

## **15.0 EFFECT ON THE ENVIRONMENT: Sunlight**

### **15.1 Introduction**

- 15.1.1 ARC Architectural Consultants Ltd has been retained to carry out an analysis of the shadows likely to be cast by the proposed structures that would form part of the Draft Planning Scheme at Poolbeg.

### **15.2 Assessment Methodology**

- 15.2.1 The Draft Planning Scheme provides for buildings on each plot to vary in height by one storey. A three dimensional digital model has been created to assist in the assessment of the likely impact of the Draft Planning Scheme. This model is based on a median condition, whereby approximately half the buildings in the model are modelled at their maximum allowable height and the other half are modelled at just one storey less than this, i.e., at their minimum recommended height under the Draft Scheme. This has been done because it is not possible due to constraints in the Draft Planning Scheme for all the buildings to be built to their maximum permissible heights. ARC constructed a three dimensional model of existing structures and trees in the area and of the recently demolished Irish Glass Bottle factory previously in existence at Sean Moore Road. Given the location of the Draft Planning Scheme to the north of Sandymount on lands between amenity areas (e.g., Sean Moore Park and Sandymount Strand) and industrial lands at Dublin Port / Dublin Harbour, the potential for impacts due to overshadowing is likely to be limited to industrial areas associated with Dublin Port and restricted sections of residential areas at Ringsend, specifically to the east of Sean Moore Road and to the south of Pigeon House Road. As residential lands are more sensitive to impacts caused by overshadowing, the shadow cast diagrams illustrate the impact of development in the Draft Planning Scheme Area on the residential lands to the immediate west and northwest of the Planning Scheme Area.
- 15.2.2 Using the digital model, shadows were cast at several times of the day at the summer and winter solstices, and at the equinox. Shadows were cast without the proposed development (i.e. the digital model shows shadows cast by the existing buildings only), without the proposed development but including the recently demolished Irish Glass Bottle factory (i.e. the digital model shows shadows cast by the existing buildings and the glass factory only), and with the proposed development (i.e., the digital model shows the shadows cast by the

existing buildings together with the proposed development).

- 15.2.3 The results are presented in shadow study diagrams associated with this chapter. The existing buildings surrounding the development are shown in green. The Irish Glass Bottle factory is shown in yellow. The proposed development is shown in orange. The shadows cast are shown in a grey tone. These diagrams are shown in Appendix 15.1.
- 15.2.4 This report assesses the likely impact of the proposed development on sunlight access having regard to the results of the shadow study analysis (as illustrated by the shadow study diagrams at Appendix 15.1). The assessment of impacts on sunlight access had regard to the *Guidelines on the Information to be Contained in Environmental Impact Statements* prepared by the Environmental Protection Agency (2002), and to the *European Communities (Environmental Impact Assessment) (Amendment) Regulations, 1999*.
- 15.2.5 The manner in which the potential and predicted impacts of the Draft Poolbeg Planning Scheme have been categorised in this section is in keeping with the definition of impacts set out in *Section 5: Glossary of Impacts* contained in the *Guidelines on the Information to be Contained in Environmental Impact Statements* prepared by the Environmental Protection Agency. The list of definitions is set out below, together with some comment on what these definitions might imply in the case of impact on sunlight access. The definitions from the EPA document are in italics.
- 15.2.6 ***Imperceptible Impact:*** *An impact capable of measurement but without noticeable consequences.* The definition implies that the development would cause a change in the sunlight received at a location, capable of measurement, but not noticeable. If the development caused no change in sunlight access, there could be no impact.
- 15.5.7 ***Slight Impact:*** *An impact which causes noticeable changes in the character of the environment without affecting its sensitivities.* For this definition to apply, the amount of sunlight received at a location would be changed by shadows cast by the development to an extent that is both capable of measurement and is noticeable. However, the shadow environment of the surrounding environment should remain largely unchanged.

- 15.2.8 **Moderate Impact:** *An impact that alters the character of the environment in a manner that is consistent with emerging trends.* In this case, a development must bring about a change in the shadow environment of the area; and this change must be consistent with a pattern of change that is already taking place. This impact would occur where other developments were bringing about changes in sunlight access in the area.
- 15.2.9 **Significant Impact:** *An impact which, by its character, magnitude, duration or intensity alters a sensitive aspect of the environment.* This impact would occur where the development overshadows a location to the effect that there is a significant change in the amount of direct sunlight received at that location.
- 15.2.10 **Profound Impact:** *An impact which obliterates sensitive characteristics.* In terms of sunlight access, a development must cast shadows over a location, where sunlight access was previously enjoyed, to the extent that all access to sunlight is removed.
- 15.2.11 The range of possible impacts listed above deal largely with the extent of impact; and the extent of the impact of a development is usually proportional to the extent to which that development is large in scale and/or height and its proximity to the location(s) potentially affected. This proportionality may be modified by the extent to which the development is seen as culturally or socially acceptable, and on the interaction between the proposed development, the character of the existing shadow environment and the land use pattern of the receiving environment. What an observer might find socially or culturally acceptable might depend on any of a wide range of factors. For instance, if proposed new development was to provide employment, that might be regarded by local residents as socially positive. If a proposed development were to provide new facilities of an artistic or recreational nature, that might be regarded as culturally positive.

### 15.3 Receiving Environment

- 15.3.1 The site of the proposed Planning Scheme consists of former industrial and amenity lands, bounded to the west by existing residential development at Sean Moore Road, to the southwest by existing commercial and residential development at Beach Road, to the south and southeast by Sandymount Strand, to the northeast by the Pidgeon House Dock Power

Station and to the north by Dublin Port and Dublin Harbour. Some existing industrial lands are densely developed with industrial structures of varying heights.

- 15.3.2 The established residential estates at Sean Moore Road represent the residential areas closest to the Planning Scheme Area and, therefore, those most likely to be affected by shadows cast by proposed development at Poolbeg. In this regard, it should be noted that the western / northwestern side of Sean Moore Road is lined with a relatively continuous stand of mature trees, which has a considerable affect on sunlight access to residences and gardens fronting directly on to Sean Moore Road.

#### **15.4 Relevant Characteristics of Planning Scheme**

- 15.4.1 The proposed Poolbeg Planning Scheme comprises the comprehensive redevelopment of an area of the Poolbeg Peninsula to include residential commercial, cultural and leisure facilities. Building heights across the scheme generally range from one to 15 storeys.

- 15.4.2 The character areas most likely to cause changes to the shadow environment of existing residential areas are those located closest to these areas, specifically Bay View and South Bank. Bay View comprises the sites of the former Irish Glassbottle Factory and Fabrizia sites and is located between South Bank Road and Sean Moore Park, between Sean Moore Road and Dublin Bay. Bay View will accommodate tall, slim buildings along its southwestern boundary with Sean Moore Park, but, in general, buildings proximate to residential areas (e.g., on the boundary of Bay View with Sean Moore Road) will be between 5 and 10 floors in height. Similarly, buildings heights at the boundary of South Bank with Sean Moore Road, located between the South Port and South Bank Road, will be approximately 8 storeys in height.

#### **15.5 Likely Impact of the Planning Scheme**

##### *15.5.1 Potential Impact during Construction Phase*

- 15.5.1.1 The potential impacts of the proposed Planning Scheme on sunlight access are likely to be similar or lesser than the potential impacts experienced during the operation phase.

- 15.5.2 *Potential Impact During Operational Phase*
- 15.5.2.1 Having regard to the location of the proposed Planning Scheme area to the north of residences at Sandymount, it is likely that the Scheme will have no impact on residences at Beach Road or to the south of the Beach Road or on residences at Church Avenue, Londonbridge Road, Bath Avenue or Bath Street. In other words, the proposed Planning Scheme will not overshadow the vast majority of residences in proximity to the Poolbeg lands.
- 15.5.2.2 Given that the Planning Scheme proposes relatively tall buildings and high densities, there is the potential for 'slight' to 'significant' impacts on lands associated with Dublin Port to the north of the Draft Planning Scheme Area. Shadows cast by the proposed Planning Scheme will have potentially 'imperceptible' to 'moderate' impacts on the road at Sean Moore Road during the mornings and early afternoons for most of the year.
- 15.5.2.3 With regard to impacts on residential lands, as will be evident from the shadow diagrams attached at Appendix 15.1, there is a potential for the proposed Planning Scheme to have 'slight' to 'moderate' impacts on a limited number of dwellings fronting directly on to Sean Moore Road to the west and northwest of the Planning Scheme Area during the mornings in the spring and autumn months. There is also potential for 'slight' to 'moderate' impacts on residences fronting directly on to Sean Moore Road to the west and northwest of the Planning Scheme Area during the mornings and early afternoons in mid winter. Met Éireann, the Irish Meteorological Service, has found that, during December, Dublin receives an average of 1.7 hours of sunlight out of a potential 7.4 hours sunlight each day (i.e., only 22% of potential sunlight hours). This can be compared with the average of 6.4 hours of sunlight out of a potential 16.7 hours each day received by Dublin during June (i.e., 38% of potential sunlight hours). It is, therefore, suggested that impacts caused by overshadowing are generally less noticeable during the winter months than in the summer months. Because of the low angle of the sun in mid winter, the shadow environment in all urban and suburban areas is generally dense throughout the winter.
- 15.5.2.4 The additional effect of new development at the Poolbeg lands is reduced by the existing stand of mature trees located on the western / northwestern side of Sean Moore Road, which overshadow the abovementioned residences and associated gardens throughout the

year. In the absence of these trees, the impact of the proposed Planning Scheme on the residences fronting directly on to Sean Moore Road during the winter months would be more of the order of 'moderate' to 'significant'. There is no proposal in the Poolbeg Planning Scheme for the removal of any of these trees. It should further be noted that shadows cast by the proposed Planning Scheme over the road at Sean Moore Road and on these dwellings fronting on to Sean Moore Road are, in many cases, similar in extent and character to those that were cast by the Irish Glass Bottle factory prior to its demolition.

*'Do Nothing' Scenario*

15.5.2.5 In a 'Do Nothing' Scenario, the shadow environment will remain unchanged.

15.5.3 *Predicted Impact during Construction Phase*

15.5.3.1 The predicted impacts of the proposed Planning Scheme on sunlight access are likely to be similar or lesser than the potential impacts experienced during the operational phase.

15.5.4 *Predicted Impact Operational Phase*

15.5.4.1 As no mitigation is proposed, it is considered that the predicted impacts of the proposed Planning Scheme will be as described under Sections 15.5.1 and 15.5.2: Potential Impacts, as set out above. 'Imperceptible' are neutral in character, while 'slight', 'moderate' and 'significant' impacts to sunlight access tend to be considered as negative in character. However, it should be noted that, as mentioned above, the character of an impact may be modified by the extent to which the development is seen as culturally or socially acceptable, and on the interaction between the proposed development, the character of the shadow environment of the receiving environment and the land use pattern of the receiving environment. Since development is intended to be permanent, the impact of shadows from development tends to be permanent in nature. The impacts of the development proposed under the Poolbeg Planning Scheme may be modified in the future by impacts from other development in the area.

*'Worst Case' Scenario*

15.5.4.2 The model used for shadow analysis represents a median condition with half the proposed buildings represented at their maximum height and the other half represented at one storey less than their maximum. In a worst case scenario, all the buildings in the proposed

Planning Scheme will be developed to their maximum permissible height. ARC's analysis would suggest that, if this were to occur, there would be a marginal increase in the shadow environment in and around the proposed Planning Scheme Area. This increase would not, however, change the extent of the potential impacts to such a degree as to change their character and extent from that stated above.

- 15.5.4.3 It should be noted that it is very unlikely that all buildings could be developed to their maximum height, due to the rules for development set out in the Planning Scheme.

## **15.6 Mitigation**

- 15.6.1 No mitigation measures are proposed. The Poolbeg Planning Scheme proposes the redevelopment and regeneration of an area in the Poolbeg peninsula and where new positive development is proposed, mitigation is usually not a relevant concept.

## **15.7 References**

*Guidelines on the Information to be Contained in Environmental Impact Statements.*  
Environmental Protection Agency (2002).

*European Communities (Environmental Impact Assessment) (Amendment) Regulations,*  
1999

## **15.8 Appendix**

Appendix 15.1 Shadow Analysis Study