

**MNA Inc.**  
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Halifax NS | B3K 1Y5

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[www.mnarch.ca](http://www.mnarch.ca)

Re: Penhorn Shadow Analysis

This shadow analysis has been prepared as a component of a Development Agreement application involving the redevelopment of surplus lands at the Penhorn Mall site in Dartmouth. This development will involve adding a residential component to the remaining existing commercial use.

This study follows the procedures and guidelines as described in Appendix 2: *Shadow Impact Assessment Protocol and Performance Standards* of the Halifax Regional Centre Land Use By-Law. The attached diagrams and tables illustrate the extent of the shadows created by the proposed development. They show that building placement within the development has been carefully analyzed to ensure that the impact on the two adjacent parks, Brownlow Park and Penhorn Lake Park, are compliant with the times outlined in Section 4 of the Standards. All calculations utilized latitude and longitude information as provided in Table A2-1. Base mapping was taken from NAD83 coordinate system.

Prepared the 21<sup>st</sup> day of June, 2020 by Licensed Architect Michael Napier NSAA of the firm Michael Napier Architecture Inc. Contact information is included in letterhead, email is [mn@mnarch.ca](mailto:mn@mnarch.ca)



BROWNLOW PARK

TIME OF DAY - September 21 (Atlantic Daylight Time UTC-3:00)

BUILDING	08:00:00	08:15:00	08:30:00	08:45:00	09:00:00	09:15:00	09:30:00	09:45:00	10:00:00	10:15:00	10:30:00	10:45:00	11:00:00	11:15:00	11:30:00	11:45:00	12:00:00	12:15:00	12:30:00	12:45:00	13:00:00	13:15:00	13:30:00	13:45:00	14:00:00	14:15:00	14:30:00	14:45:00	15:00:00	15:15:00	15:30:00	15:45:00	16:00:00	16:15:00	16:30:00	16:45:00	17:00:00	17:15:00	17:30:00	17:45:00	18:00:00	TOTAL TIME IN SHADOW
A																																										
B																																										0.5 hrs
C																																										
D																																										
E																																										
F																																										
G																																										
H																																										4 hrs

PENHORN LAKE PARK

TIME OF DAY - September 21 (Atlantic Daylight Time UTC-3:00)

BUILDING	08:00:00	08:15:00	08:30:00	08:45:00	09:00:00	09:15:00	09:30:00	09:45:00	10:00:00	10:15:00	10:30:00	10:45:00	11:00:00	11:15:00	11:30:00	11:45:00	12:00:00	12:15:00	12:30:00	12:45:00	13:00:00	13:15:00	13:30:00	13:45:00	14:00:00	14:15:00	14:30:00	14:45:00	15:00:00	15:15:00	15:30:00	15:45:00	16:00:00	16:15:00	16:30:00	16:45:00	17:00:00	17:15:00	17:30:00	17:45:00	18:00:00	TOTAL TIME IN SHADOW
A																																										2.5 hrs
B																																										
C																																										1 hr
D																																										2.5 hrs
E																																										
F																																										
G																																										
H																																										

LEGEND

IN SUN

IN SHADOW

TIME OF DAY [SHADOW AZIMUTH]

BUILDING		08:00:00	09:00:00	10:00:00	11:00:00	12:00:00	13:00:00	14:00:00	15:00:00	16:00:00	17:00:00	18:00:00
HEIGHT		[278.87°]	[290.18°]	[302.98°]	[318.19°]	[336.48°]	[357.36°]	[18.57°]	[37.59°]	[53.49°]	[66.77°]	[78.33°]
A	36.59 m	212.82 m	100.19 m	64.44 m	47.37 m	38.63 m	35.51 m	37.42 m	44.71 m	59.34 m	88.79 m	169.03 m
B	45.73 m	266.03 m	125.24 m	80.55 m	59.21 m	48.29 m	44.39 m	46.78 m	55.88 m	74.17 m	110.99 m	211.29 m
C	12.20 m	70.94 m	33.40 m	21.48 m	15.79 m	12.88 m	11.84 m	12.47 m	14.90 m	19.78 m	29.60 m	56.34 m
D	18.29 m	106.41 m	50.09 m	32.22 m	23.68 m	19.32 m	17.75 m	18.71 m	22.35 m	29.67 m	44.40 m	84.52 m
E	18.29 m	106.41 m	50.09 m	32.22 m	23.68 m	19.32 m	17.75 m	18.71 m	22.35 m	29.67 m	44.40 m	84.52 m
F	12.20 m	70.94 m	33.40 m	21.48 m	15.79 m	12.88 m	11.84 m	12.47 m	14.90 m	19.78 m	29.60 m	56.34 m
G	18.29 m	106.41 m	50.09 m	32.22 m	23.68 m	19.32 m	17.75 m	18.71 m	22.35 m	29.67 m	44.40 m	84.52 m
H	36.59 m	212.82 m	100.19 m	64.44 m	47.37 m	38.63 m	35.51 m	37.42 m	44.71 m	59.34 m	88.79 m	169.03 m

NO.	DESCRIPTION	BY	DATE

1. ALL CONSTRUCTION TO MEET ALL APPLICABLE CODES, STANDARDS, BY-LAWS, ETC.  
2. DO NOT SCALE THIS DRAWING FOR CONSTRUCTION PURPOSES. USE FIGURED DIMENSIONS AS NOTED.  
3. ALL DIMENSIONS AND CONDITIONS TO BE VERIFIED ON SITE. ALL DISCREPANCIES ARE TO BE REPORTED TO THE ARCHITECT AND AGREED UPON BEFORE PROCEEDING.



08:00 ADT



08:15 ADT

NO.	DESCRIPTION	BY	DATE

1. ALL CONSTRUCTION TO MEET ALL APPLICABLE CODES, STANDARDS, BY-LAWS, ETC.
2. DO NOT SCALE THIS DRAWING FOR CONSTRUCTION PURPOSES. USE FIGURED DIMENSIONS AS NOTED.
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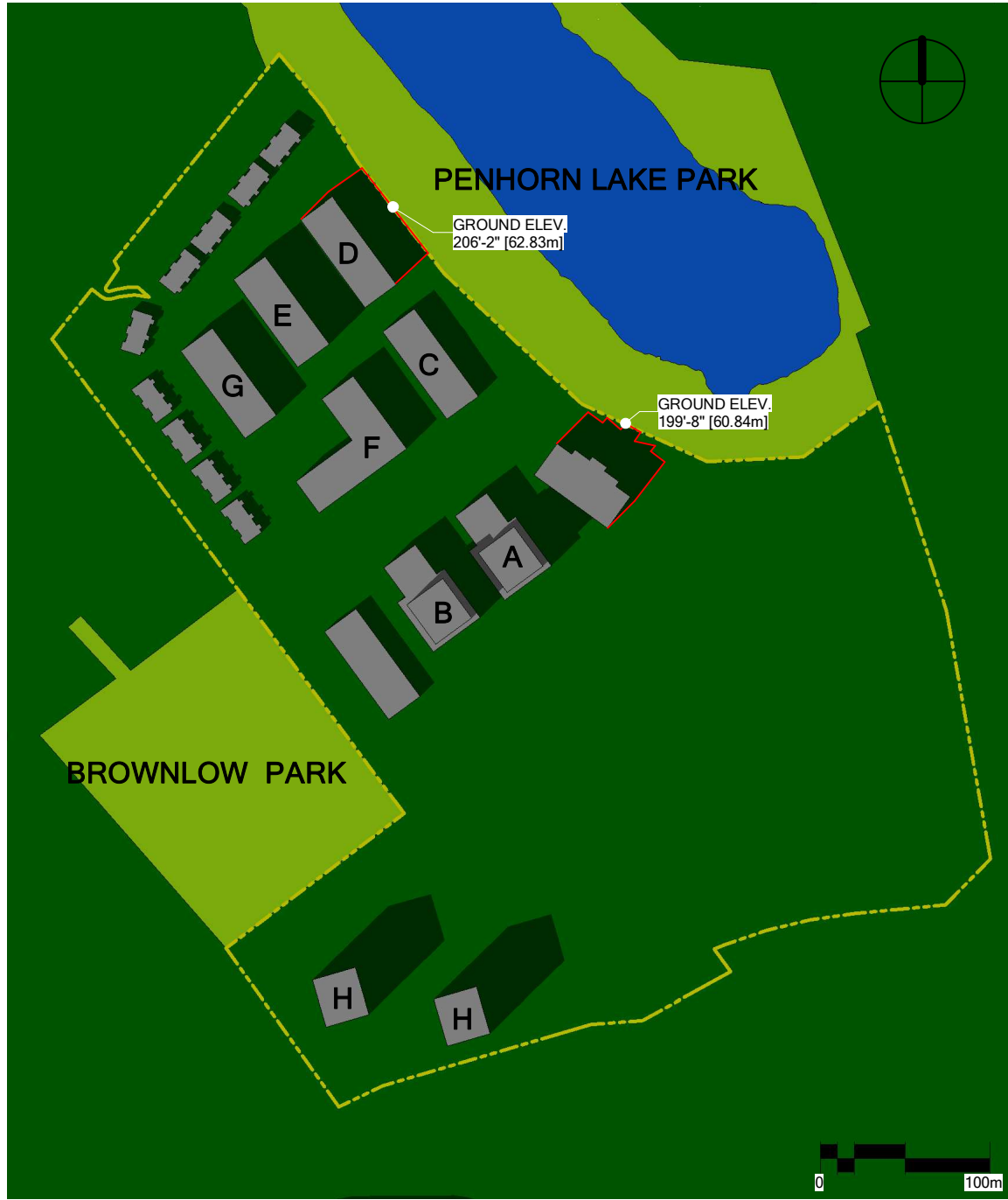
08:30 ADT



12:15 ADT

NO.	DESCRIPTION	BY	DATE

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15:30 ADT



16:45 ADT

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18:00 ADT

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