

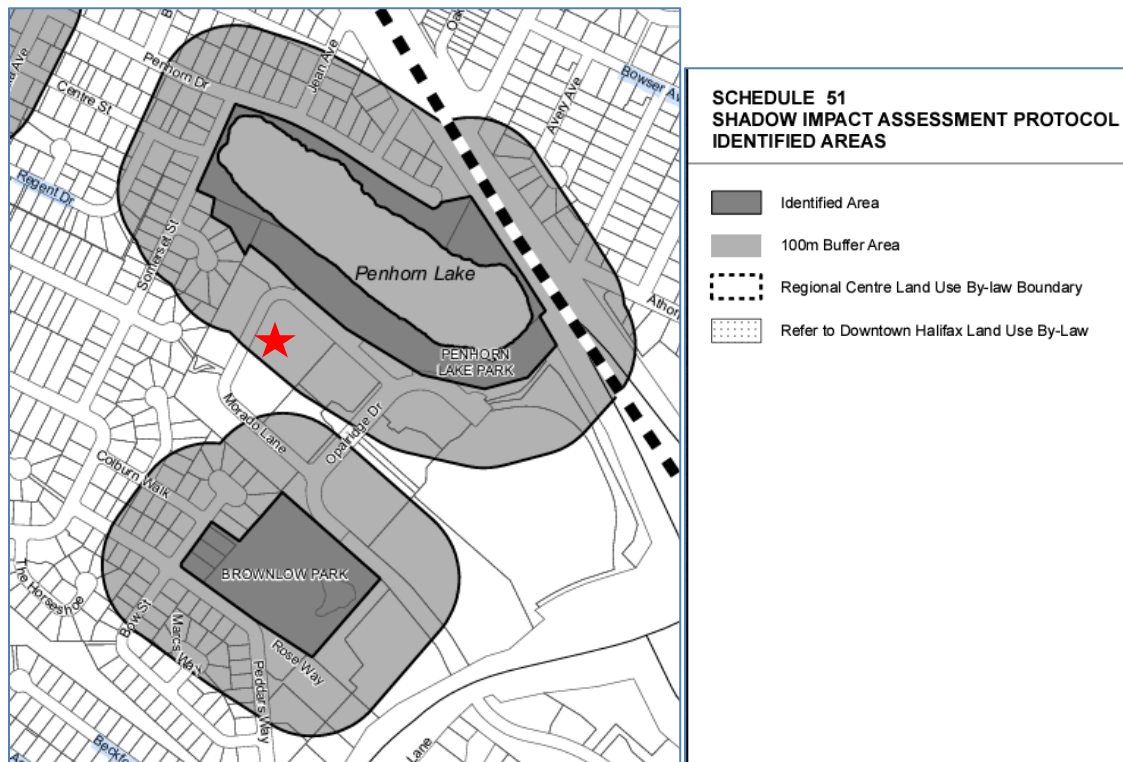
January 22, 2024

Ms. Maggie Holm
Principal Planner
Planning and Development
Halifax

Dear Ms. Holm,

Re: - Penhorn Future Growth Node Development Agreement Amendment #2 – Shadow Analysis

In support of our planning application for amendments to the Penhorn Future Growth Node, attached is an analysis of shadows for the proposed development of Blocks D and F on the adjacent public parks, as per Schedule 51 of the Regional Centre Plan Land Use By-law and to identify any issues with regards to good planning practice. The subject site is outlined on a cropped version of the Schedule below and is proximate to the Brownlow Park and the Penhorn Lake Park.



The proposed amendments alter the building heights on Block D and F from 6 storeys to 7 storeys (21m). Building heights on Block G and C remain 7 storeys (21 m) as per the existing amended development agreement. The analysis includes the shadow table as required by the Regional Centre Land Use By-law. Morning shadows (8 a.m.–2p.m.) do not touch Brownlow r Penhorn Lake Park. Afternoon shadows approach the Penhorn Lake Park at 2 pm but do not enter the park until approximately 3:15 p.m. Shadows of Penhorn Lake Park continue until the end of the measuring period at 6 p.m.

The key findings of the shadow analysis are:

1. Penhorn Lake Park on Schedule 51 is partially shadowed between 3:15 p.m. and 6 p.m. (2 hours and 45 minutes).
2. Therefore, no area s park area remains in shadow for longer than 4 continuous hours between 8 am and 6 pm on September 21st.

The proposed increase in building height from 6 storeys to 7 storeys does not violate the shadowing requirements of the regional Centre Land Use By-law.

We trust that the enclosed materials satisfy the requirement for a shadow analysis. Please do not hesitate to contact the undersigned at any time.

Yours truly,

Clayton Developments Limited

Original Signed

Andrew Bone, MCIP, LPP
Director of Planning and Development

Penhorn Shadow Analysis - Blocks C, D, F and G

Shadow direction azimuth angles have been calculated

Latitude: 44° 39' 50" N (44.6639° N)
 Longitude: 63° 35' 05" W (63.5847° W)

Test times are expressed in Atlantic Daylight Time (UTC-03:00)
 using a central latitude and longitude for the Regional Centre, as follows:

Block C,D,F,G (m)			
Date	21		
21-Sep		Ration	H1 Shadow
Local ADT	Azimuth	Length/He	Length
8:00	278.87	5.8171	122.2
8:15	281.61	4.5572	95.7
8:30	284.39	3.7391	78.5
8:45	287.24	3.1646	66.5
9:00	290.18	2.7385	57.5
9:15	293.2	2.4099	50.6
9:30	296.33	2.1489	45.1
9:45	299.58	1.9368	40.7
10:00	302.98	1.7614	37.0
10:15	306.52	1.6145	33.9
10:30	310.23	1.4903	31.3
10:45	214.11	1.3847	29.1
11:00	318.19	1.2947	27.2
11:15	322.46	1.2183	25.6
11:30	326.94	1.1537	24.2
11:45	331.62	1.0998	23.1
12:00	336.48	1.0559	22.2
12:15	241.52	1.0214	21.4
12:30	346.7	0.9958	20.9
12:45	352	0.9789	20.6
13:00	357.36	0.9706	20.4
13:15	2.74	0.9708	20.4
13:30	8.11	0.9796	20.6
13:45	13.39	0.9969	20.9
14:00	18.57	1.0229	21.5
14:15	23.6	1.058	22.2
14:30	28.46	1.1024	23.2
14:45	33.12	1.1568	24.3
15:00	37.59	1.222	25.7
15:15	41.85	1.2992	27.3
15:30	45.92	1.39	29.2
15:45	49.79	1.4965	31.4
16:00	53.49	1.6219	34.1
16:15	57.02	1.7703	37.2
16:30	60.4	1.9477	40.9
16:45	63.65	2.1624	45.4
17:00	66.77	2.427	51.0
17:15	69.79	2.7606	58.0
17:30	72.71	3.1943	67.1
17:45	45.56	3.781	79.4
18:00	78.33	4.6202	97.0

PENHORN

SHANNEX SITE SHADOW STUDY

DATE _____

JANUARY 20, 2025

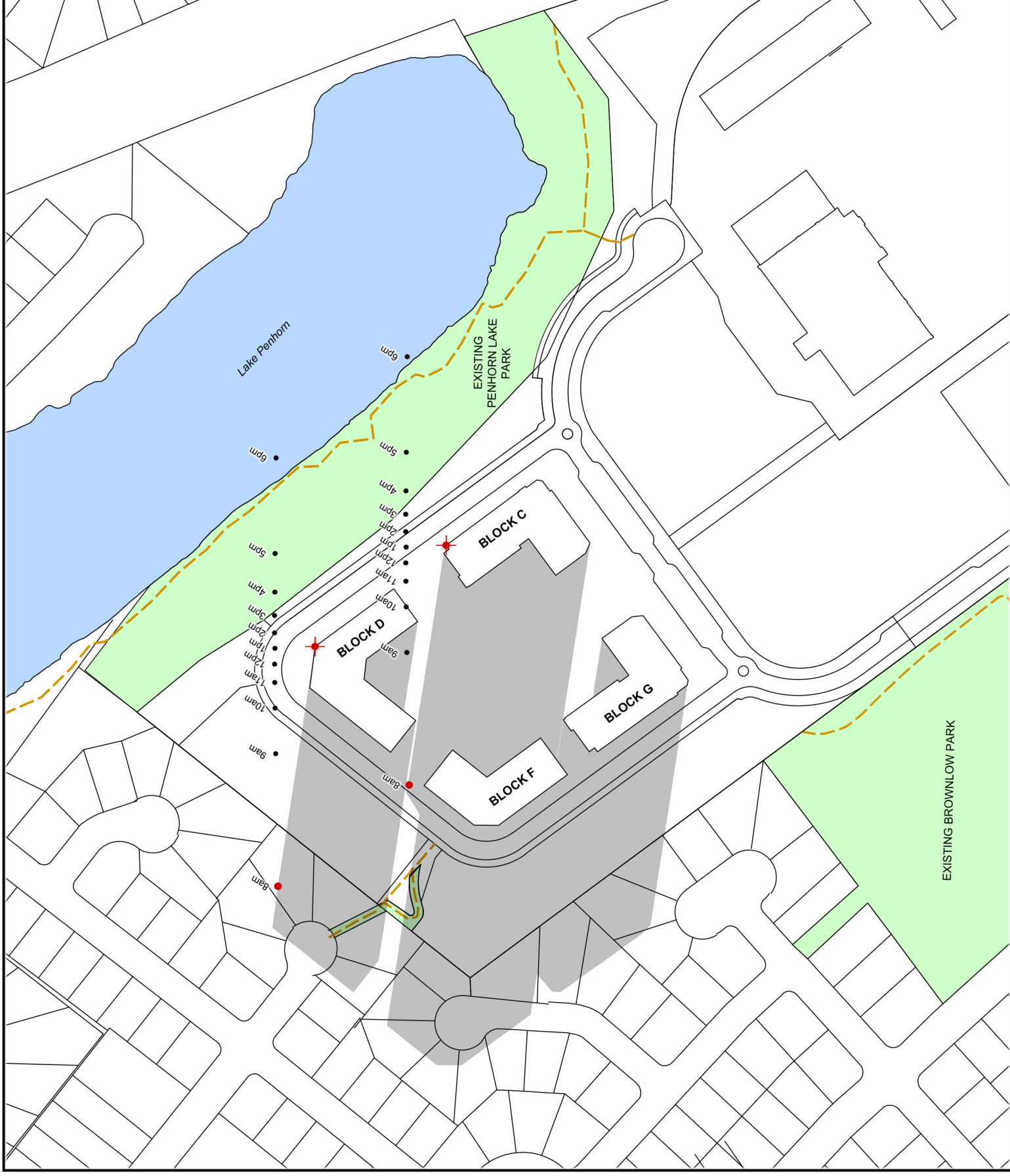
SCALE

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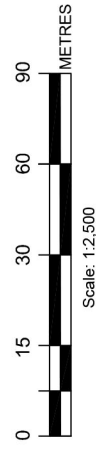


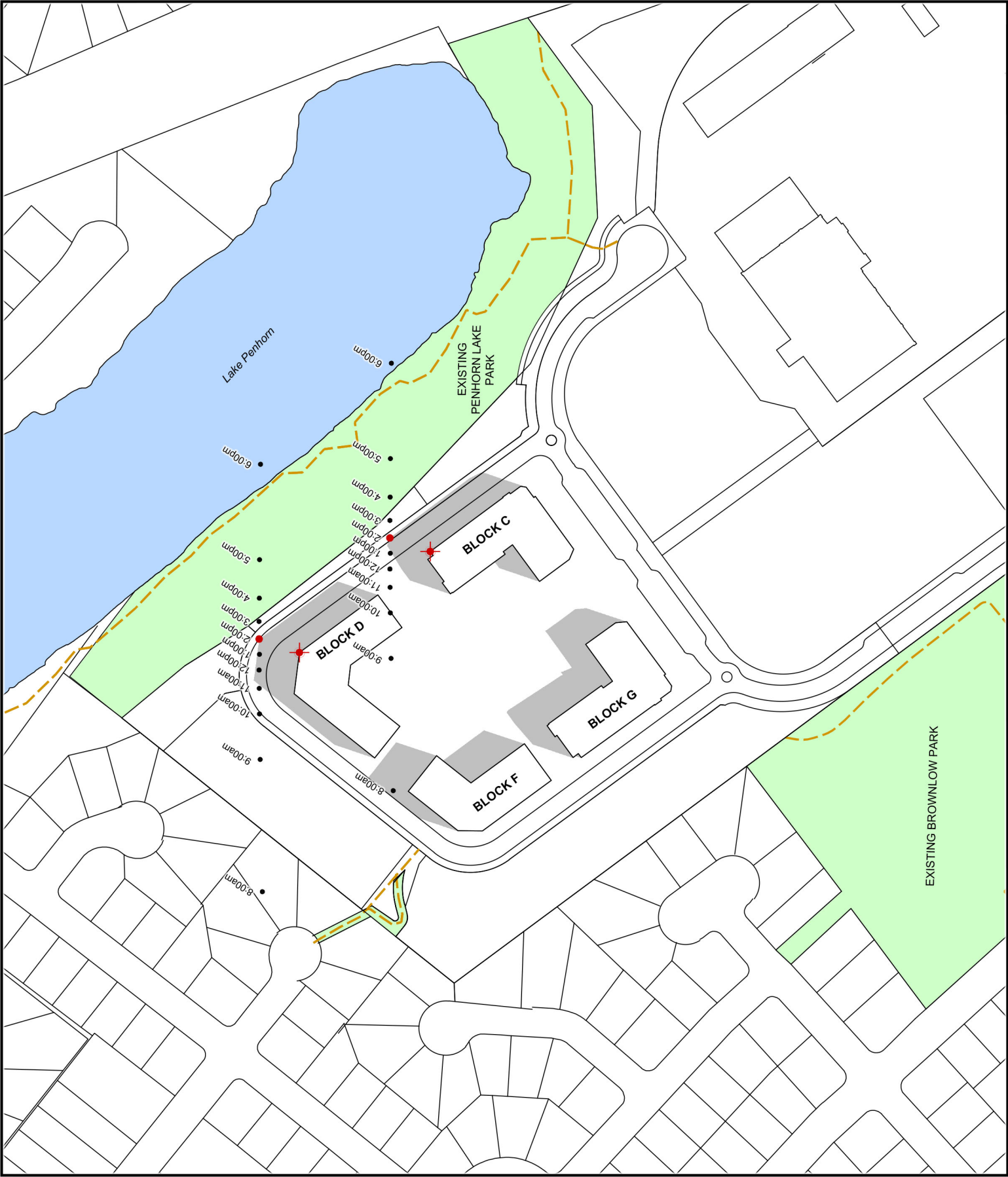
OPAL RIDGE



Multi Blocks C, D, F & G at 7 Storey Height

September 21st, 8:00am

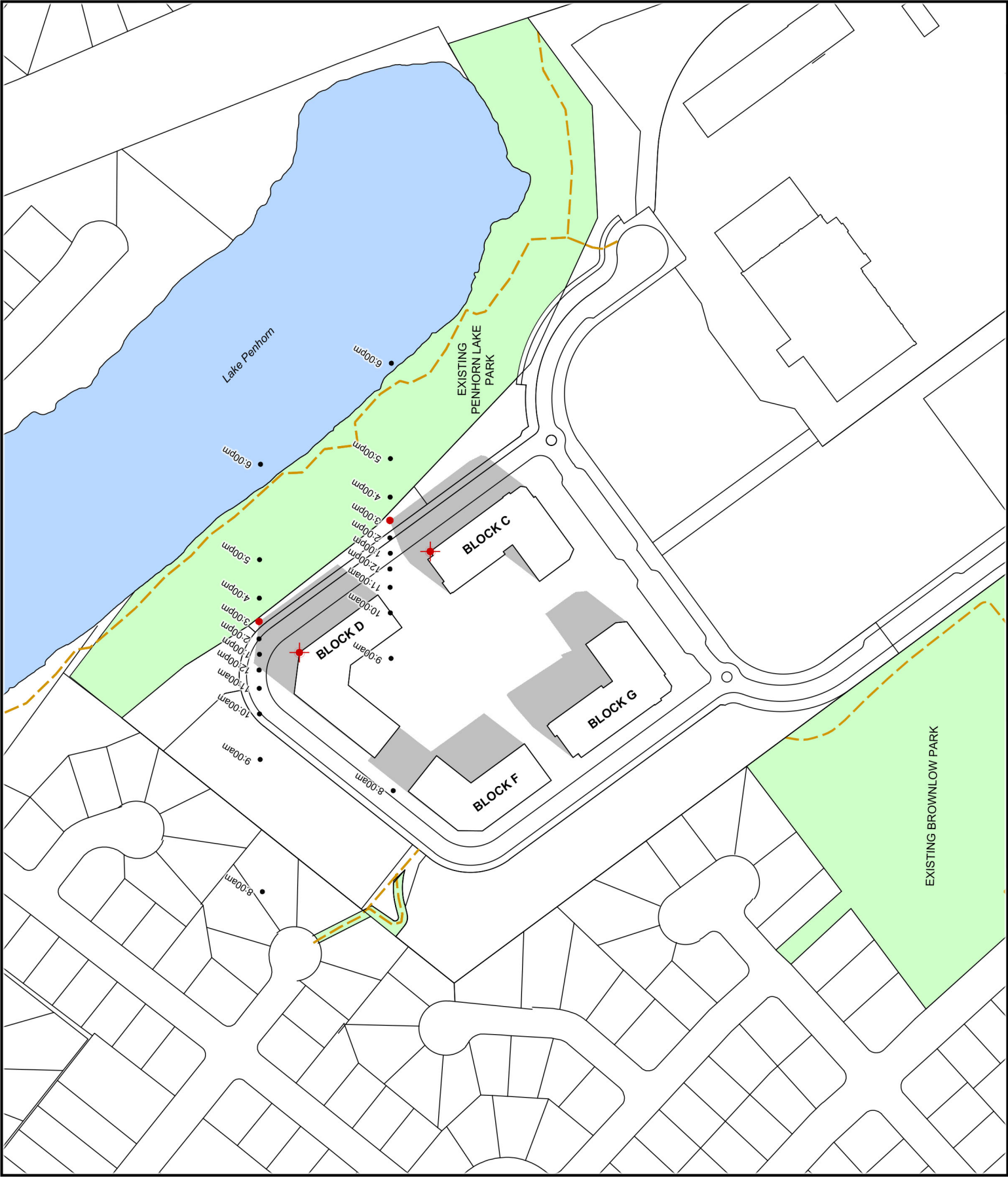




Multi Blocks C, D, F & G at 7 Storey Height

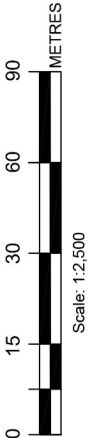
September 21st, 2:00pm

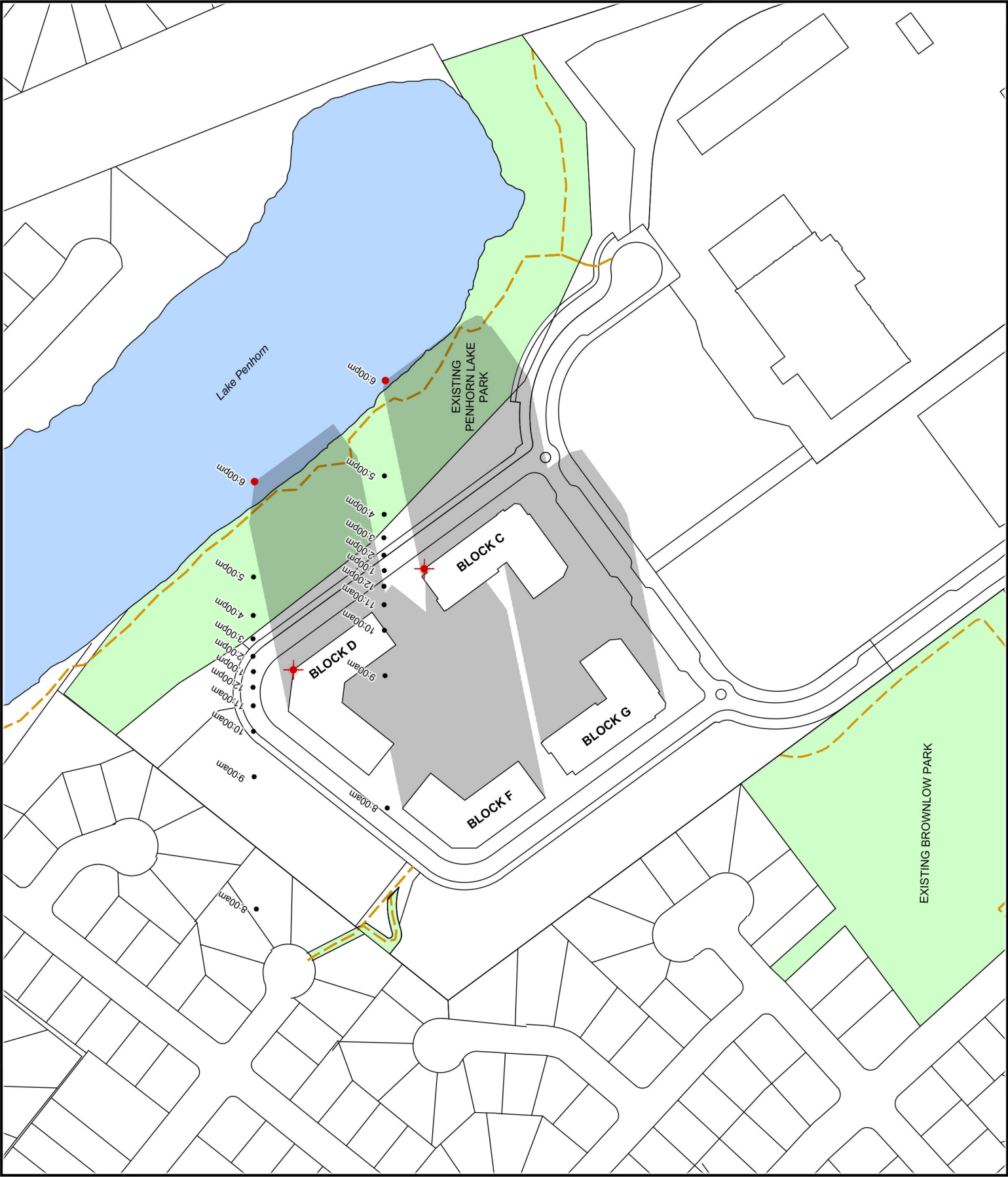
PENHORN	SHANNEX SITE SHADOW STUDY		DATE JANUARY 20, 2025
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			 OPAL RIDGE



Multi Blocks C, D, F & G at 7 Storey Height

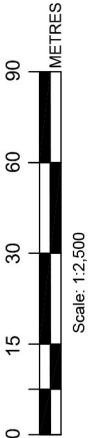
September 21st, 3:00pm



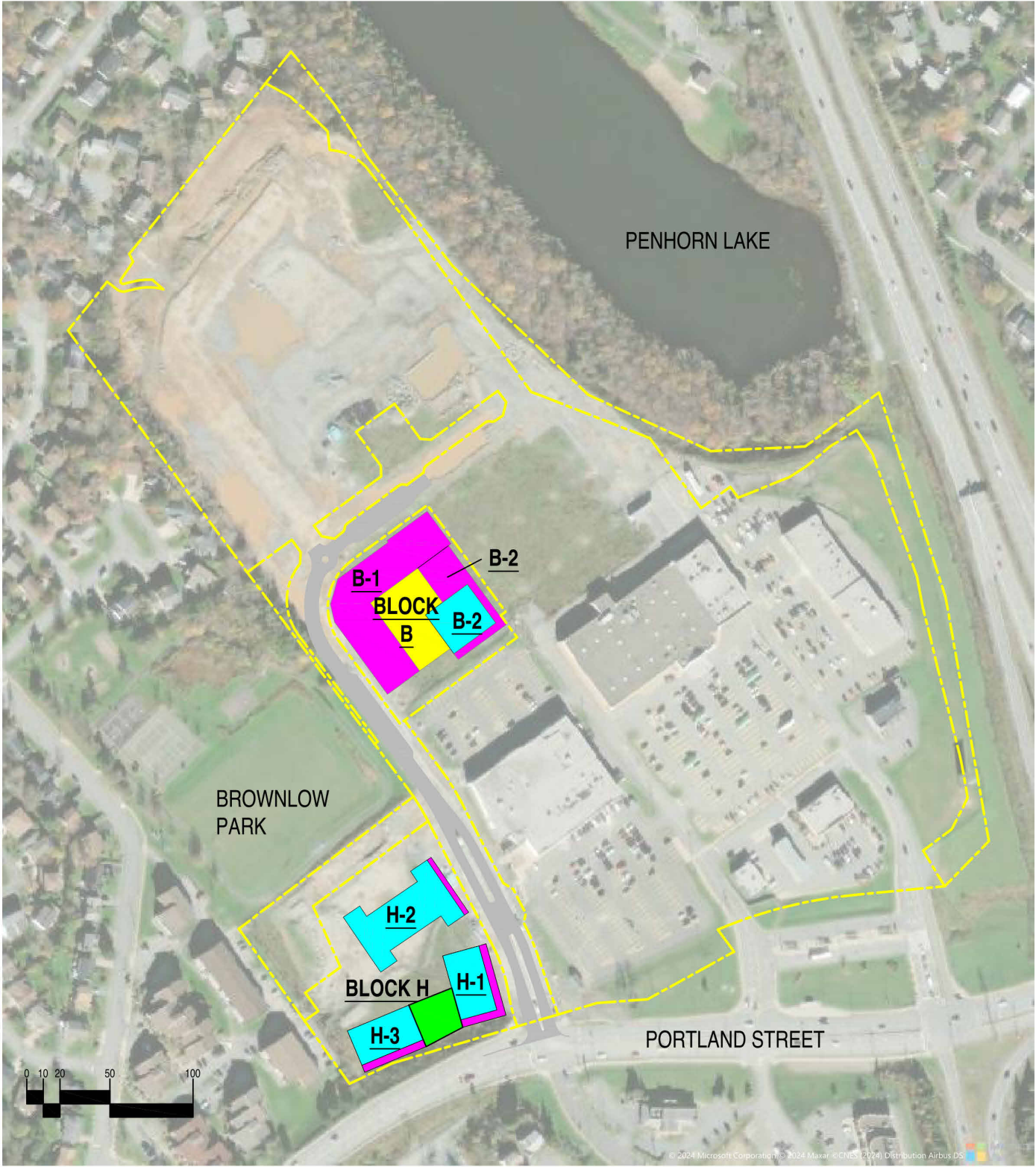


Multi Blocks C, D, F & G at 7 Storey Height

September 21st, 6:00pm



PENHORN FUTURE GROWTH NODE
PROPOSED HEIGHT REVISIONS TO BLOCKS B & H



LEGEND	
	- HIGH RISE
	- LOW RISE
	- PODIUM
	- AT GRADE PODIUM

PROJECT DATA			
BUILDING	D.A. ALLOWABLE STOREYS	PROPOSED STOREYS	PROPOSED UNITS
B-1	+/- 5 STOREYS	+/- 5 STOREYS	85
B-2	15 STOREYS INCLUDING PODIUM	26 STOREYS INCLUDING PODIUM	235
H-1	13 STOREYS INCLUDING PODIUM	18 STOREYS INCLUDING PODIUM	197
H-2	12 STOREYS INCLUDING PODIUM	10 STOREYS INCLUDING PODIUM	195
H-3	13 STOREYS INCLUDING PODIUM	16 STOREYS INCLUDING PODIUM	179
TOTAL			891

HRM SHADOW ANALYSIS

SHADOW TIME MATRIX

BROWNLOW PARK

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

[illegible]

PENHORN LAKE PARK

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

TIME OF DAY - September 21 (Atlantic Daylight Time 010-5:30)	
BUILDING	
B-1	08:00:00
B-2	08:15:00
H-1	08:30:00
H-2	08:45:00
H-3	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
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	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

LEGEND

IN SUN

IN SHADOW

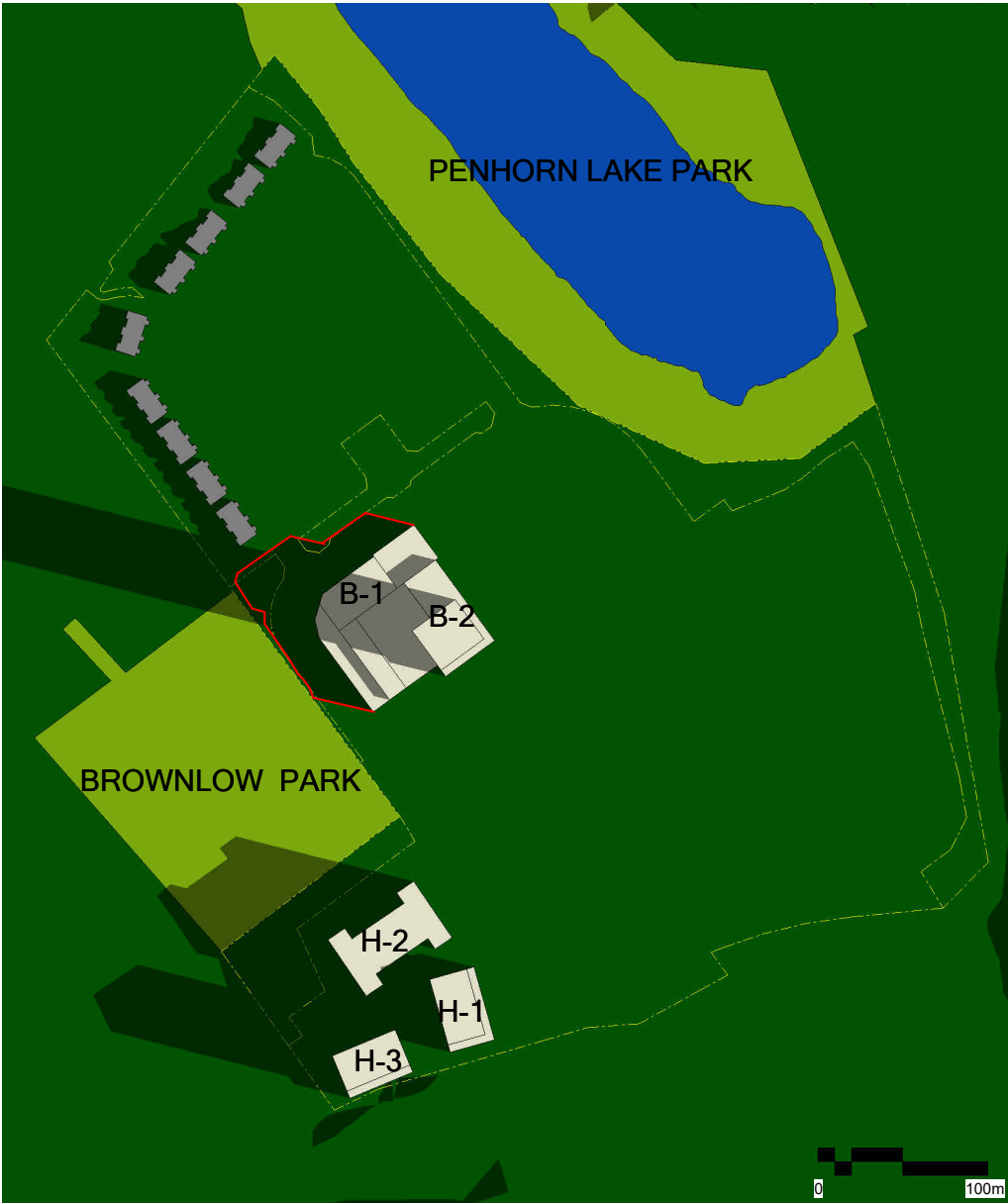
SHADOW LENGTH MATRIX

TIME OF DAY [SHADOW AZIMUTH]

BUILDING			TIME OF DAY (SHADOW LENGTH)											
	PROPOSED HEIGHT	EQUIV. STOREYS	08:00:00 [7:28.87]	09:00:00 [2:00.18]	10:00:00 [3:02.98]	11:00:00 [3:18.19]	12:00:00 [3:36.48]	13:00:00 [3:57.36]	14:00:00 [4:16.57]	15:00:00 [3:37.59]	16:00:00 [3:43.49]	17:00:00 [3:33.37]	18:00:00 [2:38.37]	
B-1	13.75 m	5	79.99 m	37.65 m	24.22 m	17.80 m	14.52 m	13.35 m	14.06 m	16.80 m	22.30 m	33.37 m	63.53 m	
B-2	17.50 m	6	415.92 m	199.80 m	125.94 m	92.57 m	75.50 m	69.40 m	73.14 m	87.37 m	119.97 m	173.53 m	330.34 m	
H-1	35.75 m	10	207.80 m	62.90 m	37.29 m	33.75 m	36.37 m	43.69 m	57.99 m	65.77 m	88.17 m	127.06 m		
H-2	27.50 m	10	159.97 m	75.31 m	48.44 m	35.60 m	29.04 m	26.69 m	35.53 m	33.61 m	44.60 m	66.74 m		
H-3	44.00 m	16	255.95 m	120.49 m	72.50 m	56.92 m	46.46 m	42.21 m	53.77 m	53.77 m	73.36 m	106.79 m	207.29 m	

NOTE: EQUIVALENT STOREYS ARE BASED ON A FLOOR TO FLOOR HEIGHT OF 2.75m

HRM SHADOW ANALYSIS



SHADOW FROM BUILDING B-1 LEAVES BROWNLOW PARK

SEPTEMBER 21, 2024 - 8:30am

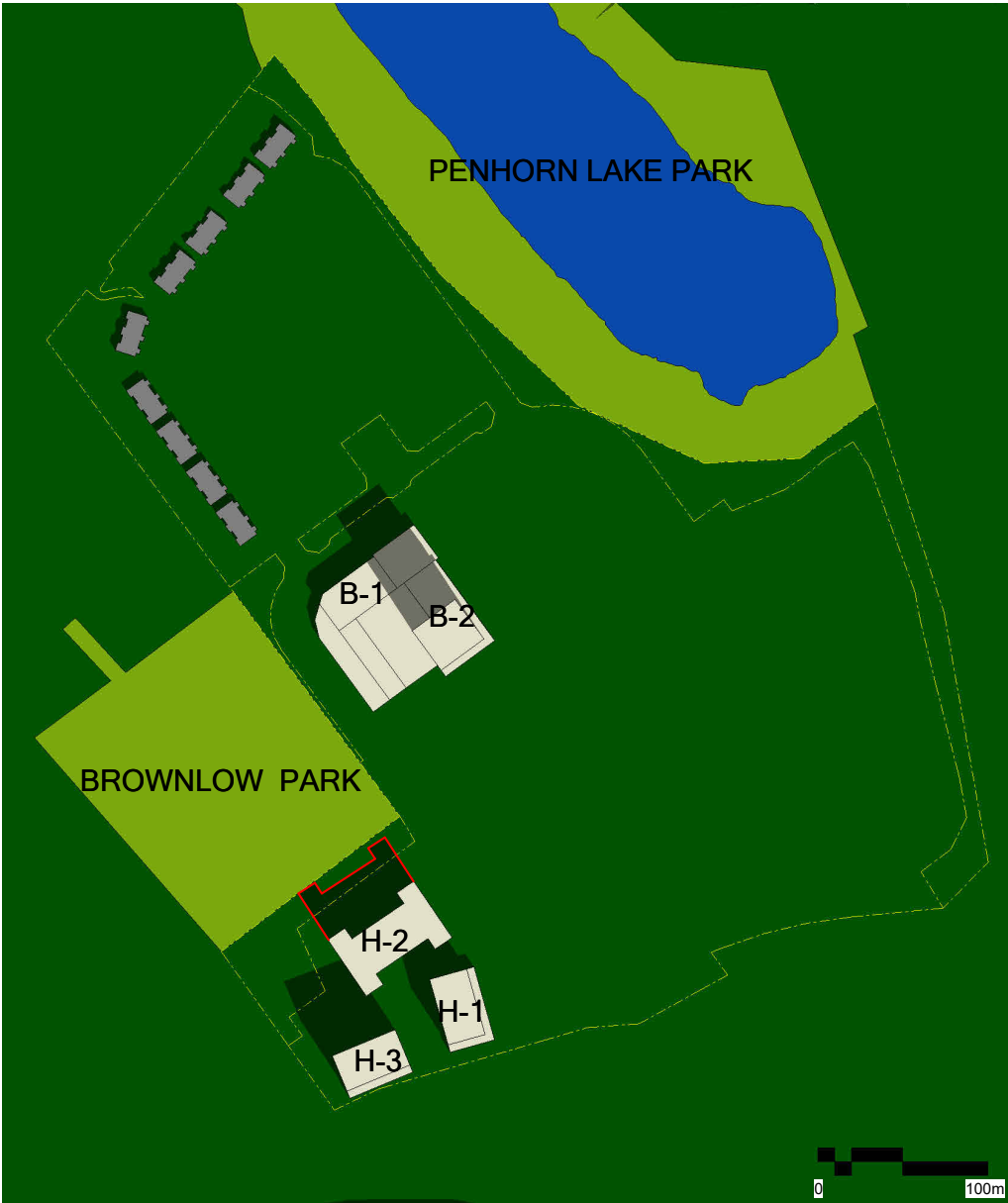
HRM SHADOW ANALYSIS



SHADOWS FROM BUILDING B-2 & H-1 LEAVES BROWNLOW PARK

SEPTEMBER 21, 2024 - 9:00am

HRM SHADOW ANALYSIS



SHADOW FROM BUILDING H-2 LEAVES BROWNLOW PARK

SEPTEMBER 21, 2024 - 11:30am

HRM SHADOW ANALYSIS



SEPTEMBER 21, 2024 - 4:00pm

HRM SHADOW ANALYSIS



EXTENT OF SHADOW WHEN CLOSEST TO PENHORN LAKE PARK

SEPTEMBER 21, 2024 - 5:00pm

HRM SHADOW ANALYSIS



EXTENTS OF SHADOWS AT END OF STUDY

SEPTEMBER 21, 2024 - 6:00pm