

1 Overshadowing Assessment

1.1 Introduction

- 1.1.1 This chapter has been prepared by Daylight and Sunlight (UK) Ltd, which addresses the potential overshadowing effects of the proposed New Chinatown development upon the surrounding area. The planning policy context is provided, followed by the methodology and a statement of baseline conditions. The potential effects are then identified with any mitigation specified where applicable. The post mitigation, residual impacts are assessed for significance.
- 1.1.2 All units are in metres and co-ordinates/levels relates to Ordnance survey / datum.
- 1.1.3 Modelling is based on drawings and information supplied by Blok Architecture.

1.2 Planning Policies

- 1.2.1 The assessments were undertaken in accordance with the Building Research Establishment (BRE) Guidelines 'Site Layout Planning for Daylight and Sunlight: a guide to good practice', which is a national guidance document that has been adopted by the majority of Local Authorities in one form or another.

1.3 Description of Surrounding Area and Topography

- 1.3.1 The development site is located on the edge of Chinatown, Liverpool immediately west of and fronting Great George Street. It roughly comprises 3 triangular shaped areas of land bounded by Hardy Street to the north and St James Street to the south. The site has lain derelict for a long time.
- 1.3.2 The area to the north, east and west are primarily a residential areas, with warehouses to the south. The residential areas to the north and west generally comprise detached, semi-detached dwellings and terrace housing, and to the east they generally comprise blocks of flats.
- 1.3.3 To the immediate west of the site along Duncan Street, Liverpool Mutual Homes are building 12 new dwellings, which have been taken in to account in our assessments.
- 1.3.4 A local park known as Great George Square is situated some 85m west of the site.
- 1.3.5 The land generally remains flat from north to south along Great George Street.

1.4 The Development

- 1.4.1 The development proposal comprises 790 residential units including apartments and town houses built on the Great George Street site, along with 120,000 square feet of commercial space.
- 1.4.2 There are 9 proposed “Blocks” of varying height and size; 3 fronting Great George Street, 2 fronting St James Street and 4 smaller Blocks at the junction of Upper Pitt Street and Cookson Street.
- 1.4.3 For more detailed information please refer to Blok Architecture’s drawings.

1.5 Assessment Methodology and Significance Criteria

Modelling Guidelines

- 1.5.1 A 3-D model was constructed of the proposed situation. A generic matte grey was applied for illustration purposes to the surrounding buildings and land, with a matte red for the proposed development. The aforementioned buildings were modelled in block form, together with significant topographic and local road features.
- 1.5.2 The model is based on information supplied by Blok Architecture. Heights of model and surrounding buildings are based on the data supplied.

Assessment Guidelines

- 1.5.3 The assessments were undertaken in accordance with the Building Research Establishment (BRE) Guidelines ‘Site Layout Planning for Daylight and Sunlight: a guide to good practice’.
- 1.5.4 BRE guidance outlines advice on how to preserve sunlight to both existing and proposed open amenity spaces. Areas such as main back gardens of dwellings, parks, playing fields, playgrounds, waterways and public spaces such should be assessed. Small front gardens to dwellings and parking areas need not be assessed.
- 1.5.5 The amenity areas identified within the vicinity for assessment/consideration are Liverpool Mutual Homes’ dwellings, Great George Square, the Cookson Street dwellings and the Cathedral Gate blocks to the east. There are a number of other potential amenity areas, however, the rationale is that if those amenity areas closest to the proposed development are assessed, being the most likely to be affected by it, then reasonable assumptions regarding the remaining amenity areas further afield can be made.
- 1.5.6 There are two assessments to determine the potential impact upon amenity areas, the permanent overshadowing assessment and the transient overshadowing assessment.
- 1.5.7 The permanent overshadowing assessment is undertaken on 21 March, the spring equinox. This assessment shows areas of a subject amenity area where no sunlight will be available during the winter period, however, the subject area may still receive some sunlight during the summer.

1.5.8 The BRE states at page 20:

“for it to appear adequately sunlight throughout the year, at least half of a garden or amenity area should receive at least 2 hours of sunlight on 21 March. If, as a result of new development, an existing garden or amenity area does not meet these guidelines, and the area which can receive 2 hours of sun on 21 March is less than 0.8 times its former value (a 20% reduction), then the loss of sunlight is likely to be noticeable”.

1.5.9 Consequently, if an open amenity area, is more than 50% in shade for more than 2 hours in either existing or proposed situations, and is reduced by more than 20% of its existing value as a result of new development, then that loss is likely to be noticeable.

1.5.10 A further overshadowing assessment, sometimes requested by the local authority for larger schemes, is the temporary, or transient overshadowing assessment. This assessment usually comprises hourly overshadowing images of the existing and proposed situations undertaken on a key date during the year such as 21 March, being a good indication of, as the BRE puts it, *“an average level of shadowing”*.

1.5.11 The BRE guidance offers no express numerical values for this type of assessment, consequently it is purely subjective. Nonetheless, significance criteria may be derived from the aforementioned assessments to enable a prediction of the potential effects of the proposed development on surrounding amenity areas. These are shown in Table 8.2 below.

1.5.12 The scope of this report does not extend to a detailed sunlight/ daylight survey, and therefore analyses of specific numerical values upon the surrounding buildings is not available.

Table 8.2 Significance Criteria

Criteria	Description
Major Adverse	Substantial increase in shadow during part of the day, more than 50%
Moderate Adverse	Moderate increase in shadow during part of the day, between a 20% and 50% increase.
Minor Adverse	Slight increase in shadow during part of the day, less than a 20% increase.
Negligible	No noticeable change in overshadowing
Minor Beneficial	Slight decrease in shadow during part of the day, less than a 20% decrease.
Moderate Beneficial	Moderate decrease in shadow during part of the day, between a 20% and 50% decrease.
Major Beneficial	Substantial decrease in shadow during part of the day, more than 50%

1.6 Baseline Conditions (all heights AOD)

- 1.6.1 The baseline condition of the existing site is principally defined by the 3 triangular shaped derelict sites. There are some low rise terraced buildings on site, to the north east on fronting Upper Pitt Street and a listed building housing a bridal shop to the south of the site fronting Great George Street.
- 1.6.2 The ground topography is generally flat from north to south with the site being surrounded on all sides by various low rise structures that do not cast much shade for the majority of the day. There are no substantial structures within the immediate vicinity that contribute to the overall shading of the area, save for the spire of the Anglican Cathedral to the east.

1.7 Potential Impacts (refer to accompanying drawings)

21st March at 08.00

- 1.7.1 The early morning shadows cast by the proposed development with the sun rising in the east would generate a significantly increased shading to the dwellings to the immediate west of the site including the St James Street dwellings, the Cookson Street dwellings and the Liverpool Mutual Homes development along Duncan Street. Part of the shadow to the far north of the site is caused by the spire of the Anglican Cathedral.
- 1.7.2 Great George Square will remain unaffected.
- 1.7.3 The impact is therefore considered Major Adverse.

21st March at 09.00 to 12.00

- 1.7.4 The shadows cast by the proposed development between these times would generate substantial shading to the dwellings to the immediate west of the site including the St James Street dwellings, the Cookson Street dwellings and the Liverpool Mutual Homes development along Duncan Street. However, as the morning moves towards lunch time the shadows sweep northwards and become much shorter to the point of passing the majority of the aforementioned dwellings altogether.
- 1.7.5 Great George Square will remain unaffected.
- 1.7.6 The impact is therefore considered Major Adverse in the early to all dwelling to the west until mid-morning, but Minor Adverse, almost negligible in late morning.

21st March at 12.00

- 1.7.7 The shadows cast by the proposed development with the sun at its zenith would generate substantial shading to itself and the Liverpool Mutual Homes development. All other dwellings would remain unaffected.
- 1.7.8 Great George Square will remain unaffected.

- 1.7.9 The impact is therefore considered Major Adverse to the Liverpool Mutual Homes development, but

Minor Adverse almost negligible to the remaining areas.

21st March at 12.00 to 15.00

- 1.7.10 The afternoon shadows cast by the proposed development varies between generating substantial shading to parts of itself including the Liverpool Mutual Homes development and Great George Street to negligible shading to the exact same areas. This is because the gaps in the proposed blocks mitigate the shade entirely between these times. This is particularly important for the Liverpool Mutual Homes development. All other dwelling will remain unaffected.
- 1.7.11 Great George Square will remain unaffected.
- 1.7.12 The impact varies between Major Adverse to Minor Adverse to the Liverpool Mutual Homes development depending upon the gaps in the proposed blocks, and Minor Adverse to negligible everywhere else.

21st March at 16.00

- 1.7.13 The sun coming around to the west at late afternoon early evening would generate significant shading to Great George Street and one of the 5 Cathedral Gate blocks on the east side of Great George Street .
- 1.7.14 Great George Square will remain unaffected.
- 1.7.15 The impact is therefore considered Major Adverse.to Great George Street and one of the 5 Cathedral Gate blocks, but negligible everywhere else.

1.8 Mitigation

- 1.8.1 Key aspects of the design for this proposed scheme assist in reducing the impact of overshadowing on properties adjacent to the site.
- 1.8.2 The proposed locations of the main large blocks are located to the south and east of the site fronting Great George Street, minimising the impact on the surrounding areas. The small footprints, particularly the 4 smaller Blocks at the junction of Upper Pitt Street and Cookson Street ensures that transient shadows generated from the upper levels are less significant.
- 1.8.3 The spacing and orientation of blocks A and B is designed to ensure that although significant shading will be produced at certain times of the day, the dwellings will remain unaffected for the remainder of the day emphasising the transient nature of any resultant overshadowing. The wide break between the blocks allows daylight and sunlight to penetrate through the development during the course of the day, helping to retain solar gain, being most advantageous during the winter months, to all the surrounding buildings at different intervals during the day.

1.9 Conclusion

- 1.9.1 The overall effect of the proposed development on the local environment in terms of overshadowing is considered to be Minor Adverse.
- 1.9.2 This is because, the dwellings to the west will experience a Major Adverse effect in the early to mid-morning, though they will remain completely unaffected for the rest of the day. Similarly, Great George Street and 1 of the Cathedral Gate blocks will experience a Major Adverse effect in late afternoon, though they will remain completely unaffected for the rest of the day. Even the Liverpool Mutual Homes development, which experiences Major Adverse effects throughout the day also experienced minor adverse effects due to the large breaks between the proposed block mitigating the shade entirely.
- 1.9.3 This above statement is supported by the permanent overshadowing assessment, see drawing 1318/DSO/04. The results show that only 3 dwellings located to the south portion of the Liverpool Mutual Homes development would not meet the BRE criteria, being 2 hours of sun on 21 March, with the remainder amenity areas assessed comfortably meeting or far exceeding those standards.

1.10 Bibliography

Building Research Establishment (BRE) Guidelines 'Site Layout Planning for Daylight and Sunlight: a guide to good practice'