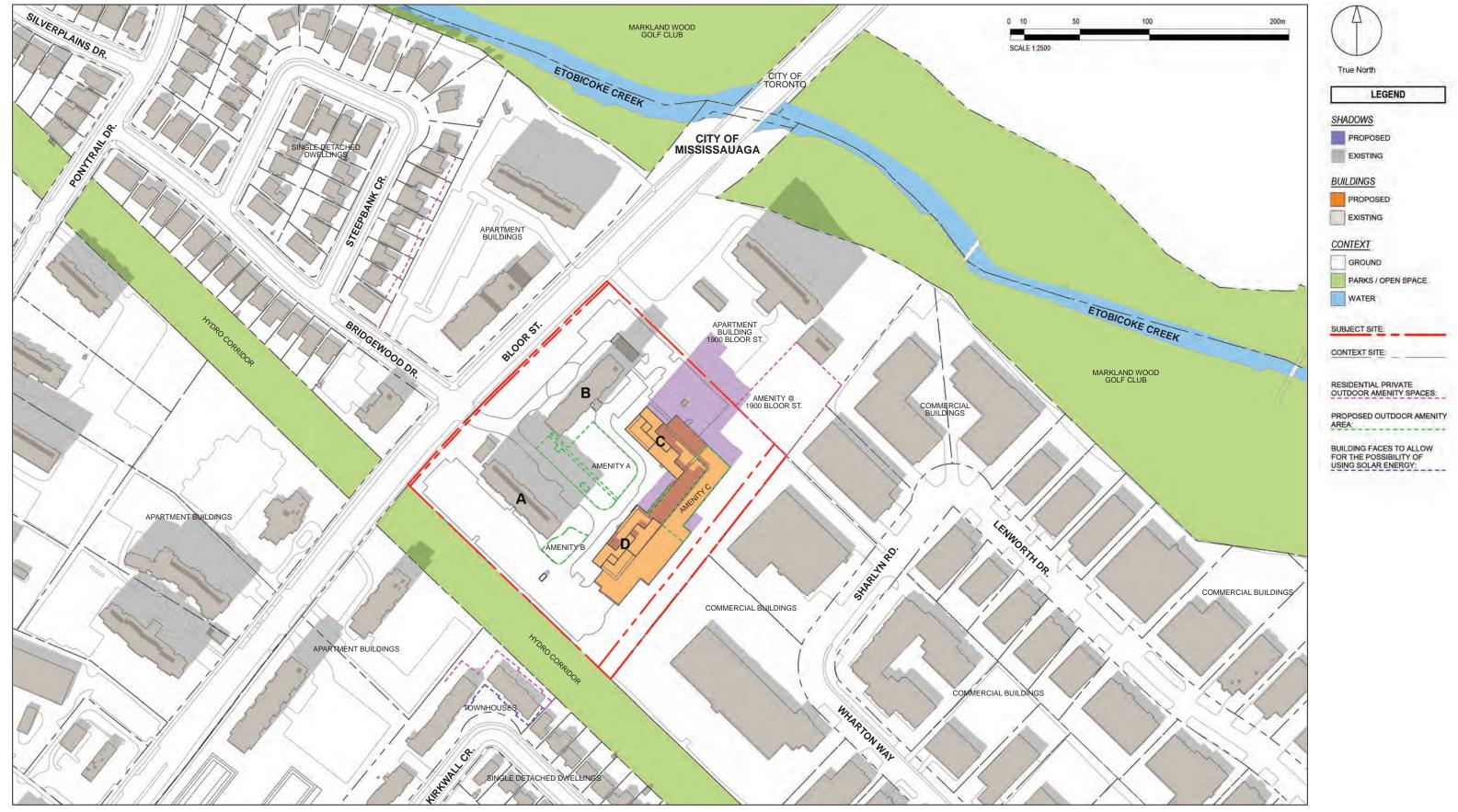






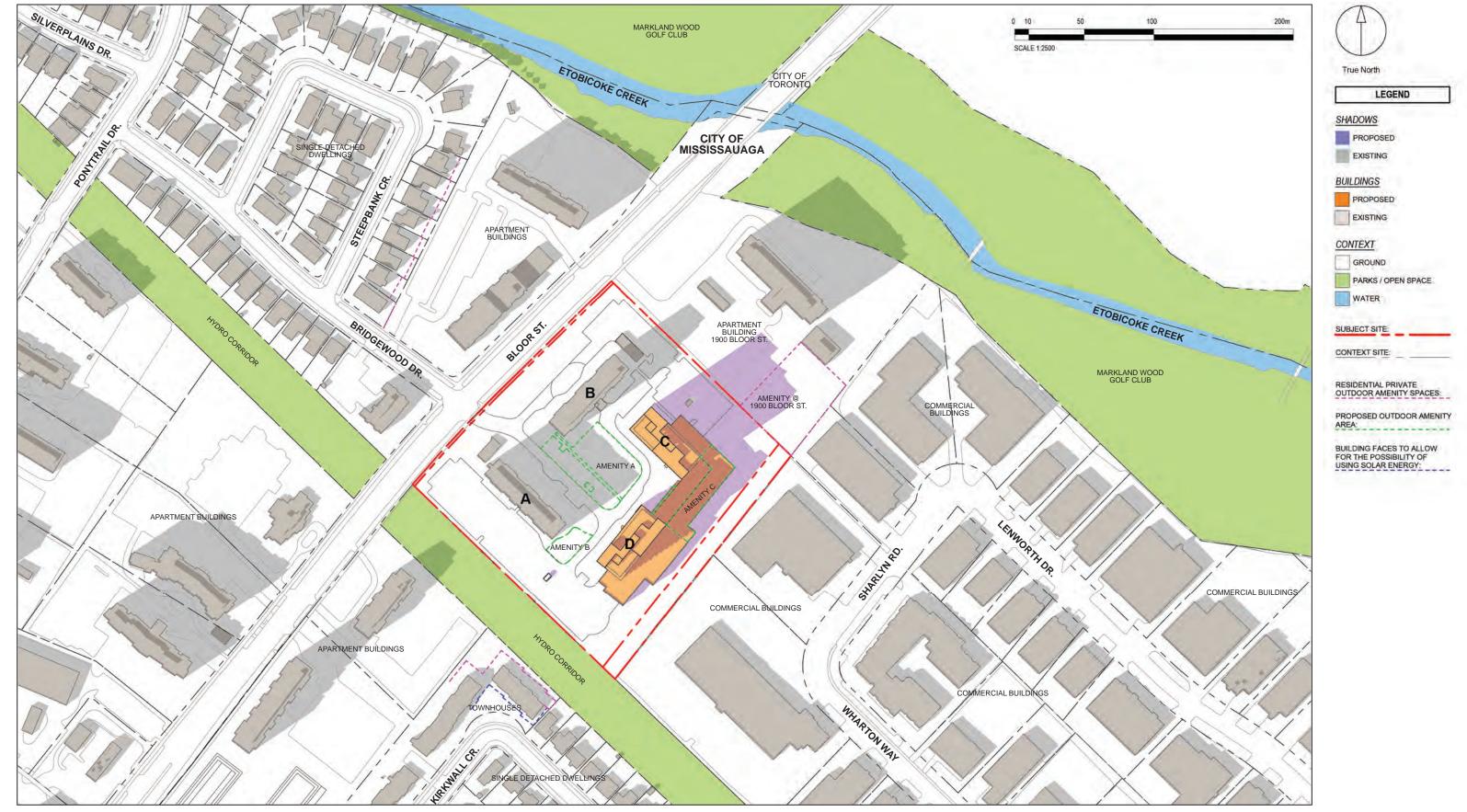
September 21 - 2.12 pm EDT Solar Noon + 1h





September 21 - 3.12 pm EDT Solar Noon + 2h











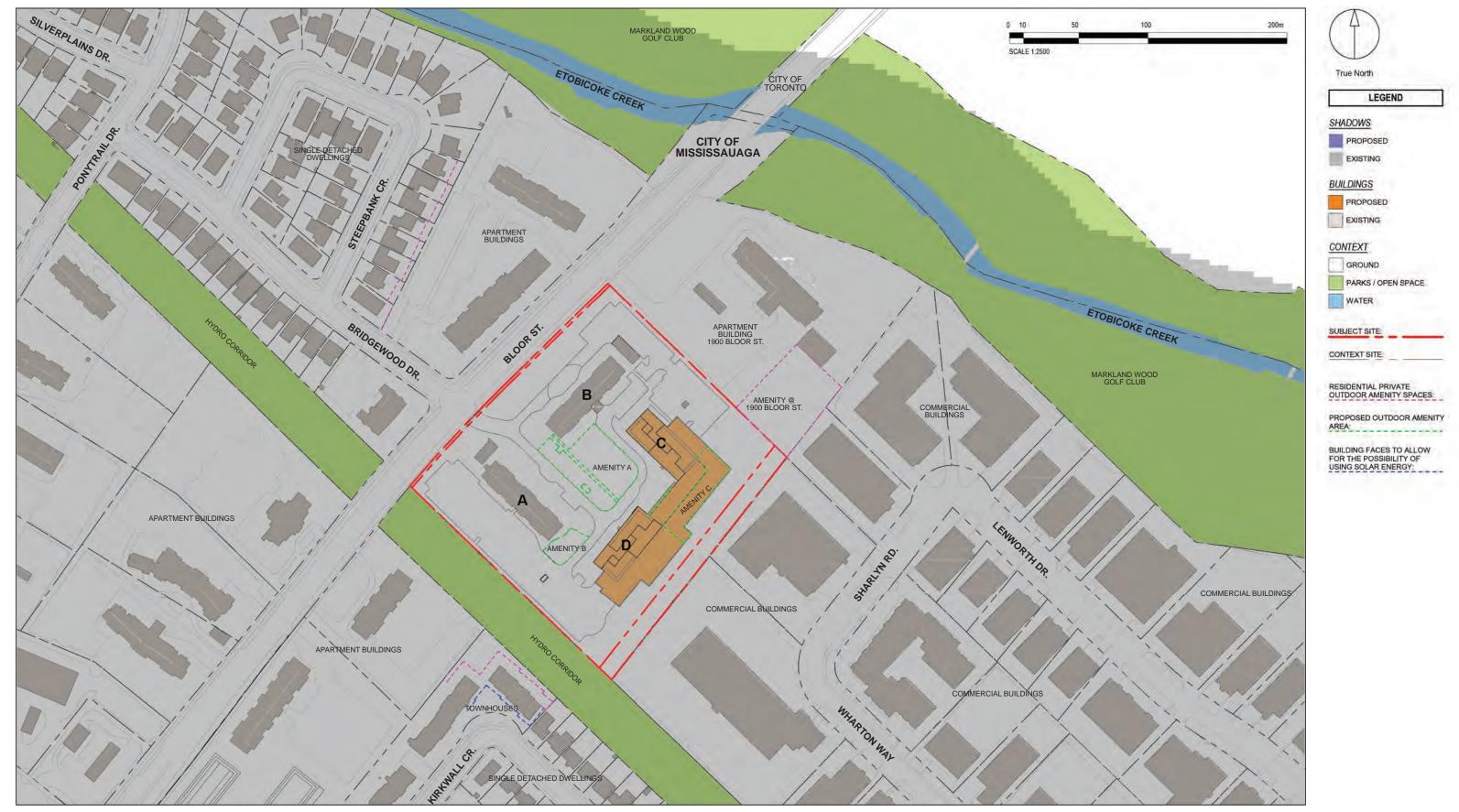
September 21 - 5.12 pm EDT Solar Noon + 4h





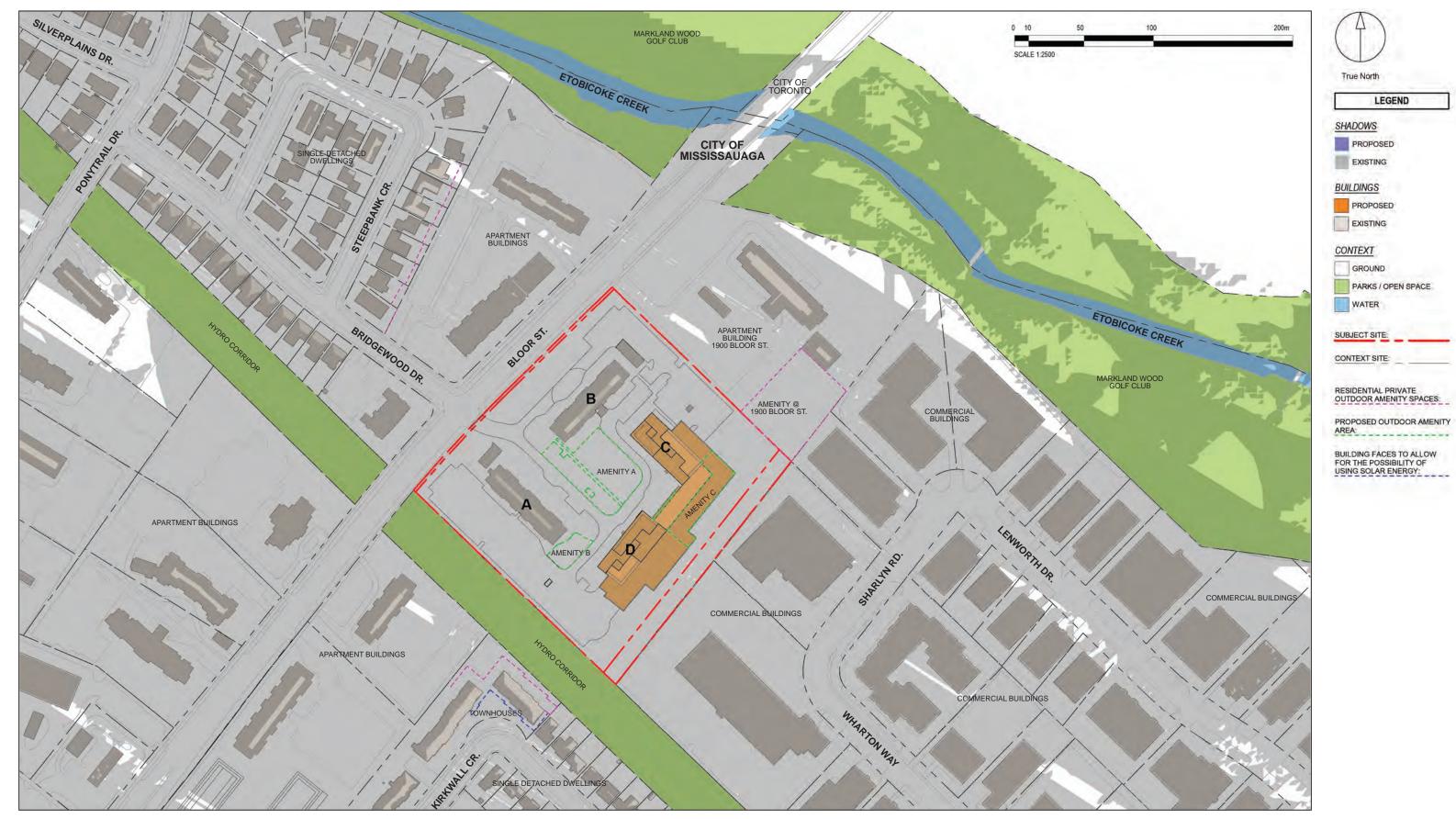






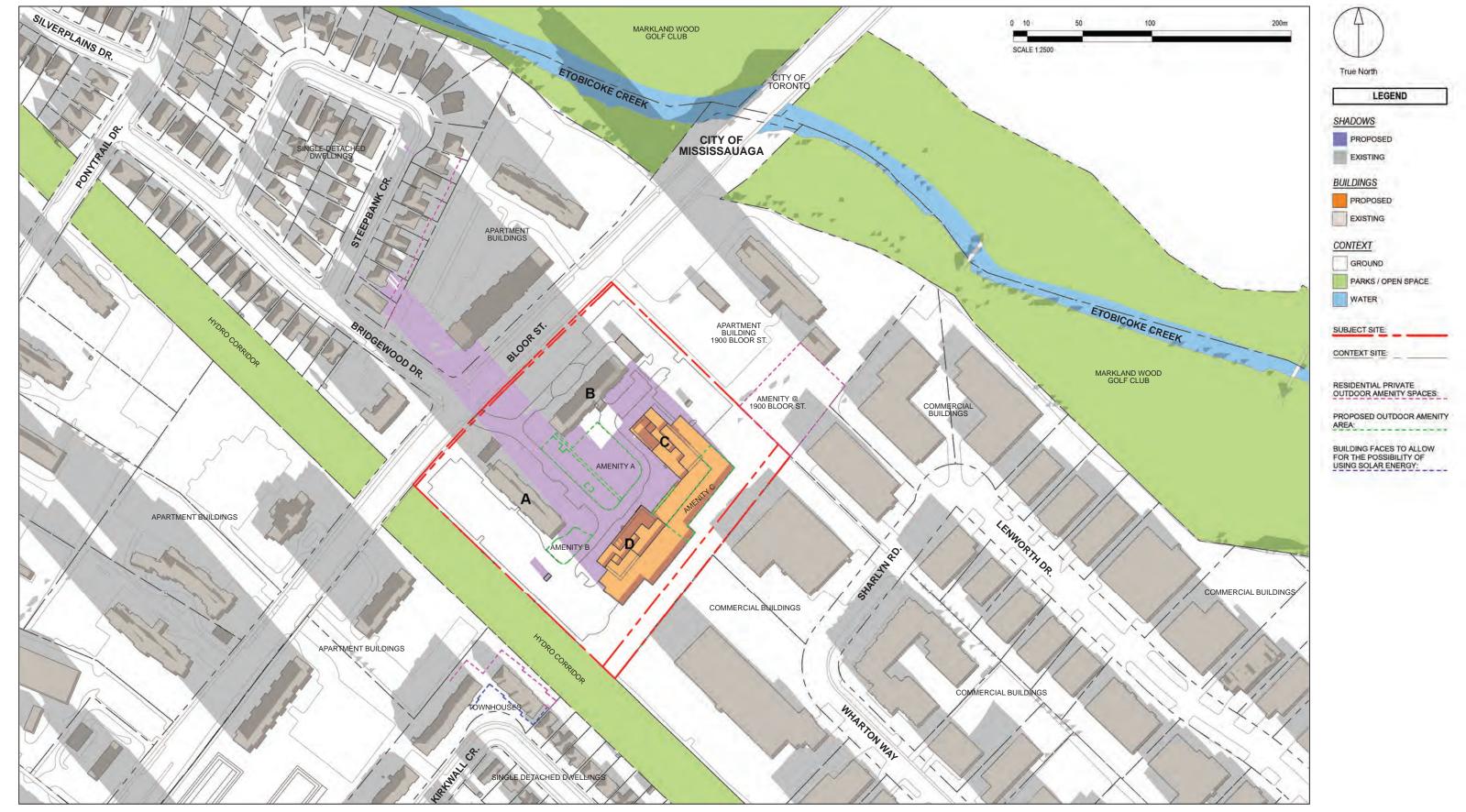
September 21 - 7.18 pm EDT Sunset





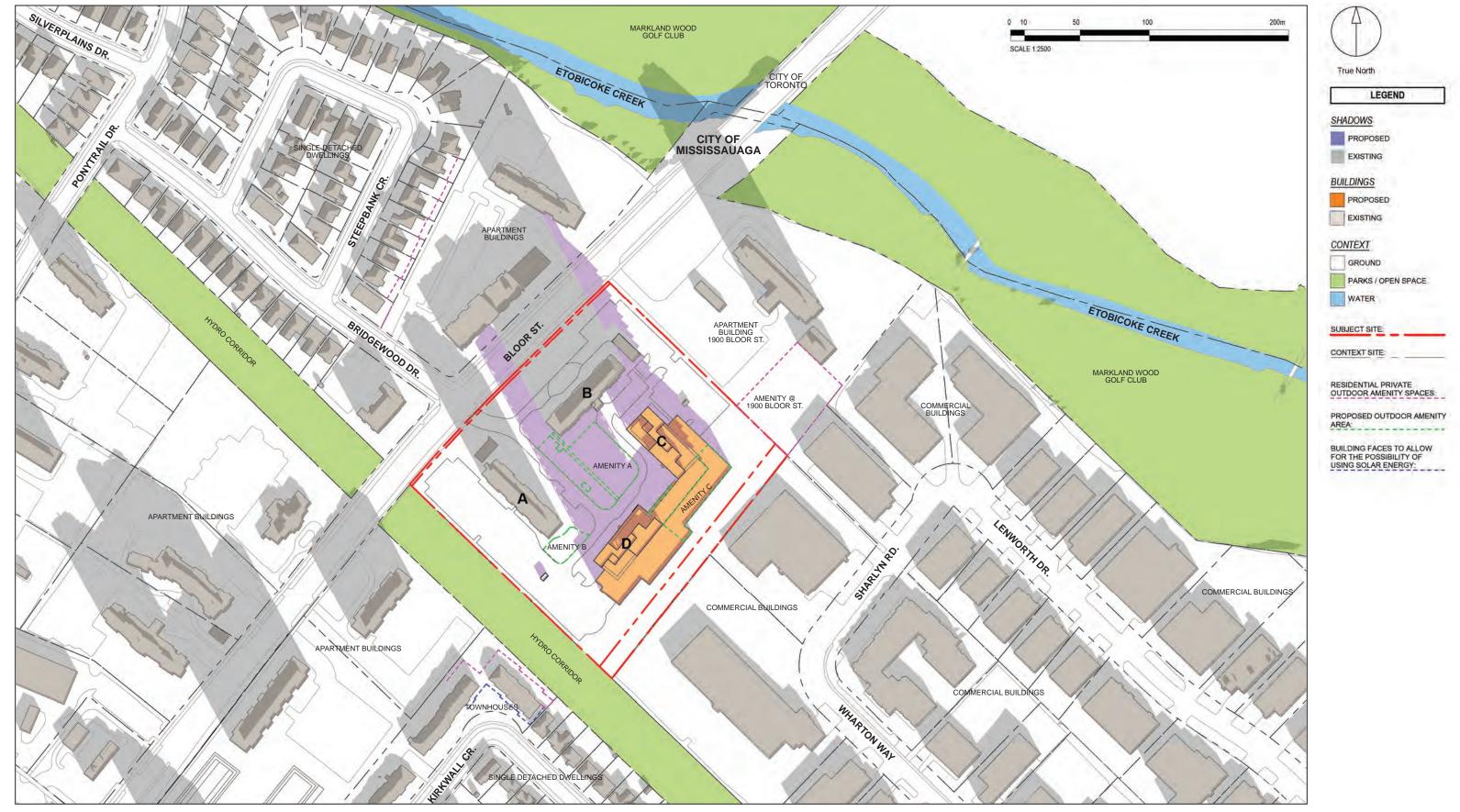
December 21 - 7.49 am EST Sunrise





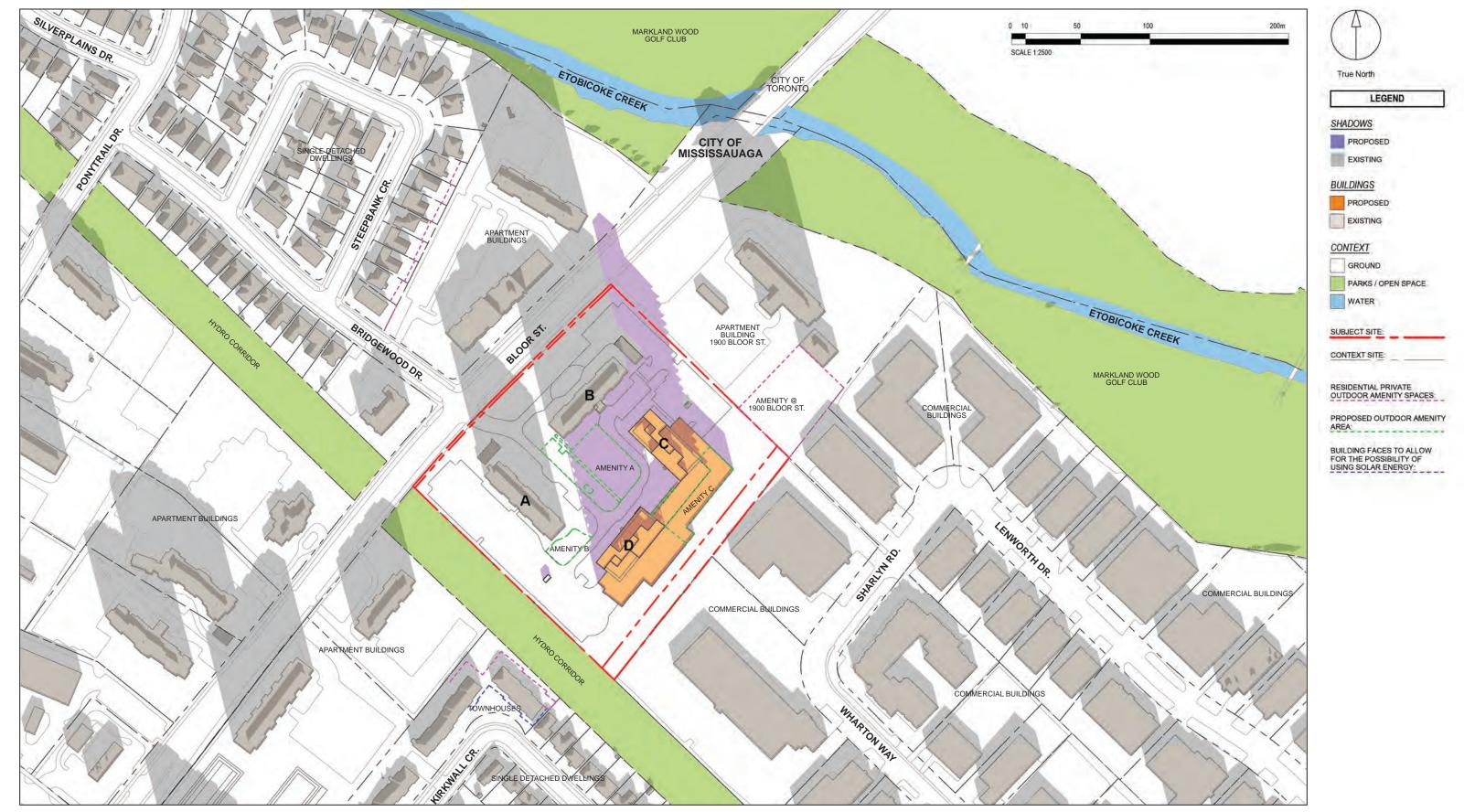
December 21 - 9.19 am EST Sunrise + 1.5h





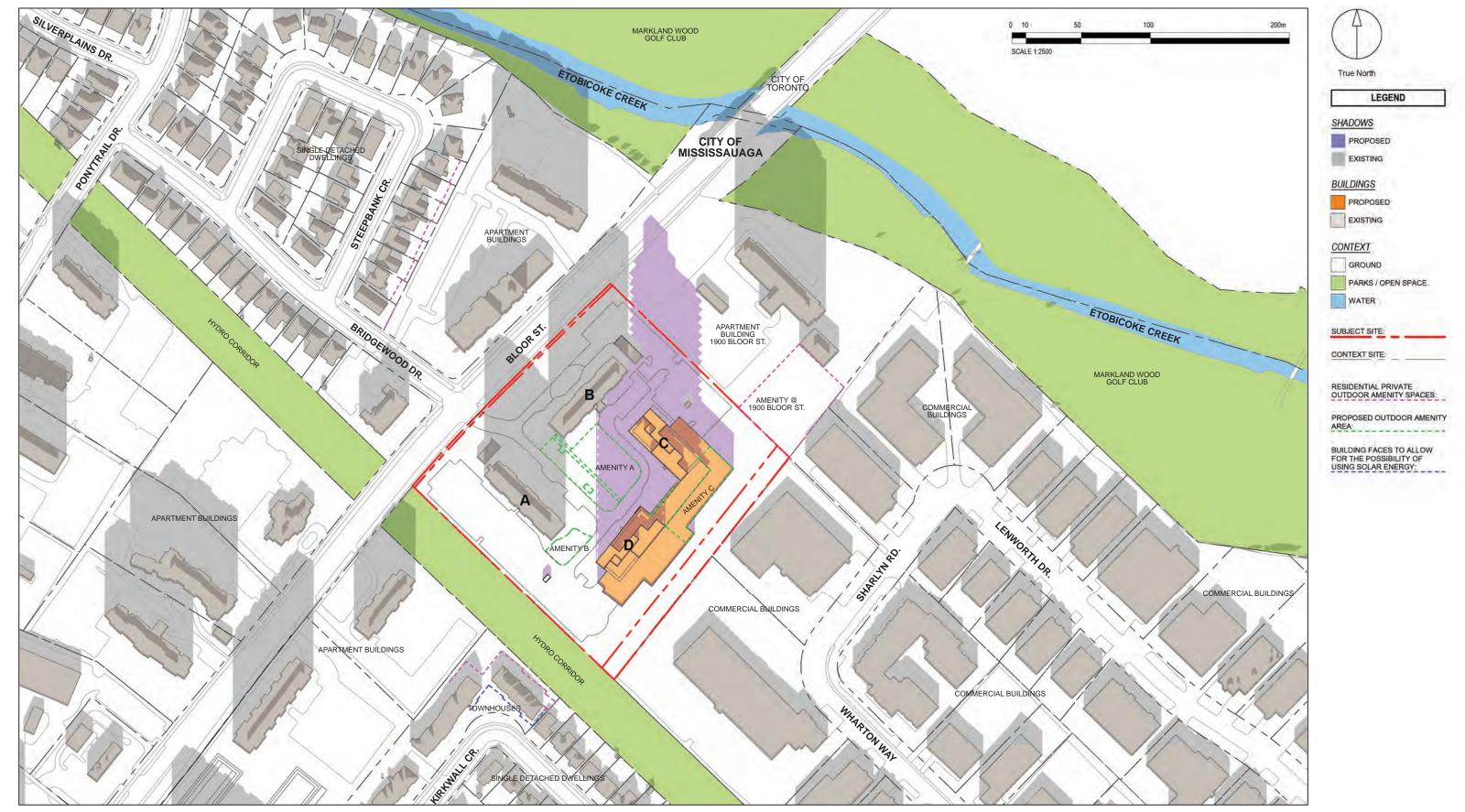
December 21 - 10.17 am EST Solar Noon - 2h











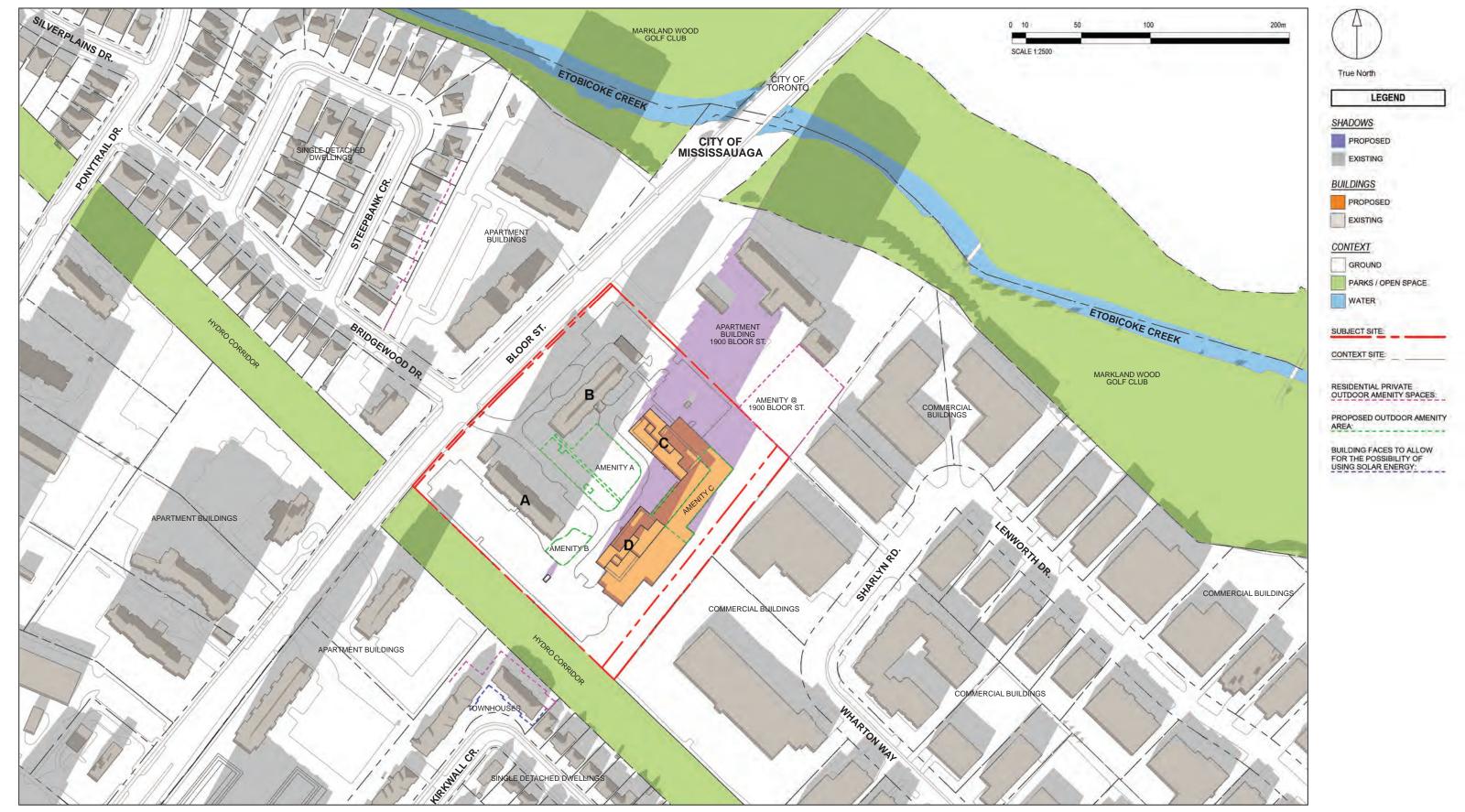






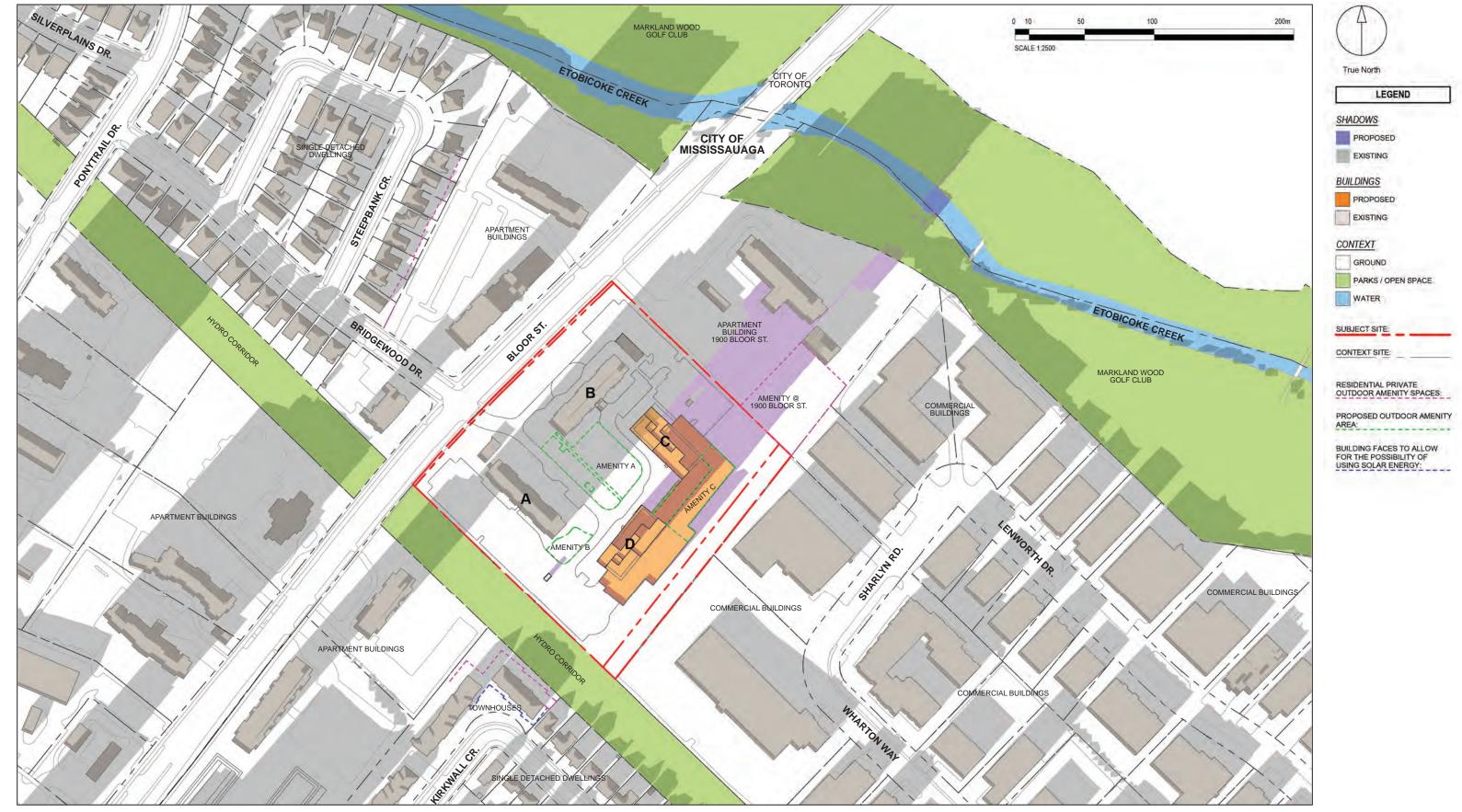
December 21 - 1.17 pm EST Solar Noon + 1h





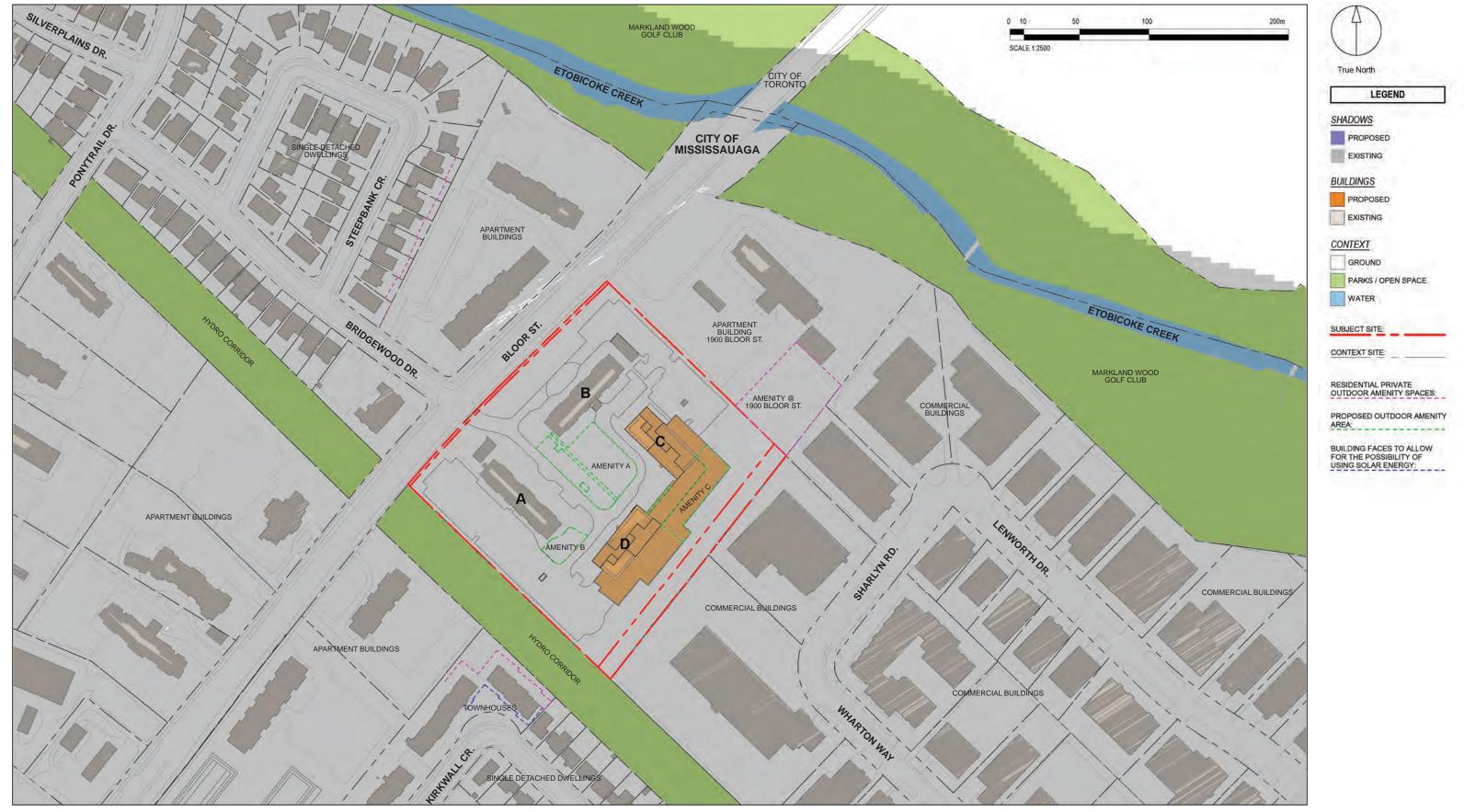
December 21 - 2.17 pm EST Solar Noon + 2h





December 21 - 3.15 pm EST Sunset - 1.5h





December 21 - 4.45 pm EST Sunset

