

ENVIRONMENTAL IMPACT ASSESSMENT REPORT

NON-TECHNICAL SUMMARY

PROPOSED RESIDENTIAL DEVELOPMENT

AT

GLENCAIRN, MURPHYSTOWN WAY, DUBLIN 18



In Association with:

OMP Architects | DBFL Consulting Engineers | BSM Landscape, Planning
and Environmental Consultants | Byrne Environmental Consulting Ltd |
Courtney Deery Heritage Consultancy | ARUP | Molloy Associates
Conservation Architects

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Non-Technical Summary

INTRODUCTION

This Environmental Impact Assessment Report (EIAR) has been prepared in support of a planning application for a proposed residential development and associated infrastructure on a site at Glencairn, Murphystown Way, Dublin 18 for Castdale Limited, the applicant.

This document is a summary of the information contained in the EIAR. For detailed information and key mitigation and remedial measures please consult the full EIAR document.

Purpose of the EIAR

The objective of this EIAR is to identify and predict the likely environmental impacts of the proposed development; to describe the means and extent by which they can be reduced or ameliorated; to interpret and communicate information about the likely impacts; and to provide an input into the decision making and planning process.

The EIAR is the primary element of the Environmental Impact Assessment (EIA) process and is recognised as a key mechanism in promoting sustainable development, identifying environmental issues, and in ensuring that such issues are properly addressed within the capacity of the planning system.

The Requirement for an EIAR

Projects needing environmental impact assessment are listed in Schedule 5 of the Planning and Development Regulations 2001-2018.

Schedule 5 (Part 2) of the Planning & Development Regulations 2001-2018 set mandatory thresholds for each project class. Sub-section 10(b) (iii) and (iv) addresses 'Infrastructure Projects' and requires that the following class of project be subject to EIA:

- (b) (i) Construction of more than 500 dwelling units.

Category 10(b)(iv) refers to 'Urban development which would involve an area greater than 2 hectares in the case of business district, 10 hectares in the case of other parts of a built-up area and 20 hectares elsewhere.'

The proposed Strategic Housing Development comprises of *inter alia* the demolition of an existing house and the construction of 341 no. residential units, a childcare facility, open space and all associated infrastructural and ancillary works on a site of c. 9.59 hectares.

The proposed development therefore falls below the thresholds set out above for mandatory Environmental Impact Assessment. Notwithstanding this, an EIAR is under preparation to accompany the forthcoming strategic housing development application to An Bord Pleanála, having regard to the specific characteristics and features of this site, its size, and the quantum of development proposed.

The following components are addressed in the EIAR:

- Introduction and Methodology,
- Project Description and Alternatives Examined,
- Population and Human Health,
- Archaeology and Cultural Heritage,
- Architectural Heritage,

- Biodiversity,
- Landscape and Visual Impact,
- Land and Soils,
- Water,
- Air Quality and Climate,
- Noise and Vibration,
- Wind,
- Material Assets,
- Interactions of the Foregoing,
- Principle Mitigation and Monitoring Measures,
- Non-Technical Summary.

It is necessary to examine each of these sections of the environment with respect to the impacts that the proposed development may have on them.

In addition to the components required under Schedule 5 of the Planning & Development Regulations 2001-2018, this planning application has examined a number of additional areas (such as Traffic and Transportation and Flooding), which have helped inform the contents of this EIAR, and which are included as standalone reports with the planning application.

PROJECT DESCRIPTION AND ALTERNATIVES EXAMINED

Development Description

The proposed development seeks to demolish an existing house and outbuildings on site and provide for the construction of 341 no. residential units, a childcare facility with a GFA of 300 sq.m., associated internal roads, pedestrian and cycle paths, open space, and all associated site and infrastructural works. The application site has an overall area of c. 9.59 hectares.

The residential component of the development consists of 243 no. apartments and 98 no. houses, to be provided as follows:

- 45 no. 1-bed apartments;
- 174 no. 2-bed apartments;
- 24 no. 3-bed apartments;
- 39 no. 3 storey, 4-bed (Type A1) houses;
- 7 no. 3 storey, 4-bed (Type A2) houses;
- 3 no. 3 storey, 5-bed (Type A3) houses;
- 14 no. 2 storey, 3-bed (Type B1) houses;
- 3 no. 2 storey with dormer, 4-bed (Type B2) houses;
- 17 no. 2 storey, 3-bed (Type C1) houses;
- 1 no. 2 storey, 3-bed (Type C2) houses;
- 4 no. 2 storey, 3-bed (Type C3) house;
- 2 no. 2 storey, 5-bed (Type D1) houses; and
- 8 no. 2 storey, 5-bed (Type D2) houses.

The 243 no. apartments are proposed to be provided within 6 no. apartment buildings of 4 and 5 no. storeys in height, including undercroft basements, 1 no. 4 storey apartment building (with childcare facility at ground floor level) and adjacent surface car parking, and a 2 no. storey apartment building with adjacent surface parking. The houses consist of 2 and 3 storey terraced, semi-detached and detached dwellings. Bin and cycle storage areas are proposed within the apartment blocks and bin stores are proposed for the houses. A location for a recycling bring bank, 3 no. electricity sub-stations and a DRI unit for gas services are proposed for the site.

The proposal seeks to relocate the entrance portal (including the entrance railings, piers, archways and gates), from the existing location at the entrance to the site, to a new location within the site in closer proximity to the permitted new entrance to Glencairn House (new entrance and boundary wall to Glencairn House permitted under Reg. Reg.: D17A/0913). A new entrance arrangement is to be provided at the existing entrance portal location. The proposal includes landscaping, car parking, and boundary treatments within the curtilage of the existing gate lodge (no works proposed to gate lodge building). The application site includes the ruins of Murphystown Castle (Recorded Monument Ref. No. DU023-025), which are located towards the western boundary of the site, and which are to be incorporated into an open space amenity area.

A total of 519 no. car parking spaces are proposed, which includes 289 no. basement and 230 no. surface level spaces. A total of 24 no. motorcycle parking spaces are proposed. The development provides a total of 530 no. cycle parking spaces. The associated site and infrastructural works include tie-ins to existing infrastructure, foul and surface water drainage, attenuation tanks, open space including playground, cycle stores / spaces, hard and soft landscaping, boundary treatments, internal roads, cyclepaths and footpaths. The proposal includes for access to and improvements to the greenway to the south and to Murphystown Way to the west of the application site.

Alternatives Examined

This chapter also includes a summary of alternatives which were considered for the proposed development of the subject lands. These options were considered as the scheme progressed and the key considerations and amendments to the design having regard to the key environmental issues pertaining to the lands are summarised in this section of the EIAR.

POPULATION AND HUMAN HEALTH

The 2014 EIA Directive (2014/52/EU) has updated the list of topics to be addressed in an EIAR and has replaced 'Human Beings' with 'Population and Human Health'. This chapter also meets the requirement for assessment of 'Human Beings', as set out in Schedule 6 of the Regulations.

Population (human beings) and Human Health is a broad ranging topic and addresses the existence, activities and wellbeing of people as groups or 'populations'. While most developments by people will affect other people, this EIAR document concentrates on those topics which are manifested in the environment, such as new land uses, more buildings or greater emissions.

- Economic Activity;
- Social Patterns;
- Land-Use & Settlement Patterns;
- Employment; and
- Health & Safety.

The proposed development will result in a generally positive alteration to the existing undeveloped green-field site in terms of the provision of residential units and significant areas of open space to serve the growing need for quality housing in the Dublin area in accordance with the planning policy framework provided by the National Planning Framework, and at a local level the Dun Laoghaire Rathdown County Development Plan 2016-2022. The proposed development will precipitate long term and positive impacts in respect of the health of future occupants. The proposed development will bring about an increase in population in the wider area, which has experienced strong population growth during the 2011-2016 intercensal period.

The implementation of the range of remedial and mitigation measures included throughout this EIAR document are likely to have the impact of limiting any likely adverse environmental impacts of the construction and operational phase of the proposed development on population and human health.

ARCHAEOLOGY AND CULTURAL HERITAGE

Introduction

Chapter 4 assesses the impact of the proposed development on features of archaeological and cultural heritage merit and proposes measures to safeguard these features. The assessment involved a desk study, field inspection, licenced archaeological test excavation within the proposed development area structural survey of Murphystown Castle.

Summary receiving environment

Murphystown is located within a rich archaeological landscape indicating activity that dates from the Neolithic up to the post-medieval period. Archaeological investigations along the route of the M50 north of the site found ritual and domestic activity focused on the Loughlinstown River Valley where two bronze Age fulacht fiadh, an early Bronze Age flat cemetery and an urn burial was identified. Of the relatively few finds dating to the Neolithic in the area a polished stone axe has been recovered at Murphystown. Archaeological testing in advance of the LUAS works to the west of the proposed site revealed a series of nineteenth century quarry pits and topsoil stripping uncovered the remains of both medieval and Victorian quarry pits, post-medieval plough furrows, and eighteenth and nineteenth century landscaping features. The subsequent excavation produced an assemblage of medieval and post-medieval pottery.

There is one recorded archaeological monument within in the southwestern-end proposed development lands, the ruins of Murphystown Castle (RMP Ref: DU23-025). The precise chronology of Murphystown Castle is unclear, and its construction is not mentioned in any known documentary sources. An estate map from the eighteenth century depicted the castle as a rectangular-shaped structure, while Gabriel Beranger's illustration of the castle from c. 1775, shows a large vault at ground floor level, in addition to an external stone staircase. The castle is not named on Rocque's map of 1756, or Taylor's map of 1816; although, buildings depicted on both surveys may correlate to the castle ruins. The Ordnance Survey of Ireland 1st Edition. 6-Inch map series showed it as a rectangular structure.

'Glencairn House', which lies to the southeast of the castle ruins, was constructed between 1840-1866. The expansive late nineteenth century estate incorporated stables, lodges and outbuildings, in addition to extensive formal lawns, walkways, a planted maze, ice house, and boating lake. The house was radically remodelled in 1904 by Richard Welstead, otherwise known as 'Boss' Croker, following his return from America where he had amassed a fortune as a politician.

Only a section of the southern wall of Murphystown castle remains intact, it extends to the height of the first storey level and possibly to the full width of the original building; the facing stones have been entirely removed. The castle was heavily overgrown and two mature Scots pine trees were leaning against the ruins and undermining the structural integrity of the remains. Under licenced archaeological supervision (Licence Ref: 17E0120) the trees were removed and dense vegetation growing on and around the castle was cut back. The structure was then appraised by conservation engineer, who assessed the stability of the remains.

Two phases of archaeological testing under licence to the Department of Culture, Heritage and Gaeltacht (DCHG, Licence Ref: 17E0120) was undertaken at Glencairn in order to inform the integrated design approach for development in the vicinity of Murphystown Castle.

Phase 1 testing investigated trenches located to the north, northeast, and northwest of 'Glencairn House'. The testing revealed truncated remnants of features shown on the 1908 OS 25" plan as part of the formal gardens of Glencairn, it included French drains, a raised footpath, the surviving base of a Maze, and also a depression associated with an ornamental pond illustrated on the 1908 map. The south-eastern part of the site, to the east of Glencairn House shows no evidence of landscaping. In the northern part of the field with the castle, testing revealed cut features which are in keeping with the type of quarry features identified in the 2006 excavations. The trench closest to the castle revealed a setting of earth-fast stones which appeared to form part of a structural setting or pavement level, it is thought to be associated with the nineteenth century landscaping works that has been identified throughout the site, rather than being directly associated with the castle.

Phase 2 testing was carried out in the immediate vicinity of the castle, it established that the castle was constructed sometime between the late twelfth to the end of the thirteenth century and was set atop an outcropping knoll of granite bedrock that comprised the highest point in the local landscape. Gaps in the bedrock were filled with a mix

of compacted soil, lime mortar, and granite cobbles, which created a level bedding surface for the ensuing building works. No occupational levels were identified within the interior of the castle, which suggested that the occupants probably resided above ground level, and that the ground floor was used as a barn and storage area. The castle walls were constructed from roughly hewn boulders of coarse-grained granite that were set directly on top of the prepared surface, and were quarried from seams of bedrock to the rear of the structure. These large, deep, open pits would have provided an extra defensive level outside the castle's southern walls, while foundations uncovered to the west indicated that a protective bawn wall originally enclosed the castle. The testing demonstrated that a substantial proportion of this stone was robbed-out in the early half of the nineteenth century, probably for reuse as building material for Glencairn House to the southeast.

The latest material was uncovered from the trench that ran parallel to the LUAS tracks, to the northwest of the castle, where a portion of a large quarry pit was excavated that produced assemblages of late nineteenth to early twentieth century ceramics, as well as intact glass bottles. The evidence for this activity was uncovered throughout the site in the form of deep deposits of crushed granite and mortar, which also produced fragments of nineteenth century glass and ceramics. The ground to the east of the castle was scarped down to the level of the bedrock, and this was then quarried for additional building material.

The castle was incorporated into the formal gardens of the estate, and both the ruins and their surrounding area were remodelled to accentuate their picturesque and romantic qualities. The landscaping thus transformed the ruins into a landscape folly for of the estate.

Cultural Heritage Features

The river valley has an extensive woodland which was present before the establishment of Glencairn House. The surviving designed landscape remnants of Glencairn Demesne include mature tree lined boundaries and a north-south orientated lime walk avenue. The lime tree walk first appears on the 25-inch OS map 1888-1913 it extends for c. 260m and originally led to dense woodland just south of the river valley providing access to the river valley. A late 19th century wrought iron field gate and rubble stone wall is located to the westernmost field providing access into the steep and overgrown Loughlinstown River Valley. The gate retains its original form and character.

Potential Impacts of the proposed development

The proposed development will not directly impact on the ruins of Murphystown Castle nor will it have a negative impact on its significance. The archaeological testing demonstrated that there are deposits and structures of medieval date to the west and south of the castle walls including a possible bawn wall which was identified running east west to the west of the castle, this will be retained in the open space area and will not be impacted.

The castle will be preserved in-situ and will be incorporated into the proposed open space amenity area of the development. Its topographical siting on the knoll, the area to the south of the castle and to the east will be retained as an open space, this area will be enhanced by the retention of mature trees. The castle will be maintained as a ruin in the proposed development and as such requires long-term stabilisation works and the permanent specialised removal vegetation growing from the structure. These works will be scoped out by a structural conservation engineer subject to agreement with the DCHG prior to commencement of development on site. Mortar samples have been taken and will inform a conservation methodology. A looped walkway through the whole development will physically connect the historical features on the site i.e. the connection between the castle, the lime tree walk, the river valley and its mature woodland.

The proposed development will have a positive impact on the long-term preservation of the castle where it is proposed to be conserved, stabilised and presented as part of the overall development of the lands.

Given the location of the proposed development in the vicinity of a river valley it is recognised that discrete subsurface remains may still be revealed where testing has not taken place to date. The development has the potential to reveal isolated prehistoric remains like that identified during the construction of the M50. There is a high probability that evidence for nineteenth century landscaping works will be identified whenever topsoil is removed across the site. It is also very likely that more quarry pits will be encountered, particularly along the stretch of ground to the east of the existing LUAS tracks, where the bedrock is close to the ground level.

While some features may be associated with nineteenth century landscaping works and quarrying it is also possible that some of these remains were associated with the construction and occupation of Murphystown Castle. The proposed development in Field 1 (outside the castle buffer zone) will have a direct and significant impact on these features.

Mitigation Measures

Preservation in-situ – Murphystown Castle

The preservation and integration of the upstanding castle remains within the proposed development area forms an integral part of the development layout. Based on the results of the testing the establishment of a buffer zone of at least 20m from the upstanding remains is suggested ensuring the integration, protection and enhancement of the castle site (the development proposal includes a buffer between over 20m -27m from the castle ruins).

The castle which is currently in private ownership is not generally accessible, in respecting the siting and the immediate setting of the castle and incorporating it into a communal open area, the access to and local public appreciation of the site will be enhanced. In addition, having a highly visible and accessible position within the proposed development will also encourage passive surveillance of the structure and will ensure its preservation and safeguarding into the future. As a public area, the open space proposals provide an excellent opportunity to improve the presentation of the monument. The on-site interpretation of the historic structures such as signage and interpretive panels is recommended. The form of interpretation will be subject to agreement with the DCHG and the Planning Authority.

The conservation (repair), consolidation and stabilisation work (employing a conservation architect and structural conservation engineer) will be undertaken well in advance of the construction works in the site preparation phase to secure the structural remains of the castle as part of the redevelopment of the site, which will make it safe and will preserve the monument for the future. All works associated with the castle and its buffer zone will be subject to a Conservation Plan to be submitted for approval from the DCHG. A construction management plan will also be developed which will ensure that the buffer zone is maintained around the castle site during construction.

Cultural Heritage

It is recommended that the 19th/early 20th century garden features be recorded during archaeological monitoring of the development of the site during the topsoil stripping of the fields. The proposed development on this site offers a perfect opportunity to archaeologically examine and record the design, creation and technologies involved in this garden landscape. It is recommended that the wrought iron gates and any rubble stone boundary is retained in situ or appropriately re-used within the development

Archaeological Monitoring and excavation

It is recommended that the area to the north of the castle, outside the buffer zone be stripped of topsoil as an archaeological exercise, in advance of construction. Once the area has been stripped of topsoil any archaeological features revealed should be archaeologically excavated with provision made for reporting and post-excavation costs. All work is to be carried out under licence to the DCHG. This excavation will be an extension of what has taken place for the LUAS works.

Ultimately the archaeological monitoring by a suitably qualified archaeologist of all earthmoving works carried out on site will be required under licence to the National Monuments Section at the Department of Culture, Heritage and the Gaeltacht (DCHG). In the event of the discovery of archaeological finds or remains, the National Monuments Section of the DCHG and the National Museum of Ireland shall be notified immediately. Archaeology encountered at the pre-construction stage will be ameliorated by mitigation techniques that may involve full or partial excavation.

The developer is obliged to make provision to allow for and fund whatever archaeological work may be needed on the site in accordance with the national monuments legislation (1930–2004)

The recommendations made in this report are subject to approval of the National Monuments Service of the DCHG and the planning authority who may make additional recommendations.

ARCHITECTURAL HERITAGE

Permission was recently granted, (Reg. Ref.: D17A/0913), for a new boundary wall enclosing Glencairn House, some of its attendant structures and formal gardens. The permitted intervention removes from a redefined

demesne the remainder of open uncultivated lands; certain formal landscaping features and structures of heritage significance; Murphystown Castle; the entrance portal, gate lodge and sections of original boundary walls.

The subject residential development site is primarily positioned on these uncultivated lands and, as a consequence of Reg. Ref.: D17A/0913, now includes the historic structures and landscaping features mentioned above; all of which will adjoin the redefined enclosure for Glencairn House.

As part of the proposed development, it is proposed to relocate the existing entrance portal on the subject site (including the entrance railings, piers, archways and gates). In summary, if the structure is repositioned as proposed, it will provide for the following:

- Reinstatement of the entrance portal adjacent to the main house and its new curtilage will secure its long term architectural relationship and ultimately, ensure protection of its fabric
- Long-term conservation will be possible to a greater extent than at present
- The process of dismantling, repositioning and faithful reconstruction will follow a strict methodology, as contained elsewhere in this application; thereby reducing risk of damage in an inappropriate reconstruction

The submitted architectural heritage assessment, and the accompanying application documentation, which includes Justification Report for the Entrance Portal Relocation and Glencairn Entrance Design Rationale brochure, is the culmination of a lengthy design process, these documents should be consulted along with the Architectural Heritage chapter of the EIAR for further details. Early in that process, potential adverse impacts presented by the proposed scheme in respect of the architectural character and setting of historic fabric both within and adjacent to the site were identified and subsequently addressed.

Visual impacts potentially arising from the residential development in particular, have informed the design to the extent that consideration of building and open space positioning and substantial screening measures, were inherently adopted.

The inherited impact of the removal of certain structures of heritage significance from their original architectural and functional context as a consequence of already permitted development is also reviewed, in cognisance of a proposed strategy for their careful incorporation within the parkland of the proposed residential development.

Mitigation Measures

Measures proposed to mitigate against architectural heritage related impacts include the preparation of a comprehensive protection plan forming part of the construction management plan. It is envisaged, in the instance of the entrance portal, that dismantling will take place prior to the setting up of the construction site, on the basis that to allow the portal to remain in situ during this process would place it at risk of damage. Similarly, its reconstruction will follow completion of heavy construction works in efforts to reduce risk of damage during reconstruction.

Wider remedial measures will ensure that the heritage characteristics of the site are restored to their present character on completion of the development. These will include protection of mature trees and planting during the construction phase that contribute to the sylvan character of the protected fabric. They will also include a full photographic survey of all historic elements that can inform a reinstatement strategy, in the unlikely event of irreversible damage requiring accurate reference.



Extract from 1909 Ordnance Survey, with the contextual position of Glencairn House denoted



Extract from the proposed site plan demonstrating context of the proposed residential development with Glencairn House

Predicted Impacts

Proposed residential development

The design will ensure that outward views from Glencairn House and specific vantage points from within its gardens will not be adversely affected by the change in land character adjacent. Trees that contribute to the setting of the protected structures will be retained where possible and supplemented to neutralise visual impacts and screen the proposed development from the House.

Proposed modifying works to the Entrance Portal

Continued architectural reference within the public realm

It is predicted that the impact of elemental disturbance of the boundary for the streetscape has already been suffered irreversibly by the altered context of the portal. The removal of the entrance portal is not considered to detract from an established streetscape, given the extensive architectural change arising from LUAS works supported by a retained connection between House and Entrance Portal within an open sylvan landscape.

The dominance of extant, retained, sections of crenellated wall onto Murphystown Way will maintain reference to the original demesne boundary.

Renewed setting

The proposed relocating of the entrance portal is considered justifiable in the intent to maintain the integrity of its original composition and preserve its relationship with the main house.

The character and functionality of the existing entrance is likely to be undermined if it remains in its present location, serving as the sole vehicular entrance for future development to the east of Murphystown Way. Reference is made in the '*Justification Report for the Relocation of Entrance Portal*' to exemplars of reconstruction as precedents for the relocation of entrances where merited for the long-term benefit of protected structures.

Conservation

Notwithstanding the importance of setting and architectural connectivity, the compositional fabric of the portal requires extensive conservation. All metalwork will be taken off-site for conservation. What remains of the feature, i.e. the stonework, will require a degree of reconstruction to address cracking, dislodgement and delamination together with extensive repointing. The dismantling of portal fabric has been considered in light of the range of conservation work required, which will inherently arise in a degree of dismantling and reconstruction.

Merit of the proposed dismantling and reconstruction

The dismantling and reconstruction of the entrance portal is merited on conservation grounds alone. The long term protection of the entrance portal is best served in its continued connection with the house. Separation of 'entrance portal' from 'house' may threaten its long term safeguarding and conservation. Should it be retained in situ, it will become an entrance to a new residential scheme, which will nullify its original purpose.

Gate Lodge

The continued residential occupancy of the Gate Lodge, and enhancement of its curtilage through boundary treatment and landscape improvements, will ensure its continued conservation as a unique residential amenity within the proposed scheme, which is predicted as presenting a positive impact for its continued legacy within a former demesne. No damage or loss of integrity is anticipated as arising from the works.

Murphystown Castle

The presentation of Murphystown Castle within a publicly accessed parkland will introduce a positive impact for its fabric and for an enriched urban environment.

Former demesne wall

No adverse physical, visual or compositional impact to the demesne wall is envisaged as arising from the proposed development.

BIODIVERSITY

An appraisal of the likely effects on biodiversity (flora and fauna) arising out of the proposed strategic housing development at Glencairn was undertaken. Measures to mitigate the potential impacts on defined key ecological receptors are proposed. The assessment involved a desk study and field surveys by suitably qualified ecologists including specialists in habitat survey, breeding birds and mammal ecology. The methodologies used to determine the value of ecological resources, to characterise impacts of proposed development and to assess the significance of impacts and any residual effects are in accordance with the *NRA Guidelines for Assessment of Ecological Impacts of National Road Schemes* (NRA/TII, 2009). This methodology is consistent with the *Guidelines for Ecological Impact Assessment in the United Kingdom and Ireland – Terrestrial, Freshwater and Coastal* ('the CIEEM Guidelines', CIEEM, January 2016).

Screening for Appropriate Assessment under the EU Habitats and Birds Directives has concluded that there will be no risk of significant negative effects on any European site as a result of the proposed project, either alone or in combination with other plans or project, in that regard, the Appropriate Assessment Process – preparation of a Natura Impact Statement – is not required.

No rare habitats or habitats of particularly high ecological value (i.e. International, National or County Importance) are present at the site. No rare plants were recorded during the site visits. The trees and other vegetation on the site, in particular the mature treelines, hedgerows and scrub in the western half of the site, are of some ecological value, for nesting birds. The woodland blocks to the north, despite the presence of stands of giant hogweed and Japanese/Bohemian knotweed, currently being treated, are also of local ecological value.

No evidence of badgers, otters, amphibians or reptiles has been recorded on the site. Three bat species were recorded foraging and commuting in parts of the proposed development area, however no confirmed roosts were found within the subject site. All of the bird species recorded are very common, and no rare species were noted.

Overall, with the exception of the woodland valley to the north, which is of Local Importance (Higher Value), the site is of Local Importance (Lower Value), in accordance with the ecological resource valuations presented in the *Guidelines for Assessment of Ecological Impacts of National Road Schemes* (NRA/TII 2009 (Rev. 2)).

The proposed development will require the removal of the existing fields and their replacement with the residential development and landscaping. Areas infested with invasive plant species (giant hogweed and Bohemian/giant knotweed) will be treated and these species will be eradicated from the site as a result of the proposed development. There will be no significant impacts as a result of this habitat loss. A number of tree lines and groups of trees will be removed. Although of low local ecological value the hedgerows, tree lines and tree groups to be removed provide wildlife habitat and act as a corridor for movement. This loss would be considered to be a probable permanent, moderate negative impact at a site level. However, the woodland to the north will be maintained and enhanced and appropriate landscape planting will be undertaken within the development.

A new surface water connection to the existing M50 culvert will be required, resulting in the removal of a small number of trees and an area of cherry laurel scrub. There will be no significant impacts from the installation of the

surface water outfall and headwall connection. At the local level there will be a moderate positive impact, arising from the permanent eradication of invasive plant species in this area.

It is proposed to permit limited, managed access to the central section of the woodland belt via a gate in the existing wall, which will be controlled by Dún Laoghaire-Rathdown County Council. Access will continue to be provided to the western part of the woodland. There will be a probable minor negative impact arising from the proposed access to these areas. However the permanent eradication of invasive plant species will result in a moderate positive impact at the local level.

No confirmed bat roosts have been recorded within the proposed development area at Glencairn. Regardless, the felling of mature trees creates a risk of roost loss. In the absence of mitigation this will be a permanent slight negative impact. As feeding activity recorded may have been attributable to a relatively small number of bats at any one time, this is unlikely to be a substantial loss to any local species.

There will be a reduction in vegetation cover for nesting birds as a result of the proposed development. In the absence of mitigation this will be a long-term moderate negative impact as there will be a loss in established vegetation. No significant impacts on otters, badgers or any other large mammals are expected. It is not expected that impacts on amphibians, reptiles and lepidoptera will be significant, and the open space provided as part of the proposed development, as well as the retained woodland belt will incorporate features suitable for use by these species.

Both the construction and operational phases of the proposed development at Glencairn could have impacts on water quality, via contaminated run-off and sedimentation. However, all construction works will proceed in line with the recommendations and guidance provided in the Construction & Environmental Management Plan for the proposed development. No impacts on existing watercourses are expected, either during the construction or operation of the proposed development.

In order to mitigate the habitat loss, and to maximise the biodiversity value of the retained habitat, significant new planting will be incorporated into the landscape design for the proposed development. The proposed planting/landscaping strategy will use a mix of appropriate species to replace the trees and other habitats that are to be removed. The planting will also incorporate a range of species that will attract feeding invertebrates, including moths, butterflies and bees. It will take account of and implement the relevant objectives of the [All-Ireland Pollinator Plan 2015-2020](#). In addition, the woodland belt outside the proposed development area, which is to be taken in charge by Dún Laoghaire-Rathdown County Council, will be managed in a way that maximises the biodiversity value of the site.

Where feasible and practicable, the removal of trees and other features suitable for use by nesting birds will be undertaken outside the bird nesting season (avoiding the period 1st March to 31st August). Should the construction programme require vegetation clearance between March and August bird nesting surveys will be undertaken by suitably experienced ecologists.

All mature trees shall be checked for bats by a bat specialist to identify trees with the highest potential prior to felling. Bat and bird boxes will be erected, with advice from the project ecologist, on mature trees, mainly in the woodland to the north of the proposed development area. All new lighting for the proposed development at Glencairn has been designed taking account of the recommendations of Bat Conservation Ireland (2010).

Overall, although the proposed development may have some temporary negative impacts at the local level, these impacts will be fully mitigated over time to be rendered negligible.

LANDSCAPE AND VISUAL IMPACT

Introduction

This chapter comprises an assessment of the likely effects on the landscape and visual environment of the proposed construction of a strategic residential development at Glencairn, Murphystown Way, Dublin 18. The application site is located within the curtilage of Glencairn House a protected structure on the Record of Protected Structures (RPS Ref. No. 1643). The protected structure also includes the Gate Lodge and the Entrance Railings, Piers, Archway and Gates at Glencairn House.

The proposed development, which includes for demolition of an existing house and associated buildings, provides for the construction of 341 no. residential units, a childcare facility, open space, and all associated site and infrastructural works on a site adjoining Glencairn House. The development seeks to relocate the Entrance Portal, (i.e. the archway, gates, railings and piers), from its existing location at the entrance to the site, to a new location on the existing access avenue within the site, which is in closer proximity to the permitted new boundary wall and entrance to Glencairn House (i.e. the new entrance and boundary wall to Glencairn House permitted under Dun Laoghaire Rathdown County Council Reg. Reg.: D17A/0913).

A series of Photomontages is included with the application to illustrate the physical and visual character of the proposed development as viewed from surrounding locations. In each instance the 'as existing' and 'as proposed' view is provided (refer Appendix 7.1 - Photomontages). Where relevant, 'as permitted' views are also included from Glencairn House, to show the permitted (but not yet constructed) new boundary wall to the property.

Existing Receiving Environment

The site at Glencairn is located to the west, north and east of Glencairn House off Murphystown Way, Dublin 18. Access to the lands is off Murphystown Way to the immediate north of Glencairn LUAS Stop and the LUAS line defines the western boundary of the lands. The northern boundary of the lands is defined by the M50 corridor, with lands surrounding Leopardstown Park Hospital further north. Established residential estates lie to the immediate south (Glencairn Chase, Glencairn View, Orby Way, Orby Lawn) and east (Orby View, Orby Avenue) of the lands. Mount Eagle residential estate lies to the west of Murphystown Way. A separate single residential property is situated at the southwest corner of the application lands.

A Stone Arch, associated gates, piers, railings and Gate Lodge (protected structures) define the entrance to the lands off Murphystown Way. The ruins of Murphystown Castle (a recorded monument), lie within the site to the north of the entrance avenue. A high granite wall defines the southern boundary of the site (and the southern boundary to the rear of Glencairn House) facing existing open space at Glencairn View and Glencairn Chase. The south-eastern and eastern boundaries with Orby Way, Orby View and Orby Avenue are defined by netwire fences or rear garden block walls, backed by mature tree planting. A line of mature tall Leyland Cypress trees is a prominent feature within the site close to the eastern boundary with Orby View/Orby Avenue.

While the application lands run to the west, north and east of Glencairn House, a protected structure, the house itself is located within an established smaller parkland setting enclosed by mature trees, internal fences and boundary walls. Permission exists for the construction of a new boundary wall and associated entrance (Planning Reg. Reg.: D17A/0913) that will enclose this existing managed parkland area.

Glimpse/partial views of the site are available through fences from the footpath/cycleway at the southeast corner and from trains on the slightly elevated LUAS line to the northwest of the site. Views into the site from the rear of residential properties at Orby View and Orby Avenue (east of the site) are severely restricted to the line of mature evergreen Leyland Cypress trees located approximately 10 to 15m into the site. Otherwise views into the site from external areas are generally restricted by boundary walls, mature vegetation, trees and woodland.

Mature trees and tree-lines are a significant feature of the application lands. They comprise a wide and varied range of age and species planted as parkland trees and groups, tree-lines, field boundaries and woodland. A 250m long formal lime avenue (or lime walk) planted to the east of Glencairn House is a notable feature in the landscape. The northern portion of the site follows the wooded corridor of the former Carrickmines Stream with the M50 Motorway beyond.

The Dun Laoghaire County Development Plan (2016-2022) zones the main area of the application site as Objective A: *To protect and-or improve residential amenity*. The lands in the wooded valley and along the wooded valley are zoned 'Objective F: *To preserve and provide for open space with ancillary active recreational amenities*'. The site contains an objective '*to protect and preserve Trees and Woodlands*' in the wooded valley and along the eastern boundary of the site. The trees along the eastern boundary comprise a line of tall mature Leyland Cypress trees. Glencairn House, the Gate Lodge, and Entrance Arch, Gates, Railings and Piers are protected structures (RPS No. 1643). There is no objective to preserve views on the site or in the surrounding area. Landscape significance and sensitivity derives from the setting of Glencairn House and its associated entrance features; from the ruins and site of Murphystown Castle; and from the quality, maturity and variety of trees, avenues and woodlands, including the steep-sided wooded valley to the north.

Visual significance and sensitivity relates to views to and from Glencairn House and its associated entrance features; views to the ruins and site of Murphystown Castle; as well as views to the site from surrounding residential developments at Glencairn and Orby.

Characteristics of the Proposed Development

The proposed development seeks to demolish an existing house on the site and provide for the construction of 341 no. residential units, a childcare facility, open space and all associated site and infrastructural works.

The associated site and infrastructural works include foul and surface water drainage, internal roads and footpaths, car parking and bicycle spaces, public open space, landscaping, street lighting, walls and fences. The proposal includes for access to and improvements to the existing greenway located to the south of the application site and to Murphystown Way to the west of the application site. A short section of existing wall on the southern boundary will be demolished to facilitate public access from the southern end of the Lime Avenue Walk to the adjoining greenway near Glencairn Chase.

The proposed development also seeks to relocate the Entrance Portal, (i.e. the arch, gates, railings and piers) from its existing location at the entrance to the site, to a new location on the existing avenue within the application lands. The new location will be closer to the permitted (but not yet constructed) new boundary wall and entrance to Glencairn House (permitted under Reg. Reg.: D17A/0913).

Potential Impact of the Proposed Development

The development will involve the construction of a significant new residential development, including roads, open spaces and supporting infrastructure on currently undeveloped lands to the west, north and east of Glencairn House. Potential landscape and visual effects will arise from:

- Site establishment, including provision of site compound, provision of hoarding, etc.;
- General construction activity and traffic movements on site;
- Removal of mature trees
- Loss of existing open landscape / visual character;
- Relocation of the existing entrance arch, gates *etc.* and provision of new entrance
- Provision of services and infrastructure, including roads, sewers and surface water measures;
- Emergence of new residential development, including apartment blocks;
- Provision of lighting, footpaths and cycleways *etc.*;

- Provision of landscape measures and planting;
- Completion and occupation of the development on a progressive phased basis;

While a significant portion of the site will be allocated to open space (c.50%), including a diverse range and character of open spaces, the proposed development will represent a substantial change to the existing landscape and visual character of the wider lands surrounding Glencairn House.

However, in overall terms it is considered that the lands have a high capacity to absorb appropriately designed development as proposed – particularly where existing mature trees and woodlands are retained and successfully integrated within the layout.

Avoidance, Remedial and Mitigation Measures

Significant consideration has been given to avoiding adverse landscape and visual effects in the design and layout of the scheme as a whole, including in the approach to the architectural, engineering and landscape layout of the proposed development. As such, the scheme includes for significant landscape and visual mitigation inherent within the design of the development.

Mitigation in the design and layout of the development includes allocating c.4.4ha. (or c.50% of the site) to provision of open space. The open space network will be connected via pedestrian and cycle routes to existing open space at Glencairn and Orby. The layout has also been designed to retain significant mature trees and woodlands and to provide for additional planting in mitigation of landscape impacts throughout the site.

The avoidance, remedial and mitigation measures include:

- Protection of existing trees and woodlands during construction
- Protection of open space areas during construction
- Incorporation of site features such as the Entrance Portal, Murphystown castle and Lime Avenue Walk into the layout of the scheme
- Provision of public open space, woodland open space, play and landscape proposals
- Provision of new connections to surrounding areas
- Additional tree and other planting

Predicted Impacts of the Proposed Development

Commencement of construction works will represent a significant change to the existing landscape and visual setting of the lands. General construction, disturbance and site development will result significant temporary and short-term negative landscape and visual impact within the site. However, the site is in general well-screened from external locations and therefore views of the works from surrounding areas will for the most part be limited to:

- works in the vicinity of the site entrance as viewed from Murphystown Way and from houses alongside on Murphystown Road;
- works within the open space and to the existing boundary wall to the south of the site as viewed from Glencairn View;
- works within the site as viewed from the eastern end of Glencairn Chase, the northern end of Orby Way and from along the adjoining greenway;
- and most particularly from the rear of houses at Orby View/Orby Avenue backing onto the eastern boundary of the site – where the proposed removal of the line of Leyland Cypress trees will allow open views over rear garden walls to the eastern end of the site.

In general construction stage landscape and visual impacts for surrounding locations external to the site will be slight to moderate negative and temporary to short term in duration. There is potential for increased visibility and

some temporary significant visual impact during winter months from the residential areas immediately south of the site at Glencairn View & Chase and Orby Way/Lawn.

Post construction the proposed development will provide for a high quality development and for a new residential community in-keeping with the prevailing residential character of its surrounds. Glencairn House and its retained parkland setting are well-screened and will not be adversely impacted by the proposed development. The existing Entrance Portal to Glencairn House is to be relocated to a new landscape setting at the junction with the retained avenue to the house which retains its connection with the house and the original landscape.

The development will represent a significant change in the character of the wider landscape of the site – not least in that the new development will introduce a level of illumination into what is currently a relatively dark landscape. The development will also convert currently inaccessible or secured lands into open and publicly accessible residential lands with significant provision of open space. While positive connections and links are provided to surrounding areas, the proposed development itself will not be particularly visible from surrounding residential areas – the principal exception being the rear of Orby View and Orby Avenue – where an imposing line of mature Leyland Cypress trees are to be removed.

The landscape and visual impact of the operational stage of the proposed development is assessed as moderate to significant and positive in the medium and longer-term.

Monitoring

Monitoring of landscape-related works is an integral aspect of the proposed scheme, this includes monitoring of site development works; construction works, tree and woodland protection, landscape finishing and implementation, and aftercare of landscape measures.

LAND AND SOILS

This chapter was prepared by DBFL Consulting Engineers. The Land and Soils section of the EIAR is based on site investigations carried out on the subject lands in June 2017. 8 no. rotary core boreholes, 8 no. dynamic probes, 8 no. trial pits (with infiltration tests in 3 pits) and a Geophysical Survey were undertaken. The bedrock Geology Map produced by the Geological Survey of Ireland (GSI) was also consulted.

The existing ground consists of topsoil (with some areas of made ground) varying from 0.1m to 0.4m deep. From the observed boreholes and trial pits, the subsoil can be described as soft to firm brown gravelly clay to approximately 1m below ground. From 1m to 2m deep lies a layer of well graded sandy slightly clayey gravel granite. Solid granite bedrock was determined at an average depth of 2.0m, deepening to 3.0m in isolated areas. No groundwater was observed during the site investigation.

The bedrock geology of this area is of the Siluro-Devonian granitic rocks & appinite unit with a small section of the site adjacent to the LUAS tracks in the Type 3 muscovite porphyritic unit area. The bedrock is identified as granite with muscovite phenocrysts.

In addition, a technical report entitled: 'Glencairn Hydrogeological Site Assessment' was completed by Blue Rock Environmental in August 2018. The characteristics of the underlying granite bedrock and local topography appear to have a strong influence in the hydrogeology of the site. Groundwater is present within the upper levels of the bedrock with no groundwater present within the subsoils. Groundwater flows follows the topographical relief of the area and generally flows in a north easterly direction towards the escarpment and former Racecourse stream.

It is anticipated that the development site works and excavation proposals will not be deep enough to impact the underlying bedrock geology during the construction phase with the exception of the undercroft/basement car-parks where some 2m maximum depth of rock will need to be excavated over a limited area.

In the limited areas where some of the undercroft/basement car-park to the north-western corner of the site is close to the existing LUAS tracks, specific precautions will be employed. These will include stitch drilling and are more particularly described in the Construction Management Plan accompanying this application. It is therefore considered that the greatest impact of the construction will arise from the extensive stripping and wide scale excavation of soils and sub-soils to prepare and construct the development. In addition, excavation will be necessary for the proposed underground surface water attenuation systems. Re-usable excavated soils and rock will be retained on-site for backfilling or drainage purposes to reduce the total volume of imported material. It is anticipated that the impact on soils arising from the construction phase will be short term and moderate.

There is a potential risk of localised contamination of the groundwater due to construction activities i.e. construction spillages, leaks etc. resulting in a Permanent Negative impact on the groundwater, however, the gravelly clay will limit the potential for contamination to infiltrate into the underlying aquifer. Limited shallow excavations into the bedrock are anticipated for construction of part of the undercroft/basement carpark. For these reasons, the impact on the groundwater contained within the bedrock aquifer is considered as Small Adverse.

On completion of the construction phase, no further impacts on the soil environment are envisaged except for the possibility during operation phase of contamination of soil from foul water effluent or oil/chemical spills. In this regard, the worst-case scenario for the site during operational phase is one of effluent & pollutants from sewers or drains discharging into the ground, contaminating the soil and geological substrate. The likelihood of this scenario is very low however, as all pipe lines will be constructed to best practice standards and will be tested prior to connection to existing lives sewer. Furthermore, any work in the vicinity of sewers and drains will be monitored for breakages in the pipeline.

WATER

This chapter was prepared by DBFL Consulting Engineers. The water chapter considers foul and surface water drainage, surface water streams and watercourses, potable water supply and groundwater.

This chapter is based on the following sources and reports:

- Site Visit
- Site Investigation Report
- Geological Survey of Ireland (GSI) online maps and databases
- ECFRAMS Flood Mapping from OPW
- EPA online maps and databases
- Topographical Survey
- A SSFRA (Site Specific Flood Risk assessment) prepared by DBFL Consulting Engineers
- DBFL 'Soil Testing Report for Residential Development at Glencairn House, Murphystown Way, Dublin 18'
- Calculation sheets for foul and surface water drainage and watermains by DBFL Consulting Engineers
- Local authority record drawings
- A technical report entitled: 'Glencairn Hydrogeological Site Assessment' was completed by Blue Rock Environmental in May 2018

All drainage (surface and foul) and water supply will be provided in accordance with the requirements of Dun Laoghaire-Rathdown County Council and in particular with the following:-

- Greater Dublin Regional Code of Practice for Drainage Works
- Greater Dublin Strategic Drainage Study (GDSDS)
- Planning System and Flood Risk Management Guidelines
- Building Regulations (Part H)

- Irish Water Standard Details and Codes of Practice for Water and Wastewater Infrastructure
- CIRIA SuDS manual C753 (2015).

This chapter also encompasses knowledge obtained from site visits, drainage and water services record information received from Irish Water and the Local Authority. Additionally, information from the EPA and GSI websites has been utilised.

The proposed development is located to the north of the Murphystown Way and is currently undeveloped. Foul water drainage from the development under consideration would discharge to the existing 150mm diameter foul sewer located Orby Way to the east of the site.

A pre-application enquiry was made to Irish Water in Summer 2017 and a response was received in February 2018 stating that “*subject to a valid connection agreement being put in place, your proposed connection to the Irish Water network can be facilitated*”. The additional flow generated during the operational phase of the development can be catered for by the existing foul sewer outfall.

The impact of the proposed development on the public foul sewerage system will be to increase the quantity of wastewater discharging to Shanganagh Wastewater Treatment Works for treatment and disposal. The potential impact of the proposed development on the local foul sewerage network during the construction phase of the development would be short term and minimal. The potential impact from the operational phase of the development is therefore likely to be long term and minimal.

All foul drainage infrastructure will be design and constructed in accordance with Irish Water Standard details and specifications.

Surface water drainage for the development lands is designed in accordance with the Greater Dublin Strategic Drainage Study (GDSDS) and is modelled in MICRODRAINAGE software using the Modified Rational Method. Surface water will be collected and discharged via a mixture of traditional and Sustainable Urban Drainage Systems (SUDS) before out-falling to the existing stream running along the northern boundary of the site.

SUDS features to be incorporated into the design will include the following:-

- Private car-parking areas will be drained through permeable pavements
- Roads and paved areas will be drained swales where possible
- Green roofs will cover a minimum of 60% of apartment building areas
- Attenuation will be provided in geocellular systems underground

Surface water will be collected by a system of SuDS features, gullies, pipes and manholes and will be directed to underground attenuation systems located beneath landscaped and public car-parking areas. These attention systems will likely take the form of a ‘stormtech’ geocellular systems to be designed in accordance with the GDSDS. The peak flow from the site will be controlled using hydrobrakes and will discharge to the former Racecourse stream to the north of the development.

All habitable buildings and critical infrastructure will be located in Flood Zone C as identified by the recently finalised ECFRAMS mapping of the Carysfort Maretime stream to the north of the site produced by the OPW. A Site Specific Flood Risk Assessment (SSFRA) has been prepared to comply with current planning legislation, in particular the recommendations of “The Planning System & Flood Risk Management - Guidelines for Planning Authorities”. The SSFRA report clarifies the site’s flood zone category and present information which would facilitate an informed decision of the planning application in the context of flood risk. The report also outlines appropriate flood risk mitigation and management measures for any residual flood risk.

The potential impact on surface water from the development is likely to be short-term and low, provided suitable mitigation measures are put in place and maintained during the construction phase and the SUDS features are maintained during the operational phase.

The completed development will result in a permanent change to the existing natural surface water processes on the current greenfield site. The potential impact from the construction phase on surface water is likely to be short term and low. The potential impact from the operational phase on surface water is likely to be long term and low.

The potential likely and significant impact on hydrogeology during the construction phase is considered to be short term, temporary and moderate without mitigation measures in place. There is unlikely to be any significant impact on hydrogeology from the operation phase of the proposed development.

New watermain infrastructure will be provided within the site to serve the needs of the development. A connection will be made to the existing 200mm diameter watermain currently located in Orby Way and an existing 100mm diameter water connection within the site will be reused.

Water supply will be in accordance with the requirements of Irish Water.

The impact of the operational phase of the proposed development on the public water supply is to increase the demand on the existing supply. The potential impact of the proposed development on the public water supply network is likely to be long term and low.

AIR QUALITY AND CLIMATE

Byrne Environmental Consulting Ltd have assessed the potential air quality and climatic impacts that the Glencairn SHD residential development may have on the receiving environment during the construction and operational phases of the project. The assessment includes a comprehensive description of the existing air quality in the vicinity of the subject site, a description and assessment of how construction activities and the operation of the development may impact existing air quality and climate, the mitigation measures that will be implemented to control and minimise the impact that the development may have on local ambient air quality and finally to demonstrate how the development shall be constructed and operated in an environmentally sustainable manner.

In terms of the existing baseline air quality environment, site specific baseline data and data available from similar environments indicates that levels of nitrogen dioxide (NO₂), carbon monoxide (CO), sulphur dioxide (SO₂) particulate matter less than 10 microns (PM₁₀) and less than 2.5 microns (PM_{2.5}) and benzene are well below the National and European Union (EU) ambient air quality standards. Predicted levels of traffic generated air pollutants will not exceed the ambient air quality standards and the impact of the development in terms of ambient levels of NO₂, PM₁₀, PM_{2.5}, CO, SO₂ and Benzene is deemed imperceptible.

The construction phase of the development has the potential to generate short term fugitive dust emissions and diesel engine exhaust emissions associated with construction vehicles and plant however these emissions will be controlled by appropriate mitigation techniques and through the implementation of a construction phase air quality management and monitoring plan throughout the duration of the construction phase.

The operational phase the development will see the functioning of modern, well insulated thermally efficient buildings in which energy efficiency shall be achieved by implementing sustainable features into the developments buildings and infrastructure design. The design of the residential units will ensure their operation will have a minimum impact on the receiving climate and that their design will withstand future potential extreme weather events associated with climate change.

National air quality standards shall not be adversely affected as a result of the short term construction phase or the long term operational phase, thus ensuring that the potential for adverse impacts on human health, local air quality or climate is negligible.

The heating of the development shall be provided by natural gas which is a less polluting fuel source than traditional fossil fuels such as oil and coal. In relation to the construction phase, a dust minimisation and monitoring plan has been prepared as construction activities are likely to generate short term fugitive dust emissions. Emissions from traffic-derived pollutants have focused on improvements in both engine technology, exhaust technology and fuel quality with vehicles over recent years.

Road traffic would be expected to be the dominant source of greenhouse gas emissions associated with the development. Vehicles will give rise to CO₂ and N₂O emissions in the region of the proposed development. EPA guidance states that a development may have an influence on global climate where it represents “a significant proportion of the national contribution to greenhouse gases”. Greenhouse gas emissions as a result of the development will be insignificant in terms of national CO₂ emissions and therefore, it is concluded that the impact of the proposed development on climate will be imperceptible.

NOISE AND VIBRATION

Byrne Environmental Consulting Ltd have assessed the potential noise and vibrational impacts that the proposed Glencairn SHD residential development may have on the receiving environment during the construction and operational phases of the proposed development. The assessment includes a comprehensive description of the existing ambient baseline noise climate in the vicinity of the subject site, a description of how construction activities may impact the existing ambient noise climate, the mitigation measures that shall be implemented to control and minimise the impact that the development may have on the receiving environment and the mitigation by design measures that are intended to ensure that the inward noise impact from the external environment is controlled within each building.

Ambient noise levels in the vicinity of the site shall temporarily increase during the construction phase, however noise levels shall be controlled, minimised and managed through the implementation of best practice construction noise and vibration mitigation measures and by the implementation of a Construction Phase Noise and Vibration Management Plan. The operational phase of the development will not have an adverse or unacceptable impact on the noise climate or any adverse vibrational impact at any receptor located in the vicinity of the site.

The existing baseline noise climate has been assessed at the site over the course of typical daytime and night time periods. The principal sources of existing noise experienced at the site include transport noise from road traffic on Murphystown Way, the M50 and passing tram noise from the LUAS Cherrywood Line.

The noise impact assessment has considered the potential outward impacts associated with the construction and operational phases of the proposed development on its surrounding environment. The assessment has also assessed the inward noise impact of the surrounding environment including external transportation noise on the proposed development in order to ensure that suitable internal noise levels can be achieved across the site within the residential dwellings.

During the operational phase, the outward noise impact to the surrounding environment will be limited to additional traffic on surrounding roads. The impact assessment has concluded that additional traffic from the proposed development will have an imperceptible to slight impact on the surrounding noise environment.

Internal noise levels within the proposed residential dwellings across the site have been assessed with regard to the existing noise levels and noise sources, in particular road traffic noise from the M50 and tram noise from the LUAS Cherrywood line. Sound insulation performance values for glazing, walls, roofs and ventilation systems have been specified as part of the assessment in order to ensure acceptable internal noise levels are achieved during both daytime and night time periods throughout the development site.

Wind

An appraisal of the likely impact of the Glencairn residential development on the wind conditions affecting activities in areas within and surrounding the development was undertaken. The presence of taller buildings among lower buildings provides the potential for windiness in surrounding areas. The windiness depends on both the massing of the buildings within their surroundings, their orientation with respect to the wind, and the local climate.

The criteria used to describe windiness in this study are those of T.V. Lawson of Bristol University which describe acceptability for particular activities in terms of 'comfort' and 'distress' (or safety). The onset of discomfort depends on the activity of the individual; 'sitting', 'standing', 'strolling' or 'business walking'. There is also a distress criterion for 'General Public Access', equivalent to a mean speed of 15 m/s and a gust speed of 28 m/s (62 mph) to be exceeded less often than once a year. Less able individuals or cyclists may find this wind physically difficult. There is a distress criterion beyond which even 'Able-bodied' individuals may find themselves in difficulties at times. This corresponds to a mean speed of 20 m/s and a gust speed of 37 m/s (83 mph) to be exceeded less often than once a year. This wind makes it difficult for anyone to remain standing.

Summary Receiving Environment

Met Éireann's meteorological station at Dublin Airport is the closest meteorological station to Dublin and to the site. The expected statistics for wind strength and direction are based on historic wind data recorded at this weather station. The most common and strongest winds in Dublin come from the southwest and west. These are relatively warm and often bring rain. The winds from the east are not as common as the westerlies, however, they are relatively cold, which can make them as annoying as the stronger westerlies.

The existing site is located within the curtilage of Glencairn House. It is situated in the foothills of the Dublin / Wicklow mountains on the southern edge of suburban Dublin. The Wicklow Mountains tend to shelter the city from southerly winds. Given the location of the site, the more usual southwesterly winds are likely to manifest as west or northwest winds, but possibly slightly lighter as the development is in the lee of the mountains. They are also likely to produce more frequent southeasterly winds which are uncommon in other parts of the country. Southwesterly winds may also present as southerly winds. It is anticipated that the existing site is frequently exposed to stiff breezes (i.e. ~6m/s from the northwest and southeast) close to ground level. Swathes of mature trees along the northern and western boundaries of the site help provide shelter from the wind. The wind effects on the existing conditions are predominantly expected to be in the 'strolling' range.

Potential Impacts of the Proposed Development

A large proportion of the proposed development will be sheltered from the wind due to the retention of the existing trees and woodland. However, it is anticipated that there will be areas within the proposed development where high speed winds will occur. Higher speed winds are likely to occur at the following locations:

- The corners of exposed blocks or at either end of the westernmost block
- At the southern end of the courtyards of the westernmost blocks;
- In the gap between the southernmost blocks;
- Near the corners of apartment blocks;
- Outstand balconies near the corner of apartment blocks;
- Outstand balconies at either end of the westernmost blocks.

Otherwise, the level of windiness experienced will be typical of most suburban residential housing developments in Dublin. In general, it is anticipated that the wind speeds will be suitable for 'standing'.

Avoidance, Remedial and Mitigation Measures

Design stage mitigation measures which have been incorporated into the scheme in order to improve the wind conditions at the Glencairn site include the following:

- Provision of suitable landscaping between the Luas line and the westernmost block;
- Suitable landscape treatments and configuration of courtyards between westernmost blocks;
- Provision of landscaping or wind screening along the boundary near the southernmost block;
- Re-alignment of pedestrian walkway at the eastern corner of the southernmost blocks;
- Inclusion of landscaping near the Lime Avenue to break the wind hitting the easternmost block;
- Provision of substantial planting or windbreaks at corners;
- Use landscaping to provide local wind shelter for buildings and open spaces; earth mounding, trees, bushes, fences and open or porous walls can all contribute. Mature trees with open space around their trunks may need low-level planting to avoid channelling wind at ground level. Mature clumps of trees around the edge of the site will also provide shelter
- Provision of 1.8m high pervious wind screens or shielding on balcony sides where winter gardens are not possible.

Predicted Impacts of the Proposed Development

Given the open exposure of the site and the general windiness in Dublin the conditions throughout the development are expected to be windy. The acceptability for intended activities throughout the scheme is summarised below:

- A large portion existing site is relatively sheltered. The wind speeds are expected to be acceptable for the intended use of the area;
- High speed winds are anticipated near corners of exposed buildings.
- The provision of suitable landscaping between the Luas line and the westernmost block will shelter against high speed winds that are anticipated between the westernmost block and the mature vegetation;
- With suitable landscaping and careful configuration of the courtyards between the westernmost blocks, it should be possible to provide a calm and sheltered environment suitable for its intended use;
- The wind conditions along the pedestrian pathways are expected to be similar to the existing site conditions and therefore, in the 'strolling' to 'business walking' ranges depending on the wind direction. These conditions are acceptable for pedestrian walk through;
- Balconies with adequate wind shielding are anticipated to be in 'sitting' or 'standing' range, which should provide occupants with an attractive living space in the summer.

MATERIAL ASSETS

Material Assets considers physical resources in the environment which may be of human or natural origin. The objective of the assessment is to ensure that these assets are used in a sustainable manner, so that they will be available for future generations, after the delivery of the proposed development.

In accordance with the 2017 Draft EPA Guidelines on the Information to be Contained in Environmental Impact Assessment Reports, "*Material assets can now be taken to mean built services and infrastructure*". Material assets of a natural origin are dealt with comprehensively within the other chapters of the Environmental Impact Assessment Report.

This chapter considers the key aspects relating to material assets of a human origin of the proposed development site and the surrounding area, namely traffic infrastructure, potable water supply, wastewater discharge, electricity and gas supply.

The Material Assets chapter describes existing services to the application site and describes the predicted impacts which the development may have on these services and recommends mitigation measures.

The proposed development will have a positive impact on the existing urban environment by creating high quality residential units to respond to current housing need and to cater for the needs of a growing population on residential zoned lands, immediately adjacent to Glencairn Luas stop and also including significant open space provision.

Traffic movements associated with the proposed development are likely to have a long-term and neutral impact on the operation of the local road network as demonstrated in the standalone Traffic and Transport Assessment (prepared by DBFL Consulting Engineers) being implemented, which includes a cumulative assessment of the impact of the proposed development in combination with other committed development in the area, including the recently permitted Clay Farm Phase 2 development. This chapter concludes that there is unlikely to be any significant adverse impacts on material assets as a result of the proposed development during the construction or operational phase of the development.

INTERACTIONS BETWEEN ENVIRONMENTAL FACTORS

The purpose of this chapter of the EIAR is to draw attention to significant interaction and interdependencies in the existing environment. John Spain Associates in preparing and co-ordinating this EIAR ensured that each of the specialist consultants liaised with each other and dealt with the likely interactions between effects predicted as a result of the proposed development during the preparation of the proposals for the subject site and this ensures that mitigation measures are incorporated into the design process. This approach is considered to meet with the requirements of Part X of the Planning and Development Act 2000, as amended, and Part 10, and schedules 5, 6 and 7 of the Planning and Development Regulations 2001-2018. The detail in relation to interactions between environmental factors is covered in each chapter of the EIAR.

SUMMARY OF EIA MITIGATION AND MONITORING MEASURES

This chapter provides a summary of all the mitigation and monitoring measures proposed throughout the EIAR document for ease of reference for the consent authority and all other interested parties.