

SUN SHADOW STUDY

MAIN & NELSON

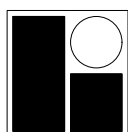
Proposed Mixed-Use Development
122-130 Main St N, 6 & 7 Nelson St E, and 7 & 11 Church St E
City of Brampton

Prepared for:
Rose Garden Investments

Prepared by:
Ralph Bouwmeester, P. Eng.

RBA File: S21020

NOVEMBER 5, 2021
(Revised July 15, 2024)



R. BOUWMEESTER & ASSOCIATES
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Web: www.sunposition.com Email: rba@sunposition.com

1. This report should be read in conjunction with shadow study Drawings RH-1 and SS-1 to SS-8 all dated November 5, 2021, revised July 15, 2024.

2. Site latitude and longitude used for this study are based on the latitude and longitude of the subject site as follows:

Latitude: 43° 41' 15" N (43.6875° N)

Longitude: 79° 45' 43" W (79.7619° W)

3. Time Zone: Eastern

Standard Time: UT – 5 hours (applies on Dec 21)

Daylight Time: UT – 4 hours (applies on Mar 21, Jun 21 and Sep 21)

4. Site Orientation: North Limit Nelson Street N73°22'45"E (UTM Grid)

The bearing of the site's south boundary (north limit of Nelson Street) is shown as N73°22'45"E (UTM Grid) on a Plan of Survey dated July 5, 2017, by Rady-Pentek & Edward Surveying Ltd. The coordinate reference system used in the survey matches that used in the City's mapping (which is referenced to UTM Zone 17, NAD83) which allows for the direct insertion of the site into the mapping.

Since shadow studies are referenced to true (astronomic) north, a small rotational adjustment was made to align the shadows with true north. The rotation between grid and true north is shown on the north arrow in the diagrams.

5. The base plan information used in this analysis (e.g. building footprints, curbs, parks, railways, roads, sidewalks, watercourses, contours and digital terrain data) was obtained from the City of Brampton open data mapping portal. The 3D massing model of the proposal was provided by Graziani + Corazza Architects.

6. Shadows are shown at ground level on existing terrain and reflect changes in grade as depicted by the contours shown on the diagrams. The building was set with its finished lobby floor (FFE) at an elevation of 215.50 m per Graziani + Corazza. Building heights are shown on Drawing RH-1 in metres above FFE.

Since 3D massing information for existing buildings is not available, the shadowing shown does not account for existing shadows; therefore, actual new shadows will be less than shown in certain cases.

7. The shadow study includes the test dates and times required per *Addendum: Sun/Shadow Study Requirements* to the *City's Urban Design Brief Terms of Reference*, namely:

- Mar 21 – 9:30 AM, 12:30 PM, 3:30 PM and 6:30 PM EDT

- Jun 21 – 9:30 AM, 12:30 PM, 3:30 PM and 6:30 PM EDT

- Sep 21 – 9:30 AM, 12:30 PM, 3:30 PM and 6:30 PM EDT

- Dec 21 – 9:30 AM, 12:30 PM, 3:30 PM EST. (Sunset is < 6:30 PM)

8. Review of Shadow Drawings

Mar 21 – At 9:30 AM, shadows cross the Church/Main intersection to the northwest and reach a 2½-storey commercial building and a 14-storey apartment building on the west side of Main. Shadows from the east tower reach a portion of the south facade of Grace United Church on the east side of Main north of Church.

By 12:30 PM, shadows generally stay within the block – only the west tower shadows reach Church Street. Shadows reach several rear yards on the south side of Church Street.

At 3:30 PM, shadows reach the west facade of the 5-storey apartment building to the east; due to the design revisions, they no longer reach the tennis courts at Rosalea Park.

At 6:30 PM, shadows skim along the south end of the YMCA building and cross parking areas to the east. They follow the railway between Queen Street and Etobicoke Creek, and end within the creek valley.

Jun 21 – At 9:30 AM, shadows cross Main Street and reach a 1-storey commercial building at the SW corner of Main and Church.

At 12:30 PM, shadows generally stay within the subject site although they reach the south facade of the 2-storey commercial building and two rear yard garages immediately to the north.

At 3:30 PM, shadows stay within the block and reach beyond the 2-storey commercial building immediately to the east. They end in a parking lot at the NW corner of Nelson/Union.

At 6:30 PM, shadows cross Nelson Street to the southeast and reach 3 commercial properties on the south side of the street. They continue across the railway and reach the driveway/drop-off area on the north side of the 16-storey Belvedere Condo building. The shadows do not reach Queen Street.

Sep 21 – Since the Sep 21 shadow path is similar to that on Mar 21 (with Sep shadows occurring about 15 minutes earlier) our comments above re Mar 21 generally apply to Sep 21. At 6:30 PM, however, the shadows extend beyond Etobicoke Creek and reach the tennis courts in Centennial Park.

Dec 21 – At 9:30 AM, shadows reach northwest crossing William Street. They reach the parking lot on the west side of Central Public School but they do not fall on the school. (Although the City's data shows this area as a "park", it is the school's parking lot.)

At 12:30 PM, shadows reach the south facade of St. Andrew's Presbyterian Church at the NE corner of Church and Union. They are expected to reach about 3m up the façade at the southwest corner of the church, dropping to zero at the southeast corner.

At 3:30 PM, shadows reach the west facade of the 5-storey apartment building to the east, they cross Rosalea Park and Etobicoke Creek and reach beyond Centre Street North.

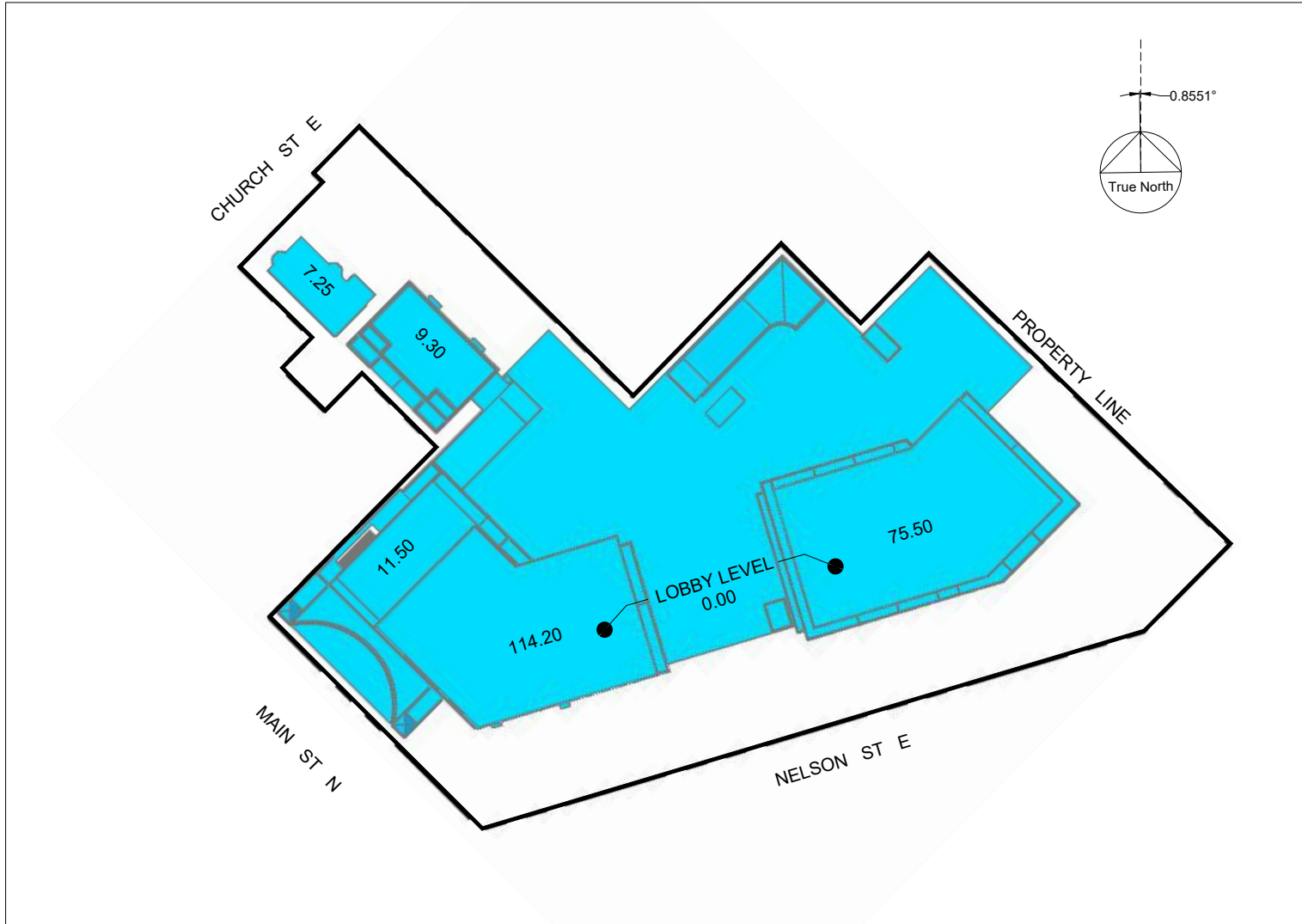
9. Summary:

Based on the test dates and times depicted in the attached diagrams:

- a) Shadowing of adjacent streets is limited, particularly during summer (Jun 21).
- b) Shadowing of nearby parks is limited to the tennis courts at Centennial Park at the 6:30 PM test time on Sep 21. Shadows also reach across Rosalea Park at 3:30 PM on Dec 21.
- c) We have identified no other significant outdoor public spaces within the reach of the proposed shadows.
- d) Based on the given test dates and times and my review of the shadow diagrams, it is my opinion that the proposed development will not result in undue shadowing beyond the limits of the subject site.

NOTES:

1. BUILDING HEIGHTS AND SHADOWS INCLUDE PARAPETS, BALCONY SLABS & RAILINGS, AND ROOF-TOP FEATURES, WHERE APPLICABLE.
2. BUILDING HEIGHTS ARE SHOWN IN METRES ABOVE THE LOBBY FLOOR FFE 215.50.
3. BUILDING HEIGHTS DERIVED FROM ARCHITECTURAL PLANS AND MODELS BY GRAZIANI + CORAZZA ARCHITECTS INC.
4. SHADOWS ARE SHOWN ON EXISTING TERRAIN AND REFLECT CHANGES IN GRADE AS DEPICTED BY THE CONTOURS SHOWN (IN 0.50m INTERVALS).
5. BASE MAPPING OBTAINED FROM CITY OF BRAMPTON OPEN DATA PORTAL (INCLUDING BUILDING FOOTPRINTS, CURBS, PARKS, RAILWAYS, ROADS, SIDEWALKS, WATERCOURSES, CONTOURS AND DIGITAL TERRAIN DATA).
6. SITE BOUNDARY DATA DERIVED FROM SURVEY BY RADY-PENTEK & EDWARD SURVEYING LTD.



PROPOSED HEIGHTS

GEOGRAPHIC SITE LOCATION:

LATITUDE: 43° 41' 15" N
 LONGITUDE: 79° 45' 43" W

TIME ZONE:

EASTERN
 - STANDARD TIME (EST) (UT - 5 hrs)
 - DAYLIGHT TIME (EDT) (UT - 4 hrs)

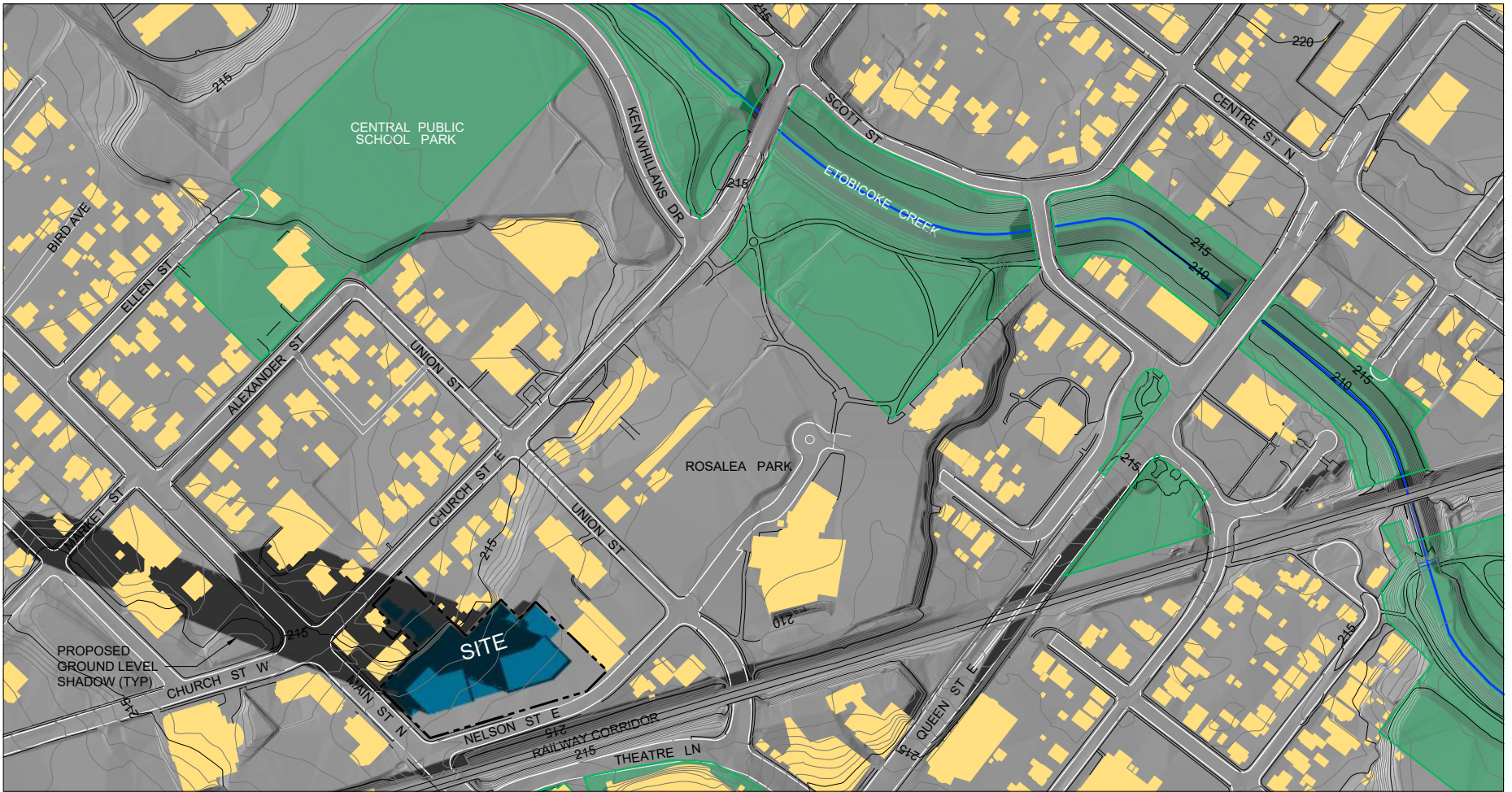


**KEY BUILDING HEIGHTS
 SUN SHADOW STUDY**
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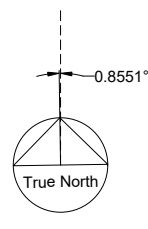
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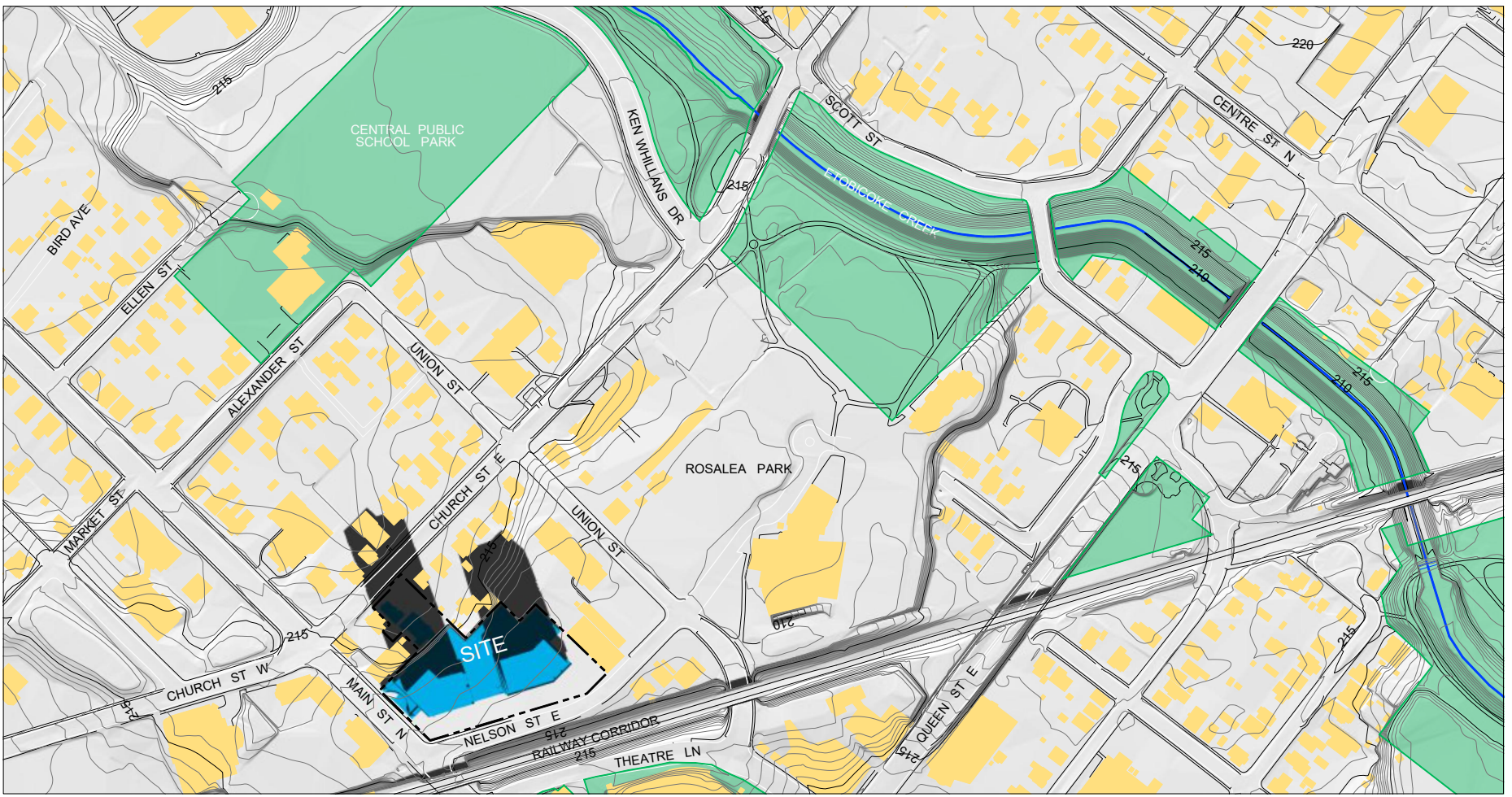
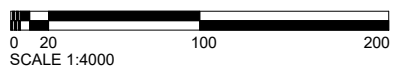
Drawing No.:
RH-1



■ PROPOSED GROUND LEVEL SHADOW



9:30 AM^{EDT}



MAR 21

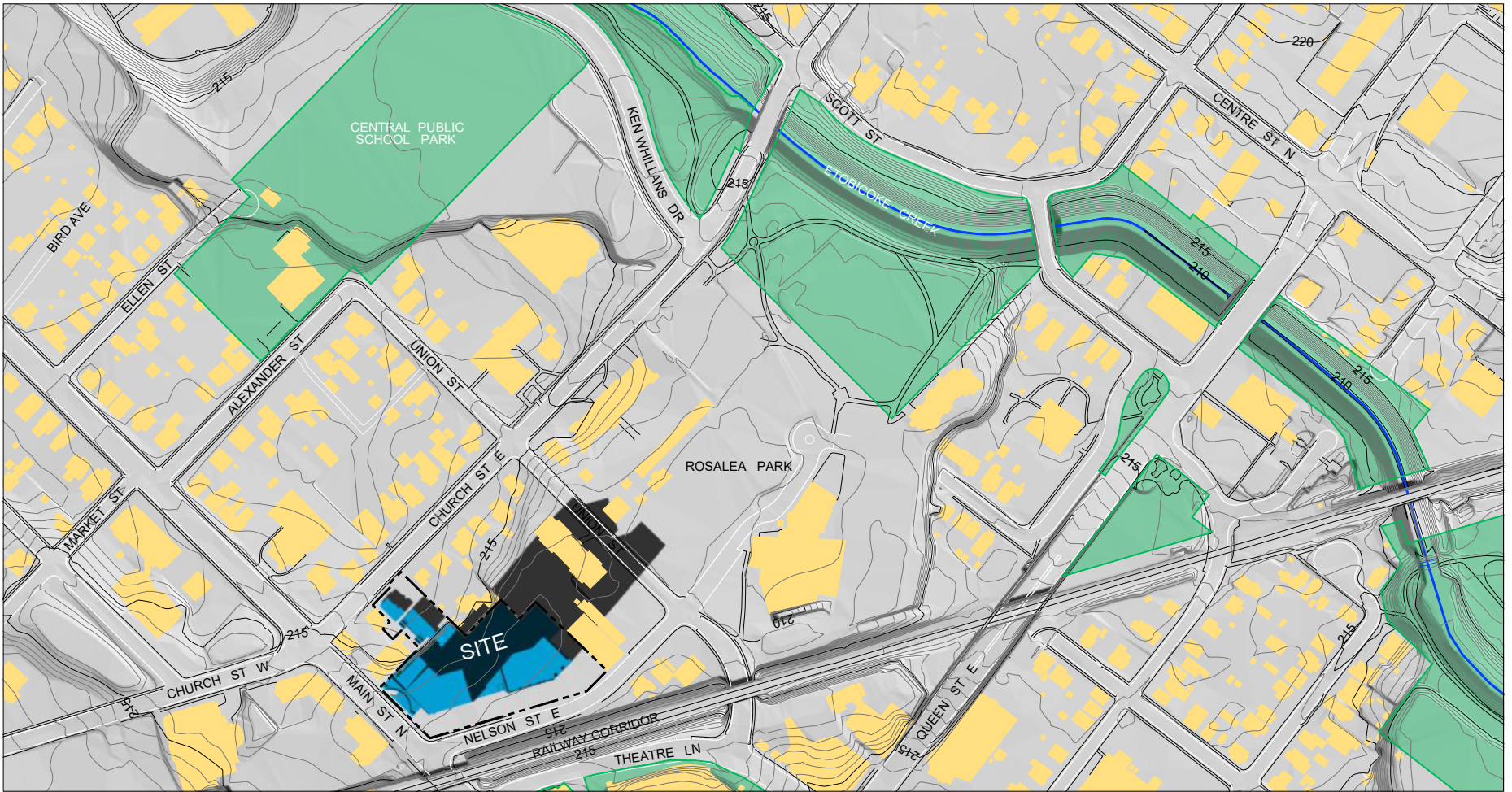
12:30 PM^{EDT}

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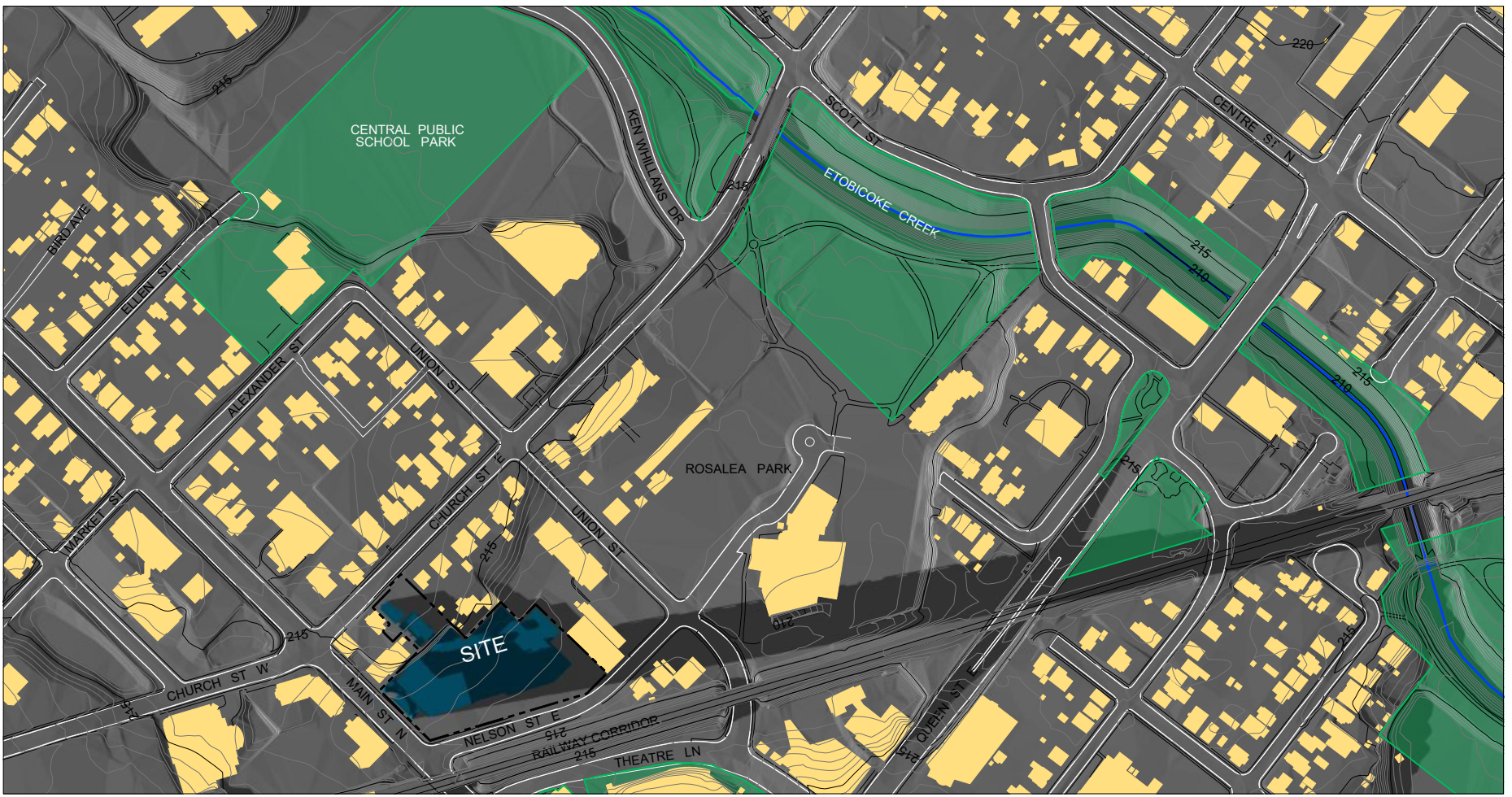
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SS-1




3:30 PM^{EDT}

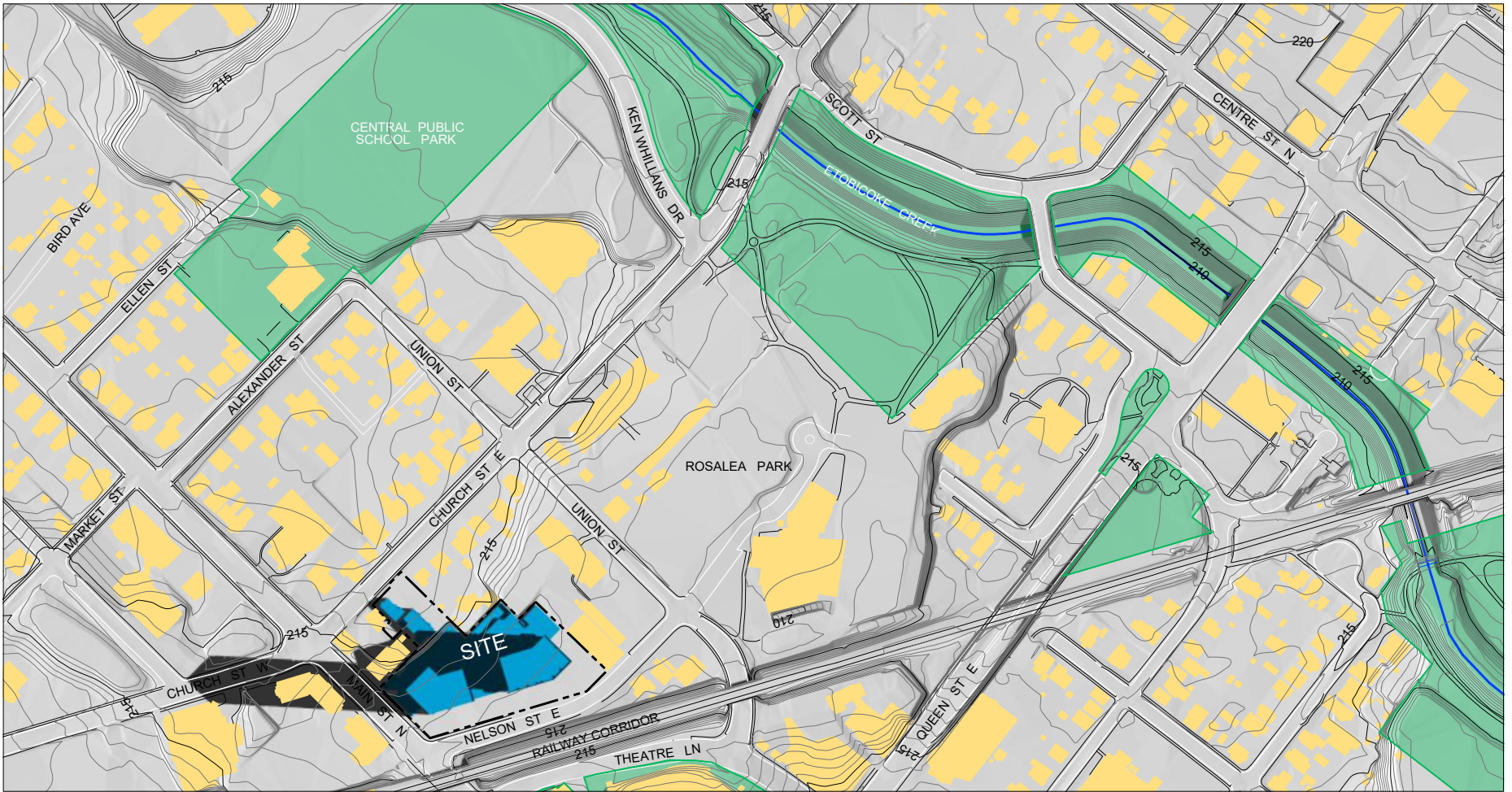


6:30 PM^{EDT}

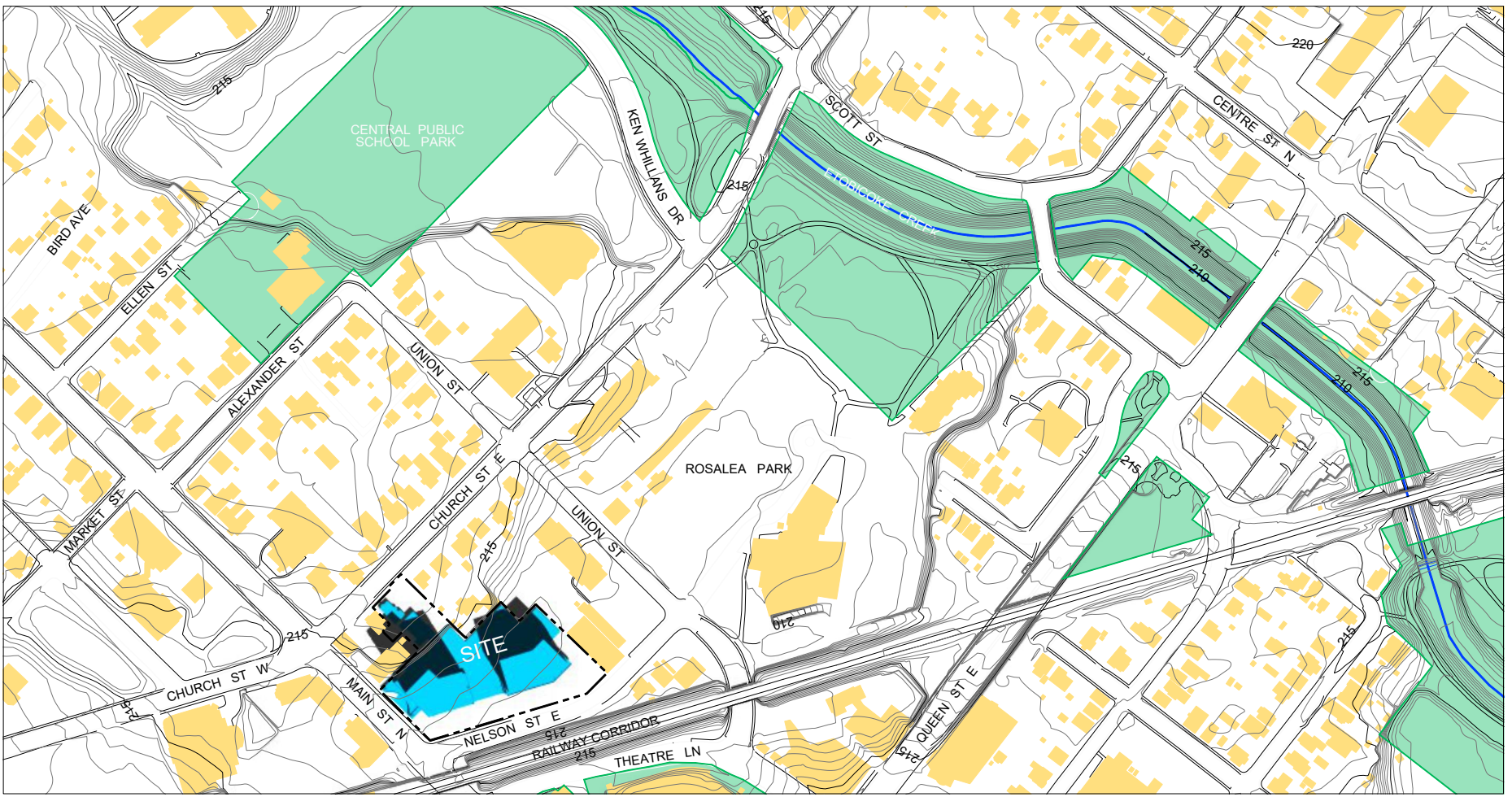
MAR 21

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Calculated by:	RB	Project:	S21020	Drawing No.: <h1>SS-2</h1>
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9:30 AM^{EDT}

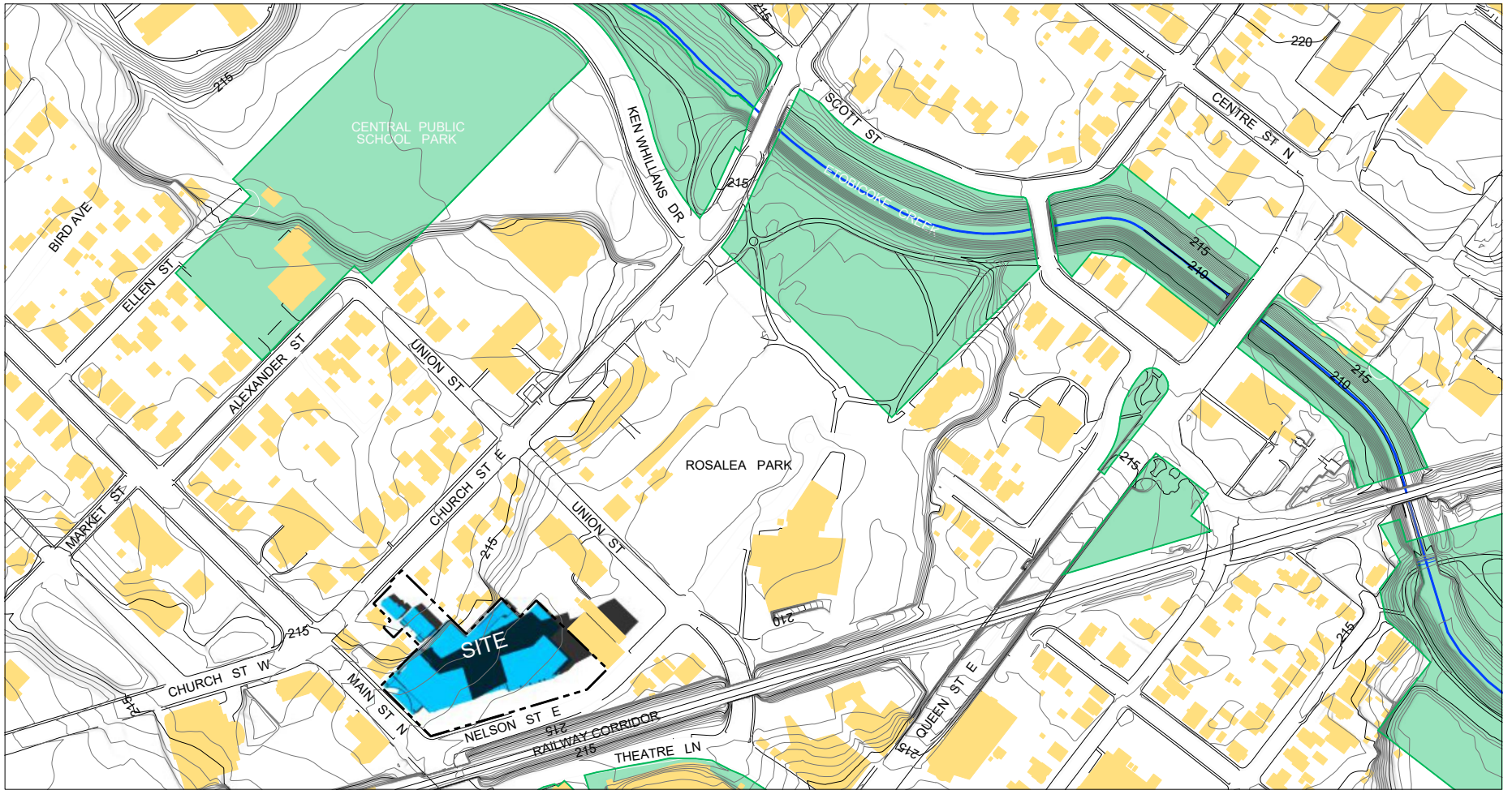


JUN 21

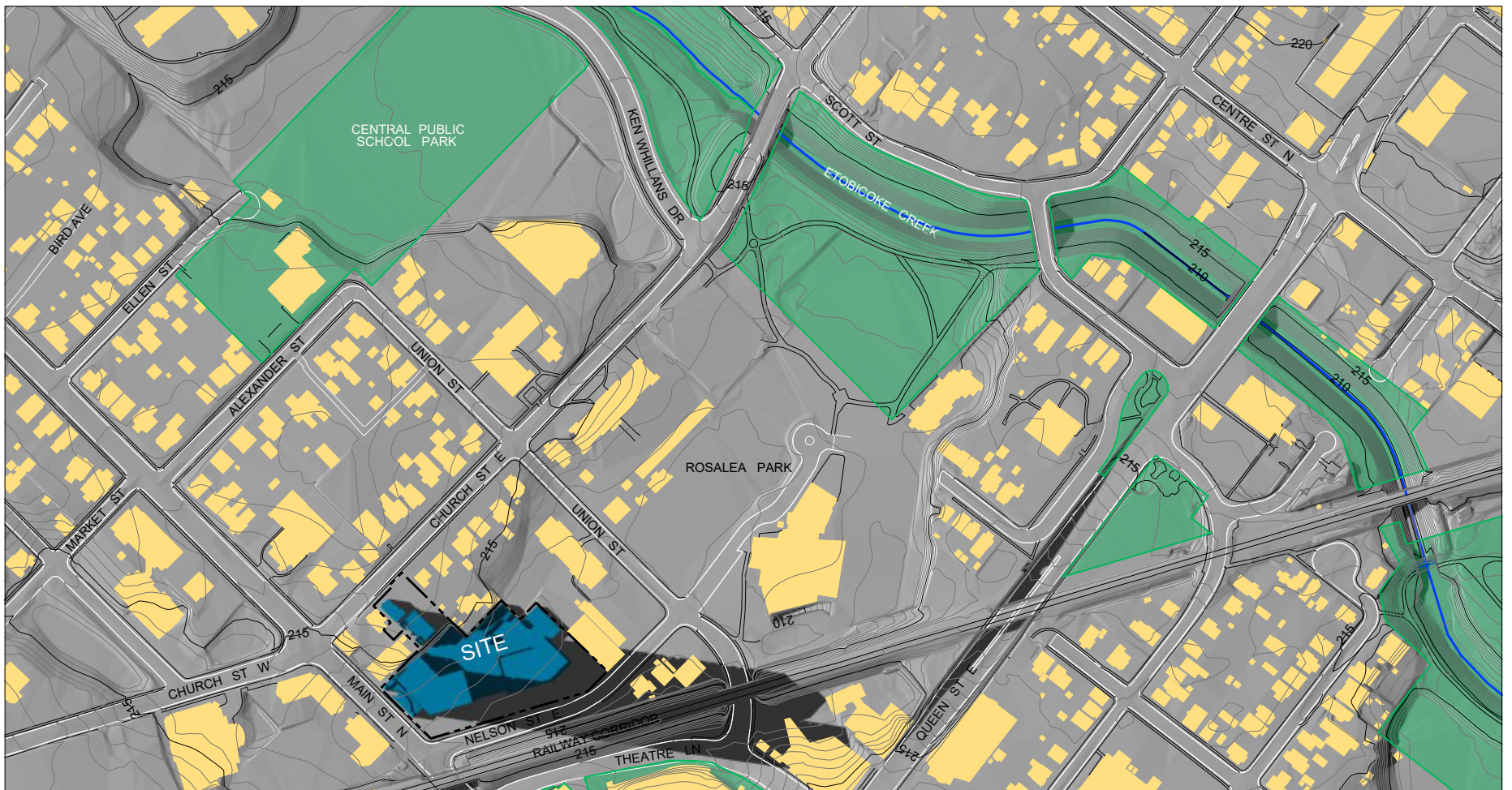
12:30 PM^{EDT}

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	R. BOUWMEESTER & ASSOCIATES Sun & Shadow Position Specialists 165 Browning Trail, Barrie ON Tel/Fax (705) 726-3392 Web: www.sunposition.com Email: rba@sunposition.com				
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3:30 PM^{EDT}



6:30 PM^{EDT}

JUN 21

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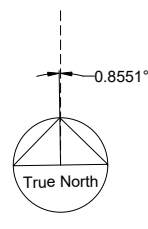
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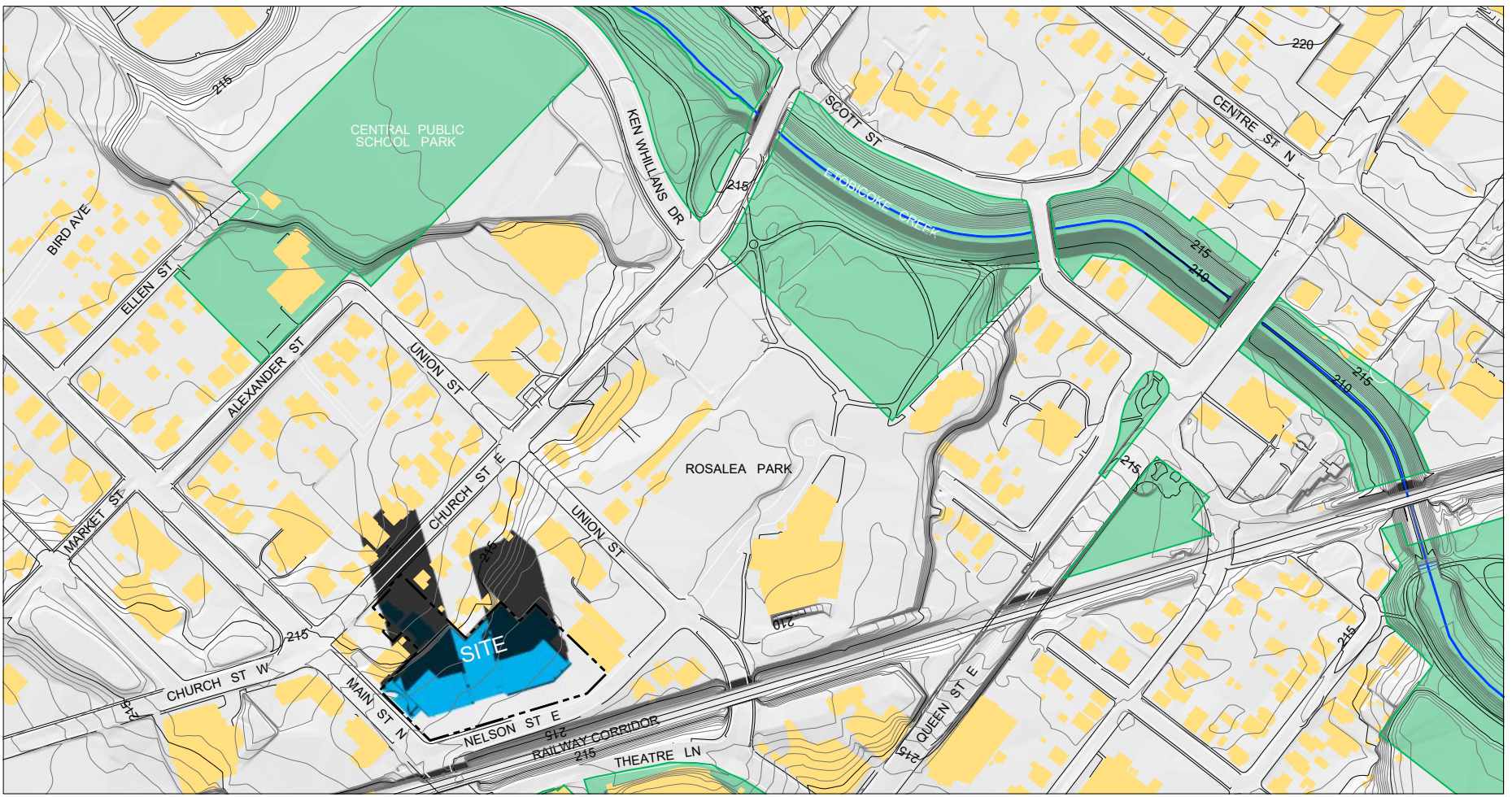
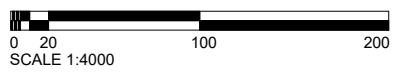
SS-4



PROPOSED GROUND LEVEL SHADOW




9:30 AM^{EDT}

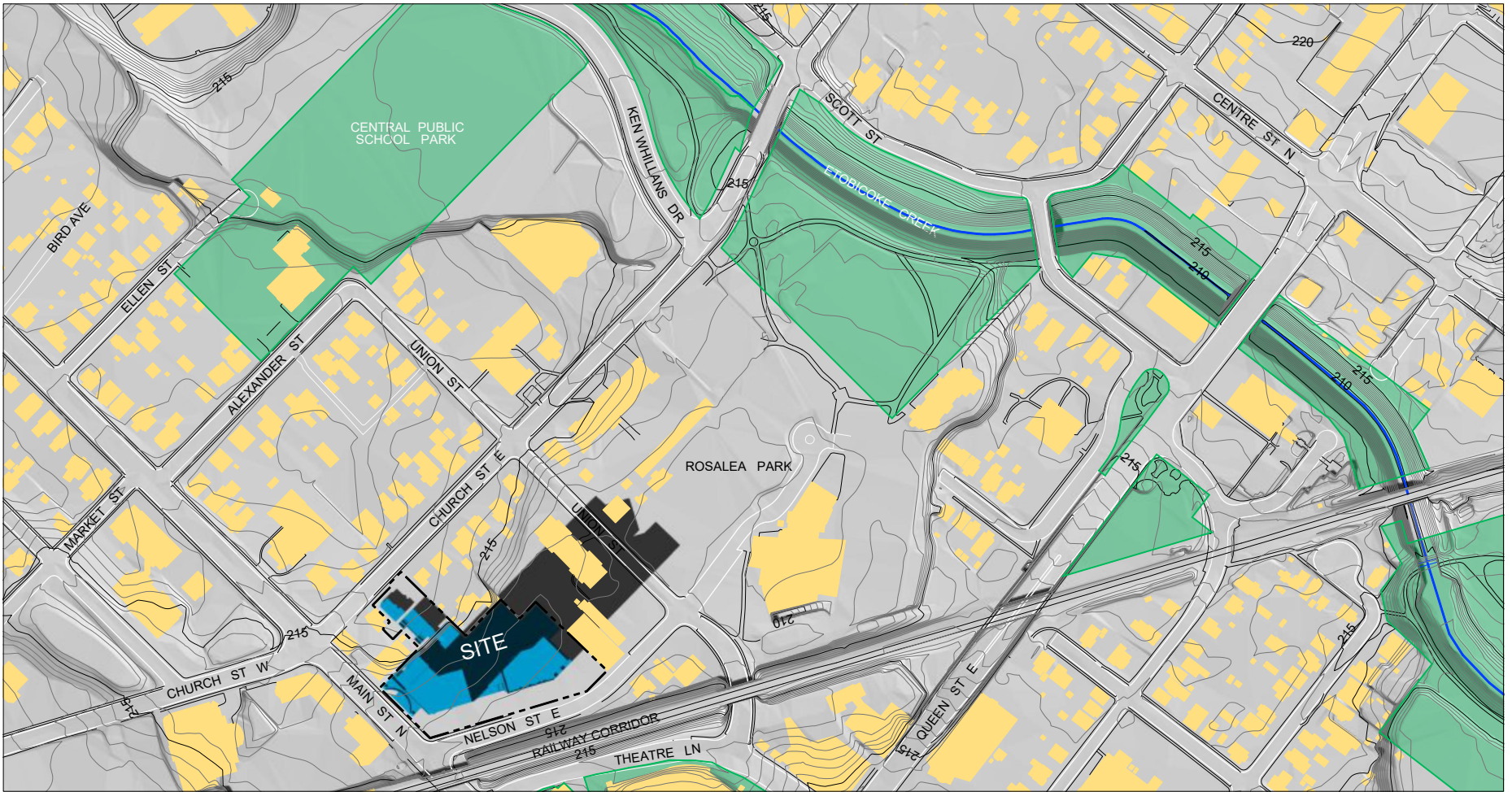


SEP 21

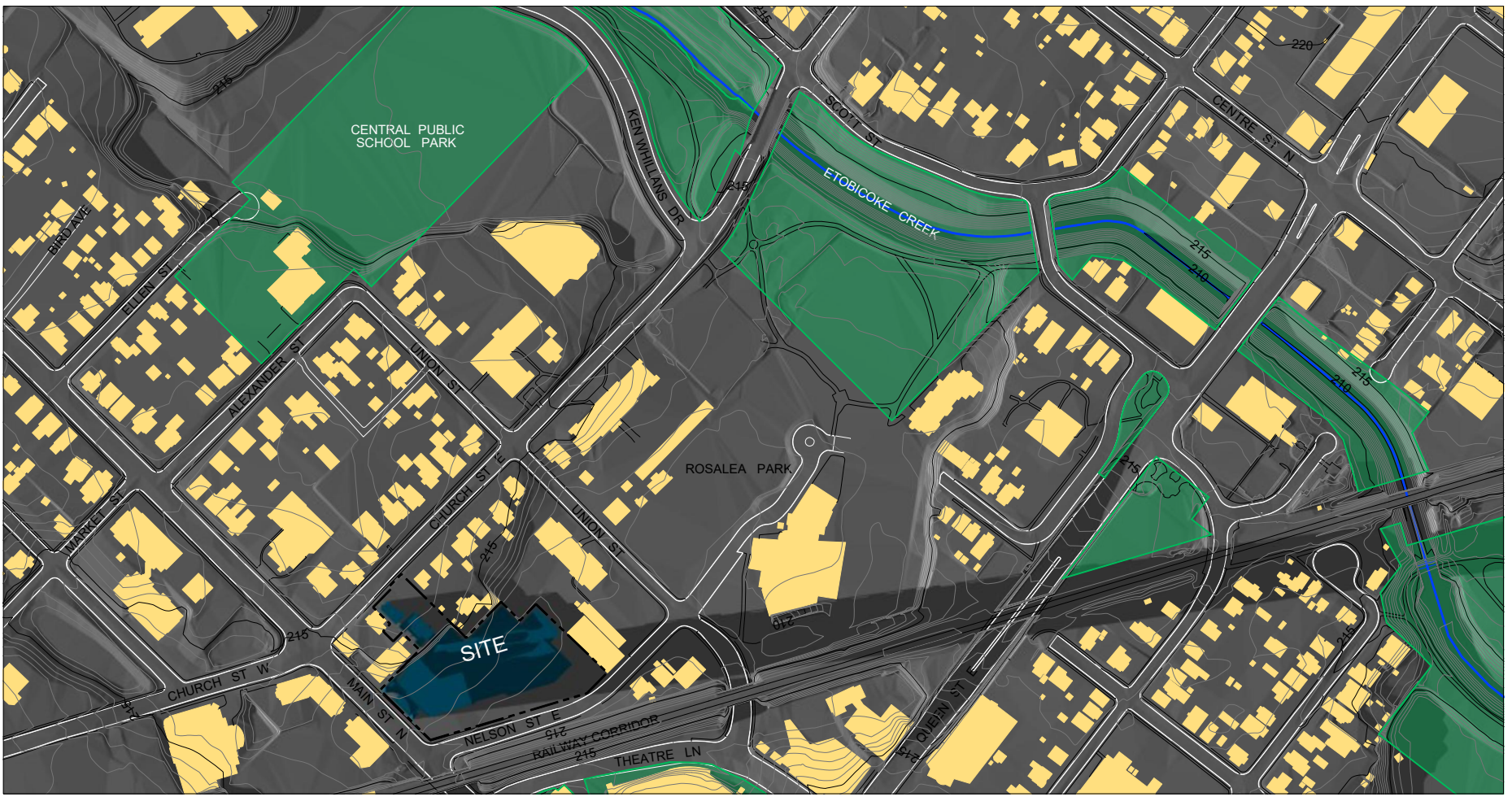
12:30 PM^{EDT}

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3:30 PM^{EDT}

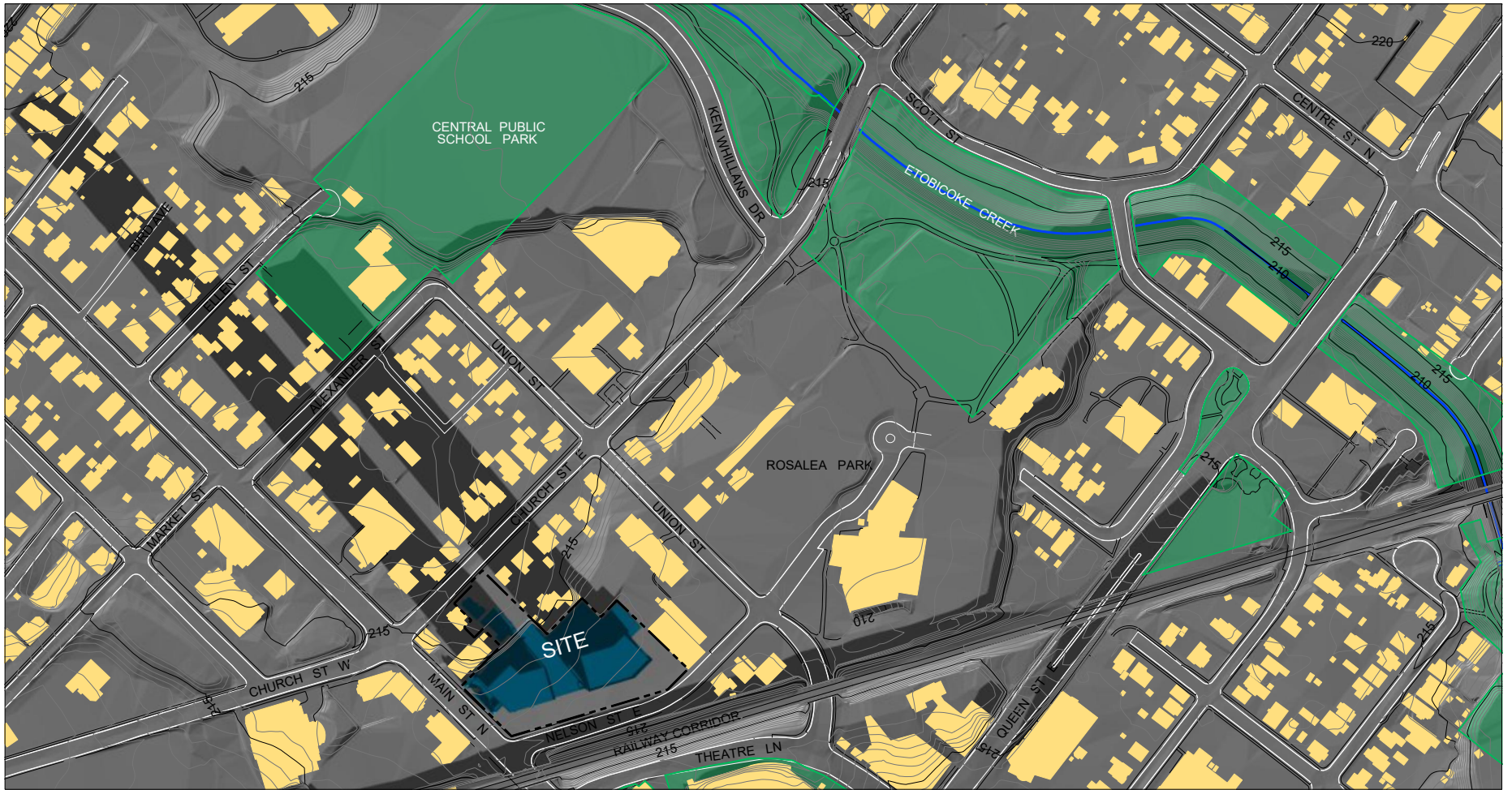


SEP 21

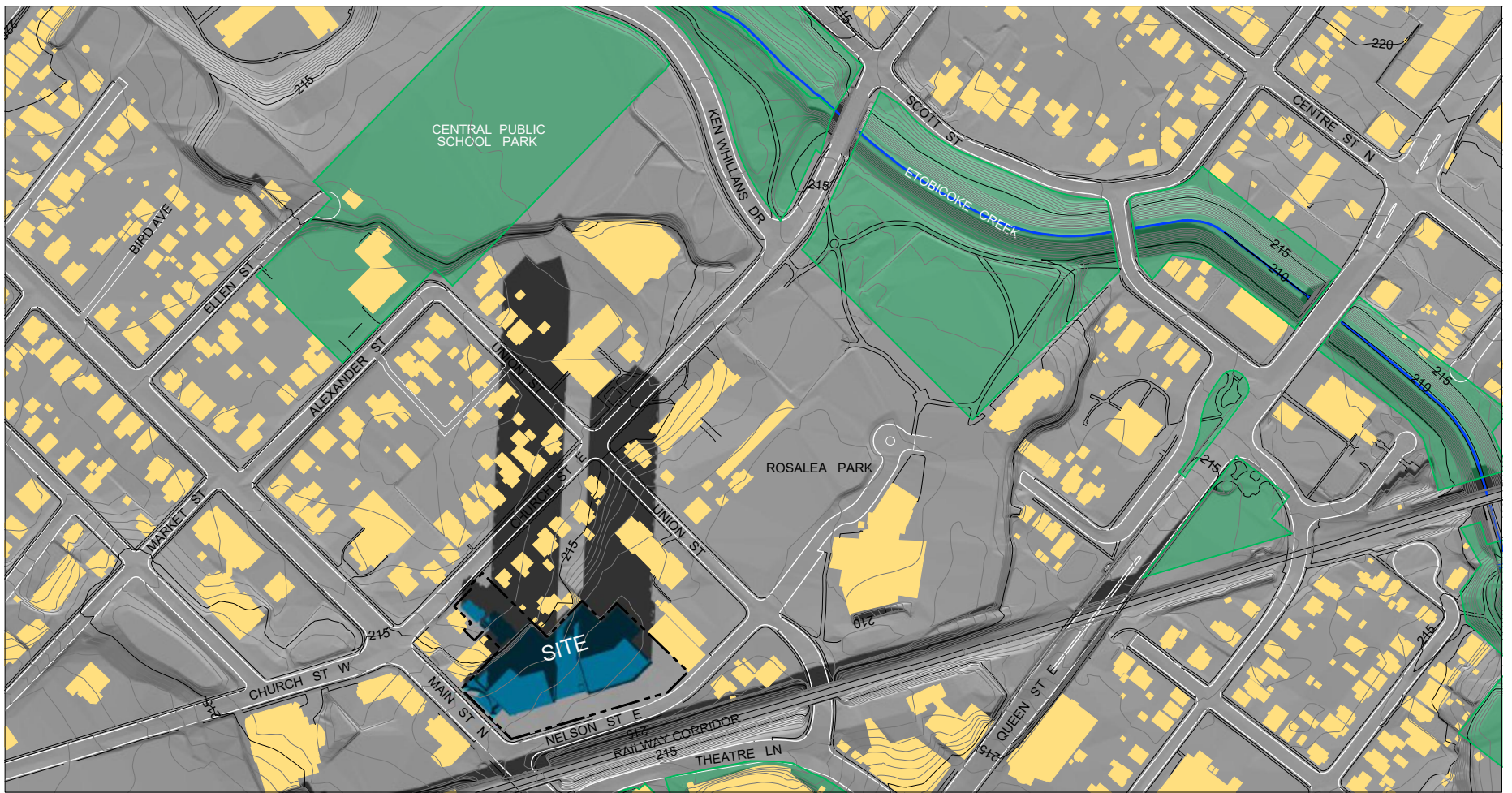
6:30 PM^{EDT}

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Checked by:	RB	Date:	NOV 5/21 (REV. JULY 15/24)	



9:30 AM ^E_ST



DEC 21

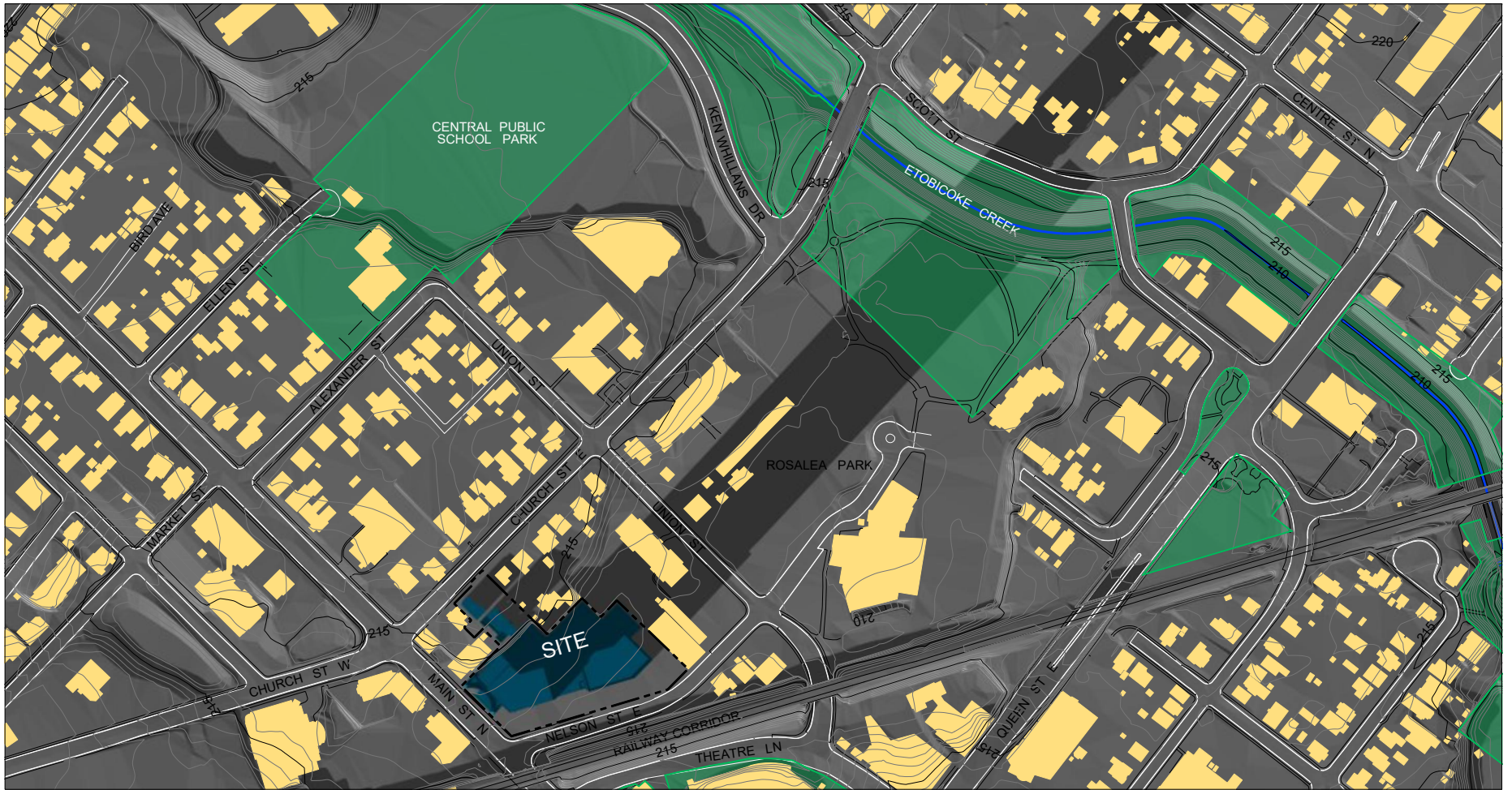
12:30 PM ^E_ST

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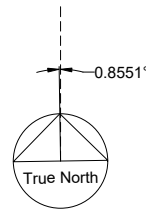
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SS-7



PROPOSED GROUND LEVEL SHADOW

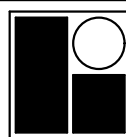
DEC 21



3:30 PM ^E_ST



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SS-8