

**DAYLIGHT AND SUNLIGHT REVIEW OF PROPOSED
DEVELOPMENT, GRANGEGORMAN, DUBLIN**

**Paul J Littlefair MA PhD CEng MCIBSE MSLL
Principal Lighting Consultant**

**Gareth Howlett BSc
Lighting Consultant**

28 March 2011

BRE
Bucknalls Lane
Garston
Watford
WD25 9XX

Tel : 01923 664874
Fax : 01923 664781
Email : littlefairp@bre.co.uk

DAYLIGHT AND SUNLIGHT REVIEW OF PROPOSED DEVELOPMENT, GRANGEGORMAN, DUBLIN

by Paul J Littlefair MA PhD CEng MCIBSE MSL and Gareth Howlett BSc

28 March 2011

1. INTRODUCTION

1.1 A major new development is proposed for a site at Grangegorman, Dublin. This development includes significant healthcare and educational uses in addition to mixed use (including residential).

1.2 This report presents a review of potential daylight and sunlight loss to existing residential buildings due to the development. It does not cover loss of light to proposed developments nearby, or daylight and sunlight within the new development itself. It was produced for Grangegorman Development Association, the Agency responsible for implementing the development.

1.3 The assessment was carried out during the design development stage of the draft SDZ planning scheme, and is based on an outline masterplan by DMOD. Proposed building heights were adjusted during this process. It is noted that the heights diagram by DMOD, provided by the Agency, represents the maximum heights permissible in the draft Planning Scheme, and it is likely that lower heights will be used in many instances. A site visit to inspect the site and surrounding buildings was carried out on 17 December 2010.

2. POTENTIAL LOSS OF DAYLIGHT AND SUNLIGHT TO EXISTING BUILDINGS

2.1 Guidance on the loss of light to existing buildings following construction of new development nearby is given in our BRE Report 'Site layout planning for daylight and sunlight: a guide to good practice'. This report has been referred to by the Irish Department of the Environment and is widely used by local authorities to help determine planning applications.

2.2 As a first stage in assessing loss of light, the Report recommends finding the angle subtended by the new development in the section through the existing window. If this angle is less than 25 degrees the loss of daylight and sunlight will be small.

2.3 Contours have been plotted based on this guideline and another rule of thumb (to be included in the 2011 edition of 'Site layout planning for daylight and sunlight: a guide to good practice'). This states that where the distance of

each part of the new development from the existing window is three or more times its height above the centre of the existing window, the loss of daylight and sunlight will be small.

2.4 Where proposed buildings do not meet the above guidance, the BRE report recommends more detailed analysis of loss of light. Existing buildings could still receive enough daylight and sunlight around the new buildings. This detailed analysis is outside the scope of the current report.

3. CONTOURS OF BUILDING HEIGHT

3.1 Contours of building height to meet the above guidelines have been calculated and are plotted in Figure 1.



Figure 1. Plan (not to scale) of contours of building height to meet the guidelines in 'Site layout planning for daylight and sunlight: a guide to good practice' for loss of daylight and sunlight to existing buildings.

3.2 The contours are given in metres above ordnance datum. They represent the maximum heights of buildings if the whole site (apart from the area reserved for open space) were built up in this way.

3.3 In Figure 2 the contours have been superimposed on the final heights diagram from the draft Planning Scheme (see chapter 4 of draft Planning Scheme, figure 4.5A). The numbers in rectangular labels on the building blocks show their maximum height, again above ordnance datum.

Building Heights Diagram A
date: 110318

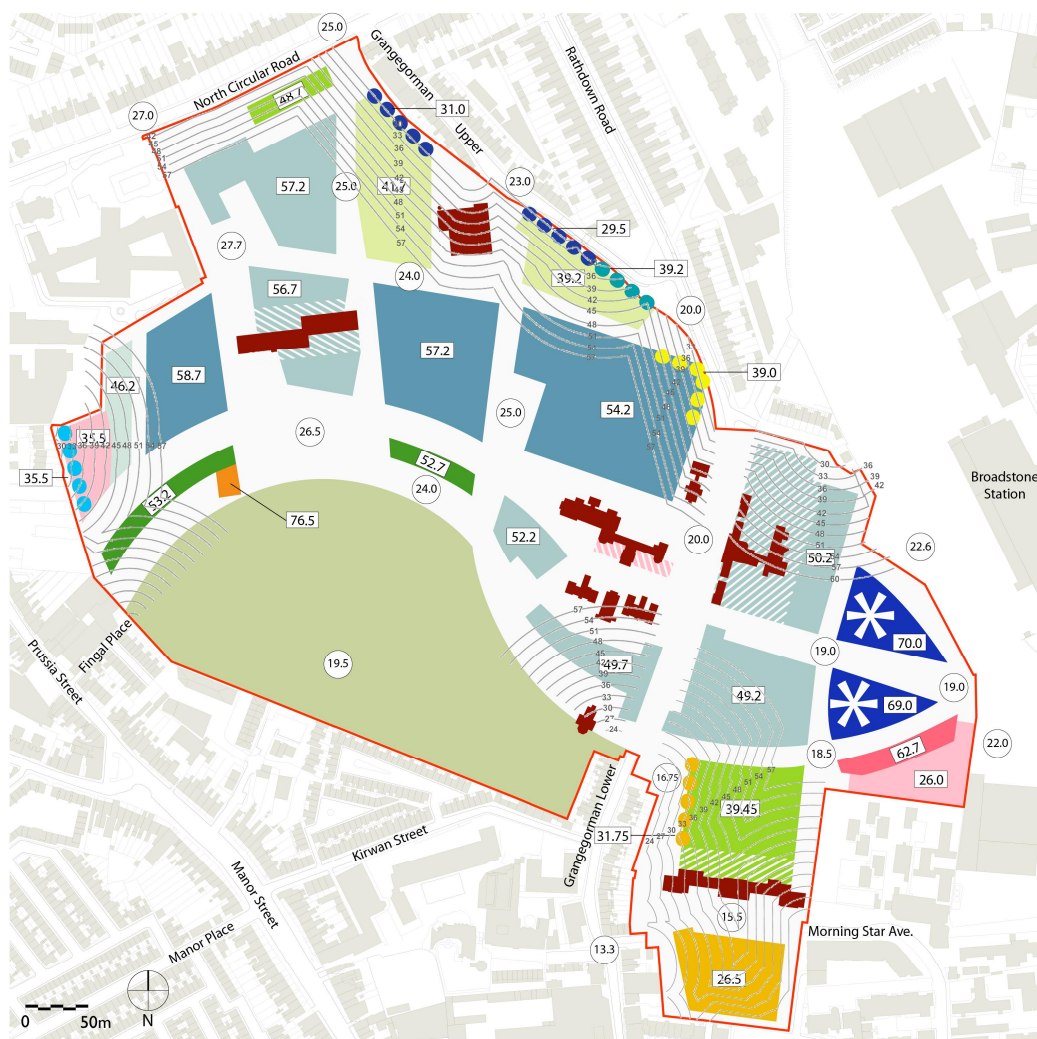


Figure 2. Plan (not to scale) by MRY Architects showing contours superimposed on draft planning scheme heights diagram.

4. CONCLUSIONS

4.1 The results of the contour plotting show that the masterplan development exceeds the contour height in a number of areas around the perimeter of the site. This does not necessarily mean that the development would not meet the loss of daylight and sunlight guidance in 'Site layout planning for daylight and sunlight: a guide to good practice'. (For example, rooftop plant rooms are included in the overall height, though these are required to be set back by at least 4m). However a more detailed calculation would be required to demonstrate this. This would involve calculating the vertical sky component and annual probable sunlight hours to main windows of surrounding dwellings, and comparing them with the BRE guidelines.

4.2 Such a detailed analysis should be carried out for residential windows where neither of (a) and (b) apply:

(a) all of the new development subtends less than 25° to the horizontal in a section through a residential window

(b) the distance of each part of the new development to the residential window is more than three times its height above the window.

If either (a) or (b) apply, then the new development would meet the BRE guidelines.

4.3 It is recommended that the height profile of the new development be resolved as closely as possible before such an analysis takes place. In particular, the proposed masterplan schematically identifies edge areas, of reduced height, where the new development is close to existing buildings. The extent of these edge areas, and the area of reduced height, should be indicated on the heights diagram. Similarly it would be helpful for the area of plant rooms to be indicated on plan.

This report is made on behalf of BRE. By receiving the report and acting on it, the client - or any third party relying on it - accepts that no individual is personally liable in contract, tort or breach of statutory duty (including negligence).