



THORNTON O'CONNOR
TOWN PLANNING

Volume III – Appendices

Volume III

EIAR Appendices

In respect of a Residential Development at

Milltown Park, Sandford Road, Dublin 6

**Submitted on Behalf of
Sandford Living Limited**

September 2021

Volume III- TABLE OF APPENDICES

Appendix 5.1 Review of BRE Sunlight and Daylight Assessment

Appendix 6.1 Archaeology Illustrations

Appendix 6.2 Geophysical Survey Report

Appendix 6.3 Text Excavation Report

Appendix 6.4 Archaeological Licences

Appendix 7.1 Outline Historical Analysis

Appendix 7.2 Photographic Survey

Appendix 7.3 Existing Building Range

Appendix 8.1 Hydrological & Hydrogeological Qualitative Risk Assessment

Appendix 8.2 National Biodiversity Data Centre Records of Protected and Invasive Species

Appendix 8.3 Bird Survey Results

Appendix 8.4 Invasive Alien Plant Species: Site Assessment Report

Appendix 9.1 Verified Views

Appendix 10.1 Ground Investigations Report

Appendix 10.2 Environmental Assessment Report

Appendix 11.1 Existing Irish Water Services Infrastructure

Appendix 11.2 Flood Hazard Information

Appendix 11.3 Irish Water Confirmation

Appendix 12.1 Ambient Air Quality Standards

Appendix 12.2 Dust Management Plan

Appendix 14.1 Construction & Demolition Waste Management Plan

Appendix 14.2 Operational Waste Management Plan

Appendix 15.1 Traffic Count Surveys

Appendix 15.2 Mobility Management Plan

Appendix 16.1 Utility Records

Appendix 16.2 APEX Surveys

Appendix 16.3 Code of Practice for Avoiding Danger from Underground Services

APPENDIX 5.1

REVIEW OF BRE SUNLIGHT AND DAYLIGHT ASSESSMENT

5.0 REVIEW OF BRE SUNLIGHT & DAYLIGHT ASSESSMENT

5.1 Introduction

This appendix of the Environmental Impact Assessment Report (EIAR) has been written by Nicholas Polley. Nicholas is a qualified building service engineer (B.Sc. (Eng) Dip Eng.) and Managing Director of 3D Design Bureau with over 20 years of experience in this industry. It provides a review of the BRE sunlight and daylight assessment of this proposed development. The detailed 3DDB Sunlight and Daylight assessment, and the full set of results, can be found in the Daylight and Sunlight Assessment Report enclosed separately.

The BRE Guide for Site Layout Planning for Daylight & Sunlight 2011 does not set out rigid standards or limits. The BRE Guide is preceded by the following very clear instruction as to how the design advice contained therein should be used:

"The advice given here is not mandatory and the guide should not be seen as an instrument of planning policy; its aim is to help rather than constrain the designer. Although it gives numerical guidelines, these should be interpreted flexibly since natural lighting is only one of many factors in site layout design."

That the recommendations of the BRE Guide are not suitable for rigid application to all developments in all contexts, is of particular importance in the context of national and local policies for the consolidation and densification of urban areas or when assessing applications for highly constrained sites (e.g. lands in close proximity or immediately to the south of residential lands).

In order to categorise the varying degrees of compliance with the BRE Guidelines when assessing the effect a proposed development would have on the daylight and sunlight of an existing property, 3DDB have assigned numerical values to the levels of effect as listed in 'Guidelines on the Information to be Contained in Environmental Impact Assessment Reports' prepared by the Environmental Protection Agency (Draft of 2017), and to Directive 2011/92/EU (as amended by Directive 2014/52/EU).

The list of definitions given in Table 3.3 of the Daylight & Sunlight report: Descriptions of Effects contained in the draft 'Guidelines on the Information to be Contained in Environmental Impact Assessment Reports' prepared by the Environmental Protection Agency. Some comment is also given below on what these definitions might imply in the case of sunlight access.

This appendix states mitigation and remedial measures implemented in the proposed design of the scheme to ensure acceptable levels of sunlight and daylight will be achieved by the development on itself and in terms of the impact it may have to its surrounding environment, if constructed as per the architectural design.

The surrounding area assessed for potential impact can be seen in Fig 3 below - Receiving Environment. This section should be referred to where VSC (Vertical Sky Component), APSH (Annual Probable Sunlight Hours) and sunlighting is stated / discussed within this appendix.

Note: No cumulative assessment was required for any of the assessment carried out. This is due to the fact that there are no granted schemes in the immediate vicinity of the proposed site that would warrant such a supplementary assessment.

Development Description

Sandford Living Limited intend to apply to An Bord Pleanála for permission for a strategic housing development at this c. 4.26 hectare site at Milltown Park, Sandford Road, Dublin 6, Do6 VgK7. Works are also proposed on Milltown Road and Sandford Road to facilitate access to the development including improvements to pedestrian facilities on an area of c. 0.16 hectares. The development's surface water drainage network shall discharge from the site via a proposed 300mm diameter pipe along Milltown Road through the junction of Milltown Road / Sandford Road prior to outfalling to the existing drainage network on Eglinton Road (approximately 200 metres from the Sandford Road / Eglinton Road junction), with these works incorporating an area of c. 0.32 hectares. The development site area, road works and drainage works areas will provide a total application site area of c. 4.74 hectares.

The development will principally consist of: the demolition of c. 4,883.9 sq m of existing structures on site including Milltown Park House (880 sq m); Milltown Park House Rear Extension (2,031 sq m); the Finlay Wing (622 sq m); the Archive (1,240 sq m); the link building between Tabor House and Milltown Park House rear extension to the front of the Chapel (74.5 sq m); and 36.4 sq m of the 'red brick link building' (single storey over basement) towards the south-western boundary; the refurbishment and reuse of Tabor House (1,575 sq m) and the Chapel (768 sq m), and the provision of a single storey glass entrance lobby to the front and side of the Chapel; and the provision of a 671 No. unit residential development comprising 604 No. Build-to-Rent apartment and duplex units (88 No. studios, 262 No. one bed units, 242 No. two bed units and 12 No. three bed units) and 67 No. Build-to Sell apartment and duplex units (11 No. studios, 9 No. one bed units, 32 No. two bed units and 15 No. three bed units).

Block A1 will range in height from part 5 No. storeys to part 10 No. storeys and will comprise 94 No. Build-to-Rent apartments; Block A2 will range in height from part 6 No. storeys to part 8 No. storeys (including part double height at ground floor level) and will comprise 140 No. Build to-Rent apartments and duplex units; Block B will range in height from part 3 No. to part 7 No. storeys and will comprise 91 No. Build-to-Rent apartments; Block C will range in height from part 2 No. storeys to part 8 No. storeys (including part double height at ground floor level) and will comprise 163 No. Build-to-Rent apartments; Block D will range in height from 3 No. storeys to 5 No. storeys and will comprise 39 No. Build-to-Sell apartments; Block E will be 3 No. storeys in height and will comprise 28 No. Build-to-Sell duplex units and apartments; Block F will range in height from 5 No. storeys to part 7 No. storeys and will comprise 92 No. Build-to-Rent apartments; and the refurbished Tabor House (4 No. storeys including lower ground floor level) will comprise 24 No. Build-to-Rent apartments.

The development also includes a creche within Block F (400 sq m) with outdoor play area; and the provision of communal internal amenities (c. 1,248.8 sq m) and facilities (c. 158.3 sq m) throughout the residential blocks, Tabor House and the converted Chapel building including co-working space, gym, lounges, reading rooms, games room, multi-purpose space, concierge, mail rooms and staff facilities.

The proposed works also include a new 2.4 metre high boundary wall across the site from east to west (towards the southern boundary) requiring the demolition of a portion of the red brick link building that lies within the subject site towards the south-western boundary (36.4 sq m) and the making good of the façade at the boundary. The existing Link Building is the subject of a separate application for permission (DCC Reg. Ref. No. 3866/20) that includes a request for permission to demolish that Link Building, including the part of the

building on the lands the subject of this application for SHD permission. If that application is granted and first implemented, no demolition works to the Link Building will be required under this application for SHD permission. If that application is refused permission or not first implemented, permission is here sought to demolish only that part of the Link Building now existing on the lands the subject of this application for permission and to make good the balance at the red line with a blank wall.

The development also provides a new access from Milltown Road (which will be the principal vehicular entrance to the site) in addition to utilising and upgrading the existing access from Sandford Road as a secondary access principally for deliveries, emergencies and taxis; new pedestrian access points; pedestrian/bicycle connections through the site; 344 No. car parking spaces (295 No. at basement level and 49 No. at surface level) which includes 18 No. mobility impaired spaces, 10 No. car share spaces, 4 No. collection/drop-off spaces and 2 No. taxi spaces; bicycle parking; 14 No. motorcycle spaces; bin storage; boundary treatments; private balconies and terraces facing all directions; external gantry access in sections of Blocks A1, A2 and C; hard and soft landscaping including public open space and communal open space (including upper level communal terraces in Block A1, Block B and Block C which will face all directions); sedum roofs; PV panels; substations; lighting; plant; lift cores; and all other associated site works above and below ground. The proposed development has a gross floor space of c. 54,871 sq m above ground level over a partial basement (under part of Block A1 and under Blocks A2, B and C) measuring c. 10,607 sq m, which includes parking spaces, bin storage, bike storage and plant.

The assessment that was carried out addresses the impact the proposed development would have on the neighbouring properties and environment in terms of sunlight and daylight. It also addresses the levels of daylight in the proposed apartment units, and the levels of sunlight expected in the proposed amenity areas.

Note 1: the ADF study carried out has been based on the target value of 2% within Living/Kitchen/Dining (LKD) spaces. Circa compliance rates across the scheme have been given at this 2% value and at the 1.5% target value. Rationale has been given in support of the deviation of the 2% target value. Notwithstanding this, in our opinion there is an acceptable circa compliance rate with LKDs studied at 2% (91%)

5.2 Assessment Methodology

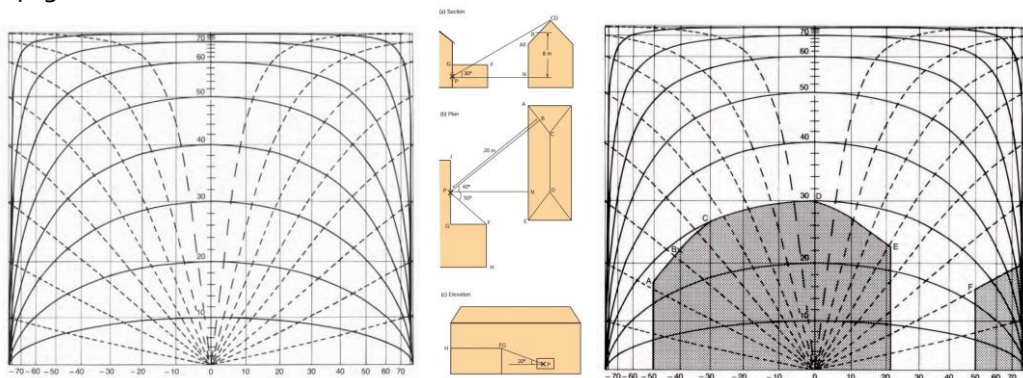
All target values for daylight and sunlight have been taken from the 2011 BRE Guidelines as set out in "Site Layout Planning for Daylight and Sunlight". See note 1 above re the ADF target values within LKDs.

5.2.1 Glossary

The following glossary, (reference BRE Guidelines) has been included to help understand the terminology throughout this appendix.

VSC (Vertical Sky Component): Ratio of that part of illuminance, at a point on a given vertical plane, that is received directly from an overcast sky model, to illuminance on a horizontal plane due to an unobstructed hemisphere of this sky. Usually the 'given vertical plane' is the outside of a window wall. The VSC does not include reflected light, either from the ground or from other buildings.

When measuring the effect a proposed development will have on the VSC of an existing window, if the value drops below the 27% guideline and is less than 0.8 times the existing value, the proposed development could possibly have a noticeable impact on the amount of daylight received.



Left: Waldram diagram used for calculation of VSC; **Centre:** Sections, plans and elevation of a hypothetical model; and **Right:** Waldram diagram applied to the hypothetical model.

APSH (Annual Probable Sunlight Hours): Annual Probable Sunlight Hours (APSH) is a measure of sunlight that a given window may expect over a year period. It can be defined as the ratio between the annual sunlight hours in a specific location, and the hours of sunlight an assessment point on a window actually receives. North facing windows may receive sunlight on only a handful of occasions in a year, and windows facing eastwards or westwards will receive sunlight only at certain times of the day. Taking this into account, the BRE Guidelines suggest that windows with an orientation within 90 degrees of due south should be assessed.

If the assessment point of a window can receive more than 25% of APSH, including at least 5% of APSH in the winter months, then the room should receive enough sunlight.

ADF (Average daylight factor): Ratio of total daylight flux incident on the working plane to the area of the working plane, expressed as a percentage of the outdoor illuminance on a horizontal plane due to an unobstructed overcast sky model. Thus a 1% ADF would mean that the average indoor illuminance would be one hundredth the outdoor unobstructed illuminance.

Sunlight: Direct parallel rays of light emitted from the sun.

Daylight: Combined skylight and sunlight

Overcast sky model: A completely overcast sky model, used for daylight calculation.

5.2.2 Definition of Effects on Sunlight and Daylight Access

In order to categorise the varying degrees of compliance with the BRE Guidelines when assessing the effect a proposed development would have on the daylight and sunlight of an existing property, 3DDB have assigned numerical values to the levels of effect as listed in draft 'Guidelines on the Information to be Contained in Environmental Impact Assessment Reports' prepared by the Environmental Protection Agency (Draft of 2017), and to Directive 2011/92/EU (as amended by Directive 2014/52/EU).

The list of definitions given below is taken from Table 3.3: Descriptions of Effects contained in the draft 'Guidelines on the Information to be Contained in Environmental Impact Assessment Reports' prepared by the Environmental Protection Agency. Some comment is also given below on what these definitions might imply in the case of sunlight access.

Note: There are many factors to be taken into consideration when determining levels of effect. We have included typical numerical values that we have used when assigning levels of effect. These values are not applied rigidly, but rather as a guide. Circumstances may occur that lead to a rationale being taken to interpret these EPA guidelines differently. Such cases are always explained in the Analysis of Results section, if and when they occur.

- **Imperceptible:** An effect capable of measurement but without significant consequences. For the purposes of this Sunlight and Daylight Assessment Report an "imperceptible" level of effect will be stated if the level of effect is within the criteria as recommended in the BRE Guidelines and the applied target value has been achieved.
- **Not Significant:** An effect which causes noticeable changes in the character of the environment but without significant consequences. For the purposes of this Sunlight and Daylight Assessment Report, a "not significant" level of effect will be stated if the level of effect is marginally outside of the criteria as stated in the BRE Guidelines. typically a "not significant" level of effect will be applied if the level of daylight or sunlight is reduced to between 90-99% of the applied target value.
- **Slight:** An effect which causes noticeable changes in the character of the environment without affecting its sensitivities. For the purposes of this Sunlight and Daylight Assessment Report, a "slight" level of effect will be stated if the level of daylight or sunlight is reduced to between 75-90% of the applied target value.
- **Moderate:** An effect that alters the character of the environment in a manner that is consistent with existing and emerging trends. For the purposes of this Sunlight and Daylight Assessment Report, a "moderate" level of effect will be stated if the level of daylight or sunlight is reduced to between 50-75% of the applied target value. A "moderate" level of effect would be quite typical in instances where a proposed development is planned on an under-developed plot of land. The level of daylight and/or sunlight of an assessed property is reduced in a manner that is consistent with similar properties in the immediate surrounding area.
- **Significant:** An effect which, by its character, magnitude, duration or intensity alters a sensitive aspect of the environment. For the purposes of this Sunlight and Daylight Assessment Report a "significant" level of effect will be stated if the proposed development reduces the availability of daylight or sunlight of a neighbouring property to a low level. Typically a "significant" level of effect will be stated if the level of daylight or sunlight is reduced to between 30-50% of the applied target value.
- **Very Significant:** An effect which, by its character, magnitude, duration or intensity significantly alters most of a sensitive aspect of the environment. For the purposes of this Sunlight and Daylight Assessment Report a "very significant" level of effect will be stated if the proposed development reduces the availability of daylight or sunlight of a neighbouring property to a very low level. Typically a "very significant" level of effect will be stated if the level of daylight or sunlight is reduced to between 10-30% of the applied target value.

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- **Profound:** An effect which obliterates sensitive characteristics. For the purposes of this Sunlight and Daylight Assessment Report, a “profound” level of effect will only be stated if the proposed development reduces the availability of daylight or sunlight of a neighbouring property to a level that is less than 10% of the applied target value.
 - **Positive Effect:** In relation to sunlight or daylight access, it is conceivable that there could be positive effects, but this implies that a development would involve a reduction of the size or scale of built form (e.g. such as the demolition of a building, which might result in an increase in sunlight access). Though that is possible, it is usually unlikely as most development involves the construction of new obstructions to sunlight access.

5.2.3 Building the proposed and existing model.

In order to obtain the results of this assessments, 3D Design Bureau (3DDB) used a series of architectural 3D digital models using Revit 2021, a BIM software application made available by Autodesk.

The project architect, O’Mahony Pike Architects (OMP) supplied 3DDB with 3D models of the proposed development (buildings only), which were subsequently prepared for daylight and sunlight analysis. 3DDB digitally modelled the proposed landscaping/site layout along with the internal layouts of the units. The fully prepared digital model was a detailed representation of the future scheme to ensure an accurate assessment was achieved.

A combination of survey information, aerial photography, available online photography and/or ordnance survey information were used to model the surrounding context and assessed buildings. Note: as the information gathered from online sources is not as accurate as surveyed information, some tolerance should be allowed to the results generated.

Normally trees and shrubs do not need to be included in the studies carried out in this report, partly because their shapes are almost impossible to predict, and partly because the dappled shade of a tree is more pleasant than the deep shadow of a building (this applies especially to deciduous trees). Where a dense belt or group of evergreens is specifically planned as a windbreak or for privacy purposes, it is better to include their shadow in the calculation of shaded area. In the case of this study there are a number of evergreen trees both on the existing site and as part of the proposed development. These evergreen trees have been included in all assessments that have been carried out as part of the daylight and sunlight study. Information regarding the position size and position of existing trees has been provided by CMK Horticulture & Arboriculture Ltd. Information regarding the proposed trees has been provided by the landscape architects, Cameo & Partners.

The mature tree line along the north and west boundaries of the proposed site, also includes a number of deciduous trees which have not been included in the analytical model. The level of impact that the proposed development would have on the neighbouring properties would be less perceptible in the summer time when these trees are in full foliage as they would form a natural barrier between the assessed properties and the proposed development. The omission of these trees is for the reasons stated above and to account for the winter months, when the trees will be bare and the proposed development would impose a greater level of impact.

5.2.4 Model States

In order to calculate the impact on the surrounding existing properties, two model states have been established.

Baseline (Fig 1): The baseline state reflects the existing environment. It includes the surrounding context and the subject site in their current standing. This includes any structures that are to be demolished as part of this application. The baseline state also includes the existing evergreen trees as stated in the section above.

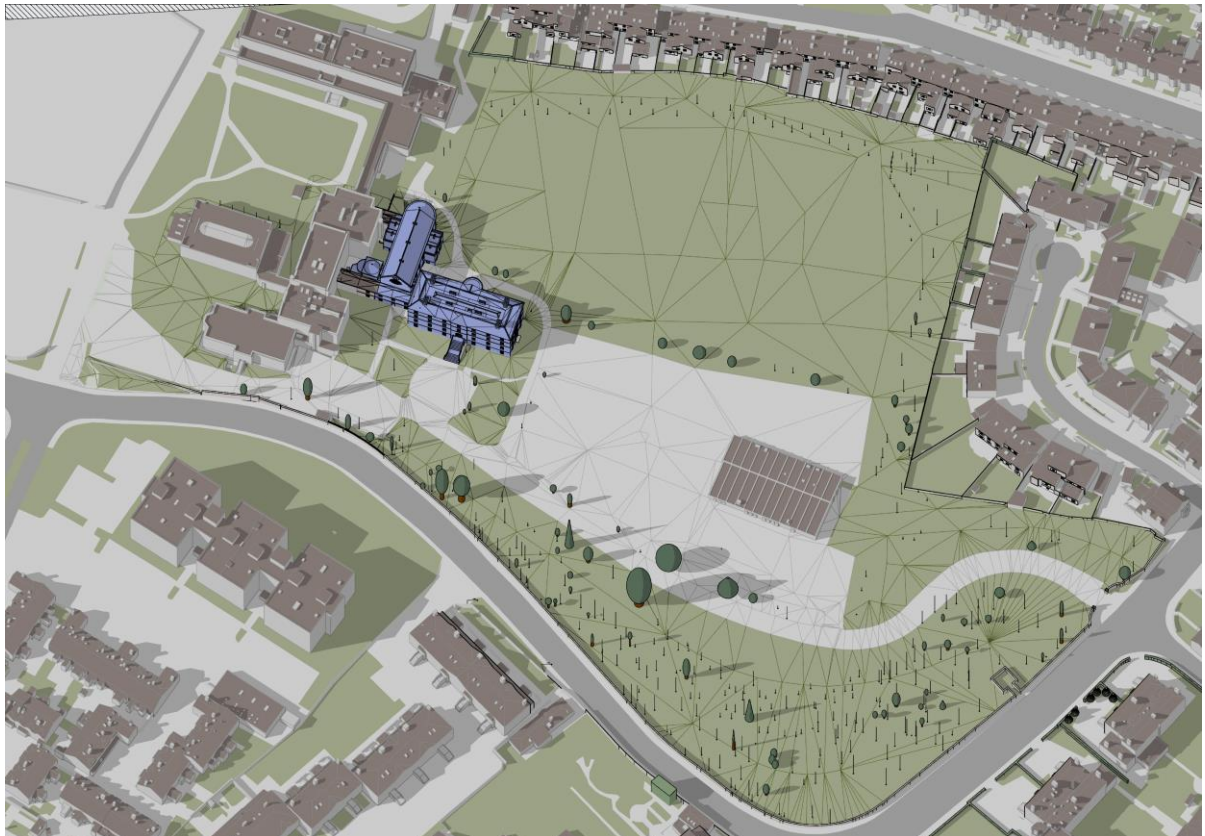


Fig 1 Baseline Model State.

Proposed (Fig 2): The proposed state reflects the subject site if the development is built as proposed. This includes the demolishing of structures, landscaping, the removal of existing evergreen trees and the inclusion of new evergreen trees.

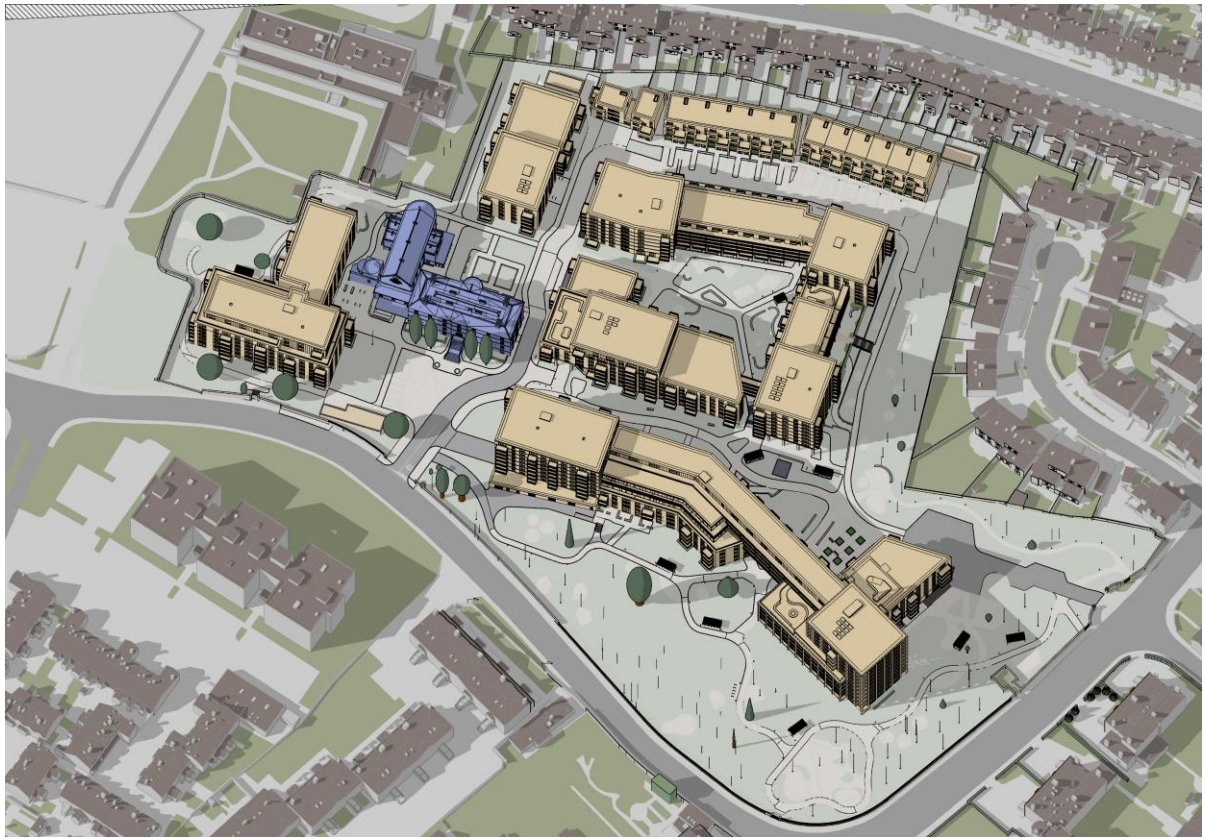


Fig 2 – Proposed Model State

5.2.5 VSC and APSH Impact Analysis

5.2.5.1 Assessment Criteria for VSC Impact Analysis.

The effect on Vertical Sky Component (VSC) has been calculated on the windows that face the proposed development on the following properties:

Rowan Hall/Cedar Hall | Mount Sandford | 1 St. James Terrace | 87 Eglinton Road | 132-138 Sanford Road | 1-11 Norwood Park | 28-35 Cherryfield Avenue Lower | 1-20 Cherryfield Ave Upper.

Under BRE Guidelines, only habitable rooms need to be assessed for effect on daylight and sunlight. In the absence of design layouts or floor plans, or information pertaining to the internal 'as-built' layouts, assumptions have been made regarding the function of the windows of the existing surrounding properties (i.e. what room type is served by the window being assessed).

Typically, the effect on ground floor windows is greater than the effect on windows of subsequent floors. However, floors above ground floor level have been included in this study to give a more comprehensive assessment.

5.2.5.2 Assessment criteria for APSH impact analysis.

Impact Assessment on surrounding existing environment: Effect on Annual Probable Sunlight Hours (APSH) has been calculated on the windows assessed in the VSC study. The BRE Guidelines recommend that windows with an orientation within 90 degrees of due south

should be assessed. Therefore, the APSH of windows that do not have an orientation within 90° of due south have not been assessed for the purposes of this report.

The APSH has been assessed for the windows that face within 90° of due south on the following properties:

87 Eglinton Road | 132-138 Sanford Road | 1-11 Norwood Park | 28-35 Cherryfield Avenue Lower | 1-20 Cherryfield Ave Upper.

No APSH assessment has been carried out on the windows of Rowan Hall / Cedar Hall, Mount Sanford or 1 St. James Terrace as the windows of these properties that face the proposed development do not face within 90° of due south.

The assessment points for APSH are equivalent to the VSC study.

On Proposed Development: The APSH has been calculated for all main living room windows in the proposed development. If a living room has more than one window on the same wall or on adjacent walls, the highest value of APSH will be taken. If a room has two windows on opposite walls, the APSH received by each will be combined.

The results of the APSH study on the living rooms windows of the proposed development will be expressed as a percentage of compliance across the entire development for both the annual study and winter assessments. **Note:** No recommendation is made in the BRE Guidelines regarding the performance of a development as a whole for APSH performance.

The detailed 3DDB Sunlight and Daylight assessment, and the full set of results, can be found in the Daylight and Sunlight Assessment Report.

5.2.5.3 Assessment points for VSC and APSH impact analysis.

The assessment points for measuring VSC or APSH are taken from the centre point of a standard window. If the window being assessed is a full height window, the assessment point is taken at 1600 mm above the finished floor level.

If it can be determined that multiple windows are servicing the same room, each window will be assessed and the average value will be taken.

5.2.6 Assessment Criteria for Sunlight Impact Analysis.

Effect on sunlight to existing neighbouring gardens has been assessed to the north of the proposed development, as areas located to the south are unlikely to be affected due to sun direction. Overshadowing is highly unlikely to occur in areas that are due south of any proposed development.

5.2.7 Assessment Criteria for Sunlight to External Proposed Amenity Areas.

The levels of sunlighting to proposed amenity areas, as indicated by the architect, have also been assessed. However, it should be noted that the numbering of these spaces in the Daylight and Sunlight Assessment Report has been assigned by 3DDB specifically for the purposes of this report. If other consultants are referencing these spaces in their own reports, it is unlikely they will be numbered the same. See figures 3-5 below and on the following pages for the extent of areas assessed for sunlighting.

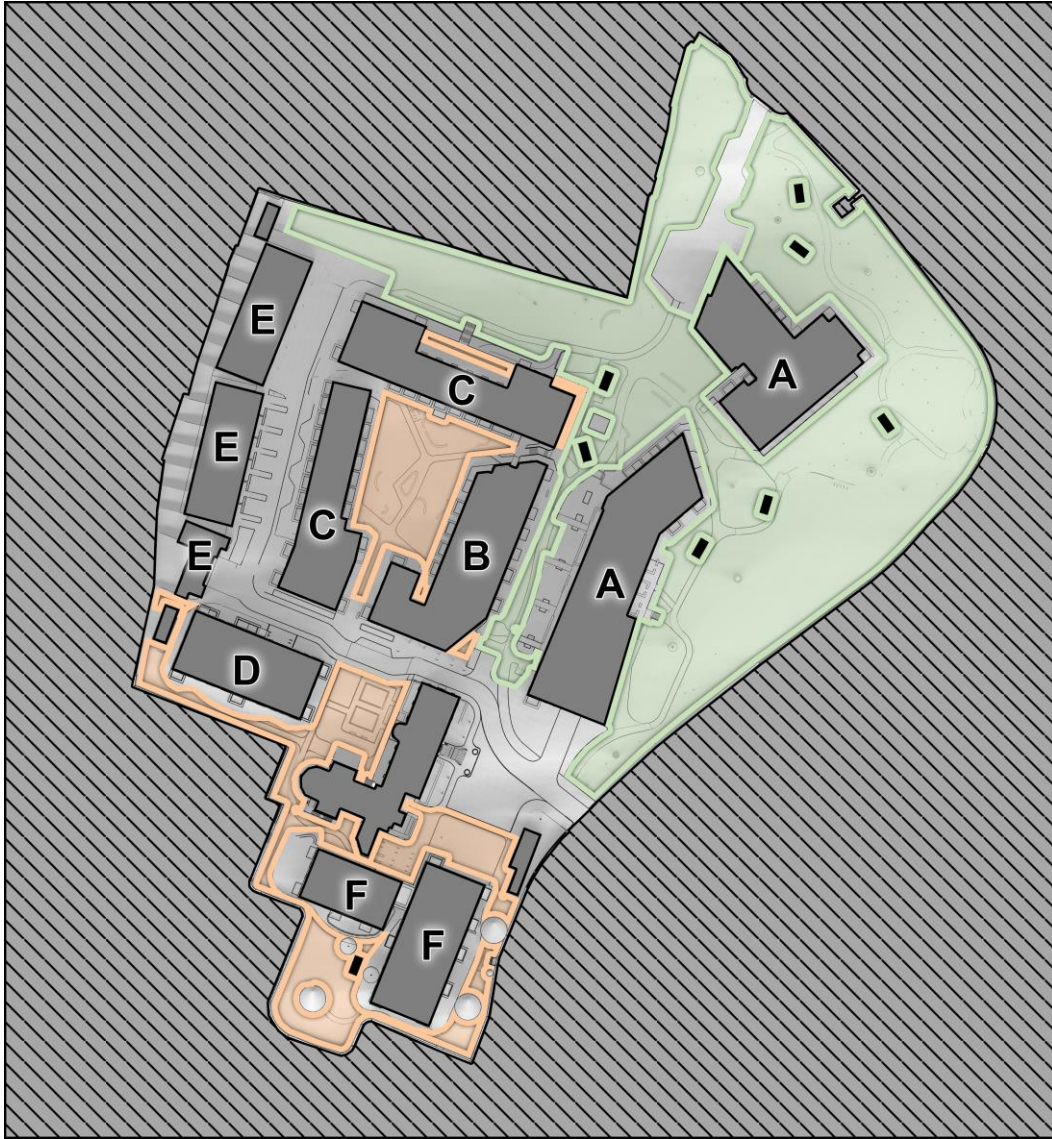


Fig 3: Areas assessed for sunlight – Green: Public Open Space | Orange: Communal Open Space

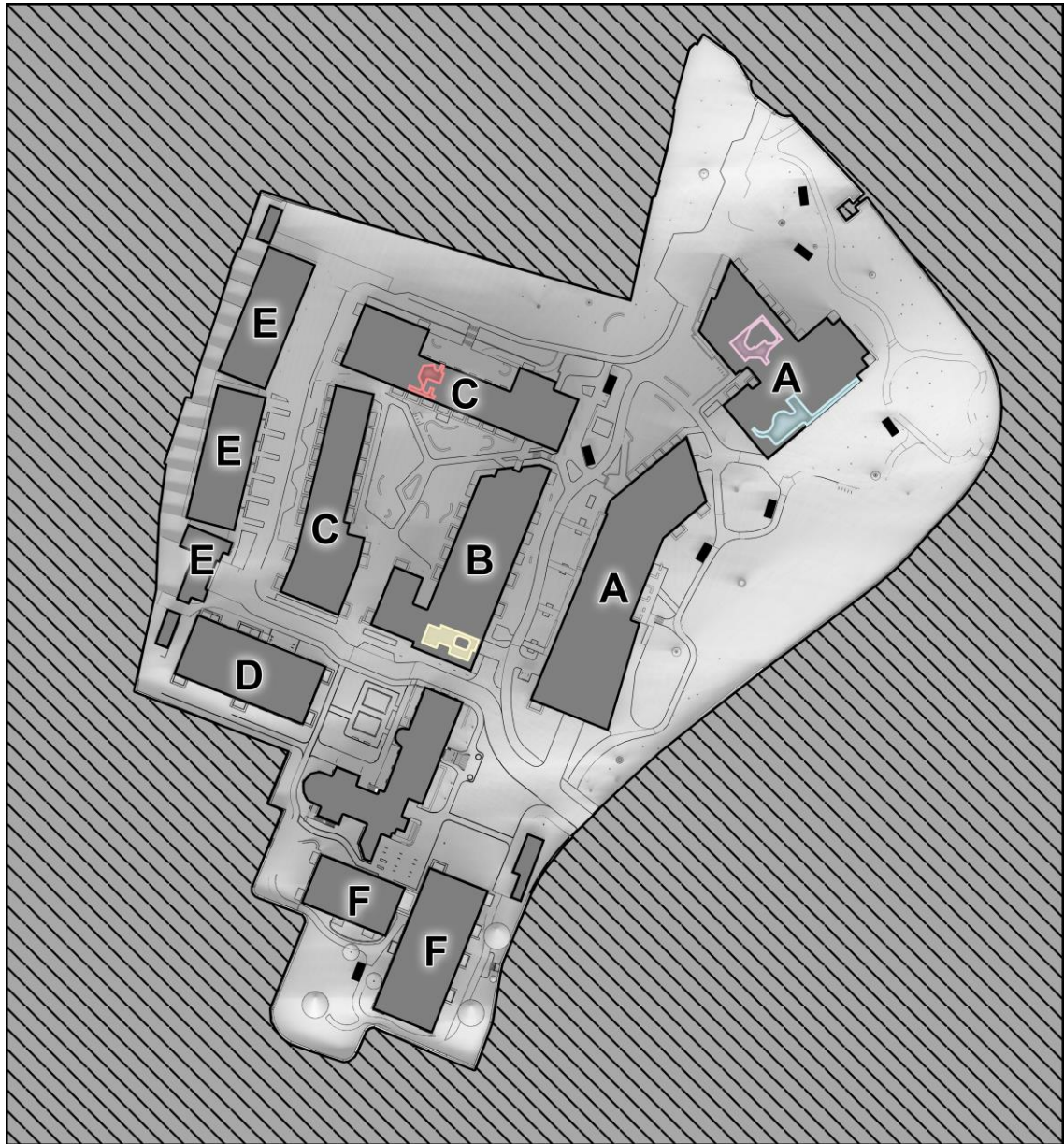


Fig 4: Areas assessed for sunlight – Roof Gardens

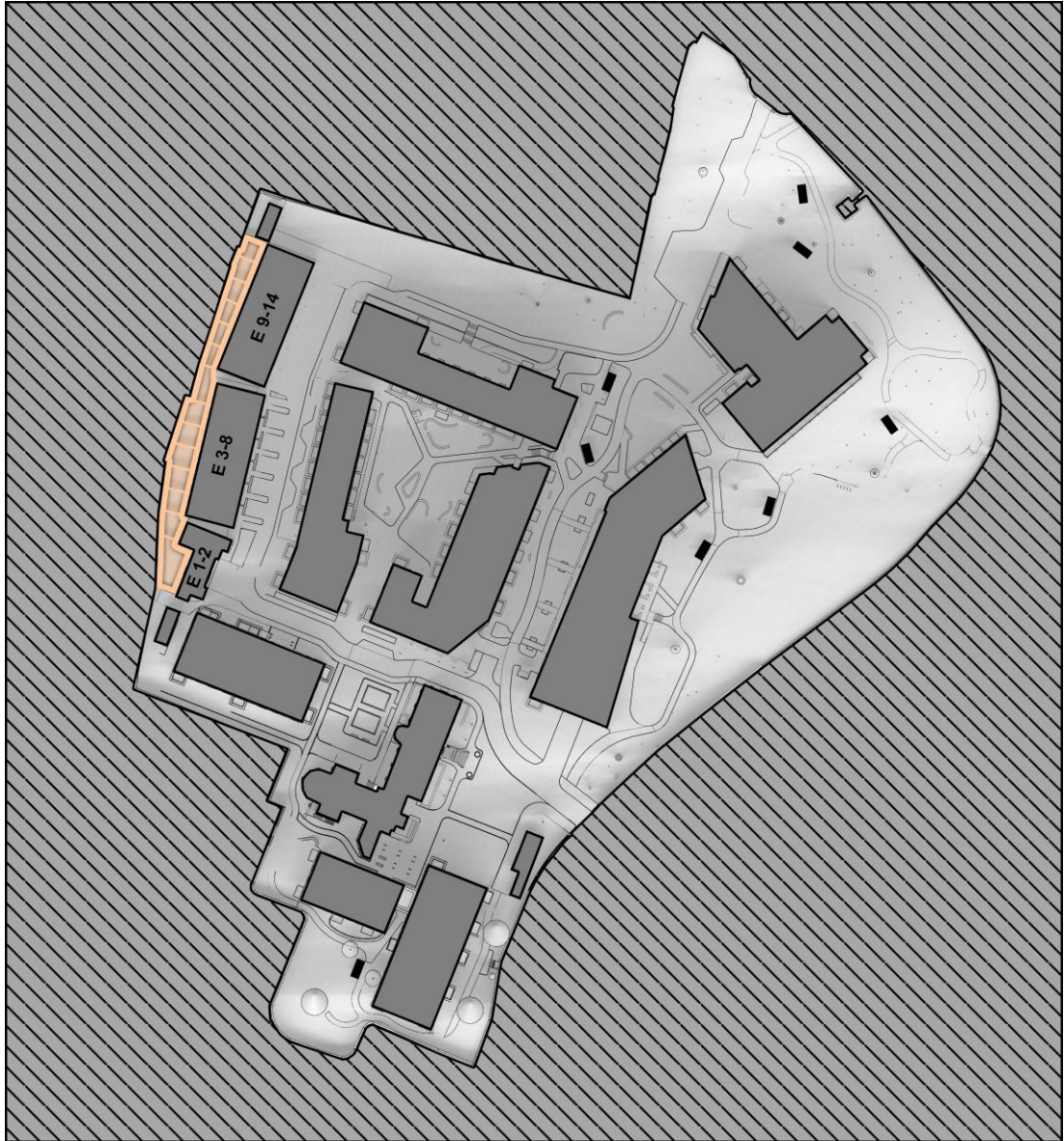


Fig 5: Areas assessed for sunlight – Rear Gardens

5.2.8 Daylight Analysis (ADF).

5.2.8.1 Assessment Criteria and Defining Internal Proposed Spaces

ADF assessment has been carried out for all habitable residential rooms on the ground and 1st floors across the proposed development. Note: Typically, ADF values increase in rooms located on higher floor levels, due to an improved relationship with adjacent obstructions. Where a room achieves the target value applied for ADF, it was assumed that similar rooms on subsequent floors will also be compliant, where rooms do not meet the recommended minimum, the equivalent room on the subsequent floor has been assessed to determine at which level the target ADF value has been achieved. A combination of the calculated ADF values and the assumed improvement on upper floors was used to calculate a circa compliance rate for the development.

Recommended Minimum ADF: The recommended minimum for Average Daylight Factor (ADF) is based on the function of the room being assessed.

The recommendations as per the BS 8206-2:2008 are as follows: 2% for kitchens; 1.5% for living rooms; and 1% for bedrooms. BS 8206-2:2008 also recommends that where a room serves more than one purpose, such as the modern day apartment design of the living/kitchen/dining (LKD) space, the minimum average daylight factor should be taken for the room with the highest value.

Notwithstanding this advice, an ADF target value of 1.5% could be considered appropriate for LKDs within this assessment. The rationale for this departure from the recommended minimum ADF of 2%, is in recognition that the primary function of LKDs within apartment developments is typically that of a living space. Should full compliance for the higher target value be sought, design changes could be needed, such as the removal of balconies or a reduction of unit sizes. Such mitigation measures could reduce the quality of living within the proposed units to a greater degree than the improvements that would be gained with increased ADF values. It is difficult to achieve full compliance with the ADF target value of 2% while at the same time providing for compliance with other development management standards that contribute to residential amenity, including the provision of balconies to meet private open space requirements. It is relevant in this context to note that the primary living space in the context of LKDs is, in a high proportion of cases, is the living/dining area, rather than the kitchen areas. In recognition of the fact that the ADF target value of 2% has not been achieved in respect of ~15% of apartments, appropriate regard should be had to a number of compensatory design measures that have been provided.

The appropriate ADF target value for LKDs is at the discretion of the planning authority, for which there is precedent in applying the 1.5% albeit full consideration of 2% for LKDs is also provided in the Daylight and Sunlight Assessment Report.

ADF assessment has also been carried out on the proposed childcare rooms and shared communal spaces. These spaces are of a nature that does not have a predefined target value as per BS 8206-2:2008. It is 3DDB's recommendation that an ADF value of 1.5% be considered appropriate for these spaces.

Defining Areas: It is standard practice in apartment designs for LKDs to contain kitchens that are completely internal and not serviced by window on the external facade. These internal kitchens will often rely on supplementary electric lighting for periods of the day and can contribute to perceived lower ADF values in otherwise well-lit spaces. To better quantify the

performance of the living areas of LKDs with this common configuration, an additional calculation has been carried out, in which the kitchens are omitted and the Living/Dining areas have been assessed as a stand-alone space. This has been carried out on LKDs that have shown an ADF lower than 1.5%. This supplementary assessment will not be counted towards a percentage compliance rate for the proposed development.

Circulation spaces, corridors, bathrooms etc. have not been assessed.

5.2.8.2 Work plane

The calculation of ADF is carried out on a hypothetical work plane which lies 850 mm from the finished floor level in residential units and 700 mm in academic and office spaces. The work plane is offset 500 mm from the room boundaries. Room boundaries are taken from the inside face of the interior walls and the centre line of any main external windows.

The Daylight Factor (DF) percentage has been calculated on the work plane across a series of points on a grid of approximately 100 mm. The average of these figures determines the Average Daylight Factor (ADF).

5.2.8.3 Assumed values.

Typically, ADF values increase in rooms located on higher floor levels, due to an improved relationship with adjacent obstructions. Where a room meets the guidelines for ADF, it can be reasonably assumed that similar rooms on subsequent floors will also meet the guidelines.

In an instance where a room does not achieve the recommended level of ADF, and is repeated on subsequent floors, calculations were run on the upper floors to determine at what level that room type meets the guidelines.

A combination of the calculated results and reasonable inference made from these results will be used to give an approximate compliance rate for the ADF for the proposed development as a whole. Where ADF compliance rates are stated both target values for LKDs (2% and 1.5%) have been considered. The appropriate ADF target value for LKDs is at the discretion of the planning authority.

5.2.8.4 Generating results

The 3D models as stated above were brought into specialist software packages using state of the art daylight and sunlight analysis methods developed by 3DDB. The results are generated and analysed considering the BRE Guidelines.

5.2.8.5 Shadow Study

Full set of shadow diagrams can be found in the full report.

The shadow study renderings have been carried out in order to give a visual representation to the results set out in the sunlight analysis report. The shadow study has been carried in order to compare the existing baseline model state with the proposed model state. For definitions of the model states please refer to Fig 2 & Fig 3 in Section 5.2.4 of this appendix – Model States.

Hourly renderings have been shown from sunrise to sunset on the following dates:

- Spring Equinox: March 21st. Sunrise 6:25 | Sunset 18:40.
- Summer Solstice: June 21st. Sunrise 4:57 | Sunset 21:57.
- Winter Solstice: December 21st. Sunrise 8:38 | Sunset 16:08.

Note: Considering the spring equinox (March 21st) and autumn equinox (22nd September) yield similar results, only the spring equinox was generated.

5.3 Existing Environment

For the purposes of this study, the receiving environment for the assessment covered the following areas listed below. This is the extent of the surrounding receiving environment that was deemed applicable for assessment.

The surrounding context was carefully considered to ensure all properties and amenity spaces that may potentially experience a level of effect were included in the study

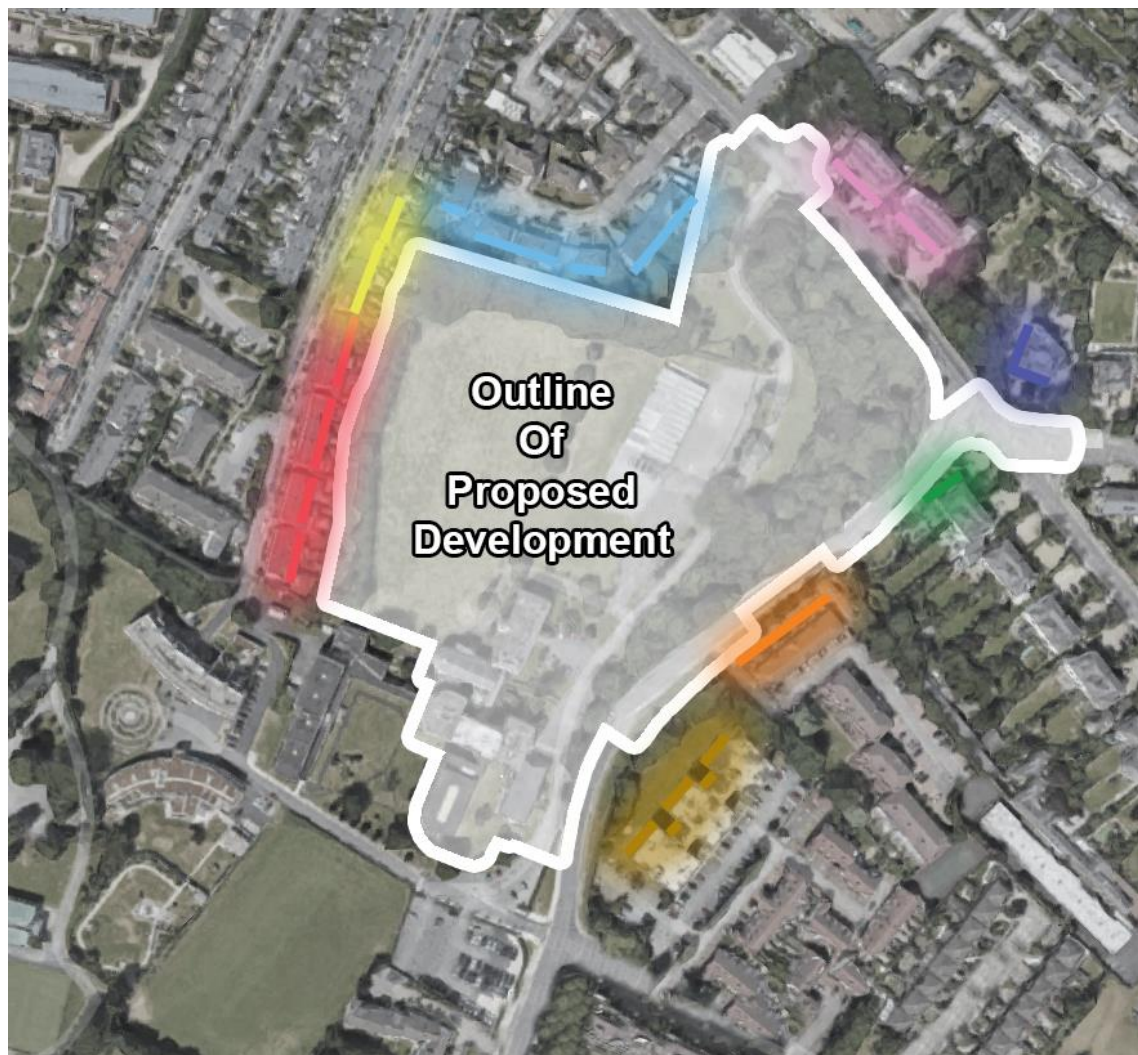


Fig 3: Existing Environment that was studied. Description of properties below.

Effect on daylight (VSC) to surrounding properties.

The effect to the VSC of the windows of the following neighbouring properties was assessed:

-
- Rowan Hall/Cedar Hall
 - Mount Sanford
 - 1 St. James Terrace
 - Loyola House, 87 Eglinton Road
 - 132-138 Sanford Road
 - 1-11 Norwood Park
 - 28-35 Cherryfield Avenue Lower
 - 1-20 Cherryfield Ave Upper

Effect on sunlight (APSH) to surrounding properties.

The effect to the APSH (annual and winter) of the windows of the following neighbouring properties was assessed:

- Loyola House, 87 Eglinton Road
- 132-138 Sanford Road
- 1-11 Norwood Park
- 28-35 Cherryfield Avenue Lower
- 1-20 Cherryfield Ave Upper

Effect on sunlight to surrounding external amenity spaces (e.g. gardens and public parks).

The effect to sunlight in the rear gardens of the following neighbouring properties was assessed:

- 1-11 Norwood Park
- 28-35 Cherryfield Avenue Lower
- 1-20 Cherryfield Ave Upper

5.4 Proposed Development

The BRE daylight and sunlight assessment of the proposed development included a study of the levels of sunlight to the proposed amenity spaces. All external amenity spaces as identified by the landscape architect were assessed for sunlight. See Figure 3 above for areas assessed.

5.4.1 Characteristics of the Development.

5.4.1.1 Construction Phase

The normal works associated with a construction phase relate to temporary machinery, construction hoarding, construction works and the potential use of cranes. Further details of the construction phase can be found in other chapters of the EIAR.

5.4.1.2 Operational Phase

Several key attributes to the design were considered by the project architects which had a positive impact on the original results generated as part of the assessment process. 3DDB

worked closely with the design team, and in particular the project architects, to ensure a high level of compliance was achieved with regard to sunlight and daylight access.

- A reduction in building heights have been implemented to mitigate against potential sunlight and daylight impact on surrounding properties.
- Proposed amenity spaces have been designed with open unobstructed south facing access (where feasible) to ensure maximum sunlight levels are achieved in these spaces.
- Glazing size to habitable rooms on the building facades has been designed to provide optimal levels of daylight entering the apartments.
- Balcony sizes and their positions have been carefully considered to balance the need for private outdoor amenity space and obstructions to daylight of the apartments below.

5.4.2 Potential Impact of the Proposed Development

5.4.2.1 Construction Phase

The potential impact of the construction phase of the proposed development on sunlight access is likely to be, initially, lesser than the potential impact of the completed development. As the proposed development nears completion, the potential impact of the emerging development is likely to be similar in all material respects to that of the completed development. It is noted that temporary structures and machinery (e.g. hoarding, scaffolding, cranes, etc.) also have the potential to cast shadows, although any additional impacts arising from temporary structures or machinery are likely to be temporary and minor.

5.4.2.2 Operational Phase (Internally and Externally)

Internally

With regard to the sunlight and daylight assessment, this operational phase is considered the 'as built' development. The following is a summary of the potential impact of the proposed development. Full detailed results can be found in the 3DDB Daylight and Sunlight Assessment Report.

Sunlight to proposed outdoor amenity spaces.

The BRE Guidelines recommend that for a garden or amenity area to appear adequately sunlit throughout the year, at least half of it should receive at least two hours of sunlight on March 21st. March 21st, also known as the spring equinox, is chosen as the assessment date as daytime and nighttime are of approximately equal duration on this date.

Average Sun Hours

In order to provide a more detailed understanding of the level of sunlight in the proposed external amenity areas, an additional study has been carried out to assess the average sun-hours that these spaces may receive. This study assesses the average sun-hours each proposed external amenity space may receive on March 21st, June 21st (the summer solstice) and December 21st (the winter solstice).

The results of the study on effect on sunlight the neighbouring gardens (including a visual representation in the form of 2-hour and 12-hour false colour plans) can be found in Section 5.4 of the full report.

In total 20 No. spaces have been assessed, all of which would meet the criteria as set out in the BRE Guidelines.

The assessed spaces are comprised of the proposed communal and public open space at ground level within the proposed development; the 4 No. roof gardens, two of which are located on Block A with the others on Blocks B & C; 14 No. private gardens, all of which are located to the rear of Block E.

All areas assessed have been defined by the landscape architect. The proposed communal open space is located throughout the site, some areas will receive a better level of sunlight than others, but overall the development can be considered to have good potential for sunlight access.

The complete results for the study on sunlighting in the proposed outdoor amenity spaces can be found in the 3DDB Daylight and Sunlight Assessment Report.

Average Daylight Factor

3D Design Bureau worked closely with the project architects, OMP, to ensure a favourable outcome was achieved regarding the daylight (ADF) performance of the proposed development. Multiple design iterations were assessed in the lead up to this full application. With each iteration, mitigation measures were implemented to improve levels of daylight. Such design interventions included the re-configuration of units, increased levels of glazing and alterations to balcony layouts.

This study has assessed the Average Daylight Factor (ADF) received in all residential rooms across the lowest habitable floor of the proposed development. The rooms at ground level were studied across all blocks as the lowest floor is deemed to be the worst case scenario. All units were also studied at 1st floor level due to a difference in the floor to ceiling height which could result in a reduced level of daylight. Additional studies were also carried out on the 2nd floor on part of Block A due to there being no equivalent rooms on the 1st floor, with the 2nd floor of the Block E duplexes also assessed.

This proposed development consists of 671 no. units, which makes up approximately 1585 no. habitable rooms. The ADF has been calculated for 599 no. rooms on the lowest habitable floors as stated above, the full results of which can be found in the section titled "Average Daylight Factor" on page 85 of the full report.

Where individual rooms have fallen short of the recommended minimum target value, the equivalent room on the floor above has been assessed. This study has been carried out up to the floor where room meets the minimum recommended value in addition to spot checks been carried out to verify that assumptions made were correct. This further assessment tested another 147 no. rooms bringing the total number of assessed rooms up to 746 no. with a reasonable assumptions being made that the remaining 839 no. rooms will achieve the recommended level of daylight. Our methodology in conjunction with this reasonable assumption gives us our circa compliance rate/s for the entire scheme.

If the appropriate target value for LKDs is considered to be 2%, the ADF value in 605 no. of the 746 no. habitable rooms that have been assessed meet or exceed their target values. The combination of these rooms plus the 839 no. rooms that have been inferred as meeting the ADF recommendations, give a compliance rate of circa 91%.

If the appropriate target value for LKDs is considered to be 1.5%, the ADF value in 685 no. of the 746 no. habitable rooms that have been assessed meet or exceed their target values. The combination of these rooms plus the 839 no. rooms that have been inferred as meeting the ADF recommendations, give a compliance rate of circa 96%.

A secondary study was carried out on the LKDs that recorded an ADF value less than 1.5%, all of which are configured to have a kitchen that is completely internal with no window on the external facade. This additional study assessed the level of daylight within the living space of the LKD as defined by the architect. The vast majority of assessed living spaces recorded an ADF above the recommended minimum value of 1.5%. The kitchen area of these units may require additional electric lighting for parts of the day, but the future residents will have access to adequate levels of daylight in the main living space of the apartment. Note: This secondary study does not contribute to the overall ADF compliance rate figures stated in the report.

The most notable area of noncompliance with the ADF recommendations in the proposed development is the elevation of Block B that faces on to Block A. A secondary study was carried out on this area to establish how much of a reduction was being caused by the balconies that are present on this elevation. The units that did not achieve positive results were re-assessed without balconies, which yielded very positive daylight values as can be seen in the hypothetical study in section 5.11 of the full report. This indicates that the inclusion of balconies is playing a big part in the under-performing units. It was the decision of the design team that the inclusion of balconies is sufficiently important to warrant a reduction to daylight.

Living rooms are prioritised by positioning adjacent to the external facade to avail of good daylight, views and ease of access to external private balcony amenity space. This benefits the usability and functionality of the space with the kitchen area located deeper in the plan which are considered 'non-habitable' spaces and not frequently used or enjoyed for comfort and relaxation.

As part of a compensatory design solution for the rooms that do not meet the recommended minimum average daylight factor, the proposed development includes communal amenity areas, all of which have been assessed and will have adequate levels of daylight. Furthermore, the scheme has incorporated a number of localized compensatory design measures. The rooms that do not meet the ADF target have been provided with either some or all of the following compensatory measures:

- Balcony space, some of which exceed the minimum requirement
- Windows that face public open space in the development
- Larger apartment floor areas, some of which are 10% larger (or more) of the minimum required standards

The complete results for the study on ADF can be found in the 3DDB Sunlight and Daylight Assessment Report.

Externally (the Surrounding Properties & Environment)

With regard to the sunlight and daylight assessment, the operational phase relates to the 'as built' development. The following is a summary of the potential impact of the proposed development. Full detailed results can be found in the 3DDB Daylight and Sunlight Assessment Report.

Impact on Vertical Sky Component (VSC) on existing surrounding properties

The effect on VSC has been assessed for 315 No. windows across the surrounding properties. 256 No. of these windows would be considered imperceptible, 33 No. not significant, 16 No. slight and 10 No. Moderate.

This shows that 81.3% of the assessed windows comply with the criteria as set out in the BRE guidelines for impact to VSC and thus, the level of effect can be considered imperceptible using the using the rationale as outlined on section 5.2.2 – Definition of Effects.

All 10 no. windows that have shown a moderate level of effect to VSC are located on the Rowan Hall / Cedar Hall apartments. In each instance, the assessed window is located beneath a recessed balcony. This is an important point as the BRE guidelines state:

"Existing windows with balconies above them typically receive less daylight. Because the balcony cuts out light from the top part of the sky, even a modest obstruction opposite may result in a large relative impact on the VSC"

The fact that all recessed windows along the elevation of Rowan Hall / Cedar Hall have shown an imperceptible level of impact demonstrates that the balconies are causing the level of effect to appear exaggerated.

Given the massing and density of the proposed development the results of the VSC study can be considered very favourable. Furthermore, it should be noted that there is a mature tree line along the north and west boundaries of the proposed site, of which a significant portion is made up of deciduous trees. These deciduous trees have not been included in the analytical model, as per the advice in the BRE Guidelines. This practice is to ensure the impacts that are calculated reflect the winter months, when deciduous trees will be bare and provide less of a natural barrier. During the summer months, when the existing trees are in full foliage, impacts caused by the proposed development will be less perceptible.

A slight improvement has been recorded on one of the windows within this study, Window 2c on 2 Norwood Park. This improvement, however minor, is as a result of the planned removal of some evergreen trees on the subject site and the fact that the buildings of the proposed development would not be visible from this window.

The complete results for the study on VSC can be found in the 3DDB Daylight and Sunlight Assessment Report.

Impact on Annual Probable Sunlight Hours (APSH) on existing surrounding properties

The APSH assessment has been carried out on the relevant windows of the surrounding properties that have an orientation within 90 degrees of due south.

The effect on APSH has been assessed for 192 No. of windows of the surrounding existing properties on number 87 Eglinton Road, 132-138 Sandford Road, 1-11 Norwood Park, 28-35 Cherryfield Avenue Lower and 1-20 Cherryfield Ave Upper.

The APSH study is broken into two parts, annual assessment and winter assessment. In the annual assessment the effect on the APSH of 175 No. of these windows would be considered imperceptible, 2 No. not significant, 5 No. slight, 5 No. Moderate and 5 No. Significant. In the winter assessment, the effect on the APSH of 176 No. of these windows would be considered imperceptible, 1 No. Moderate, 2 No. Significant, 3 No. very significant and 10 No. Profound.

Despite the high level of compliance with the BRE Guidelines in both the annual and winter assessments, concerns could be raised by the number of impacts to winter sunlight that have been categorised as significant, very significant and profound, leading to closer inspection.

The vast majority of the affected windows are located along Cherryfield Avenue. The design of the rear of these houses includes a deep recess to each property which is a large contributing factor to the high levels of impact.

For full details on this localized area of concern, and a clear rationale as to why this APSH study should still be considered favourable, please refer to Section 6.2 of 3DDB's Daylight and Sunlight Assessment Report.

Annual Probable Sunlight Hours (APSH) the proposed development

An APSH assessment has been carried out on the main living room windows of all units of the proposed development. The annual assessment has shown that circa 52% of the proposed units meet the criteria for sunlight as set out in the BRE Guidelines. This figure increases to circa 87% in the winter study.

The high compliance rate in the winter study is evidence of a high percentage of proposed living rooms windows having a southerly aspect. The notable difference between the annual study when compared with the winter study is indicative of balconies causing an obstruction to sunlight. It is good practice to provide balconies that are accessible by living areas, this can result in a reduction to sunlight availability, particularly in the summer months when the sun position is higher in the sky.

No recommendation is made regarding the performance of a development as a whole for APSH performance, but we consider the proposed development to perform adequately in this regard.

Impact on Sunlighting in existing gardens

This study has assessed the impact the proposed development would have on the levels of sunlight received in the rear gardens of 1-11 Norwood Park, 28-35 Cherryfield Avenue Lower and 1-20 Cherryfield Avenue Upper which all share a boundary with the proposed site.

The BRE Guidelines recommend that for a garden or amenity area to appear adequately sunlit throughout the year, at least half of it should receive at least two hours of sunlight on March 21st. March 21st, also known as the spring equinox, is chosen as the assessment date as daytime and nighttime are of approximately equal duration on this date.

The percentage of assessed areas which can receive two hours or more of direct sunlight on March 21st will be calculated in both the baseline and proposed states. A comparison between these values will determine the level of effect.

A proposed development could possibly have a noticeable effect on the sunlight received by an existing garden and/or amenity area, if the following occurs:

-
- Half the area of the space does not receive at least two hours of sunlight during the spring equinox; and
 - The area that receives more than two hours of sun on the spring equinox is less than 0.8 times its former value.

Average Sun-hours

In order to provide a more detailed understanding of the level of sunlight in the adjacent gardens, an additional study has been carried out to assess the average sun-hours that these gardens may receive. The average sun-hours assessment compares the average sun in the baseline and proposed states of each garden on March 21st, June 21st (the summer solstice) and December 21st (the winter solstice). The results of the study on effect on sunlight the neighbouring gardens (including a visual representation in the form of 2-hour and 12-hour false colour plans) can be found in Section 5.4 of the full report.

In total 39 No. spaces have been assessed, 30 No. of which would experience an imperceptible level of effect, with a further 7 No. recording a not significant level of effect, 1 No. garden has shown a slight level of effect and 1 No. a moderate level of effect.

76.9% of the assessed gardens have met the criteria for effect on sunlighting as set out in the BRE Guidelines.

The most significant level of effect recorded would occur in the rear garden of number 7 Cherryfield Avenue Upper, the level of impact to this garden has been categorised as moderate. The hourly renderings in the shadow study, within the 3DDB Daylight and Sunlight Assessment Report, indicate that the proposed development will not cast any shadows into this garden after 11 o'clock at both the equinox and the summer solstice.

Given that the majority of assessed gardens comply with the BRE recommendations, it can be considered that the proposed development would not result in an undue level of overshadowing to the neighbouring properties.

The complete results of the study on effect on sunlight the neighbouring gardens can be found in Section 5.4 of 3DDB's Daylight and Sunlight Assessment Report.

A visual representation of these readings can be seen in the 2 hour false colour plans in Section 5.4 and in the hourly shadow diagrams for March 21st in 3DDB's Daylight and Sunlight Assessment Report.

5.4.2.3 Do Nothing Impact

If the proposed development does not go ahead, then the impacts on the surrounding environment highlighted above in this appendix will not occur.

5.4.3 Mitigation Measures

5.4.3.1 Design Phase

Throughout the design phase of the project, various mitigation measures in terms of the design of the scheme were introduced. This was to ensure a favourable performance of the development from a daylight & sunlight point of view. The following are some key items in terms of design mitigation measures that were considered and implemented. For a full

comprehensive list of design mitigation and compensatory measures, please refer to the Material Contravention Statement and Statement of Consistency.

- A reduction in building heights have been implemented to mitigate against potential sunlight and daylight impact on surrounding properties.
- Proposed amenity spaces have been designed with open unobstructed south facing access (where feasible) to ensure maximum sunlight levels are achieved in these spaces.
- Glazing size to habitable rooms on the building facades has been designed to provide optimal levels of daylight entering the apartments.
- Balcony sizes and their positions have been carefully considered to balance the need for private outdoor amenity space and obstructions to daylight of the apartments below.

5.4.3.2 Construction Phase

There are no ameliorative, remedial, or reductive measures proposed as no significant adverse effects were identified. Furthermore, given the nature of the environmental topic, there are no mitigation measures that can be brought forward.

5.4.3.3 Operational Phase

There are no mitigation measures that can be implemented, or will be implemented, at operational phase that will alter the projected sunlight and daylight levels generated in this study.

5.4.4 Residual Impact of the Proposed Development

5.4.4.1 Construction Phase

There are no residual impacts outside the impacts outlined in this appendix.

5.4.4.2 Operational Phase

Once constructed, the following residual impacts will be experienced. It should be noted, that considering the scale and massing of the proposed development (notwithstanding the localized area of concern), its design has yielded excellent results in terms of sunlight and daylight. The design of the proposed development has minimized impacts on its surrounding environment and itself and achieved high levels of compliance for daylighting within the units. A c. 96% (LKDs @ 1.5%) / c. 91% (LKDs @ 2%) compliance rate on ADF should be accepted as a high level of compliance with regard to the BRE Standards and Guidelines for the access to daylight within the units.

VSC: The effect on VSC has been assessed for 315 No. windows across the surrounding properties. 256 No. of these windows would be considered imperceptible, 33 No. not significant, 16 No. slight and 10 No. Moderate. This shows that 81.3% of the assessed windows comply with the criteria as set out in the BRE guidelines for impact to VSC and thus, the level of effect can be considered imperceptible.

All 10 No. windows that have shown a moderate level of effect to VSC are located on the Rowan Hall / Cedar Hall apartments. In each instance, the assessed window is located beneath a recessed balcony. This is an important point as the BRE guidelines state:

"Existing windows with balconies above them typically receive less daylight. Because the balcony cuts out light from the top part of the sky, even a modest obstruction opposite may result in a large relative impact on the VSC"

The fact that all recessed windows along the elevation of Rowan Hall / Cedar Hall have shown an imperceptible level of impact demonstrates that the balconies are causing the level of effect to appear exaggerated.

APSH: The APSH assessment has been carried out on the relevant windows of the surrounding properties that have an orientation within 90 degrees of due south.

The effect on APSH has been assessed for 192 No. of windows of the surrounding existing properties on 87 Eglinton Road, 132-138 Sandford Road, 1-11 Norwood Park, 28-35 Cherryfield Avenue Lower and 1-20 Cherryfield Ave Upper.

The APSH study is broken into two parts, annual assessment and winter assessment. In the annual assessment, the effect on the APSH of 175 No. of these windows would be considered imperceptible, 2 No. not significant, 5 No. slight, 5 No. Moderate and 5 No. Significant.

In the winter assessment, the effect on the APSH of 176 No. of these windows would be considered imperceptible, 1 No. Moderate, 2 No. Significant, 3 No. very significant and 10 No. Profound.

Sunlighting to existing gardens: This study has assessed the impact the proposed development would have on the levels of sunlight received in the rear gardens of 1-11 Norwood Park, 28-35 Cherryfield Avenue Lower and 1-20 Cherryfield Avenue Upper which all share a boundary with the proposed site.

In total 39 No. spaces have been assessed, 30 No. of which would experience an imperceptible level of effect, with a further 7 No. recording a not significant level of effect, 1 No. garden has shown a slight level of effect and 1 No. a moderate level of effect.

76.9% of the assessed gardens have met the criteria for effect on sunlighting as set out in the BRE Guidelines.

Sunlighting to proposed amenity spaces: This study has assessed the level of sunlight on March 21st within the proposed amenity areas. In total 20 No. spaces have been assessed, all of which would meet the criteria as set out in the BRE Guidelines.

The assessed spaces are comprised of the proposed communal and public open space at ground level within the proposed development; the 4 No. roof gardens, two of which are located on Block A with the others on Blocks B & C; 14 No. private gardens, all of which are located to the rear of Block E.

ADF. This study has assessed the Average Daylight Factor (ADF) received in all residential rooms across the lowest habitable floor of the proposed development. The rooms at ground level were studied across all blocks as the lowest floor is typically deemed to be the worst case scenario. However, all units were also studied at 1st floor level due to a difference in the floor to ceiling height which could result in a reduced level of daylight. Additional studies were also carried out on the 2nd floor on part of Block A due to there being no equivalent rooms on the 1st floor, with the 2nd floor of the Block E duplexes also assessed.

This proposed development consists of 671 No. units, which makes up approximately 1585 No. habitable rooms. The ADF has been calculated for 599 No. rooms on the lowest habitable floors as stated above.

Where individual rooms have fallen short of the recommended minimum target value, the equivalent room on the floor above has been assessed. This study has been carried out up to the floor where room meets the minimum recommended value in addition to spot checks been carried out to verify that assumptions made were correct. This further assessment tested another 147 No. rooms bringing the total number of assessed rooms up to 746 No. with a reasonable assumptions being made that the remaining 839 No. rooms will achieve the recommended level of daylight. Our methodology in conjunction with this reasonable assumption gives us our circa compliance rate/s for the entire scheme.

If the appropriate target value for LKDs is considered to be 2%, the ADF value in 605 No. of the 746 No. habitable rooms that have been assessed meet or exceed their target values. The combination of these rooms plus the 839 No. rooms that have been inferred as meeting the ADF recommendations, give a compliance rate of circa 91%.

If the appropriate target value for LKDs is considered to be 1.5%, the ADF value in 685 No. of the 746 No. habitable rooms that have been assessed meet or exceed their target values. The combination of these rooms plus the 839 No. rooms that have been inferred as meeting the ADF recommendations, give a compliance rate of circa 96%.

5.4.5 Monitoring

No monitoring is required from a sunlight and daylight assessment point of view during either the construction or operational phases.

5.4.6 Difficulties Encountered

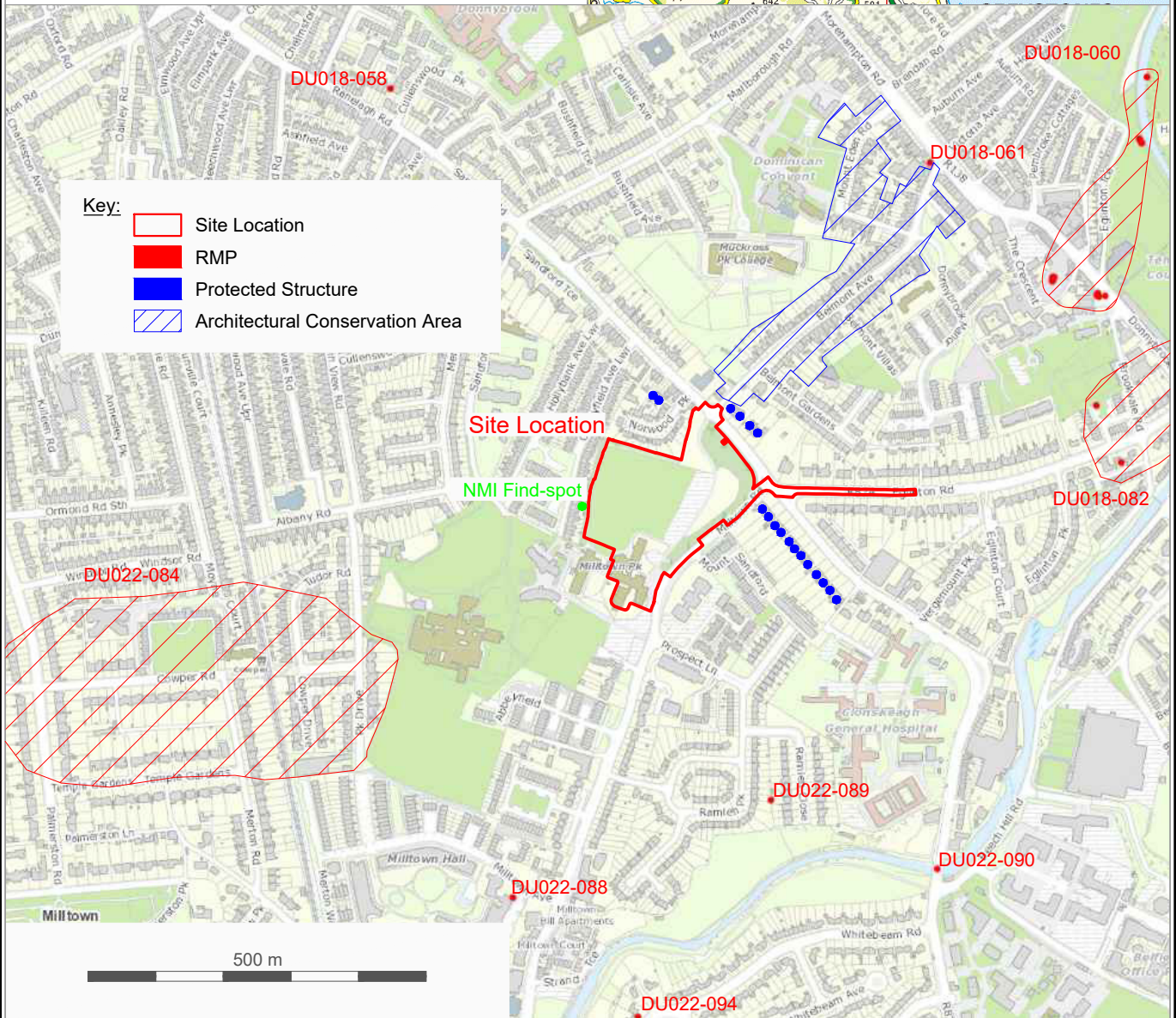
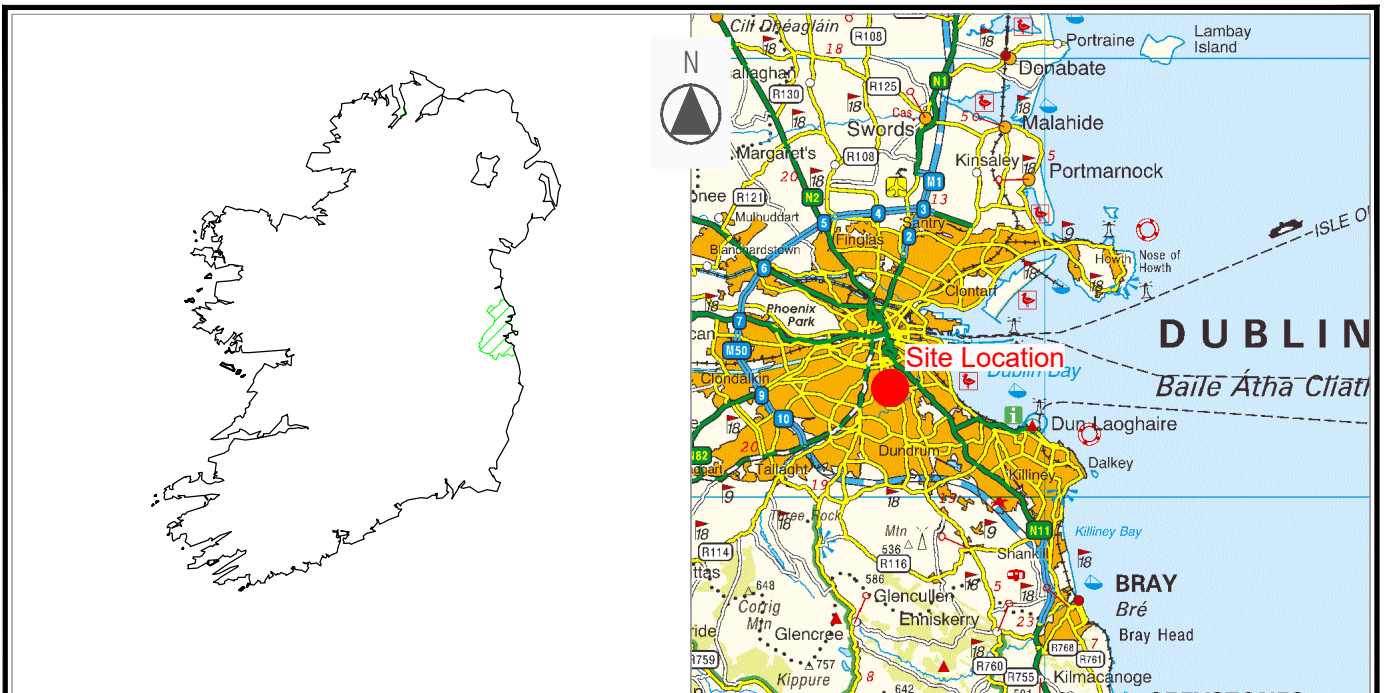
It was neither possible nor practical for the Design Team to gain unfettered access to every parcel of private property within the study area surrounding the application site in order to carry out measured building survey. Therefore, while 3DDB has confidence that the three dimensional model used in the assessment of the impact of the proposed development on sunlight & daylight access achieves a high degree of accuracy, it should be noted that some level of assumption was necessary in completing the model.

5.5 References

- Site Layout Planning for Daylight and Sunlight: a Guide to Good Practice (BR 209), 2011 by P. Littlefair;
- BS 8206-2:2008: Lighting for Buildings - Part 2: Code of Practice for Daylighting; and
- Draft Guidelines on the Information to be Contained in Environmental Impact Assessment Reports, 2017 by the Environmental Protection Agency

APPENDIX 6.1

ARCHAEOLOGY ILLUSTRATIONS



Unit 8 Beat Centre
 Stephenstown,
 Balbriggan,
 Co. Dublin

Sandford Rd., Ranelagh, Dublin 6
 EIAR

Client: Sandford Living Ltd.

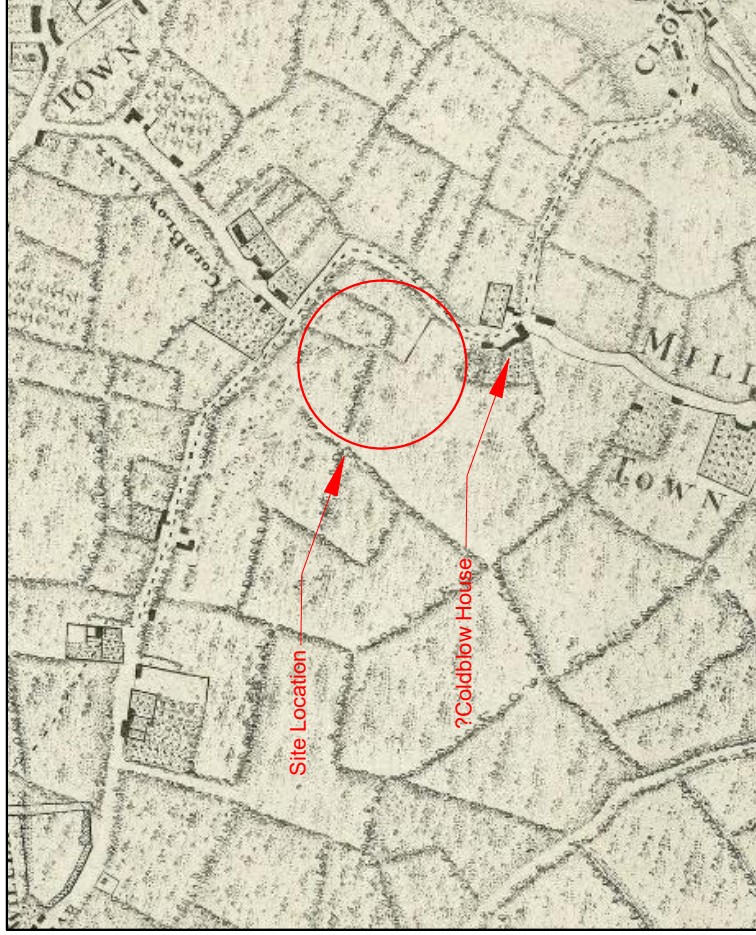
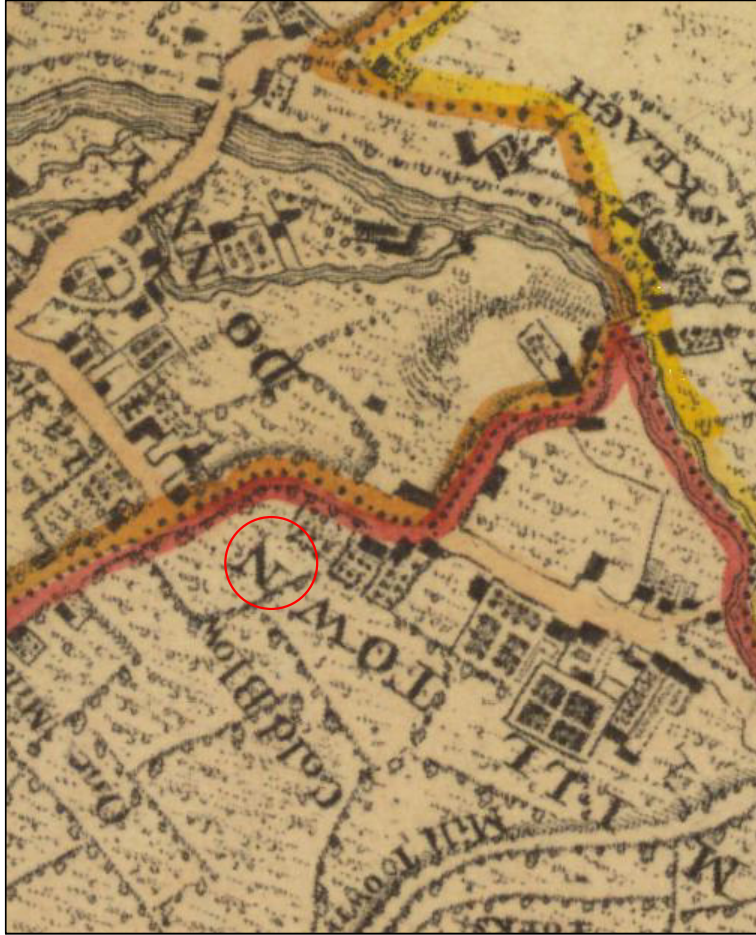
Scale: 1:10000 A4

Date: Feb 2021

Origin: archaeology.ie

Ref: 2019_51_EIAR_01

Figure 6.1: Location of site & surrounding RMPs



(l) Rocque 1760

(r) Rocque & La Scale 1773



Unit 8 Beat Centre
Stephenstown,
Balbriggan,
Co. Dublin

Sandford Rd., Ranelagh, Dublin 6
EIR

Client: Sandford Living Ltd.

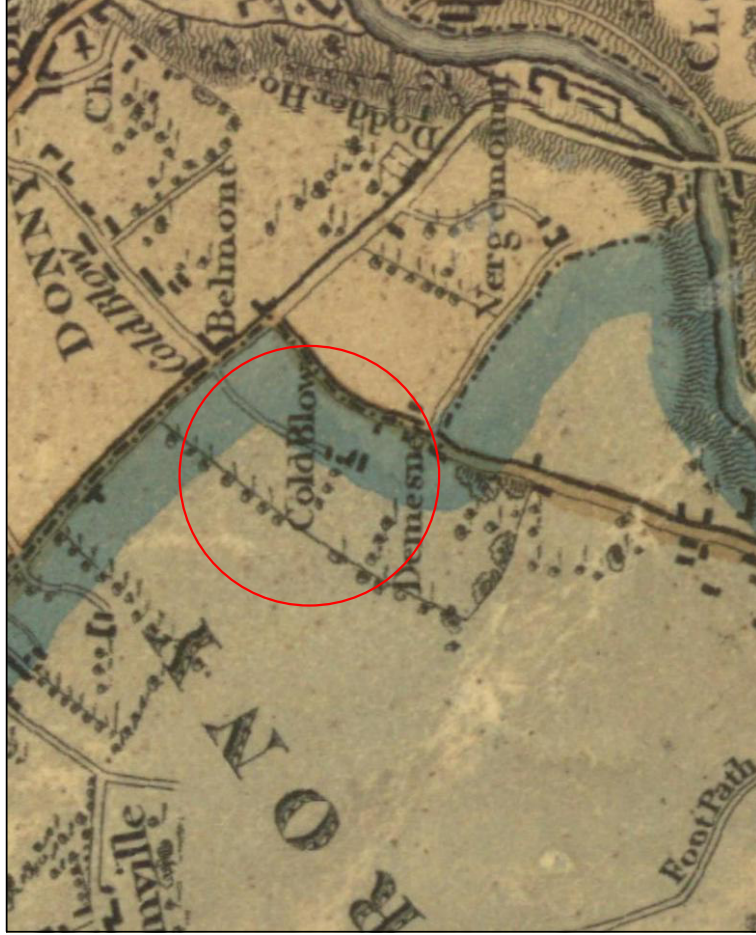
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Date: Feb 2021

Origin: South Dublin Co. Co.

Ref: 2019_51_EIAR_02

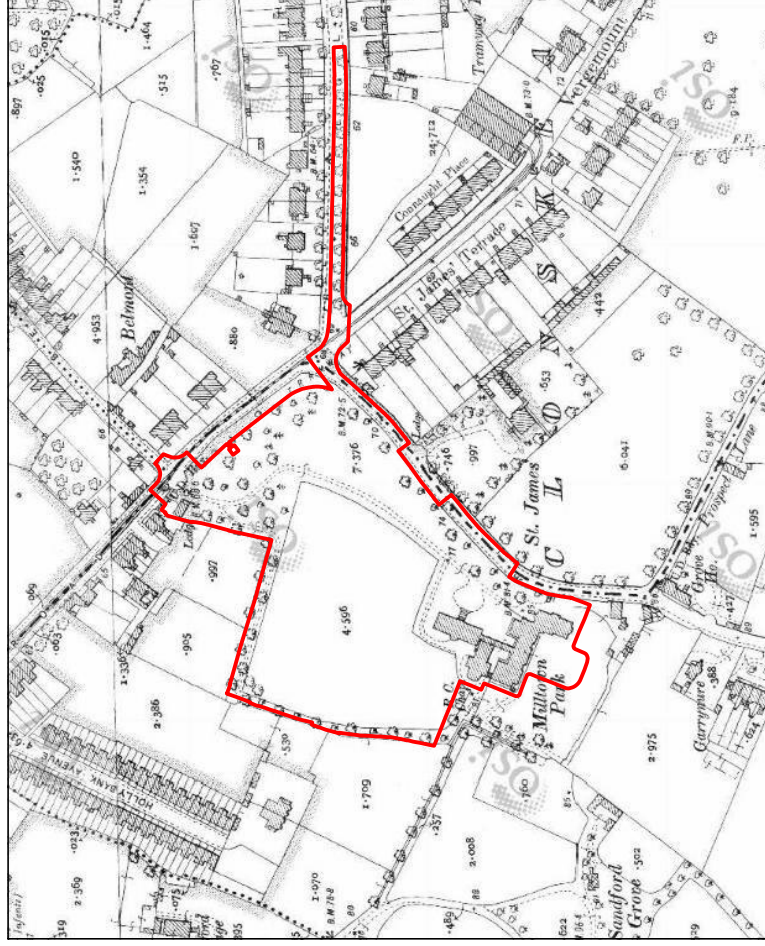
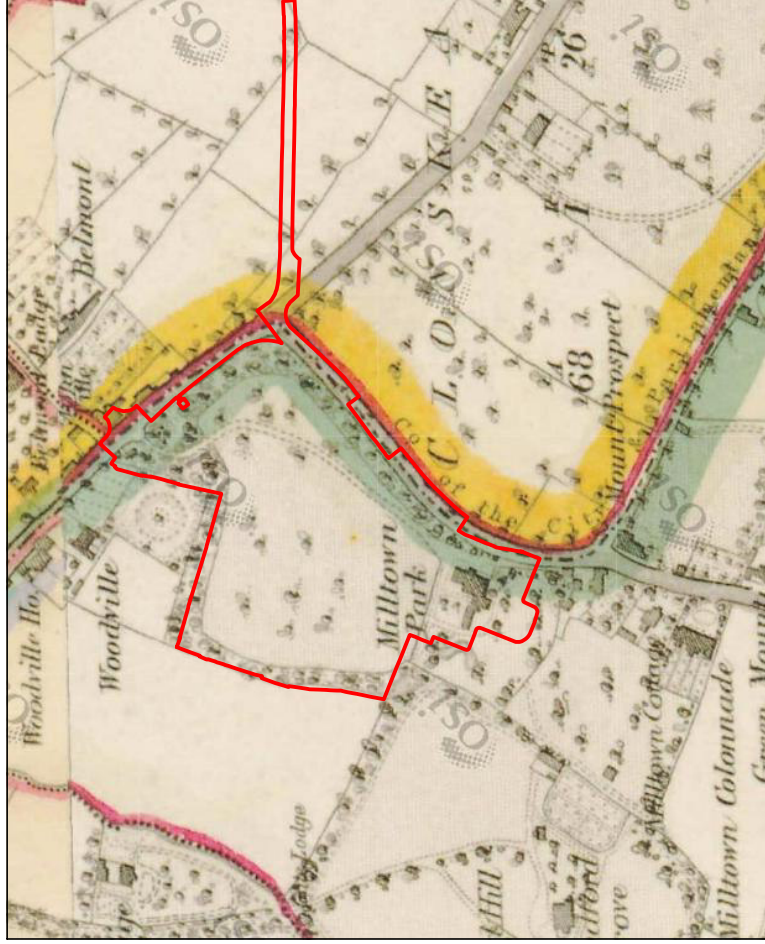
Figure 6.2: Extracts from historical maps (i)



(l) Taylor South 1816

(r) Duncan 1821

Figure 6.3: Extracts from historical maps (ii)



(l) 1st Edition OS Map (1844)
 (r) 25 Inch OS Map (1888-1913)



Unit 8 Beat Centre
 Stephenstown,
 Balbriggan,
 Co. Dublin

Sandford Rd., Ranelagh, Dublin 6
 E.I.A.R

Client: Sandford Living Ltd.

Scale: Not to scale

Date: Feb 2021

Origin: OSI

Ref: 2019_51_EIAR_04

Figure 6.4: Extracts from historical maps (iii)



(l) OSI 1995

(r) Digital Globe 2011-13



Unit 8 Beat Centre
Stephenstown,
Balbriggan,
Co. Dublin

Sandford Rd., Ranelagh, Dublin 6
EIAR

Client: Sandford Living Ltd.

Scale: Not to scale

Date: Feb 2021

Origin: OSI

Ref: 2019_51_EIAR_05

Figure 6.5: Extracts from Aerial Photos



Unit 8 Beat Centre
Stephenstown,
Balbriggan,
Co. Dublin

Sandford Rd., Ranelagh, Dublin 6
EIAR

Client: Sandford Living Ltd.

Scale: 1:1000 A4

Date: Feb 2021

Origin: OSI

Ref: 2019_51_EIAR_06

Figure 6.6: Results of Geophysical Survey



- Positive Trend
- Site Boundary
- Test trench
- Plough furrow
- Modern Magnetic Disturbance
- Modern-ferrous
- Drain/Pipe
- Archaeology?



Unit 8 Beat Centre
Stephenstown,
Balbriggan,
Co. Dublin

Sandford Rd., Ranelagh, Dublin 6
EIAR
Client: Sandford Living Ltd.

Scale: 1:1000 A4
Date: Feb 2021
Origin: OSI
Ref: 2019_51_EIAR_07

Figure 6.7: Test trench location

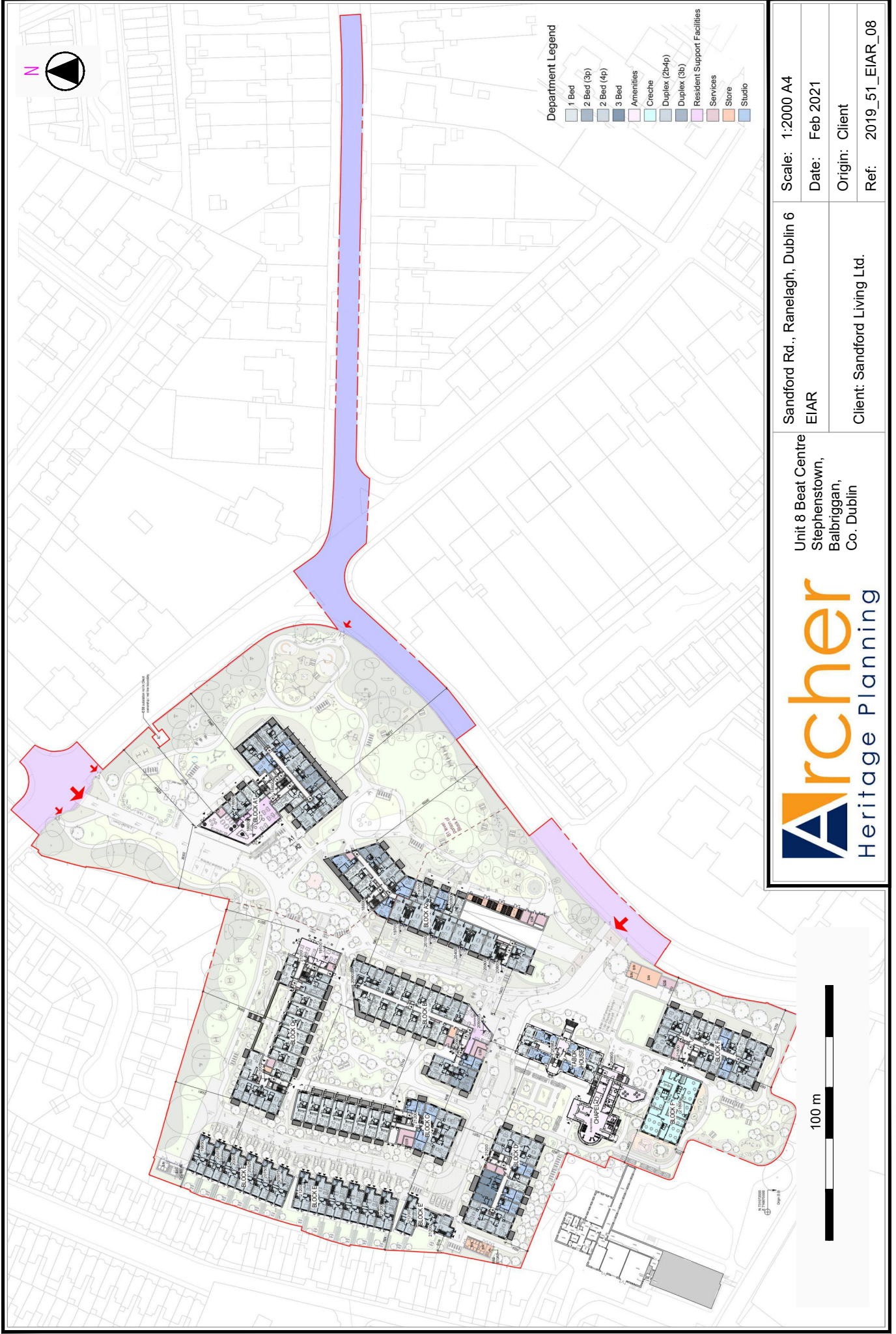




Plate 1: Central Greenfield area from south



Plate 2: Lawned area from south



Plate 3: From SW, trench No. 3



Plate 4: From SE, trench No. 4



Plate 5: From NE, trench No. 6



Plate 6: From NW, trench No. 15

APPENDIX 6.2

GEOPHYSICAL SURVEY REPORT

Milltown Park, Ranelagh, Dublin 6

Magnetic Gradiometer Survey

Client: Ardstone Homes, 48 Fitzwilliam Square, Dublin D02 EF89

Detection Licence No: 19R0212

Surveyor: Rob O'Hara

Authors: Rob O'Hara & Bart Korfanty

Report Date: 14th October 2019

Our Ref: 2019_51

Milltown Park, Ranelagh, Dublin 6

SITE NAME	Milltown Park, Ranelagh, Dublin 6
CLIENT	Ardstone Homes
INVESTIGATION TYPE	Geophysical Survey
LICENCE NO	19R0212
PLANNING REF	N/A
TOWNLAND	Milltown
IRISH TRANSVERSE MERCATOR	716950, 731225 (centre of site)
RMP NO	N/A
RPS NO	N/A
ARCHAEOLOGICAL CONSULTANT	Archer Heritage Planning Ltd.
SURVEYOR	Rob O'Hara
DATE OF ISSUE	14th October 2019
JOB REF.	2019_51

CONTENTS

CONTENTS I

SUMMARY II

1. INTRODUCTION 1

2. SITE DESCRIPTION 1

3. ARCHAEOLOGICAL BACKGROUND 1

 3.1 LOCAL ARCHAEOLOGICAL SITES 1

4. GROUND CONDITIONS 2

5. SURVEY METHODOLOGY 3

6. RESULTS 4

 6.1 AREA A 4

 6.2 AREA B 4

7. CONCLUSIONS 4

8. REFERENCES 5

 8.1 BIBLIOGRAPHY 5

 8.2 WEB REFERENCES 5

9. DIGITAL ARCHIVE 5

List of Tables

Table 1: Archaeological sites within 1 km of the surveyed area

List of Figures

- Figure 1: Location of site and surrounding RMPs
- Figure 2: Greyscale plot of geophysical anomalies
- Figure 3: Interpretation plot of geophysical anomalies

SUMMARY

A magnetic gradiometer survey was carried out at Milltown Park, Sandford, Dublin 6 (ITM 716950, 731225). High resolution magnetic gradiometer survey was undertaken on ~0.62 ha (the area of undeveloped land within the total application area). The survey sought to identify unrecorded archaeological remains. The survey revealed one potential area of archaeological interest, a curving positive magnetic response that suggested a curvilinear feature, possibly part of an enclosing ditch. The anomaly was identified at the edge of the grid. Extension of the grid was not possible as the feature extended into an area of dense scrub and shrubbery. Additional test excavation is required to confirm if this anomaly is archaeological in origin. Elsewhere, weak positive magnetic responses indicated cultivation, although an archaeological interpretation cannot be ruled out. The remaining responses are interpreted as modern disturbance and ferrous debris.

Revision	Status	Date	Prepared by	Reviewed by	Approved by
1	Final	14-10-2019	ROH (Archer)	AOC(Archer)	CMG

1. INTRODUCTION

This magnetic gradiometer survey was carried out at Milltown Park, Sandford Road, Dublin 6 (ITM 716950, 731225). The survey was undertaken in October 2019 by Dr Rob O'Hara, Aidan O'Connell and Bart Korfanty of Archer Heritage Planning Ltd. The objective of the survey was to identify and describe magnetic responses within the site that may represent unrecorded archaeological features. Detailed gradiometer survey was carried out under licence (19R0212) from the Department of Culture, Heritage and the Gaeltacht (DCHG). The site will be subject to a future strategic housing development (SHD) application. Detailed site plans are not available at this stage.

2. SITE DESCRIPTION

The site is located south of Ranelagh village at the junction of Sandford Road and Milltown Road (R117) (Figure 1). There are existing buildings within the site, with a large green-field area and car park making up the majority of the central and northern portion. There are densely planted areas enclosing the site. Local bedrock geology is dominated by Carboniferous limestone and shale of the Lucan formation (Geological Survey Ireland, 100K bedrock maps). Detailed mapping and lithographical descriptions are available online at <https://dcenr.maps.arcgis.com/home/index.html>; accessed 14 October 2019).

3. ARCHAEOLOGICAL BACKGROUND

An archaeological assessment which will form part of an SHD application is currently being prepared by Archer Heritage Planning Ltd. The assessment will comprise of a review of all published and unpublished documentary, aerial and cartographic sources, supported by a field inspection. This survey forms part of that overall assessment.

3.1 Local archaeological sites

The Record of Monuments and Places (RMP) is a statutory inventory of archaeological sites protected under the National Monuments Acts 1930-2004 (Section 12, 1994 Act), compiled and maintained by the Archaeological Survey of Ireland (ASI). The inventory concentrates on pre-1700 AD sites and is based on a previous inventory known as the Sites and Monuments Record (SMR) which does not have legal protection or status (see www.archaeology.ie for further details). There are no recorded monuments located within the site boundary. The closest RMPs to the subject site are all greater than 500 m from the site boundary. These are listed in Table 1 below and indicated in Figure 1.

Table 1: Archaeological sites within 1 km of the surveyed area

RMP	Classification	Location	ITM	Distance
DU018-058----	House - 16th/17th C	Dublin South City	716558, 731840	605m NW
DU018-060001-	House - 16th/17th C	Donnybrook East	717605, 731538	575m ENE
DU018-060006-	Windmill	Donnybrook West	717606, 731533	575m ENE
DU018-060009-	Ecclesiastical enclosure	Donnybrook East	717604, 731537	575m ENE
DU018-060010-	Ecclesiastical site	Donnybrook West	717537, 731557	525m ENE
DU018-060011-	Graveyard	Donnybrook West	717540, 731562	525m ENE
DU018-060012-	Cross	Donnybrook West	717537, 731562	525m ENE
DU018-060020-	House - fortified house	Donnybrook West	717604, 731534	575m ENE
DU018-060021-	Enclosure	Donnybrook East, Donnybrook West	717615, 731534	580m ENE
DU018-060023-	Tomb - unclassified	Donnybrook West	717537, 731557	525m ENE
DU018-060024-	Headstone	Donnybrook West	717537, 731557	525m ENE
DU018-060025-	Headstone	Donnybrook West	717537, 731557	525m ENE
DU018-061----	House - 18th/19th C	Dublin South City	717356, 731731	500m NE
DU022-082001-	Ritual site - holy well	Dublin South City	717602, 731372	515m E
DU022-082004-	House - 16th/17th C	Donnybrook West	717639, 731287	540m E
DU022-088----	Castle - unclassified	Dublin South City	716740, 730644	450m S
DU022-089----	Ringfort - unclassified	Clonskeagh (Dublin By.)	717122, 730788	325m SE
DU022-090----	Bridge	Clonskeagh (Dublin By.)	717367, 730686	600m SE

4. GROUND CONDITIONS

Conditions on the day of the survey were reasonable. The available area was a level green field with grass height typically at ankle level. Large tufts of grass were encountered but did not impact the survey methodology and are unlikely to have an impact on the magnetic readings. There was a large spoil heap located to the southwest of the survey area which was not suitable for survey. Densely planted areas to the west and north were not suitable for survey. Aerial photography of the area from ~2012 indicated the eastern area of the site had been used to store shipping containers or temporary cabins for a period. A stone surface (hardcore Clause 804) was noted, the extent of this surface was not clear. These were not present during the survey. The area was reinstated to a well-maintained grass lawn with one area of hardcore remaining.

As the area has been previously developed and landscaped, underground electrical, gas and drainage services were expected. Magnetic disturbance is frequently encountered in built up areas which may mask subtle variations in magnetic response caused by buried archaeological features.

5. SURVEY METHODOLOGY

An area of 0.62 ha was surveyed. The site was divided into 2 separate areas (A and B), to avoid obstacles present on site (vegetation). Additionally, a heap of dumped spoil (from an external source) in the southern part of the site prevented survey there.

A Bartington Grad 601-2 magnetic gradiometer was used to collect data. The instrument was calibrated on site for survey of Area A, and recalibrated for survey of Area B. Data was collected in 1 m “zig-zag” traverses. Data was collected at 4 samples per meter (0.25 m intervals). Grid orientation was north for all grids.

The survey grid was set out using a GNSS VRS survey unit (positional accuracy ≤ 2 cm) prior to the survey. Twenty grids were surveyed. These comprised of 14 no. 20 m x 20 m grids, and 6 no. 10 m x 10 m grids. In total, 24800 individual magnetic data points were measured.

Raw data were processed using Geoplot 4.0 software. Minimal processing was undertaken but included despiking and filtering tools. Greyscale and XY traces were created for all grids. Greyscale presents data in plan view using a greyscale to indicate the relative strength (nT) of the magnetic signal at each measurement point. XY Plots present data as a trace or graph line for each traverse. Each traverse is displaced down the image to produce a stacked profile effect. This type of image is useful as it shows the full range of individual anomalies.

Interpretation drawings are provided. The interpretation methodology separates magnetic anomalies into several categories:

- Archaeology – used when there is a clear geophysical response and anthropogenic pattern.
- Archaeology? – used for features which give a response but which form no discernible pattern or trend.
- Modern ferrous – dipolar responses caused by ferrous material.
- Increased magnetic response – areas dominated by indistinct anomalies which may have some archaeological potential.
- Trend – used for low amplitude or indistinct linear anomalies.
- Geology – used for diffuse edged spreads considered to relate to shallow geological deposits.

6. RESULTS

The survey data is dominated by modern ferrous responses and magnetic disturbance indicative of recent activity. There is a single response of potential interest located towards the SW of the survey area in Area A. Mean magnetic response over the area was 0.02 nT to 0.11 nT.

6.1 Area A

A magnetic response $>+3$ nT was identified as possibly archaeological (1). The anomaly had a linear or possible curvilinear shape, although it was located on the edge of a grid which could not be expanded due to adjacent vegetation. On its eastern edge was a coterminous area of negative readings (-2 to -4 nT). Six weakly magnetic positive linear trends were located at the centre and in the SE of this area (2). These are orientated NE-SW, relatively evenly spaced, and possibly indicate cultivation patterns. An archaeological origin cannot be ruled out. A negative linear response crossing the southern part of the area from SW to NE is a drain (3). The dipolar response overlying this drain is a metal cover. The response is also found in Area B. Dipolar responses over the area (4) indicate objects.

6.2 Area B

Area B was dominated by two broadly parallel bands of magnetic disturbance (5). These are associated with recent land use activity on site. The anomalies were noted in separate surveys carried out over consecutive days. The linear negative response (3) continued into this area. Dipolar responses (modern ferrous) (4) were also observed.

7. CONCLUSIONS

The magnetic gradiometer survey site revealed one feature of possible archaeological origin (1). A linear or possibly curvilinear positive magnetic response suggested a feature cut into subsoil. Additional investigation by test trenching would be required to confirm the origin of this feature.

8. REFERENCES

8.1 Bibliography

Aspinall, A., Gaffney, C. & Schmidt, A 2009 *Magnetometry for archaeologists*. Plymouth, AltaMira Press.

Bartington Instruments 2018 'Operation manual for Grad601 single axis magnetic field gradiometer system'. Unpublished.

Geoscan Research 2018 'Geoplot 4.0 Instruction Manual'. Unpublished.

8.2 Web references

Archaeological Survey of Ireland www.archaeology.ie [accessed 14th October 2019]

Bedrock 100K <https://dcentr.maps.arcgis.com/home/index.html> [accessed 14th October 2019]

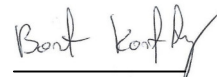
9. ARCHIVE

A digital archive for this project is available. This includes this report, as well as raw data, gradiometry greyscale and XY trace plots. Contact Archer Heritage Planning Ltd. for further details.

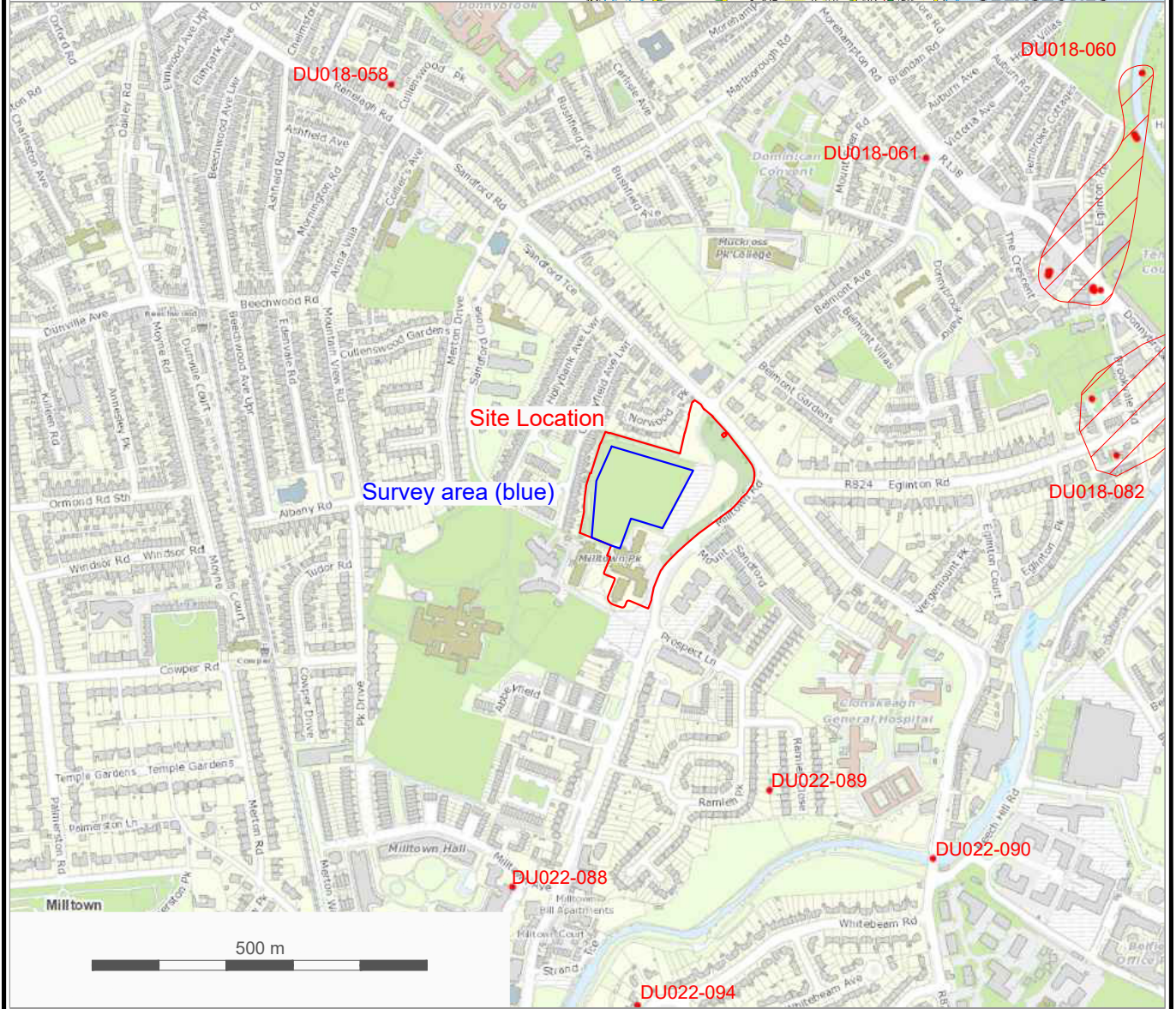
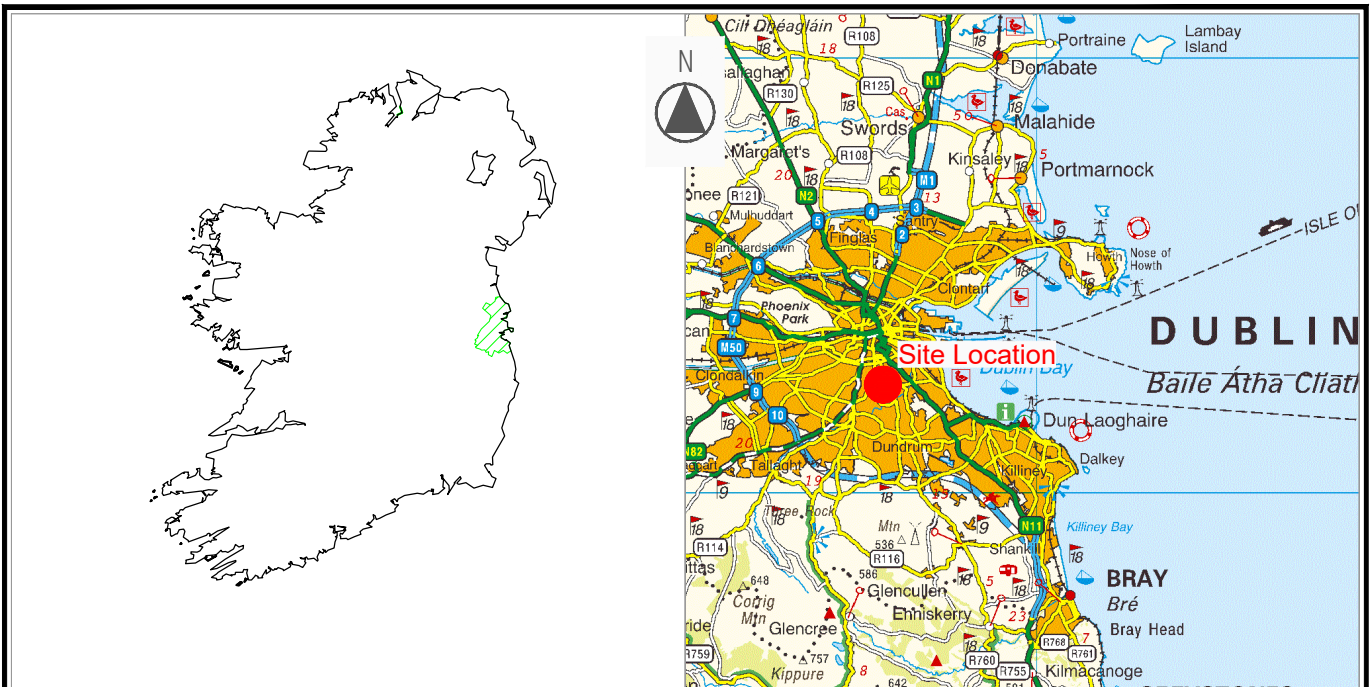


Dr Rob O'Hara PhD, MSc, MA

14th October 2019

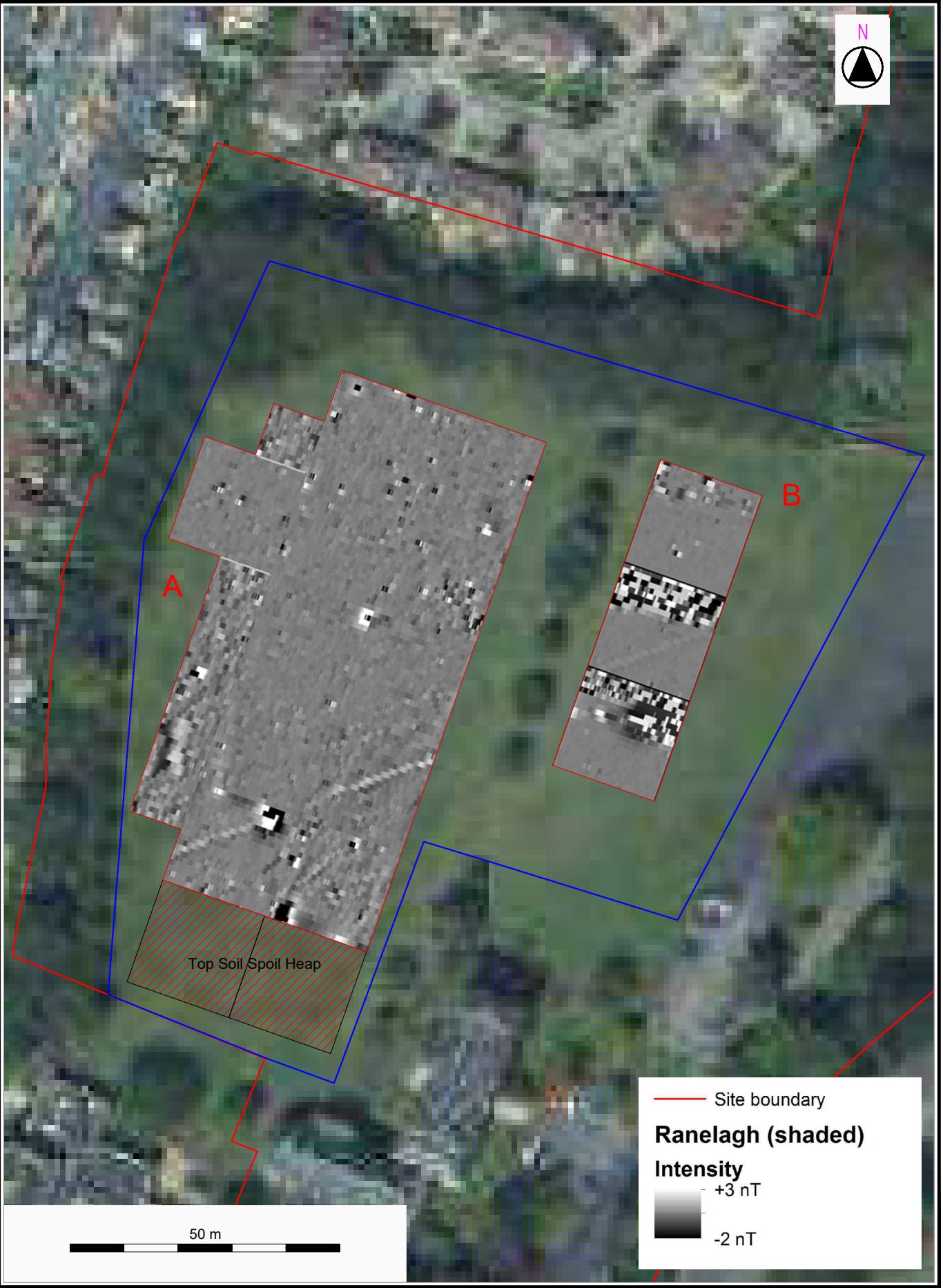


Bart Korfanty MA



	Unit 8 Beat Centre Stephenstown, Balbriggan, Co. Dublin	Milltown Pk., Sandford Rd., Dublin Geophysical Survey Report	Scale: 1:10000 A4 Date: October 2019
		Client: Ardstone Homes	Origin: archaeology.ie
			Ref: 2019_51_GS_01

Figure 1: Location of site & surrounding RMPs



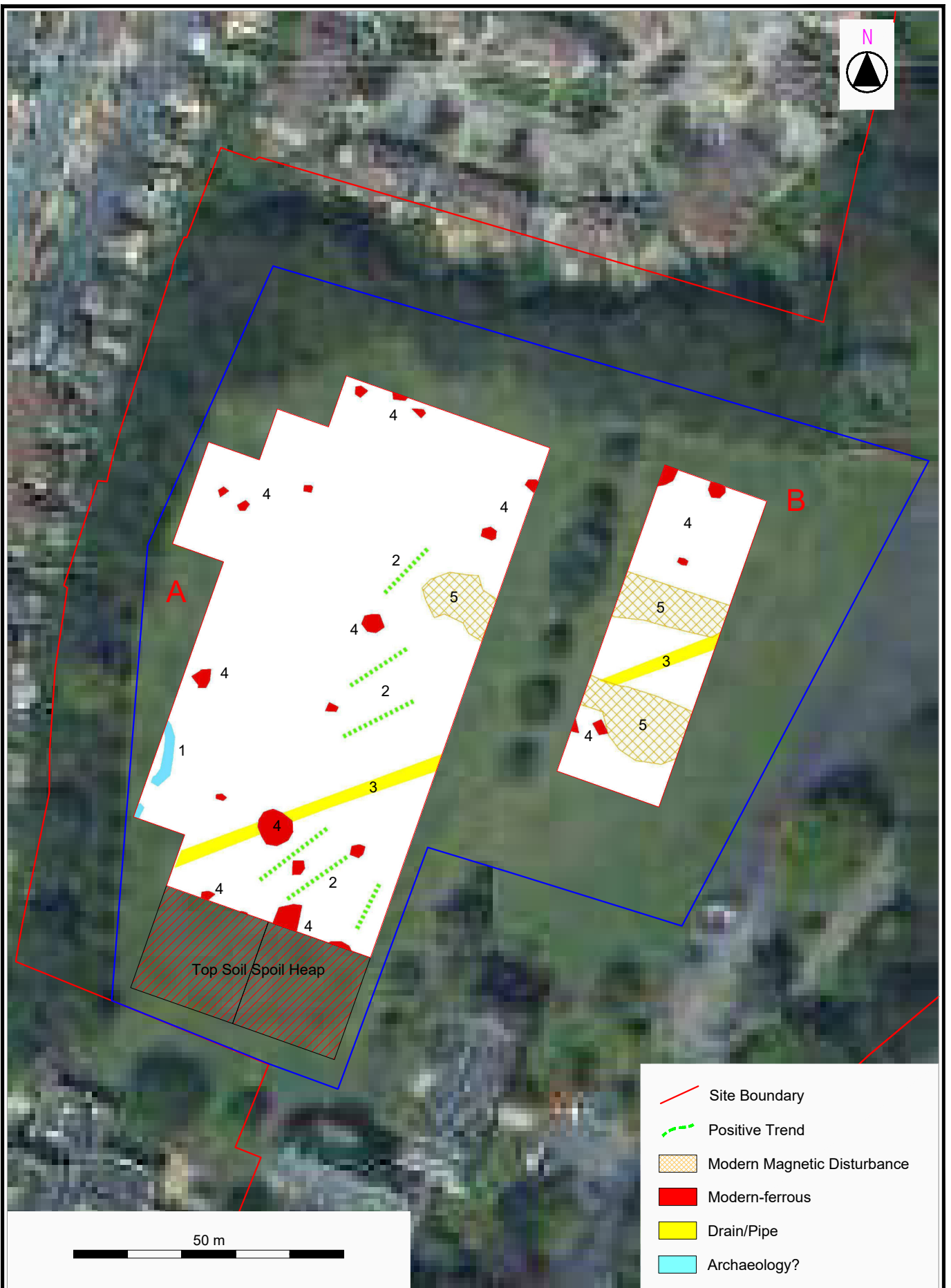
Unit 8 Beat Centre
Stephenstown,
Balbriggan,
Co. Dublin

Milltown Pk., Sandford Rd., Dublin
Geophysical Survey Report

Client: Ardstone Homes

Scale: 1:1000 A4
Date: October 2019
Origin: OSI
Ref: 2019_51_GS_02

Figure 2: Summary Gray scale Image



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Milltown Pk., Sandford Rd., Dublin
Geophysics Survey Report

Client: Ardstone Homes

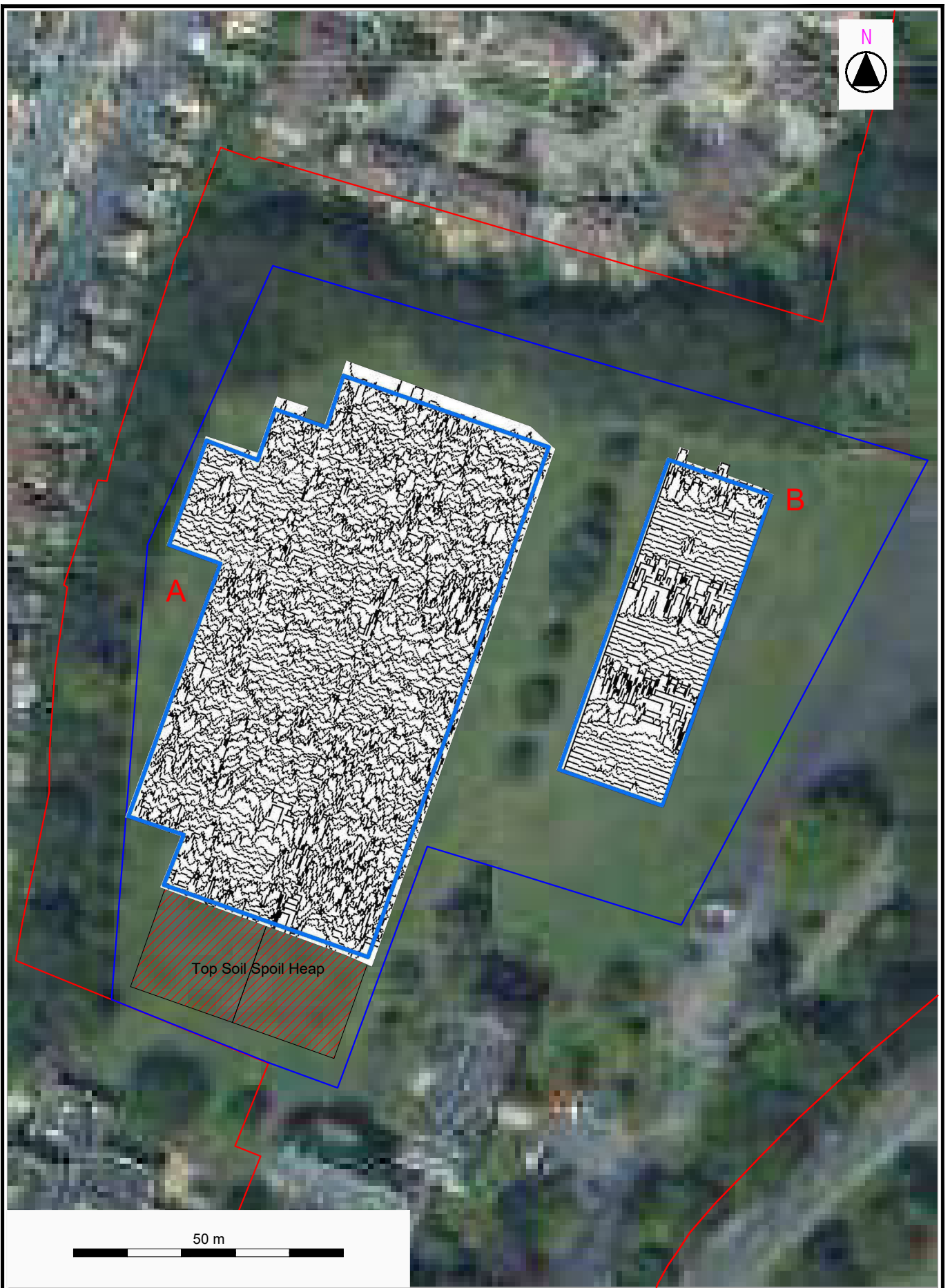
Scale: 1:1000 A4

Date: October 2019

Origin: OSI

Ref: 2019_51_GS_03

Figure 3: Interpretation Diagram



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Geophysical Survey Report

Client: Ardstone Homes

Scale: 1:1000 A4

Date: October 2019

Origin: OSI

Ref: 2019_51_GS_04

Figure 4: XY-Trace Plot



Plate 1: Spoil-heap at southern portion of Area A



Plate 2: Aerial view of site (24 June 2018) showing temporary cabins located at NE of Area B (Google Earth)



Plate 3: Area B from south

APPENDIX 6.3
TEST EXCAVATION
REPORT

Milltown Park, Ranelagh, Dublin 6

Archaeological Testing

Client: Ardstone Homes, 48 Fitzwilliam Square, Dublin D02 EF89

Licence No: 19E0709

Archaeologist: Aidan O' Connell

Author: Aidan O' Connell

Report Date: 18th December 2019

Our Ref: 2019_51



Milltown Park Ranelagh, Dublin 6

SITE NAME	Sandford Road
CLIENT	Ardstone Homes
INVESTIGATION TYPE	Archaeological Testing
LICENCE NO	19E0709
PLANNING REF	N/A
TOWNLANDS	Milltown
IRISH TRANSVERSE MERCATOR	716950, 731225 (centre of site)
RMP NO	N/A
RPS NO	N/A
ARCHAEOLOGICAL CONSULTANT	Archer Heritage Planning Ltd.
ARCHAEOLOGIST	Aidan O' Connell
DATE OF ISSUE	18 th December 2018
JOB REF.	2019_51

CONTENTS

CONTENTS	I
SUMMARY	III
1. INTRODUCTION	1
1.1 PROPOSED DEVELOPMENT	1
2. SITE DESCRIPTION	1
3. METHOD STATEMENT	1
4. ARCHAEOLOGICAL BACKGROUND	2
4.1 BRIEF ARCHAEOLOGICAL & HISTORICAL BACKGROUND	2
4.2 RECORD OF MONUMENTS & PLACES	2
4.3 CARTOGRAPHIC SOURCES	3
4.4 AERIAL PHOTOGRAPHY	3
4.5 PREVIOUS ARCHAEOLOGICAL EXCAVATIONS	4
4.6 TOPOGRAPHICAL FILES	6
4.7 GEOPHYSICAL SURVEY	7
5. TEST EXCAVATION	7
5.1 METHODOLOGY	7
5.2 RESULTS	7
6. DESCRIPTION OF ARCHAEOLOGICAL POTENTIAL	8
7. RECOMMENDATIONS	9
8. REFERENCES	10
8.1 BIBLIOGRAPHY	10
8.2 WEB REFERENCES	10

List of Tables

Table 1: Archaeological sites within 1km of the proposed development

Table 2: Cartographic sources relating to the site

Table 3: Previous archaeological investigations in the wider area

Table 4: Stray finds in the wider area

Table 5: Details of excavated test trenches

List of Figures

Figure 1: Location of site and surrounding RMPs

Figure 2: Extracts from historical maps (i)

Figure 3: Extracts from historical maps (i)

Figure 4: Extracts from aerial photography

Figure 5: Results of geophysical testing

Figure 6: Test trench location

List of Plates

Plate 1: From SE, trench No. 1

Plate 2: From NW, trench No. 2

Plate 3: From SW, trench No. 3

Plate 4: From SE, trench No. 4

Plate 5: From NW, trench No. 5

Plate 6: From NE, trench No. 6

Plate 7: From NE, trench No. 7

Plate 8: From NW, trench No. 8

Plate 9: From SE, trench No. 9

Plate 10: From SE, trench No. 10

Plate 11: From SW, trench No. 11

Plate 12: From NW, trench No. 12

Plate 13: From NW, trench No. 13

Plate 14: From NW, trench No. 14

Plate 15: From NW, trench No. 15

Plate 16: From NW, trench No. 16

SUMMARY

This report combines results of desktop assessment, geophysical survey and test excavations at the lands in Milltown Park, Ranelagh, Dublin 6 (ITM 716950, 731225). The site covers an approximate area of 4.74 hectares. This Archaeological assessment report sought to identify and describe known and potential archaeological or cultural heritage constraints within and/or immediately adjacent to the site.

The following factors were identified in the course of the assessment:

- The site is large in scale.
- There are no recorded monuments situated within the site boundary however there are a number of archaeological monuments in the townland of Clonskeagh to the east, in particular a range of sites associated with the ecclesiastical enclosure of Donnybrook (DU019-06009) 600m to the east of the subject site. The site of the Ormond Camp for the Battle of Rathmines (DU022-081) lies to the west near Gonzaga College.
- No potential archaeological features were recorded in historical maps of the subject site; the land has been relatively untouched in the last three hundred years.
- No potential archaeological features were recorded in aerial photographs of the site.
- A limited number of archaeological investigations have taken place in the vicinity of the site; none revealing any archaeological potential.
- No stray archaeological finds can be directly attributed to the subject site. A report on the discovery of human remains was made in 2014 adjacent to the SW site boundary.
- A curvilinear feature of archaeological potential was recorded in the course of geophysical survey.
- No archaeological features were recorded in the course of the current programme of licensed archaeological test excavations.

These factors indicate that there is moderate potential for the survival of buried archaeological remains at this largely green-field site.

RECOMMENDATION

No archaeological sites or features were recorded across the site, however due to the scale of the site and its proximity to known archaeology (including human remains adjacent to the SW site boundary), it is recommended that groundworks associated with any future development works be monitored by suitably qualified archaeologist.

NOTE: All conclusions and recommendations expressed in this report are subject to the approval of The Department of Culture, Heritage and the Gaeltacht (DCHG) and the relevant local authorities. As the statutory body responsible for the protection of Ireland's archaeological and cultural heritage resource, the DCHG may issue alternative or additional recommendations.

Revision	Status	Date	Prepared by	Reviewed by	Approved by
1	Final	18-12- 2019	AOC (Archer)	LC(Archer)	CMG

1. INTRODUCTION

This archaeological assessment undertaken on lands in Milltown Park, Ranelagh Dublin 6 (ITM 716950, 731225) has been prepared by Archer Heritage Planning Ltd for Ardstone Homes. A desk based study and field survey for this assessment was undertaken in July 2019 by Aidan O' Connell of Archer Heritage Planning Ltd. and recommended further archaeological assessment. Subsequently, geophysical survey was undertaken under licence (19R0212) in October 2019 by Dr Rob O'Hara and Bart Korfanty. This report describes results of test excavation undertaken in December 2019 under licence (19E0709) issued by the Department of Culture Heritage and the Gaeltacht in consultation with the National Museum of Ireland. It aims to identify and describe known and potential archaeological and cultural heritage constraints within the site and offer recommendations for the mitigation of such impacts.

1.1 Proposed Development

The site will be subject to a future planning application for a proposed residential development. There are currently no detailed development proposals or proposed site layout plans for consultation.

2. SITE DESCRIPTION

The development site comprises fine religious institution buildings to the south with a large green field and car parking area making up most of the site to the centre and north. There are mature trees and stone walls to the east with mature trees and modern concrete block walls to north and west.

3. METHOD STATEMENT

The following sources were consulted in the preparation of this report:

- Record of Monuments and Places (RMP)/ Sites and Monuments Record (SMR)¹
- Topographical Files of the National Museum of Ireland
- Aerial photography
- Historical maps
- Documentary research
- Relevant on-line databases (e.g. Excavation Bulletin; NRA Archaeological Database).

¹ Archive Unit National Monuments Service, Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs, Floor 2, Block 6, Irish Life Centre

4. ARCHAEOLOGICAL BACKGROUND

4.1 *Brief archaeological & historical background*

Clonskeagh was originally part of the Pembroke Township which surrounded the townland of 'The Forty Acres'. The township was composed of Baggotrath and Ringsend to the northwest and north; Simmons court, Sandymount and Merrion to the east; and Donnybrook and Clonskeagh to the south and southwest. These forty acres are mentioned in some of the earliest deeds for this area.

The River Dodder flows through this township and high roads led from the metropolis to the surrounding countryside. The Early Christian period is reflected within the surrounding landscape of Clonskeagh. A holy woman by the name of St. Broc erected a church in what is now recognised as Donnybrook. The original placename was Domhnach-broc which translates into 'the church of St. Broc' (Ball 1902–20). The Early Christian period, however, also saw the arrival of the Norsemen who through frequent raids brought with them a period of unease. The Forty Acres represented the northern boundary of the Donnybrook lands during the early stages of the Anglo-Norman settlement. Clonskeagh translates as 'the meadow of the white thorns' and was sometimes called 'Little Rabo', the ancient form of Roebuck which was the adjoining district situated to the south of the Forty Acres beyond Donnybrook. The River Dodder divided this land. There is evidence for the quarrying of stone from the lands adjacent to Clonskeagh by the last grantee under the city, Maurice Fitzgerald. The beginning of the fourteenth century saw these areas occupied by a feudal castle and by a village for the housing of those employed by the lord of the Rath (Ball 1902–1920). A mill which operated by water and fed through a channel connected to the River Dodder was also established.

4.2 *Record of Monuments & Places*

The Record of Monuments and Places (RMP) is a statutory inventory of archaeological sites protected under the National Monuments Acts 1930-2004 (Section 12, 1994 Act), compiled and maintained by the Archaeological Survey of Ireland (ASI). The inventory concentrates on pre-1700 AD sites and is based on a previous inventory known as the Sites and Monuments Record (SMR) which does not have legal protection or status (see www.archaeology.ie). **There are no recorded monuments located within the site boundary.** The closest RMPs to the subject site are listed in Table 1 below (Figure 1).

RMP	Classification	Location	ITM	Distance
DU018-058----	House - 16th/17th C	Dublin South City	716558, 731840	605m NW
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DU022-089----	Ringfort - unclassified	Clonskeagh (Dublin By.)	717122, 730788	325m SE
DU022-090----	Bridge	Clonskeagh (Dublin By.)	717367, 730686	600m SE

Table 1: Archaeological sites in the wider area of the subject site

4.3 Cartographic Sources

Analysis of historic mapping can show human impact on landscape over a prolonged period. Large collections of historical maps (pre- and early Ordnance Survey maps as well as estate or private maps) are held at the Glucksman Map Library, Trinity College and other sources (UCD Library, Ordnance Survey Ireland, local libraries and published material). The development of the site and its vicinity recorded through the eighteenth to twentieth century cartography are described in Table 2 below (Figures 2-3). **No new archaeological features were recorded within the subject site.**

4.4 Aerial photography

Aerial photography (or other forms of remote sensing) may reveal certain archaeological features or sites (earthworks, crop marks, soil marks) that for many reasons may not be appreciated at ground level. Online orthostatic photographs of the site were examined (Ordnance Survey Ireland 1995, 2000 & 2005; Google Maps 2016).

The 1995 Aerial Photograph shows the subject site in its current layout and little changes until 2012 when temporary buildings and car parking are shown on the east side of the site (now removed).

Map	Date	Description
Rocque	1760	The site is shown as agricultural land in an area called "Cold Blow"
Taylor South Map	1816	The site is shown as wooded land to the north of Milltown House
Duncan	1821	A lane extending west from the current entrance on Sandford RD runs to a number of houses within the subject site which is marked as "Cold Blow" – Cold Blow Land is shown as the current Belmont Avenue directly opposite the entrance on Sandford Rd.
1st Edition Ordnance Survey Map	1839	The subject site is depicted as a number of fields on the boundary between Clonskeagh and Milltown. The land is set out as the grounds of a single residence shown as "Milltown Park" with the entrance off Sandford Road in its current location.
2nd Edition Ordnance Survey Map	1872	Milltown Park buildings have been extended, the grounds remain the same.
3rd Edition Ordnance Survey Map	1908	No change in layout of subject site from the previous edition.

Table 2: Cartographic sources relating to the site

4.5 Previous Archaeological Excavations

There have been no archaeological investigations within the subject site. Archaeological investigations have taken place to the immediate west of the site (Sandford Lodge and Moyne Road) revealing no archaeological features.

Licence	RMP No	OS Ref	Townland(s)	Ex. Bulletin Ref.	Author
09E0471		719835, 733596	Milltown	2009:352	N. O' Flanagan
Test excavation was carried out on the site with a view to establishing if there were any archaeological remains prior to the proposed development of a single detached two-storey house. The site formed a portion of the rear garden of a 19th-century house facing Milltown Road and is adjacent to the recent Milltown House development, previously the site of Mount St Anne's convent and school. Two test-trenches were excavated by machine indicating the existence of a thick deposit of garden soil of 19th century vintage, corresponding to the construction of Elm Grove House. There were no other archaeological features noted.					
02E0803		716126, 730527	Milltown	2002:0564	C. Walsh
Testing was undertaken at a site at Milltown Path, Dublin 6, on 24 June 2002. The site is close to the encampment and battleground of the 1649 Battle of Rathmines. No archaeological features are present on-site.					
15E0381	DU022-081	716311, 731119	Moyne Rd Ranelagh	2015:347	A Collins
Monitoring was carried out with regard to the proposed modification and extension to 109 Moyne Road, Ranelagh, D6, a protected structure (DCC RPS no: 5787). The proposed works involve constructing an extension to the rear, complete with demolition of existing rear garage and construction of new shed & a car port entered by existing access off common lane. The site would have been countryside in the 17th century, located on the outskirts of Dublin. It was the site of a bloody battle where up to 1000 people were killed (the numbers vary greatly). Nothing of archaeological significance was identified.					

Licence	RMP No	OS Ref	Townland(s)	Ex. Bulletin Ref.	Author
99E0022	SMR 09:28	716626, 730627	Milltown	2000:0329	F. Myles
<p>This entry describes the results of a second phase of assessment on a large development site incorporating the former St Anne's Convent. The first phase of assessment was undertaken in January 1999 (Excavations 1999, 88-9), and monitoring of site development works has been undertaken, as necessary, since construction commenced during the late summer of 1999. The site has a number of well-documented medieval associations, although no record of a castle or house of medieval date is recorded. The site is best known for possessing an important early 18th-century building, Milltown House, which is being conserved and retained within the scheme. No remains of medieval date were revealed in the assessment or during several periods of monitoring of site development works. A second phase of test excavation had to await demolition of a wing and several annexes to the rear of the 19th-century convent building. Almost all of the demolished structures had basements, which extended up to 6m from the retained main block of the building. During monitoring of an engineering test-pit at the rear of a demolished portion of the building, a limestone wall was revealed, and excavation was suspended temporarily. The wall (Wall 1) was found to be the poorly preserved remains of a roughly constructed limestone foundation containing brick that, although fragmentary, appeared to be handmade. The surviving portion, revealed in section at a depth of 1.1m below present ground level, survived to roughly 0.5m in height. Approximately 1.1m from it, but separated by a backfilled trench (possibly the engineering test-trench), were further fragmentary masonry remains (Wall 2). Wall 2 was associated with the very ephemeral remains of a cobbled surface. Clearly earlier than the convent building, this wall appears likely to date to the 18th century and to be associated with Milltown House. Both walls are likely to be contemporary. No archaeological remains of any sort were noted. At the extreme west of the proposed development area, and extending away from it, were the disturbed remains of a limestone and redbrick wall foundation. The fabric of the wall suggests an 18th-century date rather than an earlier structure. There were no associated datable finds. The long trench excavated across the site footprint suggests that there are no remains of archaeological significance within the proposed development area, but the trench cannot be said to have covered the proposed site of deep excavation comprehensively.</p>					
04E1183	N/A	717126, 732127	Ranelagh	2004:0635	G. Scally
<p>Monitoring in advance of and during the construction phase of a mixed apartment/office development took place on the site between August and October 2004. Although the site lies outside the area of archaeological potential as designated by Dublin City Council, and there were no known archaeological features on the site, a condition to monitor the site was imposed due to its extensive size (c. four acres) and proximity to areas of historic interest (i.e. the site of the battle of Rathmines, and the 19th-century Bewley estate). Prior to development the site was occupied by a mid-19th-century house, the former home of the Bewley family, and by a mid-20th-century block-built building, the former National College of Ireland's College of Industrial Relations. The Bewley home is a protected structure and has been retained and incorporated into the new development; the former College of Industrial Relations was demolished. The remaining area of the site was comprised of trees, low-lying scrub and unused ground. Topsoil to a depth of 0.4m maximum was removed from the area north and south of the 19th-century house. In the area south of the house, topsoil was found to contain a significant scatter of 17th-19th-century pottery fragments, animal bone, oyster shells and a small quantity of brick and stone rubble. A stone-lined drain and a red-brick pipe drain were also found. Ephemeral traces of pits, probably the remains of formal planting areas, were uncovered to the fore of the house. To the rear of the house, traces of 19th/20th-century pottery and rubble were found. These remains were considerably less concentrated than the earlier remains south of the house; one stone-lined and stone-lintelled drain traversed this area. The archaeological finds suggest that the site, prior to construction of the Bewley home in the mid-19th century, was used for dumping domestic refuse of 17th-19th-century date. After the house was built a small amount of refuse continued to be dumped. The pottery assemblage collected (identified by Clare McCutcheon) contains a range and selection of pottery typical of this period. No other finds or features of any archaeological significance were uncovered.</p>					

Licence	RMP No	OS Ref	Townland(s)	Ex. Bulletin Ref.	Author
14E0408ext	DU018-058	716560, 731829	130 Ranelagh Rd	2016:776	F. Bailey
Monitoring was carried out as part of a residential development. The development area occupies the constraint area for DU018-058, listed as the site of a 16th/17th-century house. A desktop assessment carried out in 2007 highlights that Cullenswood House is thought to have been located here. Testing took place on the site on 28 October 2014, under licence 14E0408 but nothing of archaeological significance was identified. Monitoring was carried out during ground works associated with a residential development in 2016. The development of the site is clearly illustrated within the historic cartographic resource. A house was constructed on the site in the late 19th century, which was demolished in the 1970s. The remains of this structure and its backfilled basement were identified during the programme of testing. During monitoring in 2016, further remains of the demolished house and backfilled basement were identified, but the basement was not re-excavated. The foundations walls of a small rectangular outbuilding associated with the demolished house were recorded. No features or deposits relating to the site of a 16th/17th-century house were noted.					

Table 3: Previous archaeological investigations in the wider area

4.6 Topographical Files

The National Museum of Ireland Topographical Files is the national archive of all known antiquities recorded by the National Museum listed by county and townland/ street. These files relate primarily to artefacts but also include references to monuments and contain a unique archive of records of previous archaeological excavations. The Museum files present an accurate catalogue of objects reported to that institution from 1928. No stray finds are recorded within the subject site. However, there is a report concerning the discovery of human remains on an adjacent site at Cherryfield Avenue, beyond the southwestern site boundary. The long bones of 2-3 individuals were found during building works. The bones are undated.

Location	Museum No.	Description
Cherryfield Ave Upper	2014:158	Human Remains found to rear of house during building works. Long bones but no skulls found indicating 2-3 individuals. Clay pipe found close to bones. The houses were built in 1901 and the back garden of this property had been artificially raised prior to the current owners.
Wasteland between Palmerstown Rd & Windsor Rd.	2000:20	Fragment of late medieval Dublin type ware cooking pot
Rear of 20 Mornington Rd	IA/47/77	Brick built structure of unknown function. Fragments of animal bone, oyster shell & scallop shell beside structure.
Ranelagh Close	2000:42-44	3 sherds of post medieval pottery.
Seaview Terrace, Ballsbridge	SA1900:29-30 SA1900:41	Bone spindle whorl (29) bone comb plate (30) & flint flake (41) recovered from antiquarian excavation of the 'Great Sepulchral Mound' at Donnybrook.

Location	Museum No.	Description
Seaview Terrace, Ballsbridge	2003:95	Human bones in vicinity of known burial site
Seaview Terrace, Ballsbridge	2007:41	Viking sword

Table 4: Stray finds in the wider area

4.7 Geophysical Survey

Geophysical survey was undertaken across the site under detection device consent 19R0212 issued to R O'Hara by the Department of Culture, Heritage and the Gaeltacht. The survey data was dominated by modern ferrous responses and magnetic disturbance indicative of recent activity. There was a single response of potential interest located towards the SW of the survey area consisting of a potential ringditch, c. (Fig. 5). Mean magnetic response over the area was 0.02nT to 0.11nT.

5. TEST EXCAVATION

5.1 Methodology

Test excavation was undertaken on 5th December 2019 in overcast conditions. A total of 16 test trenches with a combined length of 563 linear metres were excavated within the site (9% of the available area, 11327m²; (Figure 6; Plates 1-16). Test trench locations were agreed in advance with the Department of Culture Heritage and the Gaeltacht in consultation with the National Museum of Ireland and sought to test geophysical anomalies and the general archaeological potential of the site. Trenches were generally positioned in order to test various geophysical anomalies. There were 2 variations to the agreed trench layout. Trench 15 was shortened due to discovery of geotextile mat underlying a portion of the eastern lawned area. Trench 16 was moved to the north and shortened in order to avoid the same geotextile as well as upstanding lamp posts. Trenches 12 and 13 revealed heavily disturbed subsoil in the NE corner of the tested area. All test trenches were excavated with the aid of a 14 tonne mechanical excavator equipped with a toothless grading bucket and under constant archaeological supervision. Trenches were excavated as far as the upper subsoil surface or the top of the upper archaeological horizon. Trenches were backfilled following completion of archaeological works.

5.2 Results

No archaeological features were discovered during test excavations. The potential archaeological feature recorded during geophysical survey (Fig. 5) revealed a concentration of buried rubble (brick and

stone fragments) interpreted as early modern demolition rubble (Plate 2). Numerous plough furrows, service trenches and drains were observed and interpreted as non-archaeological.

Trench	L x B x D (m)	Orientation	Description
1	7 x 1.8 x 0.68	NW-SE	No archaeology found
2	10 x 1.8 x 0.59	NW-SE	No archaeology found
3	17 x 1.8 x 0.51	SW-NE	No archaeology found
4	17 x 1.8 x 0.48	NW-SE	No archaeology found
5	15 x 1.8 x 0.47	NW-SE	No archaeology found
6	100 x 1.8 x 0.45	NE-SW	No archaeology found
7	100 x 1.8 x 0.45	NE-SW	No archaeology found
8	21 x 1.8 x 0.50	NW-SE	No archaeology found
9	21 x 1.8 x 0.48	NW-SE	No archaeology found
10	25 x 1.8 x 0.38	NW-SE	No archaeology found
11	100 x 1.8 x 0.42	NE-SW	No archaeology found
12	40 x 1.8 x 0.1	NW-SE	No archaeology found
13	40 x 1.8 x 0.15	NW-SE	No archaeology found
14	18 x 1.8 x 0.47	NW-SE	No archaeology found
15	20 x 1.8 x 0.48	NW-SE	No archaeology found
16	16 x 1.8 x 0.44	NW-SE	No archaeology found

Table 5: Details of excavated test trenches.

6. DESCRIPTION OF ARCHAEOLOGICAL POTENTIAL

This Archaeological assessment report sought to identify and describe known and potential archaeological or cultural heritage constraints within and/or immediately adjacent to the site. The following factors were identified in the course of the assessment:

- The site is large in scale.
- There are no recorded monuments situated within the site boundary however there are a number of archaeological monuments in the townland of Clonskeagh to the east, in particular a range of sites associated with the ecclesiastical enclosure of Donnybrook (DU019-06009) 600m to the east of the subject site. The site of the Ormond Camp for the Battle of Rathmines (DU022-081) lies to the west near Gonzaga College.
- No potential archaeological features were recorded in historical maps of the subject site; the land has been relatively untouched in the last three hundred years.
- No potential archaeological features were recorded in aerial photographs of the site.
- A limited number of archaeological investigations have taken place in the vicinity of the site; none revealing any archaeological potential.

- No stray archaeological finds can be directly attributed to the subject site. A report on the discovery of human remains was made in 2014 adjacent to the SW site boundary.
- A curvilinear feature of archaeological potential was recorded in the course of geophysical survey.
- No archaeological features were recorded in the course of the current programme of licensed archaeological test excavations.

These factors indicate that there is moderate potential for the survival of buried archaeological remains at this largely green-field site.

7. RECOMMENDATIONS

No archaeological sites or features were recorded across the site, however due to the scale of the site and its proximity to known archaeology (including human remains adjacent to the SW site boundary), it is recommended that groundworks associated with any future development works be monitored by suitably qualified archaeologist.

NOTE: All conclusions and recommendations expressed in this report are subject to the approval of The Department of Culture, Heritage and the Gaeltacht (DCHG) and the relevant local authorities. As the statutory body responsible for the protection of Ireland's archaeological and cultural heritage resource, the DCHG may issue alternative or additional recommendations.

8. REFERENCES

8.1 Bibliography

Ball, Francis Elrington. A history of the county Dublin. Vol III. Dublin: Gill and Macmillan, 1979. (6 vols, reproduced by photo lithography from the 1st. impression of 1902).

D'Alton, John. The history of county Dublin. Cork: Tower Books, 1976. (Originally published Dublin: Hodges & Smith, 1838).

8.2 Web references

Online Excavations bulletin www.excavations.ie [accessed 29th July 2019]

Aerial Photography <http://map.geohive.ie/mapviewer.html> [accessed 30th July 2019]

Online Excavations bulletin www.excavations.ie [accessed 29th July 2019]

Online Archaeological Survey of Ireland www.archaeology.ie [accessed 30th July 2019]

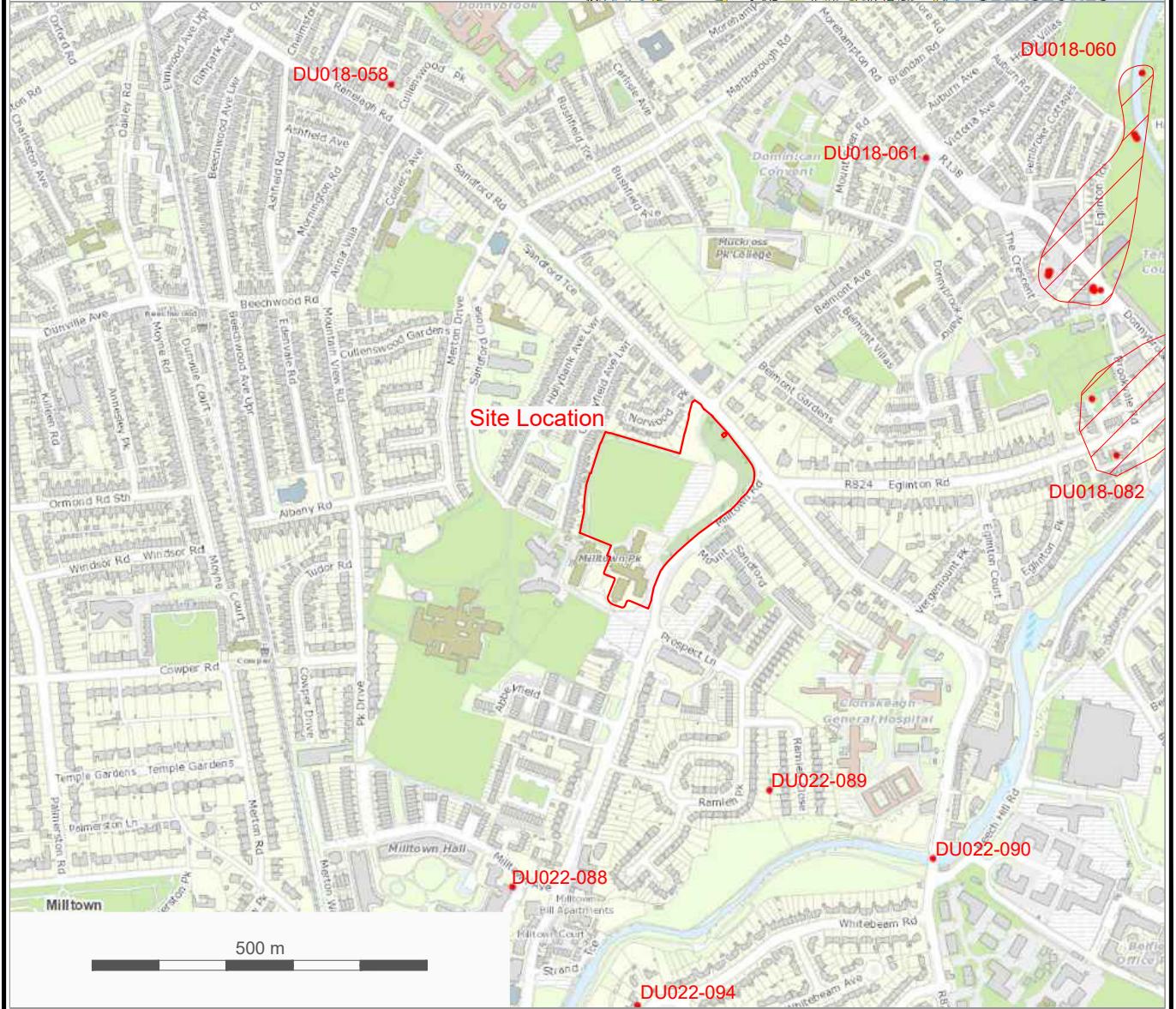
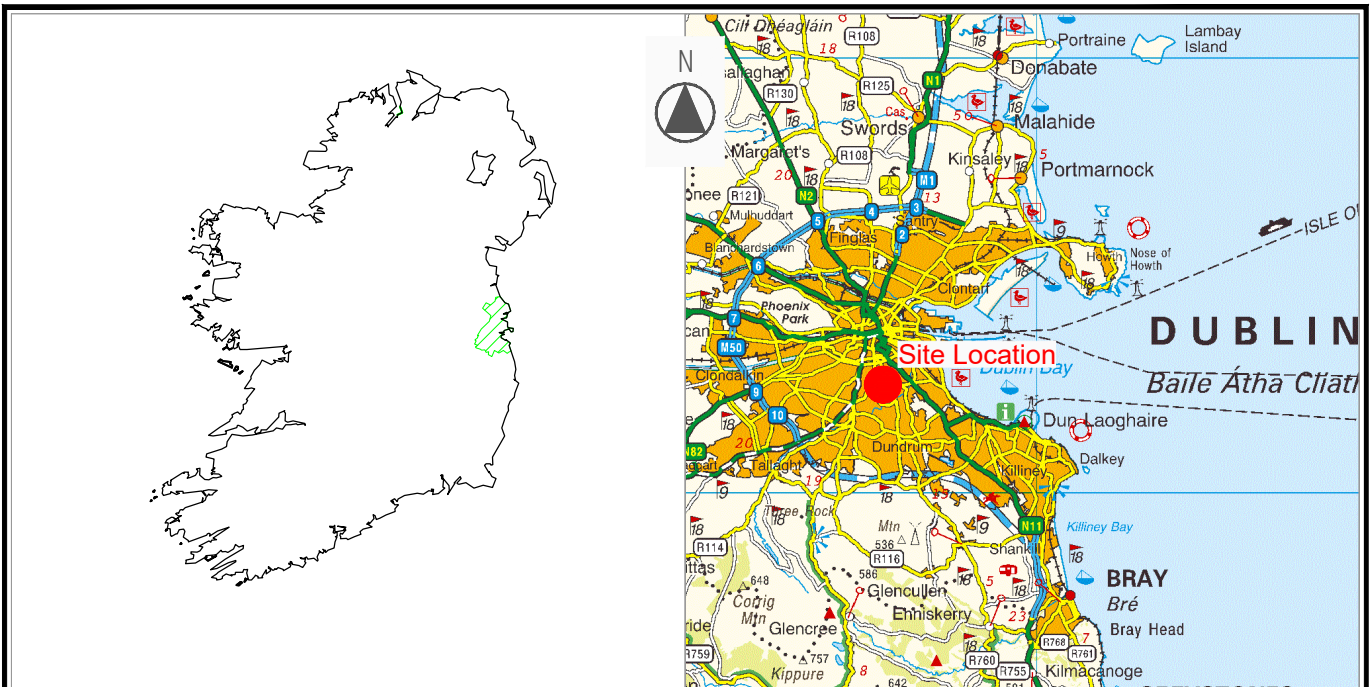


Aidan O'Connell



Bart Korfanty

18th December 2019




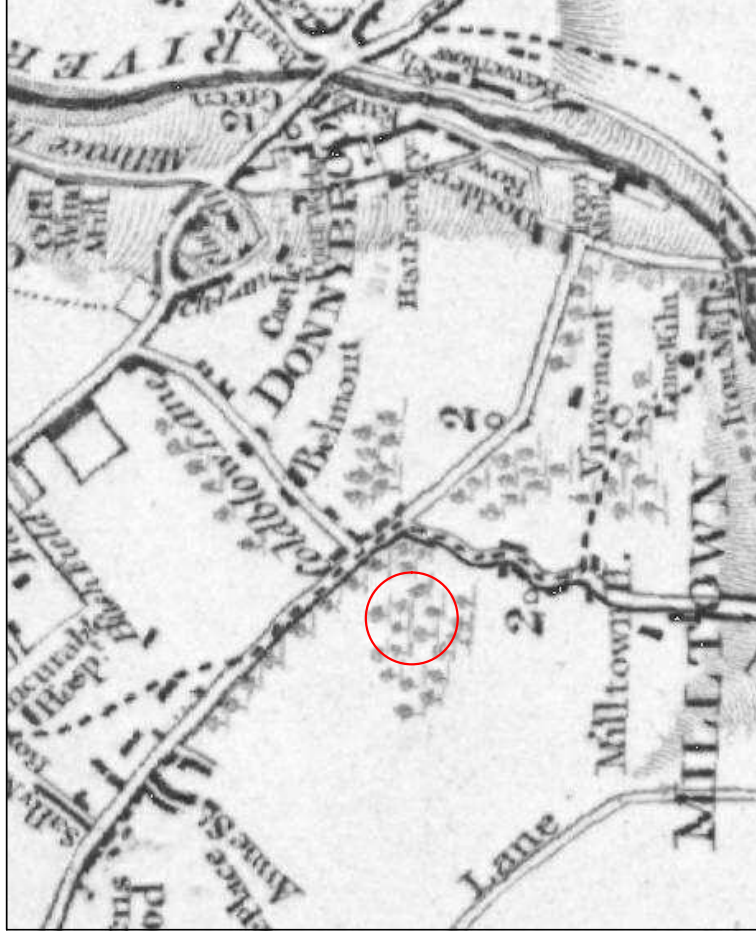
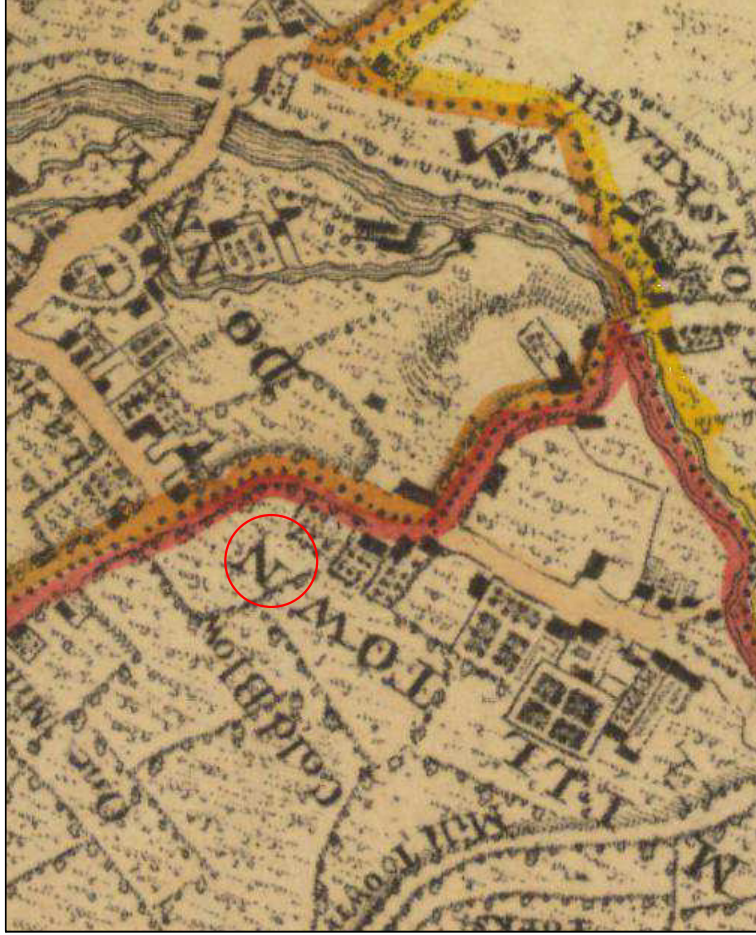
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		Client: Ardstone Homes	Origin: archaeology.ie
			Ref: 2019_51_Ass_01

Figure 1: Location of site & surrounding RMPs



(l) Rocque 1760

(r) Taylor South 1816



Unit 8 Beat Centre
Stephenstown,
Balbriggan,
Co. Dublin

Milltown Pk., Sandford Rd., Dublin
Archaeological Assessment

Client: Ardstone Homes

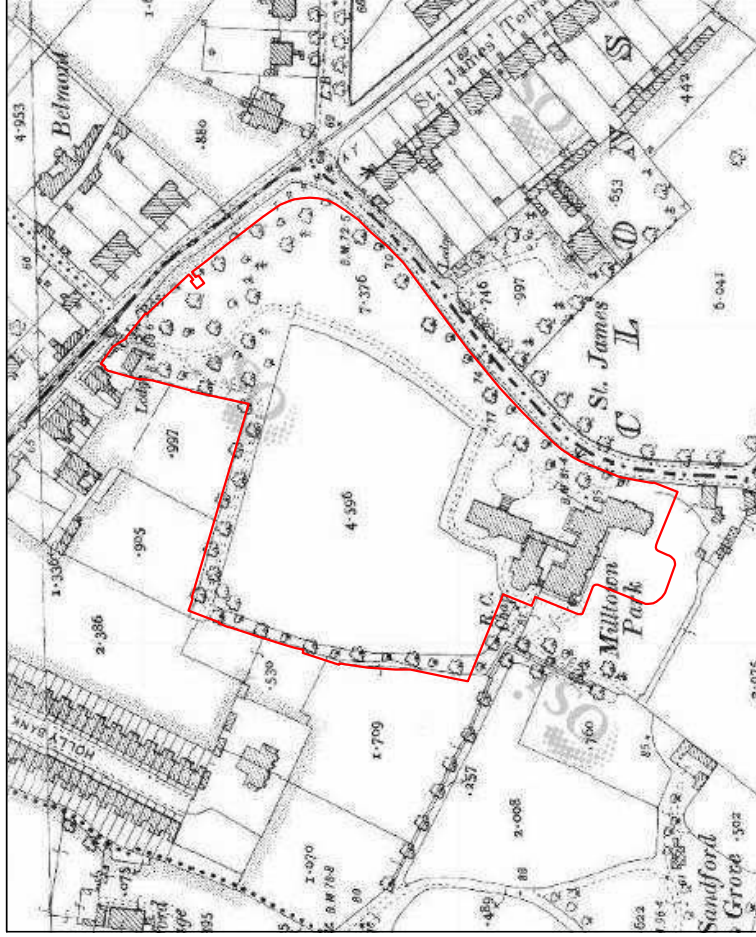
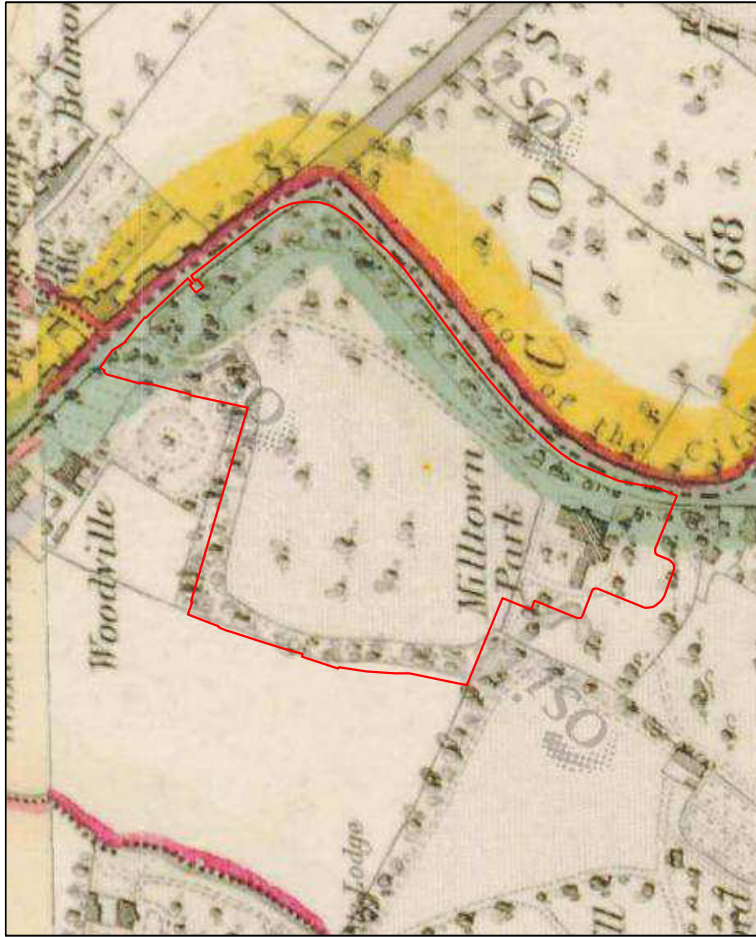
Scale: Not to scale

Date: December 2019

Origin: South Dublin Co. Co.

Ref: 2019_51_Ass_02

Figure 2: Extracts from historical maps (l)



(l) 1st Edition OS Map (1844)

(r) 25 Inch OS Map (1888-1913)



Unit 8 Beat Centre
Stephenstown,
Balbriggan,
Co. Dublin

Milltown Pk., Sandford Rd., Dublin
Archaeological Assessment

Client: Ardstone Homes

Scale: Not to scale

Date: December 2019

Origin: OSI

Ref: 2019_51_Ass_03

Figure 3: Extracts from historical maps (ii)



(l) OSI 1995

(r) Digital Globe 2011-13



Unit 8 Beat Centre
Stephenstown,
Balbriggan,
Co. Dublin

Miltown Pk., Sandford Rd., Dublin
Archaeological Assessment

Client: Ardstone Homes

Scale: Not to scale







Date: December 2019

Origin: OSI

Ref: 2019_51_Ass_04

Figure 4: Extracts from Aerial Photos



-  Site Boundary
-  Positive Trend
-  Modern Magnetic Disturbance
-  Modern-ferrous
-  Drain/Pipe
-  Archaeology?



Unit 8 Beat Centre
Stephenstown,
Balbriggan,
Co. Dublin

Milltown Pk., Sandford Rd., Dublin
Archaeological Assesment
Client: Ardstone Homes

Scale: 1:1000 A4
Date: December 2019
Origin: OSI
Ref: 2019_51_Ass_05

Figure 5: Results of Geophysical Survey



Unit 8 Beat Centre
Stephenstown,
Balbriggan,
Co. Dublin

Milltown Pk., Sandford Rd., Dublin
Archaeological Assesment

Client: Ardstone Homes

Scale: 1:1000 A4

Date: December 2019

Origin: OSI

Ref: 2019_51_Ass_06

Figure 6: Test trench location



Plate 1: From SE, trench No. 1



Plate 2: From NW, trench No. 2



Plate 3: From SW, trench No. 3



Plate 4: From SE, trench No. 4



Plate 5: From NW, trench No. 5



Plate 6: From NE, trench No. 6



Plate 7: From NE, trench No. 7



Plate 8: From NW, trench No. 8



Plate 9: From SE, trench No. 9



Plate 10: From SE, trench No. 10



Plate 11: From SW, trench No. 11



Plate 12: From NW, trench No. 12



Plate 13: From NW, trench No. 13



Plate 14: From NW, trench No. 14



Plate 15: From NW, trench No. 15



Plate 16: From NW, trench No. 16

APPENDIX 6.4

ARCHAEOLOGICAL LICENCES



An Roinn Cultúir,
Oidhreacht agus Gaeltachta
Department of Culture,
Heritage and the Gaeltacht

National Monuments Acts 1930 to 2014
Consent to use a Detection Device

File No.	Consent No. 19R0212
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Application having been duly made to me by Mr. Robert O'Hara

Of Archer Heritage Planning Ltd.
Unit 8 BEAT Centre
Stephenstown, Balbriggan
Co. Dublin

For a consent to use a specified detection device Batington Grad 601-2 dual sensor gradiometer

at the site known as Dublin, RANELAGH NORTH - Detection Device Consent

In or under the portion of land owned by Ardstone Homes

Of 48 Fitzwilliam Square
Dublin

Being part of the townland of RANELAGH NORTH

And county of Dublin

As indicated on the map attached to the said Pre-planning, SHD application
application for the purposes of

The Minister for Culture, Heritage and the Gaeltacht, in accordance with the conditions of Section 2 of the National Monuments (Amendment) Act, 1987, as amended, and subject to the conditions and restrictions overleaf, does hereby issue his consent to the said applicant to use a detection device for the purpose specified under that portion of land above mentioned.

Duration of Consent 16/09/2019 to 11/11/2019

Signed 

Monday 2 September 2019

Conditions relating to a Consent to use a Detection Device
under Section 2 (2) of the National Monuments
(Amendment) Act, 1987

Form NMS 2 - 06

1. The consent holder must obtain permission from the owner of the land/ *wreck to carry out their project before availing of this licence. No responsibility shall attach to the Minister for Arts, Heritage, Regional, Rural and Gaeltacht Affairs for failure on the part of the licence holder to obtain such permission.
2. The consent holder shall be responsible for all loss, damage or injury, to persons or property, in any way arising from their project and shall indemnify the State and the Minister for Arts, Heritage, Regional, Rural and Gaeltacht Affairs, his/her officers, agents and employees against all action, loss, claims, damages, expenses and demands arising therefrom.
3. A consent to use a detection device does not include permission to dig for archaeological objects. If digging or the recovery of archaeological objects is envisaged, a separate excavation licence must be applied for (see Form NMS 1-06).
4. The consent holder shall comply in all respects with the provisions of the National Monuments Acts 1930 to 2004 and any Acts altering, amending or replacing those Acts. Copies of the Acts are available on the Department's website www.archaeology.ie.
5. Please note that Consents are granted subject to the provisions of the National Monuments Act 1930 (as amended) which requires the finders of archaeological objects to report the find, within four days of finding, to the Director of the National Museum (his servants or agents), or a member of the Garda Síochána, stating his/her address, the nature and character of the object found and the circumstances in which it was found. He/She must allow the object to be inspected, examined and photographed and surrender it to the National Museum if required to do so.
6. * Finders of wrecks must report any such find within four days, to the Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs, or to a member of the Garda Síochána, stating their name and address, the nature of the wreck found and the circumstances in which it was found.
7. The consent holder shall be given a reference number in relation to each consent, which shall be used in all correspondence relating to the project.
8. This consent relates only to the types of detection devices mentioned in the consent document. If at any stage, any other piece of detection equipment is required, a separate consent should be applied for.
9. The consent holder must inform the National Monuments Service at least two working days in advance of the actual commencement of the project.
10. The consent holder shall provide a report on the results of the use of the detection device(s) to the Archaeological Licensing Section, National Monuments Service, Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs, Room G.50, Custom House, Dublin 1.
11. The licence holder must inform the National Monuments Service within two working days of completion of the project.
12. The Minister for Arts, Heritage, Regional, Rural and Gaeltacht Affairs may revoke this consent at any time should he form the view that the consent is not being carried out in accordance with the conditions of the consent or is otherwise contrary to the protection of the archaeological built heritage.



An Roinn Cultúir,
Oidhreacht agus Gaeltachta
Department of Culture,
Heritage and the Gaeltacht

Excavation Licence
National Monuments Acts 1930 to 2014

File No.	Licence No. 19E0709
----------	---------------------

Application having been duly made to me by Mr. Aidan O'Connell
Of Archer Heritage Planning Ltd
Unit 8 BEAT Centre
Stephenstown, Balbriggan
Co. Dublin

For a licence to excavate at the site known as Dublin, Dublin, Ranelagh, Milltown Park - Excavation Licence

In or under the portion of land owned by Ardstone Homes
Of 48 Fitzwilliam Square
Dublin

Being part of the townland of MILLTOWN (Newcastle By.)

And county of Dublin

as indicated on the map attached to the said application.

The Minister for Culture, Heritage and the Gaeltacht, in accordance with the conditions of Section 26 of the National Monuments Act, 1930, as amended, and subject to the conditions overleaf, does hereby licence the said applicant (hereinafter called the Licensee) to dig or excavate for the purpose specified in or under that portion of land above-mentioned.

Duration of licence 11/11/2019 to 13/12/2019

Signed

Wednesday 6 November 2019

Conditions relating to Archaeological Excavation Licences granted under the National Monuments Acts 1930 to 2014

1. This licence is issued on the basis of information provided by the applicant and on the understanding that all information provided with the application, and associated statements made by the applicant, are accurate and truthful.
2. The licensee must obtain permission from the owner of the land/ wreck to carry out the excavation and particularly to alter, dig or excavate in or under the site before availing of this licence. No responsibility or liability shall attach to the Minister for failure on the part of the licensee to obtain such permission.
3. By accepting the licence, the applicant acknowledges that the Minister is not responsible or liable in any manner for any loss or injury to persons or property in any way arising from the licensed activities.
4. The licensee shall restore the land to its original condition on termination of this licence, unless otherwise directed by the landowner.
5. The licensee shall comply in all respects with the provisions of the National Monuments Acts 1930 to 2014 and any Acts altering, amending or replacing those Acts. Copies of the Acts are available from the National Monuments Service website www.archaeology.ie and from Government Publications (see <http://www.opw.ie/en/governmentpublications/>).
6. Under the provisions of section 2 of the National Monuments (Amendment) Act 1994 the ownership of an archaeological object found in the State which has no known owner at the time it is found stands vested in the State. The National Museum of Ireland is the State repository for all such archaeological objects. The licensee shall adhere to the directions of the Director of the National Museum of Ireland in relation to the final disposition/location of any archaeological objects and the temporary storage of finds and also to advice notes issued by the National Museum of Ireland. Separate licences must be applied for under the relevant provisions of the National Monuments Acts 1930 to 2014 and the National Cultural Institutions Act 1997 if it is intended to alter (which includes to destructively sample), or export any archaeological object recovered during the excavation.
7. The licensee shall be given a reference number in relation to each excavation or part thereof which shall be used in all correspondence relating to the excavation and for the numbering of finds (if any) recovered during the excavation. The licensee shall also comply with the requirements of the National Museum of Ireland as regards to the numbering and care of archaeological objects.
8. The licensee shall conduct the excavation in accordance with the method statement as submitted with the applicant's application for a licence under section 26 of the National Monuments Act 1930 (as amended) and also in accordance with the information provided (including answers given) in or on the application form submitted with that application, subject to any amendment approved by the National Monuments Service prior to the issue of this licence. Once the licence has been issued, any proposed amendment or variation to the methodology set out in those documents must be submitted in advance to the National Monuments Service and can only be proceeded with if approved by the National Monuments Service.
9. The licensee shall comply with the Policy and Guidelines on Archaeological Excavations (1999) and any subsequent policies, guidance or advice, issued by, or on behalf of the Minister and advice notes issued by the National Museum of Ireland.
10. Unanticipated discovery of human remains must be reported as soon as possible to the National Monuments Service and the National Museum of Ireland.
11. (1) The licensee shall:
 - (a) Lodge one digital (PDF/A format on CD or USB) and two hard copies of a Preliminary Report on the excavation with the National Monuments Service, and one digital (PDF/A format on CD or USB) and one hard copy of same with the National Museum of Ireland within four weeks of the completion of the excavation. The Preliminary Report must be in the recommended format set out in the Guidelines for Authors of Reports on Archaeological Excavations (2006) issued by the National Monuments Service. Note that the coordinate referencing system in current use is the Irish Transverse Mercator (ITM) and not the 'National Grid' as set out in the Guidelines (pp. 3, 5, 8).
 - (b) Lodge as an appendix within the preliminary report (referred to in (a) above) a 'Monument Report Form' for every previously-unrecorded monument discovered in the course of the excavation. The monument classification used on the form must accord with that operated by the National Monuments Service (see www.archaeology.ie Historic Environment viewer).
 - (c) Unless otherwise agreed with the Minister, lodge, within twelve months of completion of the excavation, one digital (PDF/A format on CD or USB) and two hard copies of the Final Report on the excavation with the National Monuments Service, and one digital (PDF/A format on CD or USB) and one hard copy of same with the National Museum of Ireland. The Final Report must be in the recommended format set out in the Guidelines for Authors of Reports on Archaeological Excavations (2006) issued by the National Monuments Service. Note that the coordinate referencing system in current use is the Irish Transverse Mercator (ITM) and not the 'National Grid' as set out in the Guidelines (pp. 3, 5, 8). This report must be to publication standard and include a full account, suitably illustrated, of all archaeological features, finds and stratigraphy along with a discussion and specialist reports.
 - (d) Publish a concise report to the standard accepted for publication on the www.excavations.ie website for the year in which the licence is valid.
 - (e) Lodge with the National Monuments Service one copy of any publication where the results of the excavation have been published.
 - (f) Without prejudice to any of the above, where the licensee submits a written report on the excavation to another person or body prior to having submitted the reports referred to above to the National Monuments Service then the licensee shall notify the National Monuments Service in writing (which may be in email form) that such report has been submitted to that other person or body.
- (2) Without prejudice to any other requirements regarding the format of a report to be submitted to the National Monuments Service and the National Museum of Ireland in accordance with the above, all such reports shall be in two separately bound parts (or in the case of digital copies two separate files) as follows:

First Part

The first part shall contain purely archaeological information, i.e. the nature of the site in archaeological terms and the results in archaeological terms of the archaeological excavation. This part shall be identified using the references number provided to the licensee under Condition 7 above. The first part shall, in particular, contain no personal data other than the name of the licensee.

Second Part

The second part shall contain other information where appropriate to be provided regarding the archaeological excavation, e.g. owner of the site, reasons for carrying out the archaeological excavation (other than archaeological research), information regarding funding and planning and development issues. This second part shall be identified with the same reference number but with an "X" appended.

12. The Minister may publish or make generally available in any form (including printed or electronic form which, without prejudice to any other form of publication or making available, may include publishing or making available on the internet), any report, or part thereof, submitted under or in fulfilment of the conditions of this licence. A copy of a report so published or made available may identify the licensee.
13. The final place of deposition of all archives associated with the archaeological excavation shall be the National Monuments Service archive except as may be otherwise directed by the Minister, which direction (which shall be complied with by the licensee) may provide for the deposition (in such manner as the Minister may determine) of the archives in another appropriate place or places or their disposal (whether in whole or part) in such manner as the Minister may determine. Where the final place of deposition is the National Monuments Service archive, the licensee shall comply with all directions and requirements of the Minister in regard to the manner and timing in which the archives are presented for deposition. Pending the deposition or disposal of the archives in accordance with the foregoing, the licensee shall maintain the archives safely and securely and shall advise the Minister, as and when requested, as to their location and the provision being made for their safety and security and shall provide access to the officers or agents of the Minister to inspect the archives at any reasonable time. Nothing in the foregoing shall oblige the Minister to accept deposition of all or part of the archives in the National Monuments Service archive, or to otherwise accept any responsibility for the archives, unless the Minister is satisfied that all other conditions of the licence have been complied with or fulfilled and that it is appropriate to accept such deposition or responsibility. In the foregoing 'archives' includes plans, drawings, photographs, site notebooks, record sheets, context sheets, finds lists or similar or related material whether in paper, hard copy or digital form.
14. Officers, servants or agents of the Minister or the Board of the National Museum of Ireland may inspect at any reasonable time the archaeological excavation to which this licence applies and (without prejudice to the provisions of condition 13) any associated storage facilities, archives or records and the licensee shall facilitate any such inspection. In the foregoing 'reasonable time' includes (but is not limited to) any time when archaeological excavation work is being carried out on or at the location of the archaeological excavation or any time when post-excavation is being undertaken.
15. The licensee accepts that failure by her or him to comply with or fulfil any of the above conditions shall be grounds for the Minister to refuse to issue to her or him any further or other licence under section 26 of the National Monuments Act 1930 (as amended), or to otherwise authorise or permit her or him under any other provision of the National Monuments Acts 1930 to 2014 to carry out archaeological excavation, until such time as such non-compliance or non-fulfilment has been rectified to the satisfaction of the Minister in such manner as the Minister may determine. Nothing in this condition shall be interpreted as obliging the Minister to issue or grant any particular licence or consent which may be applied for under the National Monuments Acts 1930 to 2014. An applicant aggrieved by a refusal by the Minister pursuant to this Condition to issue or grant a licence or consent may request the Minister to review the decision. Where such a review is requested, the Minister will appoint an independent and appropriately qualified person or persons to review the case and make a recommendation to the Minister. The final decision on the matter will rest with the Minister. Any applicant requesting a review under the provisions of this Condition must comply with any procedures specified by the Minister for requesting such a review and provide any information reasonably requested by the Minister or the independent person or persons appointed by the Minister under this Condition, including making themselves or any documents, records, objects or other material associated with the archaeological excavation available for interview or examination as the case may be.
16. This licence may be revoked or suspended by the Minister on grounds of breach of, or non-compliance with, any condition of this licence or otherwise on the grounds that such revocation or suspension is necessary in the interests of protection of the archaeological heritage or otherwise in the public interest. This is without prejudice to any powers of the Minister under any enactment.
17. The licensee shall notify the National Monuments Service in writing (which may be in email form) of the commencement of the excavation and of the conclusion or cessation (whether temporary or permanent) of archaeological excavation at the location to which the licence relates. Such notification shall take place as soon as may be after such commencement, conclusion or cessation.
18. If the licensee decides or become aware that the licence will no longer be availed of within the time period for which it was issued, then the licensee shall as soon as may be notify the National Monuments Service in writing (which may be in email form) of this.

APPENDIX 7.1

OUTLINE HISTORICAL ANALYSIS

OUTLINE HISTORICAL ANALYSIS

APPENDIX 7.1

ATTACHED TO EIA CHAPTER 7.0 ARCHITECTURAL HERITAGE

MILLTOWN PARK, SANDFORD ROAD, DUBLIN 6

MARCH 2021

M



MOLLOY & ASSOCIATES
CONSERVATION ARCHITECTS

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CONTENTS

1.0 INTRODUCTION

2.0 BRIEF HISTORY OF THE EVOLUTION OF MILLTOWN PARK

3.0 OUTLINE BUILDING ASSESSMENT

**4.0 PRELIMINARY CONSIDERATIONS IN THE CONSERVATION AND CONTINUED USE OF
THE STRUCTURES**

5.0 OUTLINE CRITERIA FOR ETHICAL DEMOLITION

6.0 SUMMARY OF FINDINGS

1.0 INTRODUCTION

This document expands on a summarised history of the site contained in Chapter 7 of an EIAR accompanying a planning application for the residential redevelopment of the former Jesuit Community Milltown Institute. The subject building grouping at Milltown Park contains a variety of building scales and purposes, ranging in origin from the late-18th century through to the mid-20th century. None of the structures scheduled in the Record of Protected Structures. The site is not in an Architectural Conservation Area.

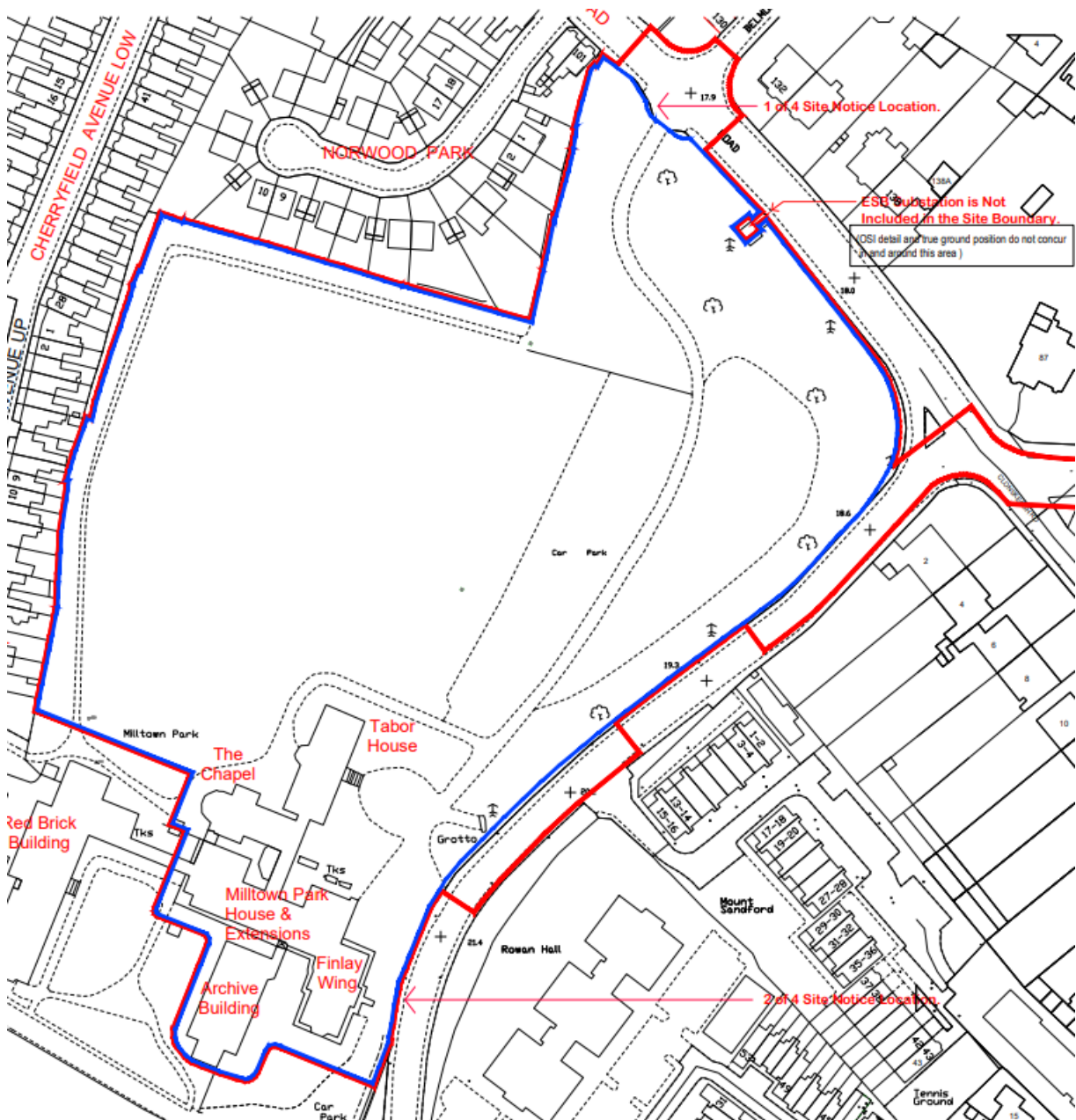


Fig.1 Applicant site boundary enclosing the existing Milltown Park building range



Fig.2 Outline of building range- identifying each building element



2.0 BRIEF HISTORY OF THE EVOLUTION OF MILLTOWN PARK

2.1 Eighteenth and early nineteenth century development

The subject site was first recorded in Rocque's map of 1756 as a farmstead opposing the junction of Milltown Road and Prospect Lane, with a structure aligned with the road (absent from cartographic records from the early 19th century). A structure subsequently appeared north of this building group in the late-18th century, comprising the present-day Milltown Park House.



Fig.3 John Rocque's map of 1757, with structure evident to south of the present-day Milltown Park House

2.2 Nineteenth century development

The Milltown Park House demesne was acquired by the Society of Jesus (the Jesuit order) in 1858, in its efforts to establish a retreat house, novitiate and school. The Society acquired the adjoining Elm Hall demesne in 1884, which incorporated lands later leased to Shamrock Rovers AFC (Glenmalure Park). A portion of the neighbouring Sandfort (Sandford) Demesne and its two houses, owned by the Bewley family, was acquired circa 1949, with Gonzaga College founded on this site shortly thereafter.

The Novitiate was founded at Milltown Park between 1860-84; the Philosophate between 1881-88; 1889-92 and 1918-30; and the Juniorate between 1892-96, with the Theologate established between 1892-96; 1910-12.

Increased presence at Milltown Park required an ambitious programme of building expansion. The first phase of construction occurred shortly after the acquisition of the demesne.

Archival research and examination of the building fabric suggest that the first venture arose in the

construction of an extension to the rear and south of Milltown Park House c1860, with an additional floor level above the existing building also added. Multiple internal modifications appear to date from that time with a generation of new openings to connect the original structure with its rear extension. Close cartographic review suggests that the rear western wing (matching the southern gable of the house) together with a link building was constructed first (1860-74), with the space between the H-block infilled to its present configuration in a later 20th century phase of development (1933).

A second phase of development followed at the end of the 19th century, in the construction of Tabor House 1875 and the Chapel 1895. The Chapel boasts stained glass panelling and a rose window by various studios including Mayer & Co. of Munich / London and Clarke Studios.



Fig.4 County of City boundary commission, 1832, the first indication of Milltown Park House



Fig.5 1837 Ordnance Survey. Note Milltown Park House, and a range of outbuildings positioned to the southeast of the main house. The entrance gates and avenue are largely in existence to the present day. Note the continued presence of a building group, assumed to be the Cold Blow farmstead opposing the junction with Prospect Lane



Fig.6 1847 Ordnance Survey. A similar configuration to the earlier iteration.

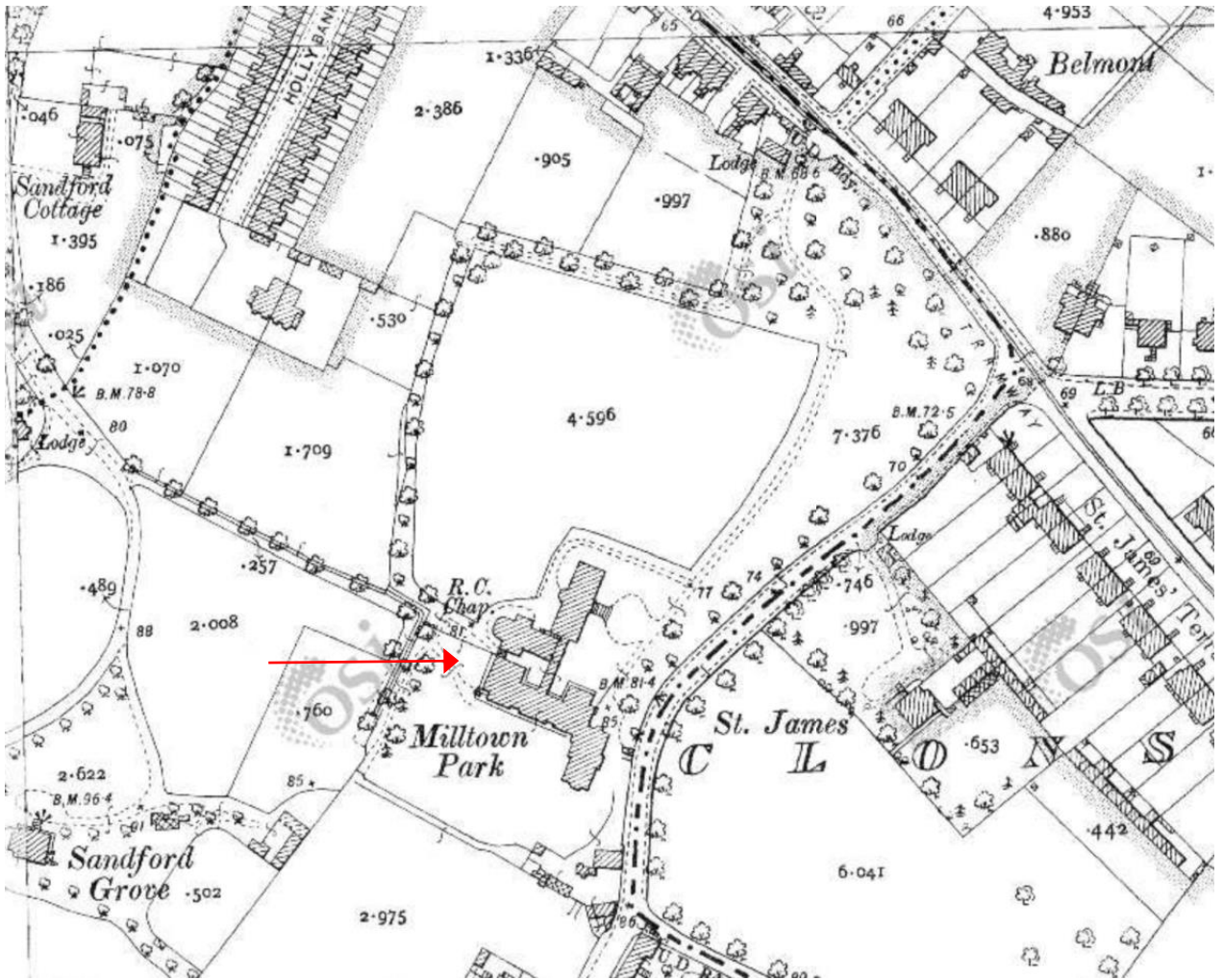


Fig.7 1888-1913 25inch Ordnance Survey. Milltown Park House by this time was acquired by the Society of Jesus, with the first wave of development evident with the exception of the Archive. Note the void between the Chapel, the link building and the Milltown Park House rear extension block, indicating that the domed sanctuary was not yet constructed. This map also suggests that the central section of the rear extension of MPH was not yet constructed, a suggestion also possible in close examination of the photograph below.

The map also suggests the continued existence of a group of structures south of the subject Milltown Park grouping where it is assumed Cold Blow farmstead/ Coldblow House existed.



Fig.8 Photograph of a deep map from 1903 showing the boundary of Theologate property at that time

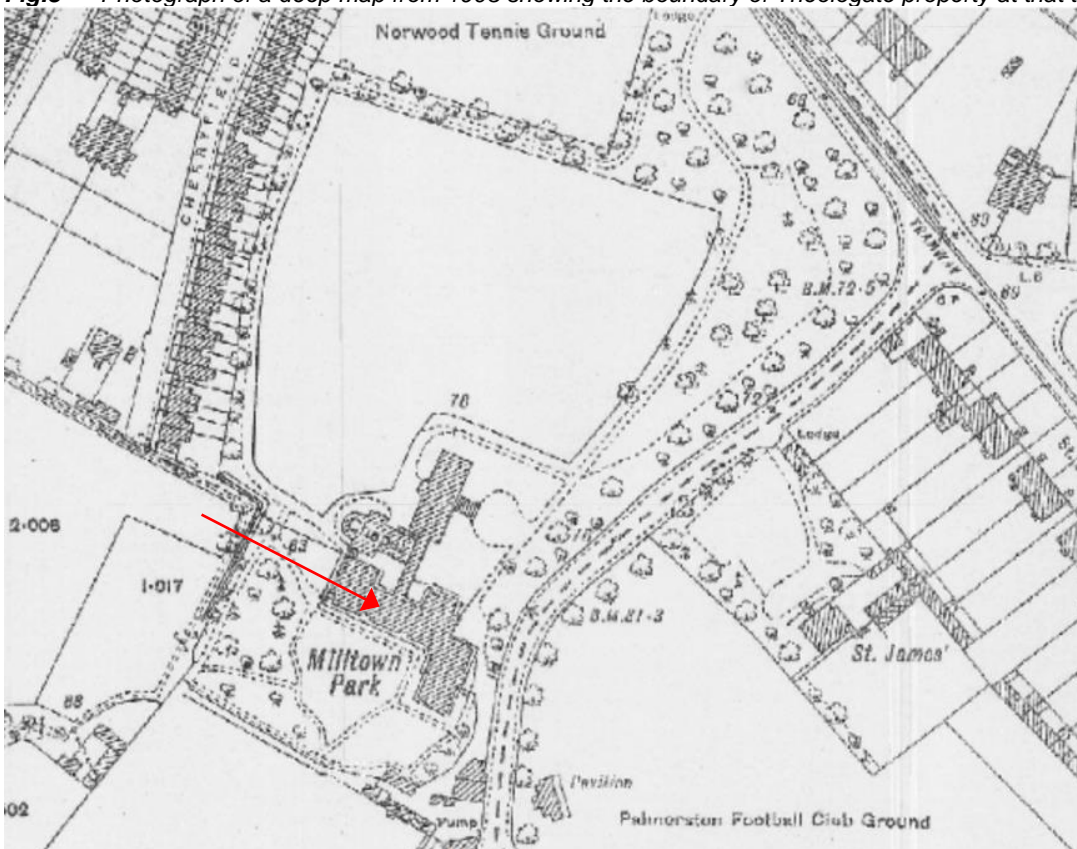


Fig.9 1936-43 25inch Ordnance Survey. Development largely consistent with the previously recorded iteration, however, the gardens and parkland are more developed. Note the infilling of the rear extension block to the south, with the corresponding section to the north not yet constructed. Note also the construction of the Finlay Wing.



Fig.10 Milltown Park, (photographed between 1875-1914) Note the render changes to the main house, representing the vertical extension constructed in the late 19th century. Note to the absence of a taller rear MPH extension link



Fig.11 The Bishop of Cloyne, Robert Browne, with a family grouping at the steps of Tabor House in 1915

2.2.1. Summary record of the construction of the Chapel

There were a number of smaller chapels within the buildings over the years and in 1896 construction commenced on a dedicated Community/Domestic or House Chapel. The building is accessed from a link corridor within Tabor House. No plans or drawings exist, with archive notes based on correspondence on the matter.

The chronology from the archives is as follows:

The first extant letters of 1891 from William Hague, Architect, to Fr. Walsh who was Rector at the time, mention the price of £3,000 for the proposed Chapel. On the 25th May 1891, Hague acknowledges that a figure of £3,000 will be the limit of expenditure. By the 6th June he enquires if it is intended to project the Chapel at right angles to the Retreat House corridor. On 20th June plans progress. On 6th November, Richard Toole, Builder, provides an estimate to Fr. Walsh of £4,400.

Correspondence continues from 1893 to 1895 with much arguing about the building costs and design.

In 1896 the Jesuits continue to argue that costs are too high and Hague's counter argument was that rates had increased and furthermore, a strike was imminent for higher wages for all tradesmen. Toole later quoted a slightly reduced price and states that if this does not meet with approval he will have to withdraw from the work and seek payment for the small amount already executed. Gradually matters were resolved and the proposed cost reduced by modifications to the design including a decision (confirmed by Fr. Tomkin on 8th April 1896) to continue the work in rubble masonry with cement facing and not to project the organ gallery onto the roof of the existing corridor.

An agreement is signed on 21st September 1896 between Richard Toole and Fr. Patrick Keating, the Provincial, stating that the Chapel was to be finished on or before 1st March 1898 and the agreed contract cost was £5,783. There is a separate Specification of Works, signed on this date, and prepared by William Hague. This 22 page document refers to plans which now seem to be lost. It gives technical details such as the use of rubble granite and Portland cement in the walls, the work to be done in cutstone granite, and that the floor, ceiling and organ gallery are to be of Pitch Pine. The shafts in the Chancel Arch are to be of polished Galway granite, with polished Sicilian marble bases and Sicilian marble is also to be used in the pilasters to the jambs of the Side Chapels.

In 1897 Musgrave & Co. Ltd. of Belfast send specifications of the heating apparatus for the Chapel and work must have been well advanced in 1898 as Musgrave send their bill for heating apparatus in November and are paid on 19th April the following year. In 1897 Toole was paid the first instalment for his work. On 3rd February, Hague writes to say that payment is due for the marble High Altar and four Side Altars, and by 2nd June the payment is completed to Thomas Ryan & Sons, Sculptors, 30-32 Lr. Dominick Street.

The Chapel must have been consecrated in 1900 although the only reference found was an indirect one

by Fr. Keating. There is also a large Cash Book in the archives which summarises the final total building costs as:

Builder Toole	£5,770
Architect Hague	£315
Quantity Surveyor	£100
Heating	£174
Altar from Ryan's (Dominick St)	<u>£765</u>
Total	£7,124

The cash book also details a list of principal benefactors who donated for the organ, Roman vestments, gas standards and lamps and the stained glass windows.

In 1927 the building was redecorated. The works included the provision of a new altar and tabernacle, an organ (presented by Lord Chief Baron Pallas) and walls paneled with Sieneese marble. Harry Clarke painted the eight 'Angels' that adorn the sanctuary wall behind the altar and he also painted the Sacred Heart Chapel (1911) ceiling light blue with gold stars. This ceiling was later painted over during renovations to the Chapel in the 1974. The interior was later modified to incorporate a carved altar and hanging tabernacle by Ray Carroll (sculptor and painter).

2.3 Twentieth century development

The building programme continued into the 20th century, as the community became established and more prosperous. The Jesuit House of Studies and Spiritual Exercises (present day Finlay Wing named after Fr. Peter Finlay who became Rector at this time) was added in c1905-1908, once comprising a large scale three storey-over basement building. The construction of a lobby to the north of the original entrance of Milltown Park House was provided to connect the House with the new wing, and enhance entrance facilities for visitors. The builder was Mackey and the Architect was James Purcell Wrenn (1872-1955) The building cost is recorded as £5,980 with the ceiling in the refectory costing £75 and the lights £40.

An extract from the Irish Builder of July 1907 states:

The Jesuit Fathers contemplate erecting a large additional wing to the House of Retreat, Milltown Park. The plans and specifications have been prepared by Mr. J.P. Wrenn M.R.I.A.I., 16 Nasseau St. Dublin. Messrs. Mumby & O'Rourke, Dame Street, are the quantity surveyors and all the work will shortly be offered for tender.

A later entry in October 1907 wrote;

A new wing to the house of retreat, Milltown Park is at present in course of erection by Mr. Thomas Mackey, Lower Camden St., from the plans and specifications of M.J.P. Wrenn architect M.R.I.A.I., Quantities were prepared by Messrs. Mumby & O'Rourke

On the morning of 11th February 1949 a fire swept through Finlay House. At that time there were two floors above the hall, containing the rooms of 32 members, while the hall itself was the community refectory with kitchens beneath. There was an explosion and one Jesuit was killed. By the time the fire

was brought under control the upper floors of the building were completely destroyed and had to be demolished.

It was subsequently reconstructed in its present configuration as a single volume theatre at entrance level, with cellular rooms at basement level. In 1950 work began on rebuilding the Finlay Wing with further work in 1951-53 and then a final stage in 1962-63, as follows:

- 1950 Part of the Finlay wing was rebuilt
- 1951 Work began on the 1st stage of the new wing
- 1953 1st stage of new wing complete
- 1962 2nd stage of new wing begun
- 1963 New wing complete



Fig.12 Extract from the front page of the Irish Times, following the 1949 fire within the Finlay Wing and subsequent loss of life of Reverend James Johnstown.

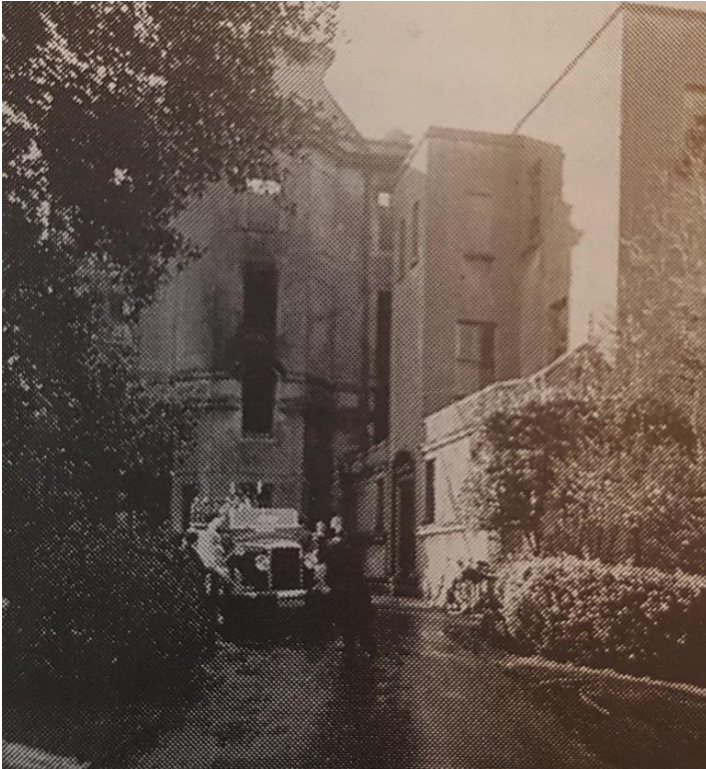


Fig.13 The fire damaged exterior of the Finlay Wing, indicating its original height of three storey over basement with pitched roof over.

The Sacred Heart Chapel / side chapel to the south of the main chapel was constructed in 1911, and is accessed off the corridor linking to the Tabor House wing. It was built under Fr. Power and costs are summarized as:

Builder	£560
Altar (Early & Co)	£380
Decorations (Early & Co)	£115
8 stained glass windows (Early)	£75
Statue of Sacred Heart	<u>£70</u>
Total	£1,200

It was later modernized in 1974 at the same time as the larger, domestic chapel.

General repair and further development works at Milltown were described in the August 1915 edition of the Irish Builder as follows:

Mr. MJ Greene, builder, Donnybrook, has just started a contract at Milltown Park College for the Jesuit fathers. The work embraces the restoration of the roofs, and floors or a large wing of the buildings, containing refectory and classrooms etc. Mr.C.B. Powell, C.E., 107 Rathmines, is the architect

In May, 1932, the Irish Builder describes additional works:

...in a large extension to the Milltown College for the Jesuit Fathers, the patent glazing of Messrs Mellows & Co. Sheffield is being used in the roofs and lantern lights...

A subsequent entry in July of that same year stated:

Additions to Milltown Park College consisting in the removal of the present roof of the Archive section of the college and adding a new building which will contain 26 rooms with two corridors. The walls are constructed in reinforced concrete, plastered and covered with Cabot's sound deafening triple quilt. Vulcanite and tarmacadam will be used for the roof with three circular dome lights. The work which will cost about 5,000 pounds is being carried out from the plans and specifications of C. Powell, architect, 107 Upper Rathmines. Messrs M.J. Greene & Sons Donnybrook are the contractors. The steel beams are supplied by Messrs Smith and Pearson.

The mass concrete Archive was constructed in 1938 reflecting the scarcity of traditional building masonry of the era.

Development continued on the site in the 1950s acquisition of the Sandfort/ Sandford Demesne west of the Milltown Park Demesne, and with it the construction of a Community House, connected with the subject group by way of a single storey link. Gonzaga College was founded within the Sandfort Demesne during this period. The Community building range, together with Gonzaga College, are outside the subject site and do not form part of this assessment.

The Milltown Institute was closed in the summer of 2019, culminating over 150 years of Jesuit presence on the subject site.



Fig.14 The exterior of the Milltown Archive, taken after its opening in 1940



Fig.14a The interior of the Archive following its opening in 1940 showing central stacks. Whilst the building endures as designed and reflected in this image, the private religious Archive has been relocated to the Jesuit buildings in Leeson Street, leaving the archive building empty of all material.

2.4 Summary of chronological development

Figure 15 below depicts the general era of construction of each element of the existing building range.



Fig. 15 Approximate chronology of each building element cited in Fig. 1 above

A detailed chronology is contained in Appendix A7.3. It demonstrates elements within Milltown Park House, in particular, which was subject to most change externally and internally since its construction.

2.5 Baseline research

2.5.1. Bibliography

Milltown Park College, Milltown, Co. Dublin, the Lawrence Photograph Collection, National Archive of Ireland

The Jesuits in Dublin (incl. photographs from the Francis Browne Collection), Edward.E. O'Donnell

The Jesuits in Ireland, Irish Messenger Office, 5 Gt. Denmark Street, Dublin. 1932
A hundred Years of Milltown Park, Rev. Paul Andrews, S.J.

Irish Times, February 12, 1949

Irish Builder, Dublin: Mecredy, Pearcy & Co, 49, 13 Jul. 5 Oct 1907. 22 Jan 1910, 28 Aug 1915, 28 Sep 1929, July 1932, 20 May 1933, 16 Apr 1938

2.5.2. The Irish Jesuit Archives (IJA)

The Irish Jesuit Archives is a private repository, whose primary role is to preserve and protect the memory of the Irish Jesuits. The archives contain the records of the Jesuits in Ireland from 1575 to 1980, with the bulk of papers relating to individual Jesuits, Jesuit administration, sermon and retreat notes. It was originally housed at the Jesuit Institute in Milltown and when the institute was vacated it was relocated to the Jesuit Residence, 35 Lower Leeson Street, Dublin 2. It is the source of much of the above research relating to the buildings though some questions remain unanswered as archive material still remains unopened and uncatalogued. In some instances there were discrepancies in the archive notes relating to dates of building but mainly in terms of the range of dates when a building was commenced, finished or occupied.

3.0 OUTLINE BUILDING ASSESSMENT

3.1 Summary of key dates in the history of the development of the subject building group

1782 Reference to a dwelling on the subject lands

A private archive owned by the Jesuit Community contains notes indicating that in 1782 a house existed in very much the same position as the 'Ministers House', which we know as Milltown Park House. Whilst the exact date of the house is not given it does refer to "some evidence to show that it was not in existence in 1756", separating it from the farmstead evident on the 1757 Roque map.

1795 Cold Blow Demesne

The private archive files reference various small holdings and their ownership to the end of 1795. In that year it says the Right Hon. Denis George, fourth Baron of the Exchequer, bought up the interest in John Hewston's land on 8th December 1795. Some months later he purchased the ground belonging to John Roberts and formed a single demesne which was called 'Cold Blow'. This name had existed in the neighbourhood for many years and Belmont Avenue had been known as 'Cold Blow Lane' for at least thirty years prior to that time. It appears that Coldblow as a name was common in the vicinity. Belmont House, located at the top of Belmont Avenue, dates from 1760. It was originally called Cold Blow House until the avenue was renamed Belmont Avenue. Another Coldblow-named house at Nos 132/134 Sandford Road was demolished in late 1870s.

Baron George laid out the park, planted trees and dug a trench/ dyke as a boundary

separating the Cold Blow Demesne from the neighbouring Sandfort Demesne (later renamed 'Sandford Demesne').

1819 Change in occupancy of the Cold Blow Demesne

In 1819, on the death of Baron George, Cold Blow passed to his eldest son, Rev. Edward George, who in 1821 let it to a Mr. Richard Connery, a wealthy timber merchant of Sir John Rogerson's Quay.

1827 Cold Blow Demesne re-mortgaged

About six years later, Mr. Connery mortgaged the Cold Blow Demesne to Austin Brothers, a Dublin firm of money lenders for the sum of £10,000.

1833 Cold Blow Demesne renamed as Milltown Park

In 1833 Mr. George Fitzjames Russell, who had bought the property, renamed it Milltown Park.

1858 Milltown Park acquired by the Jesuit Community

The property was purchased with the intention that it would serve as a House of Studies and a Novitiate. No plans exist of the house acquired with the lands, but early maps show the footprint of adjoining structures to the south and an extended wing to the rear, possibly an orangery or outbuildings. It is likely that the original house was extended shortly after acquisition and we know the original house chapel or domestic chapel was built in 1860.

In 1858 Milltown Park was offered for sale although the Jesuits did not purchase it directly. Instead Mr. Denis Redmond of Belmont Lodge (father of the late Fr. James Redmond, and of Sir. Joseph Redmond) acted as trustee and agent for the Jesuits. Milltown Park was purchased from Mr. J. Calvert Stronge on June 9th 1858, for the sum of £4,500. On October 22nd, 1858, Mr. Redmond formally transferred Milltown Park to the Jesuits in a deed declaring that in the previous transactions he had only acted as their agent.

1860 Milltown Park House Rear Extension: The original Domestic Chapel

As mentioned above, the original domestic chapel, which is now the reading room, is positioned behind the original Milltown Park House and absorbed within its rear extension.

1860-95 The Rear Extension: Phase 1, the 'H-plan' structure

The rear extension was originally constructed as a 'H-plan' four storey element, known as the Juniorate, mirroring the extended original house and the Minister's House which were linked via a two-storey corridor past the former domestic chapel. Each of the individual building components had pitched roofs. The lower, central section was subsequently extended, in 1932, over the former chapel to match the heights of the end blocks.

-
- 1875 Tabor House and the link corridor**
Known as Retreat House by the Jesuits it was built, with 43 rooms and 2 parlours, and furnished at a cost of £8,752.50 by Messrs. Donnelly Builders and John Butler Architects. Building commenced in 1873 and it was completed in 1875 and the building was later known as Tabor House.
- 1896 Community Chapel**
A dedicated Community/Domestic or House Chapel is constructed to replace earlier smaller chapels attached to Milltown Park House.
- 1905 Finlay House**
A 'House of Studies and Spiritual Exercises' was constructed (present day Finlay Wing).
- 1911 Sacred Heart Chapel**
The Sacred Heart Chapel / side chapel to the south of the main chapel is constructed.
- 1932-33 Rear Extension: Phase 2**
The extension of the lower element of the 'H-plan- structure, above the former Chapel was referred to as 'the Power House' after Fr. Cyril Power who became rector in 1933. It extends to four storeys above the original Domestic Chapel and link corridor.
- 1938 Archive wing**
The Archive was built in 1938 to house the vast collection of books/ records held by the Community at the time. A single storey extension to the south was added in the 1970's to facilitate book- binding.
- c1955 The red brick building, connected to the west gable of the rear extension**
The link structure connecting the Milltown Park building range with a later Community building range, transverses the ownership boundary lines between the Community and the developer.

3.2 Introduction to the building group

There are seven distinct buildings within the grouping, all of which form extensions to the original Milltown Park House with the entire comprising a single building functionally.

The purpose of this section is to describe the composition of each building and inform a preliminary view regarding the architectural significance of each element, which in turn informs Assessments of Significance, contained in Chapter 7 of the EIAR.

3.3 Overview of chronology of Milltown Park House (Building A)

A detailed chronology is contained in Appendix 7.3.

3.3.1. External chronology

This villa style house was constructed in the late 18th century (1756-82) as a residence fronting Milltown Road, but accessed principally from Sandford Road. Its original external configuration would have comprised a two storey over basement house, with single storey projecting porch to the front, a likely substantial return to the rear, accessed as would have been typical of its time, from half landings off the principal stairwell. It included what appears to have been an orangerie to the south, which was taller than other rooms, may have had its own pitched/ glazed lantern roof and would have certainly had windows to the east and west. This room survives, albeit modified, in the room to the lhs of the reception area.

A range of possibly single storey outbuildings were constructed to the southwest of the house, accessed from the lower ground/ basement level, and appear to have addressed open gardens, with no hierarchical definition of yard enclosures as would be expected of a building of its genre. No trace survives of either the return or outbuildings, clearly demolished to accommodate development as a novitiate c1860.

The orangerie was vertically extended in the late 19th century, with eastern windows blocked up in the early 20th century provision of the Finlay Wing. Its expressed gable treatment matches an opposing identical composition culminating the west end of the residential extension block.



Fig.16 Extract from 1847 OS map, with mid-19th century form of the House and its ancillary structures evident.



Fig.17/18 Present day configuration of east (front) elevation of Milltown Park, with the vertically extended entrance lobby; vertical extension to south (denoted by higher level windows) and repositioning of first floor windows. Fig.18 shows a detail of the surviving entrance door and fanlight within a much altered context.



Fig.19 North elevation of Milltown Park, which was vertically extended in the late 19th century. The north elevation of its rear, higher, extension was constructed in the 20th century.

Fig.20 Southern elevation, comprising an extension, with its expressed gable. Note the uncomfortable connection with its rear, later, extension, at a storey higher.



Fig.21 Southern elevation, comprising an extension, with its expressed gable in context with the Finlay Wing and Archive (corner visible). Lower windows are early in origin, with the 6/6 windows attached to a former orangerie, which was vertically extended in the 20th century.

Fig.22 Part of rear (west) elevation, with uppermost level added, and in context with its higher rear extension.

The entrance vestibule was extended vertically to accommodate bathrooms at upper levels, accessed off the main (modified) stair hall. It was also extended to the north to provide an entrance vestibule with decorative expressed internal ceiling structure and stained glass window. An extension to the south served to connect the house with the Finlay Wing.



Fig.23 Entrance vestibule, towards the entrance porch

Fig.24 Entrance vestibule, due north towards its apsed gable and stained-glass window

3.3.2. Internal chronology

The most significant alteration internally is the removal of the central staircase and infilling of what would have originally comprised a grand double height entrance hall.



Fig.25 Infilled entrance hall at entry level with modest access to rear inner hall, leading to the late 19th century extension block. Stair visible through the arch accessing upper floors.

Fig.26 First floor level infilled entrance hall with later wall painted blue. Curved stair leads to vertical extension wing above a former orangerie.

The entrance level floor was replaced with a concrete floor, as evident from basement level, which may originate from a mid-20th century provision of a large scale heating system with associated plant located in the basement below the main entrance.

Much of the plasterwork and joinery throughout the house has been replaced, with a single original, excessively overpainted stucco cornice surviving at entrance level in the former reception room to the northeast. Surviving chimney pieces originate from the late 19th century, and may comprise relocated original pieces, given the later origin of some tiled insets.



Fig.27 Overpainted stucco cornice, with services riser in corner.

Fig.28 Early chimney piece with later tiled inset and hearth, in same room.

Original fabric is most evident at basement level, where an early kitchen survives to the northwest, having original flag flooring and surviving sections of original walls.



Fig.29 Former kitchen to northwest at basement level, with original masonry and floor flags evident. Note concrete downstands for concrete floor plate supporting entrance level above.

Fig.30 View east in same room

The property is in poor condition, with extensive roof breaches causing significance decay internally, extending from 2nd floor level down through the building.



Fig.31 Example of decay due to water ingress from breaches in roof coverings, at 2nd floor (later intervention) level

3.3.3. Summary of Milltown Park House composition

Element	Composition	Condition	Comment
Front elevation (East)	The front elevation has been much modified. Its original porch was vertically extended possibly in the early 20 th century to provide bathrooms at upper levels.	Generally good	The house's original composition has been modified beyond recognition, with irreversible changes

	<p>A vestibule was constructed off the porch, to the north likely at the same time, with a corresponding extension provided to the south to connect with the Finlay Wing. The house was vertically extended with an additional floor added at 2nd level in the late 19th century. A three- bay extension was added at first floor level above an original orangerie to the south. Upper level windows to the front elevation have been modified. The entire structure received cementitious arrised render in the late 19th century.</p>		<p>permanently eroding its character.</p>
<p>Rear elevation (west)</p>	<p>The original, smaller rear return was removed and replaced with a large scale four storey over basement extension dwarfing the original house. Rear openings connecting with the former return at basement and entrance level were widened to improve connectivity with the rear extension block. 1st floor level access was provided through a modified window. The house was extended vertically with an additional storey at 2nd floor level, thus altering its original</p>	<p>Generally good.</p>	<p>The house's original composition is lost, with the original return removed and replaced with a large scale extension, wider and taller than the original. The vertical extension and replacement of chimney stacks has distorted the original composition unrecognisably.</p>

	<p>composition.</p> <p>An orangerie to the southwest was vertically extended and fenestration at entrance level blocked up.</p>		
Gable (south)	<p>The southern gable above entrance level comprises a later extension above a former orangerie. It is designed to correspond with an opposing gable culminating the rear extension, forming an H shaped block with matching architectural 'book ends'.</p>	Generally good.	<p>The extension attempts to align with an earlier style of architecture in its expression of gable treatment. However, it has suffered neglect and has been exposed to unchecked water ingress over a sustained period, compromising its condition.</p>
Gable (north)	<p>The northern, four bay elevation appears to be original based on assessment of exposed walls at basement level. An upper storey was added at 2nd floor level, with render replaced to visually align original with later work.</p>	Generally good.	<p>This is the only surviving elevation, albeit vertically extended.</p>
Basement level	<p>The original footprint of the house is most legible at basement level, with original rooms largely intact. The basement provision under the former orangerie to the south corresponds in depth with the area below the reception, confirming the existence of early fabric to</p>	<p>The condition of the basement has been undermined by rising damp. A former lightwell is thought to have existed around the original building, but was infilled to the front (east) and rear (west), possibly without consideration</p>	<p>Whilst some original fabric survives at this level, there is not enough to form an opinion as to the legibility of the original form.</p>

	<p>the south of the entrance lobby. The provision of a concrete staircase from entrance level removed a central room. The original stair configuration is not evident in examination of surviving fabric but is assumed to have traversed the original basement hall from east to west, commencing from east. Original flagstones survive in a single room to the northwest, where original walls to the north and east are also evident. All other rooms have been much altered, both in form and materially with loss of original structure. Later connections were made to the west, to link with the rear extension block, and to the south to connect with the Finlay Wing, both structures of which had basements. The precise origin of concrete internal additions is not known but is assumed to stem from mid-20th century fire rating measures separating basement plant from the principal entrance above.</p>	of original drainage systems.	
Entrance level	<p>A single room survives in its original configuration at entrance level; the former reception room to the northeast. All other rooms</p>	Generally good.	All significance originating from the primary structure has been removed.

	<p>have been modified spatially beyond recognition, with no original plasterwork/ joinery surviving. The original floor was replaced with a concrete floor. The stairhall was infilled, and stair replaced. The most significant feature comprises the early 20th century vestibule, constructed off the entrance lobby, which has a decorative stucco ceiling, panelling and stained glass window (it is proposed to salvage the stained glass window). This connects with an original reception room by way of a large opening above reception desk height, now sporting an electric shutter. The internal view of the original entrance lobby is unremarkable, with the fanlight only surviving. It is proposed to salvage the fanlight and reinstate it in a room within Tabor House. An entrance was extended to the south to connect with the Finlay Wing. Rear connections were enlarged to link with the rear extension block.</p>		
First floor level	<p>Rooms to the north have survived in their original configuration, but have</p>	<p>Breaches at roof level extend to 1st floor level rooms, suggesting</p>	<p>The existing composition bears pitiful reference to</p>

	been amalgamated/ compartmentalised. A corridor has been constructed to the rear connecting divided rear rooms. The infilled entrance hall accesses the southern extension, with a curved stair leading to rooms at a higher level.	advanced decay within wall and floor voids.	the original, with all plasterwork and joinery comprising replacement fabric.
Second floor level	The second floor level was added in the late 19 th century. It is similar in composition to the first floor level, albeit with an interesting plant room cutting through the (later) roof incorporated in a former room to the rear of the stairhall. Rooms to the north have been amalgamated. All rooms are suffering some form of water ingress due to significant roof breaches.	In poor condition due to sustained water ingress, with extensive water damage to ceilings and walls as a consequence.	As above
Roof	The roof and chimneys are not original and do not possess features of significance.	In poor condition.	Non-original fabric having no significance.

3.3.4. Milltown Park House- Categories of Special Interest

The Planning and Development Act 2000 requires a protected structure to be of special interest under one or more of eight categories as scheduled below. The special interest of Milltown Park House is therefore assessed under these categories to determine its collective/ singular significance.

Category	Interest
Architectural	The building's architectural composition has been altered to the extent that it cannot be stated that it has significance. Later modifications were function and budget driven, with little attempt to generate a respectful and compatible enhancement to the original. Some attempts were made to reinstate chimneypieces and joinery, but the overall composition is found

	incongruous with the original form, and regrettably is irreversibly compromised.
Historical	The house does not possess historical significance
Archaeological	Please refer to archaeological assessment submitted with this document, referring to absence of archaeological significance
Artistic	The entrance vestibule has artistic merit, but in its interconnection and interdependence with its lesser artistically significant parent structure, MPH, it is difficult to be assigned as having merit in the purest sense of conservability. It is recommended that this structure is carefully recorded, should demolition of MPH be considered.
Cultural	The house was occupied as a novitiate when first purchased by the Order, but despite review of records, no cultural event is known to have occurred within.
Scientific	The building does not possess scientific significance
Technical	The building does not possess technical significance
Social	No social significance, other than its occupation as a primary novitiate, is known to have arisen within the house.

3.4 Overview of chronology of Milltown Park House rear extension block (Building B)

Constructed in multiple phases; Phase 1 in c1860, Phase 2 between 1860-1874, Phase 3 in 1933.

3.4.1. External chronology

The design of the rear extension block, as originally constructed, attempted ambitious harmony with the extended Milltown Park House in the creation of an H-block, culminated with the House to the east and a matching wing to the west. The taller, early 20th century central portion's southern elevation was modernistic in its treatment, having modulated fenestration expressed up to parapet level. Its simpler northern elevation was of later origin again.

The original domestic Chapel, constructed in 1860, is now embedded within later phases of the rear extension block. It is unclear exactly when the first phase of the rear extension was constructed, or if it was constructed at the same time as the original domestic chapel. Examination of the building fabric suggests that original chapel predated this phase of construction. What is clear, is that the rear extension was originally constructed as a 'H-plan' building; a four storey element, known as the Juniorate, mirroring the extended original house to the south, the Minister's House which were linked, via a two-storey corridor, past the former domestic chapel. Each of the individual building components had pitched roofs.

The lower, central section was subsequently extended vertically in 1933, above the original chapel, to match the heights of the end blocks.

As a composition, the extension attempted to merge with Milltown Park House, with all elements rendered simultaneously to visually aid the fusion.

The rear extension was originally intended to be viewed in the round, addressing parkland on all sides. The later construction of the abutting Chapel, Link and Tabor House to the north removed a clarity that was dependent on its architectural legibility. The subsequent 20th century construction of the Finlay Wing and Archive further obstructed the once dominant southern elevation, with its composition now illegible.

3.4.2. Internal chronology

The extension is much modified internally. It comprises a corridor with cellular rooms to the south and either side in its rear wing on all five levels. Its rear wing, culminating its western elevation, expands to form an H shape corresponding with the form of Milltown Park House, and houses sanitary facilities and stores.



Fig.32 The extension's later northern infilled section in context with the north elevation of the main house, with the two storey Chapel link to the RHS of the image.

Fig.33 The later southern central extension in context with the Archive.

Fig.34 The original extension rear wing to west, matching the southern (extended) gable of Milltown Park House



Fig.35 Southwest view of the original extension, culminated in an expressed H form gable building corresponding with an addition to the main house, (F.21 above). The taller central section is a later addition.

Fig.36 View of the (later) northern extension from a rear 1st floor window of Milltown Park house, towards the opposing (original) H form comprising a lower building, possibly intended to align with MPH.



Fig.37 View from west

Fig.38 View from west of expressed gable

3.4.3. Summary of Milltown Park extension composition

Element	Composition	Condition	Comment
East elevation	The east elevation comprises a later infill extension and is merged with the rear (west) elevation of Milltown Park House, partially externalised above the roof of the house.	Its condition is not visible.	The junction between the extension above Milltown Park and its rear extension appears uncomfortable when viewed from the ground.
West elevation	The rear gable of the building seemingly corresponds with the original form of Milltown Park House.	Generally good.	The main central section is taller than its rear wing, with a traditional pitched roof evident above same. The attempt to align with the architecture of Milltown Park House was intended to be viewed in context with the north elevation of the House. The later construction of the Chapel and Tabor House obstructs this intentional

			synchrony.
South elevation	The southern, modernist, elevation is visually prominent within the wider setting of the Finlay Wing and Archive, but cannot be viewed in its entirety from any angle, given its bulk.	Generally good.	The main body of the extension is taller than its flanking sections, possibly attributed to it being a later addition. The extension as a whole comprises the House to the east and a corresponding later version of the House to the west. The original composition prior to the construction of the Finlay Wing and Archive must have been quite imposing in a landscaped setting.
North elevation	The northern (modernist) elevation is simpler than its corresponding southern elevation, but is largely subsumed behind the Chapel link building and Chapel, with no section visible in its entirety. A lower original elevation was intended to be viewed within a landscape, which is now constructed upon.	Generally good.	The significance of the northern elevation is removed in its attachment to extensions to the north (the Chapel link building, Chapel and Tabor House). A structure that was originally designed to be viewed in the round is now much undermined by its enclosing structures. As stated above, research is ongoing to determine the origin of the later infilled central

			section.
Basement level	The basement level accommodation connects with that of Milltown Park House, and benefits from a light well to its perimeter. The accommodation is cellular, either side of a central corridor. The rear southwestern corner connects with a stair leading to a link building connecting with the Community House (outside the ownership of this submission)	Generally good.	The basement accommodation is typical of its era of construction, retaining its original decorative condition (windows, doors, plasterwork etc.).
Entrance level	The entrance level accommodation is accessed from the rear hall of Milltown Park House. The entrance level accommodated a range of lecture rooms with larger function room either side of the central corridor to the west, housed in the wing culminating the extension. The interior is simply treated, with modest plasterwork, joinery and chimney pieces (where present).	Generally good.	The original composition is legible with joinery and linings surviving.
First floor level	Rooms of equal size are positioned either side of a central corridor in the rear wing, with central section housing a 'domestic chapel' accessed from a short flight of steps within the circulation route, which	Generally good.	The original composition is legible with joinery and linings surviving.

	comprised a double height volume with interesting arch headed vaulted windows. This floor is accessed through an original rear bedroom within Milltown Park House, in the widening of an original window opening.		
Second floor level	As above	As above	As above
Third floor level	As above	As above	As above
Roof	The roof over the central portion was not accessible at the time of survey. The pitched roof of the lower wing to the west is visible from a central corridor window at 2 nd floor level, but the roof was inaccessible.	The roof's composition and condition will be described when access is possible.	-

3.4.4. Milltown Park Extension- Categories of Special Interest

The Planning and Development Act 2000 requires a protected structure to be of special interest under one or more of eight categories as scheduled below. The special interest of the extension is therefore assessed under these categories to determine its collective/ singular significance.

Category	Interest
Architectural	The extension is a compositional set piece in its own right, regrettably undermined by its own modifications and with later abutting structures to the north and positioning of later buildings to the south. Its special interest has been undermined by the Order's functional requirement to expand its accommodation at the end of the 19 th century, and position new elements as near as possible to Milltown Park House, in its consistent purpose as the principal entrance.
Historical	The extension does not possess historical significance
Archaeological	Please refer to archaeological assessment submitted with this document referring to absence of archaeological significance
Artistic	The extension was simply constructed with no embellishments internally. Externally it has been modified in the extension of its central section.

Cultural	The extension does not possess cultural significance
Scientific	The building does not possess scientific significance
Technical	The building does not possess technical significance
Social	The extension is not known to possess social significance

3.5 Overview of chronology of the Finlay Wing (Building E)

Originally constructed 1908 with extensive modifications following a fire in 1949.

3.5.1. Exterior of the Finlay Wing

The external character of the Finlay Wing as existing comprises its reconstruction following a fire in 1949, where a four storey over basement building was altered as a single volume building. Externally, the building is sparse and representative of budget-driven economy of mid-20th century development.



Fig.39 Views of east elevation



Fig.40 View of south elevation (behind tree) as demarked by arrow



Fig.41 View of west elevation

Fig.42 View of west elevation

3.5.2. Interior of the Finlay Wing

This interior of the single volume hall is a well-crafted, simply designed structure of the mid-20th century. The space is divided into two with an innovative sliding door system. The building is unique in the complex in that whilst it is connected with Milltown Park House as its primary entrance, it has independent access to the east in an expressed porch and lobby. The building is much altered from its original form.



Fig.43 Internal bay



Fig.44 Leaded windows within lobby to east



Fig.45 North elevation leaded window

3.5.3. Summary of the Finlay Wing composition

Element	Composition	Condition	Comment
East elevation	The east (front) elevation comprises a 5-bay composition with projecting central porch; flat roofed with expressed parapet cornice and quoins in arised cement render and six panelled metal casements.	Generally good.	The modest composition reflects a paucity of budget at the time of reconstruction.
West elevation	The west elevation corresponds with the east, without the projecting porch.	Generally good.	As above
South elevation	The southern elevation has the best setting and supports a central projecting bay corresponding with that on the east elevation.	Generally good.	The parkland setting enhances this elevation.
North elevation	The northern elevation is partially visible to the fore of Milltown Park House. It boasts a leaded tryptic window composition, likely salvaged from the original building in its reconstruction.	Generally good.	This elevation is compromised by its crude juxtaposition with Milltown Park House.

Basement level	The basement is simply arranged with cellular accommodation either side of a central corridor.	It has suffered extensive rising damp, with evidence of flooding via a door to the east.	The basement is unremarkable, with its most significant feature comprising metal framed windows and carefully expressed services.
Entrance level	The entrance level accommodation comprises a single volume hall, with expressed pilasters and ceiling down stands. It has oak parquet flooring laid in a herringbone pattern, expressed stuccowork, central sliding screen system and leaded windows	Generally good.	The building's interior is representative of its mid-20 th century origin
Roof	The flat roof is lined with bituminous materials.	Roof condition reasonable.	-

3.5.4. Categories of Special Interest -Finlay Wing

The Planning and Development Act 2000 requires a protected structure to be of special interest under one or more of eight categories as scheduled below. The special interest of the Finlay Wing is therefore assessed under these categories to determine its collective/ singular significance.

Category	Interest
Architectural	The building's significance is reduced in its effective reconstruction in the early 1950s, at a time when construction technology in Ireland was limited generally. Notwithstanding the era of reconstruction, the building is a good example of mid-20 th century architecture, albeit reflecting a particular form and function intrinsically linked with its institutional use.
Historical	The building does not possess historical significance
Archaeological	Please refer to archaeological assessment submitted with this document referring to absence of archaeological significance
Artistic	The building has artistic interest in its leaded windows and modulation of its interior.
Cultural	The building does not possess cultural significance
Scientific	The building does not possess scientific significance
Technical	The building does not possess technical significance

Social	Setting aside the very unfortunate loss of life and injury occurred to members of the community in its fire in 1949, the building does not possess social significance
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3.6 Overview of chronology of the Archive (Building F)

Constructed in 1938 with book binding room added in the 1970s

3.6.1. Archive exterior

The Archive building's modest exterior, comprising a simply rendered concrete block building belies its crafted interior. Its external composition is representative of wartime Ireland where materials and labour were in sparse supply. Fenestration comprises horizontal metal frames in vertical bands in rhythm puncturing an otherwise solid, simply cast façade. Each corner has a raised parapet and contrasting window treatment, with recessed plat bands within an elongated cut. Its lower level link building connecting with the Milltown Park House rear extension block, defers to its parent form.

The building does not benefit from any independent external access. Its singular point of entry is internally, via the Milltown Park Extension, which involves a series of level changes.



Fig.46 East elevation in context with Extension Block



Fig.47 East elevation

**Fig.48** West elevation**Fig.49** West elevation in context with Extension Block**Fig.50** South elevation**Fig.51** West elevation in context with Extension Block**Fig.52** South elevation in context with the grouping**Fig.53** East elevation in context with the Finlay Wing

3.6.2. Archive interior

The building's interior reflects its function as an archive. A quadrangle generated by a pressed copper-clad structure encircling at three levels an apse ended lantern roof light, comprises book shelving aligned with the structure to create bays each having their own window. Guarding in steel uprights with polished oak handrail encloses the bow ended void.



Fig.54 Interior view, due south



Fig.55 View, due north



Fig.56 Structure/ bookshelf bay composition



Fig.57 Stair composition

3.5.3. Summary of the Archive composition

Element	Composition	Condition	Comment
East elevation	The east elevation's cementitious rendered finish is punctured by tall two pane metal windows, the lower stage, separated with a profiled string course having	Generally good.	The east elevation is a simple exercise in brutalism

	five-pane alternatives. Rainwater goods are provided in copper. Corners abutments are expressed. The lower reading room's tripartite fenestration expresses a classicism reflecting of the building's unique interior.		
West elevation	The west elevation refers in its entirety to the east elevation.	As above	As above
South elevation	The southern elevation has two large four paned windows above the stairwell, with corner abutments following the style of the east and west elevational fenestration treatment.	Generally good.	As above
North elevation	The north elevation is blank above the reading room abutment with the Milltown Park rear extension block.	Generally good.	As above
Internal volume	The Archive is a single volume space, stratified behind its structure into three floors of book storage and reading areas.	Generally good.	As above
Roof	The flat roof is enclosed by a tall parapet and has rooflight upstands.	The roof and its rainwater goods are in poor condition, with numerous leaks evident.	-

3.5.4. Categories of Special Interest of the Archive

The Planning and Development Act 2000 requires a protected structure to be of special interest under one or more of eight categories as scheduled below. The special interest of the Archive is therefore assessed under these categories to determine its collective/ singular significance.

Category	Interest
Architectural	The Archive comprises a good example of its era of construction but is inherently connected with its original function, which has been permanently lost.
Historical	The building does not possess historical significance
Archaeological	Please refer to archaeological assessment submitted with this document

	referring to absence of archaeological significance
Artistic	The building's interior has elements with artistic significance
Cultural	The building does not possess cultural significance
Scientific	The building does not possess scientific significance
Technical	The building possesses technical significance insofar as its pressed clad structure and interior finishes extend.
Social	The building does not possess social significance

3.7 Overview of chronology of the Chapel (Building D)

The Chapel was constructed 1895. The smaller Sacred Heart Church was constructed later in 1911.

3.7.1. External chronology of the Chapel

The chapel grouping, comprising a sacristy, vestry and gallery, is an exemplar of its era. It was constructed following the rear Milltown Park extension block, which accommodated a domestic chapel, which later became a reading room. Its external form is strong, with copper clad bow ends and elegant fenestration. Although the essentially introverted building is engulfed by taller buildings to the east (Tabor House link building); north (Tabor House) and south (Milltown Park rear extension), it represents the most favourable building within the grouping for detachment from its context.



Fig.58 East elevation

Fig.59 West elevation in context



Fig.60 South elevation

Fig.61 South elevation in context. Note the later infill sacristy and vestments room.

3.7.2. Internal chronology of the Chapel

The interior is clad with polished marble wall and floor linings within a grid composition. Its expressed roof structure is a continuance of the grid. Whilst all pews have been removed, the interior reflects its ecclesial function, with a collection of stained glass windows by Clarke Studios and Mayer & Co. of Munich and canvases by Harry Clarke.



Fig.62 Rose window above gallery

3.7.3. Summary of the Chapel composition

Element	Composition	Condition	Comment
East elevation	The east elevation is subsumed within the Tabor House link building, with roofing visible above.	Generally good.	The chapel is accessed modestly from the Tabor House link building, with no singular announcement of the quality of its interior evident externally.

West elevation	The west elevation is visible within the parkland setting.	Generally good.	The west elevation is bow ended, cement rendered with a rusticated granite plinth.
South elevation	The southern elevation is visible only from upper level windows within the Milltown Park rear extension block.	Generally good.	The southern elevation is obscured by outbuildings and by its proximity to the extension to rear of Milltown Park House. It is similarly composed to the west elevation.
North elevation	The north elevation is obscured due to its proximity to Tabor House	Generally good.	The northern elevation is in close proximity to Tabor House and not visible only from the open space at garden level between the two buildings. It is composed similarly to the west elevation.
Basement level	A basement exists under the chapel, at garden level. It consists of cellular accommodation either side of a central corridor.	Rising damp is evident throughout. All fittings and finishes are intact with little evident of later intervention.	The fabric is generally intact.
Entrance level	Entry level is accessed up a short flight of steps from the corridor of the Milltown Park rear extension block, leading to the Tabor House link building. The volume of the chapel is remarkable, with extensive gilding, carved stonework and stained glass windows.	Generally good.	The main volume comprises the most significant element of this building.
First floor level	The gallery is accessed	Generally good.	The gallery is in good

	from an obscure link structure to the south of the first floor of Tabor House. Pews, organ and stepped accommodation survive intact.		condition and reflects its original function.
Roof	The slated roof with copper trimming and gutters is in good condition generally.	In good condition.	The roof is prominent within the parkland, immediately distinguishing this building form from its counterparts within the grouping.

3.7.4. Categories of Special Interest of the Chapel

The Planning and Development Act 2000 requires a protected structure to be of special interest under one or more of eight categories as scheduled below. The special interest of the chapel grouping is therefore assessed under these categories to determine its collective/ singular significance.

Category	Interest
Architectural	The chapel's architectural interest is in its quiet merging with its context and interior detailing.
Historical	The building does not possess historical significance
Archaeological	Please refer to archaeological assessment submitted with this document referring to absence of archaeological significance
Artistic	The building possesses artistic significance in its connection with the stained glass and canvases of the Clarke Studios.
Cultural	The building does not possess cultural significance
Scientific	The building does not possess scientific significance
Technical	The building does not possess technical significance
Social	The building does not possess social significance

3.8 Overview of chronology of Tabor House (Building C)

Tabor House and its link building were constructed in 1875.

3.8.1. External chronology of Tabor House

Tabor House comprises a three storey over basement building, and possesses a strong exterior of rusticated granite, with sweeping entrance steps centrally positioned to the east. It has a slated pitched roof, timber sash windows and timber panelled doors.



Fig.63 East elevation

Fig.64 West elevation in context

3.8.2. Internal chronology of Tabor House

The building is simply designed internally with generous cellular rooms positioned either side of a central corridor. Plasterwork is simply treated, with cornices on the central stair only. Joinery is simply and robustly treated to reflect its institutional use as a dormitory building. Its most significant feature is its bowed staircase, centrally positioned, to the west. Some rooms are amalgamated to create lecture rooms.



Fig.65 Secondary steel stair of interest

Fig.66 As above

3.8.3. Summary of Tabor House composition

Element	Composition	Condition	Comment
East elevation	The building's east (front) elevation is compositionally pleasing, comprising a 7 bay, three storey over basement structure having	Generally good.	The buildings presence is striking within the parkland

	2/2 sash windows and a central projecting entrance bay, with sweeping entrance stair.		
West elevation	The west elevation is a continuance of the style of the east, with a central bowed stair bay.	Generally good.	As above
South elevation	The south elevation is subsumed by the link building and the chapel.	Generally good.	As above
North elevation	The north elevation is modest, and a continuation of all other elevations.	Generally good.	As above
Basement level	The basement level comprises cellular rooms either side of a central corridor. The basement's generous floor to ceiling height benefits the past use of this floor as bedrooms. Some rooms are amalgamated.	Generally good.	Most original fabric surviving.
Secondary stair enclosure to east	An intriguing detail exists behind a concealed door at entrance level in the provision of a steel secondary stair of uniquely functional design within a shower room and toilet facility.	A water tank at 2 nd floor level is leaking continuously arising in sustained and wholly damaging degradation of all lower level fabric. corrosion of the steel stair is evident, as is the decay of timber structure	This unique feature requires urgent attention in order to safeguard it into the future.
Entrance level	The entrance level comprises cellular rooms either side of a central corridor. Some rooms have chimney pieces. All rooms have simple treatments. Fire separation is provided	Generally good.	As above

	by way of a set of door screens separating the central stair from corridors, a practice repeated at upper levels.		
First floor level	The 1 st floor level is cellular following the symmetry of lower levels. Most chimney pieces have been removed and decorative detailing is minimal.	In a comprised condition due to sustained water ingress from roof level above.	As above
Second floor level	The upper most level is cellular following the symmetry of lower levels. All chimney pieces have been removed and decorative detailing is minimal.	In poor condition due to sustained water ingress.	As above
Roof	Slated roof pitches, with covered rooflights, chimneys and central valley.	In very poor condition with multiple breaches evident.	The roof requires urgent attention as ongoing leaks are arising in a detrimental impact internally.

3.8.4. Categories of Special Interest of Tabor House

The Planning and Development Act 2000 requires a protected structure to be of special interest under one or more of eight categories as scheduled below. The special interest of Tabor House is therefore assessed under these categories to determine its collective/ singular significance.

Category	Interest
Architectural	The building's principal architectural interest lies in its external form, which dominates the grouping and is visible in the round within the parkland with a strong presence from Milltown Road.
Historical	The building does not possess historical significance
Archaeological	Please refer to archaeological assessment submitted with this document referring to absence of archaeological significance
Artistic	The building does not possess artistic significance
Cultural	The building does not possess cultural significance
Scientific	The building does not possess scientific significance
Technical	The building does not possess technical significance

Social	The building does not possess social significance
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3.6 Overview of chronology of the Link (Building G)

Building G was constructed in the 1950s to connect the Community Building range with the subject institutional building range.

3.6.1. Exterior

The exterior is simply composed with red brick facing having arched multi-paned windows on the south side, with rendered blockwork on the north side. The building has a flat roof with parapet upstands.

3.6.2. Interior

The building's interior is simple, with flat plastered walls and ceilings and a polished parquet floor.

3.6.3. Special Interest

The building is modest in form and function, and is not considered to possess any category of special interest.

4.0 PRELIMINARY CONSIDERATIONS IN THE CONSERVATION AND CONTINUED USE OF THE STRUCTURES

4.1 Characteristics of the existing building range – preliminary review

The site contains a range of historic buildings of differing eras, requiring judicious assessment and recording in categorising architectural significance, with a view to informing selected retention and responsible demolition.

The extant building range contains internally interconnected fabric of varying origin and architectural composition, with few principal connections to the external landscape impacting the legibility of individual building forms and their singular and collective coherence.

In essence, the existing building range functions as one building, albeit made up of diverse building forms, further complicating retrospective detachment in order to connect independently with a reintroduced/ manufactured landscape.

The building range has suffered extensive, irreversible interventions, with elemental and collective architectural significance eroded as a consequence.

An assessment of the architectural heritage significance of the substantial, extant building grouping finds that singular building forms possess technical and artistic significance, but the manner in which connecting forms have been modified/ extended over time or positioned in the first instance, together with the complexity of internal circulation arrangements undermines the viability of the grouping's

wholesale retention and modification for purposeful re-use.

4.2 Outline criteria for purposeful retention and adaptation for secular re-use within a residential scheme

Please refer to Existing Buildings Feasibility Report (O'Mahony Pike)

The primary purpose of this preliminary working document is the identification of building forms presenting greatest opportunity for detachment and successful adaptive re-use within a reimagined residential scheme at Milltown Park.

The large scale building range is introverted, insular and inherently interwoven, generating a challenge where extraction of singular elements is proposed.

Ecclesial building style and forms of the quantum on the subject site are not readily transferrable to secular functions, with buildings requiring careful selection for purposeful secular re-use.

Upgrading selected buildings to meet statutory requirements would require extensive intervention that may radically alter their character, an outcome that should form the basis for retention in the first instance.

Selection of key buildings is dependent on the likely success of their detachment; i.e. retention of strong building forms having external and internal architectural quality.

Setting aside architectural significance, buildings suitable for retention must possess the following qualities:

- An identifiable external form that can endure 'detachment' from its inherently 'attached' context
- The capacity for independent, diverse re-use
- The internal spatial capacity for a viable future use
- An interior that can be subjected to the rigours of statutory building control compliance without altering its character irreversibly
- The prospect of contributing to a reimagined setting reflecting the site's future residential use

The above, non-exhaustive criteria was applied to each building form within the existing building range, with varying results.

4.3 Identification of building forms having limited capacity for purposeful retention

4.3.1. Archive building

Externally, the Archive building is modest, unassuming and introverted.

Its significance lies in its interior.

Review of a viable future for the Archive building presents a conflict. Its internal layout is intrinsically connected with its function as a private archive, accessed by a limited number of able bodied adults at any one time.

As the private Archive function has been removed in the Order's permanent departure from this historic grouping, this building's interior would need to be radically and irreversibly altered to accommodate an alternative viable use for a larger number of people; a measure that would destroy the essence of its character.

Discontinuance of an Archive use renders the Archive building unviable as an entity. A building without a sustainable purpose is a building at risk.

The Archive building is therefore, regrettably, identified as inseparable from its original function, with questionable options for sensitive retention and adaptation.

4.3.2. Finlay Wing

The Finlay Wing, whilst much compromised on account of its reconstruction in 1950, still presents a good example of classical mid-20th century architecture. Its significance is concentrated on the quality of its interior, as its exterior alone does not possess quality meriting retention.

In brief, its possible future use was reviewed as an amenity building, however, as a single volume space subject to the full rigours of building control compliance as an unprotected structure, it would need to be insulated and fire rated, which would inherently conceal the quality of its internal plasterwork, and entirely alter the character of the interior, which is what contributes most to the building's character. Secondary windows to thermally improve the single glazed leaded windows, would be inevitable. On the whole, it was considered that the changes required to upgrade this building would result in a dramatically different character to the existing.

4.3.3. Milltown Park House

The original house has been altered to the extent that its early composition is unrecognisable. Internal modifications have removed all significance attached to the original structure. Its external composition is one of architectural confusion.

Notwithstanding the survival of original masonry elements at all levels, masonry alone is not sufficient to merit retention of an entire structure of compromised clarity.

Reversal of inappropriate interventions is not viable for a non-protected structure.

Re-use of the existing building would require further considerable intervention, a measure that does not stack up either architecturally or financially for a building already undermined.

The survival of the vestibule alone, the building's most important asset, is not practical.

4.3.4. Milltown Park House rear extension block

The extension is described above as a separate building, in reflection of its architecture, circulation and contrast with Milltown Park House. It is in good condition, and maintains some internal rooms of quality, such as the domestic chapel.

Its failing is in its varied extensions to the north and south and in its attached form; joined to the rear of a much compromised 19th century domestic house; attachment to the north to the Tabor House link and to the west with a Community Building not forming part of the subject development site.

In short, this building cannot be detached from its abutting buildings. It is inseparable from the main house. If the earlier house is removed and the extension retained as a standalone structure, the symmetry of its 'bookends' as viewed from the south would be lost, and the overall integrity of the original composition undermined.

A victim of architectural circumstance, and notwithstanding inevitable radical changes associated with upgrading; this structure is therefore considered unsuitable for purposeful retention.

4.4 Identification of strong building forms that can endure purposeful retention

Building forms considered to possess particularly strong external qualities are briefly described as follows:

4.4.1. The Chapel building range

The chapel and its associated structures are considered to comprise exemplars of their respective eras of construction. They are complex in terms of consideration of retention. The chapel's entry level for instance is located at first floor level, with lower order 'basement' accommodation at garden level. Further, aside from its rear/west elevation- it does not have identifiable elevational presence to the east, south and north.

Setting aside its challenges, the building as a single volume with cellular accommodation below is more adaptable for re-use than other buildings in the campus. Its architectural significance is unique, given the Harry Clarke connection and the classical composition of its Sacred Heart Chapel.

Adaptation of ecclesial buildings in an increasingly secular society is not without its many challenges, but good examples exist that could lead the way for a future viable use of the single chapel volume.

Possibilities for re-use include amenity type functions complimenting shared amenity offerings within the site's residential redevelopment.

4.4.2. *Tabor House and link building*

Externally, Tabor House presents the most prominent form within the grouping. It contributes most to its parkland setting, as it is one of the few buildings of prominence viewed in the round. It is the building that is found to contribute most to a diverse urban character as viewed from Milltown Road. It has an attractive form and treatment, and could be readily detached from its abutting structures without compromising its aesthetic.

Internally, its accommodation is generous, however modestly treated architecturally. All rooms are bright and spacious.

Of all the structures within the grouping, Tabor House as a dormitory block, most befits a compatible re-use as a multi-unit residential building. Room amalgamation is possible to generate a future residential use. The interior's absence of intricate detailing assists in the provision of internal insulation and fire separating plasterboards without undermining its character.

Tabor House is not the most characterful building within the grouping, but contributes to the public realm as visible from Milltown Road. In practical terms, it on balance presents the most suitable structure for adaptation and purposeful re-use, compatible with the site's renewal for residential purposes.

4.5 **Comment**

As a consequence of the departure of the Jesuit Order from the subject grouping, its use as a purposeful religious institution with bespoke design elements reflecting its specific purpose, has become obsolete. Its wider design quality is not of a level that merits its preservation as an abandoned monument to institutional religious life. The technical and philosophical challenges faced in potential adaptation of each structure for alternative use is likely to render retention or part thereof in conservation terms, meaningless and irrelevant, undermining a finite conservation tradition of preservation.

5.0 **OUTLINE CRITERIA FOR ETHICAL DEMOLITION**

A comprehensive architectural 'preservation by record' of all built fabric within the property portfolio is proposed as a basis for an architectural analysis to support strategic demolition; referring to; chronological changes since occupation of the Jesuit Order in the early 20th century; a record carried out in accordance with Level 4; Understanding Historic Buildings; English Heritage; 2006 (superseding 'Recording Historic Buildings Standards' outlined by the Royal Commission on the Historical Monuments of England); a detailed site assessment providing a descriptive and visual record of the origin, composition, condition and character of each building for the benefit of future social, architectural and historic research setting out the significance of the building grouping in accordance with the NIAH categories of special interest; Architectural; Historical; Archaeological; Artistic; Cultural; Scientific; Technical; Social. The inventory, when complete, will also serve to identify early features of craft and technological interest, which could be salvaged and repositioned thereby informing responsible demolition.

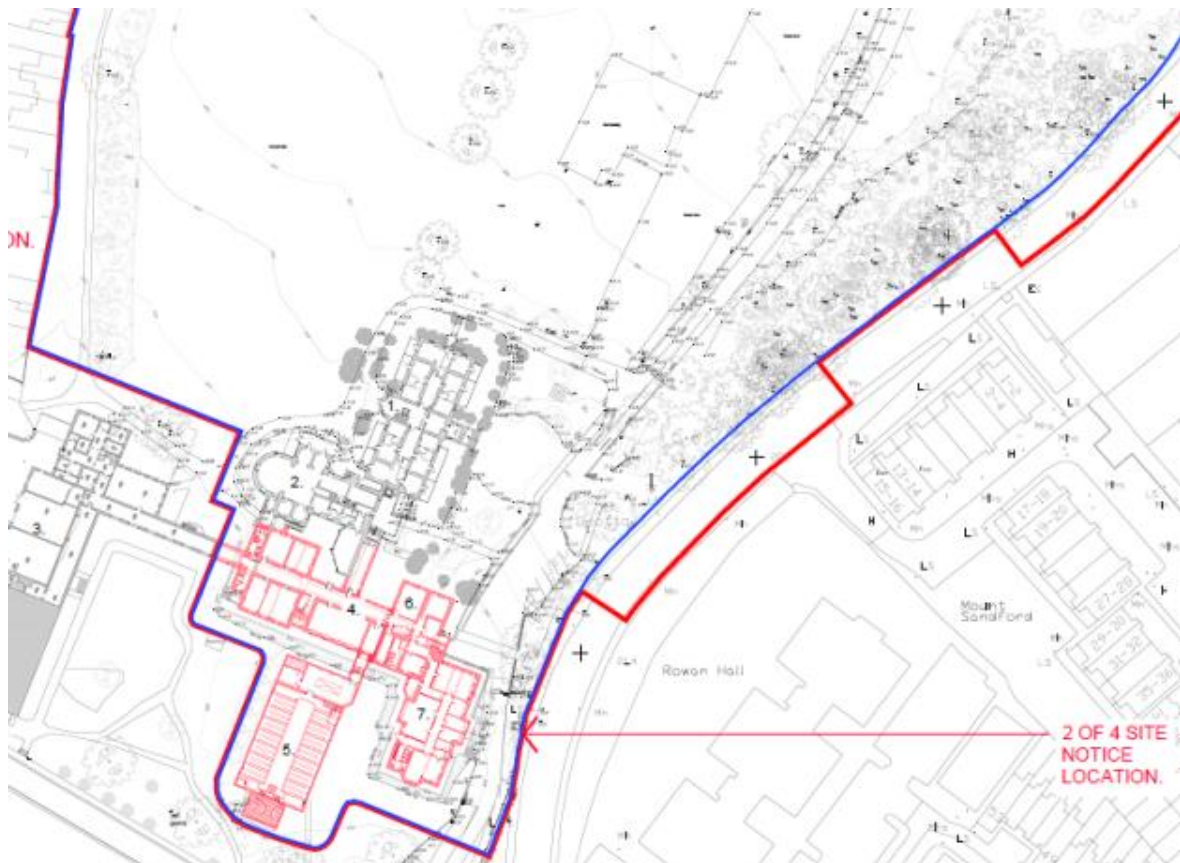


Fig.67 Proposed identification of building retention and demolition



6.0 SUMMARY OF FINDINGS

6.1 Introduction

This appraisal was undertaken to identify the architectural heritage significance of the existing building range at Milltown Park, in light of its impending redevelopment.

The key points which must be considered are as follows;

1. The various built elements comprise large scale extensions to an original vernacular structure, accessed through that structure and not designed to function independent of that structure.
2. The building range evolved from a specific brief to incrementally and somewhat disjointedly expand a religious academic, theological and residential institution; inherently reflecting this brief both functionally and architecturally, with bespoke design elements fused with poor quality retrospective alterations.

An immediate response to the first point is the challenge in externalising elements of an essentially introverted and inaccessible grouping, with a view to possible retention and purposeful re-use of non-protected structures.

A response to the second point finds that any other use for the grouping that departs from the

originally intended academic, theological and residential institutional use cannot readily be accommodated within its existing, complex form. If re-use for a different function is proposed, it would require extensive alteration, with likely consequences for authentic conservation and commercial viability. The basis for re-use must be interrogated, with a view to establishing an outcome where architectural interventions have the potency to ensure that retained fabric endures purposefully and appropriately.

The balancing of conflicting ideals of *architectural focussed retention* Vs *purposeful/ appropriate focussed retention* is a central challenge of the subject appraisal. It acknowledges the permanent loss of the academic, theological and residential institutional use and inevitable requirement at this time for a voluntary selection process whereby building fabric must be assessed in terms of future (appropriate) architectural conservation and functional viability.

Elements within the existing complex have been identified as meeting the dual requirement to be conserved/ modified appropriately and function independently arising in their sensitive integration into any proposed future development of the site. Other elements, having bespoke designs reflecting a specific ecclesial design brief, regrettably, are found either to be intrinsically attached to their original purpose with alteration unviable, or compromised architecturally due to sequential undermining of architectural clarity.

A broad summary of the future viability of each building, singularly and collectively is outlined below:

6.2 The grouping

The grouping comprises a very large scale development, within interconnecting buildings each inherently dependant on its principal building, Milltown Park House, as an entrance and centre for all internal circulation.

None of the buildings, other than the original Milltown Park House were intended to function as an independent entity, with access provided from a principal entry point within this house. As a consequence, internal circulation to each building is challenging and often complex.

6.3 Milltown Park House (MPH)

The house has been extensively altered and is not considered to have significance heritage significance. Its viability for future use would require further interventions internally which would result in further architectural confusion. Retention and internal remodelling is not considered viable.

6.4 Milltown Park House rear extension block

This structure has been extensively altered, with later additions contributing to an interesting, but challenging structure on the whole, to retrofit for contemporary use. It relies on MPH for its completeness, and is dependent on it for its architectural composition.

In conservation terms, the building is interesting in so far as it explains the development of the building complex, but the structure itself, however, has been much altered, is not exceptional and is of limited heritage value. It is proposed that this layer of development be removed for the benefit of the more significant adjacent historic structures. There are interesting features of note embodied within this structure, some of which will be salvaged.

It is possible that the introduction of new structures, with an improved functional relationship to the complex, could be introduced as part of a strategy for the meaningful reoccupation of those structures identified for retention.

6.5 Finlay Wing

This structure as it has been modified has a pleasing composition internally, and benign externally, unremarkable within its urban setting as viewed from Milltown Road.

The interior of main hall, which dates from the post 1949 reconstruction, has some architectural quality representative of the style of this period. A concern however is raised with how to purposefully occupy a large singular volume. Subdivision of the space would likely erode the character of the space.

6.6 The Archive

The Archive grouping's significance is limited to the quality of the interior space, which is intrinsically linked and dependant on its use as a private, rarely accessed Archive with limited accessibility.

Where existing uses have extinguished, the adaptive reuse of historical buildings is generally an accepted method of preserving their long-term survival. However, an obstacle to this conservation strategy arises in bespoke structures, which have been designed to cater for very specific functions. For buildings to be purposefully retained and conserved, any potential re-use strategy must preserve the very character that renders them worthy of retention in the first instance. The adaptive reuse of this building is problematic, as if the building is to be reused it would inevitably require hollowing out of its interior, which is the basis of its architectural significance.

The enclosing external walls are not, in themselves, considered worthy of preservation. However, the interior of the Archive is a set-piece. Removal of the interior to accommodate any use other than an archive/ library would render its retention, on architectural merits, futile.

6.7 The Chapel

The chapel has an external form that is reflected in its entrance level interior. The building is conservable due to its strong external form that can connect with a reimagined landscape. The loose furnishings have already been removed from the interior by the Order, rendering a large volume suitable for other uses.

6.8 Tabor House

Tabor House has an external quality that renders it attractive for future conservation. On that basis, and on the basis that its interior reflects a cellular residential use, which can be maintained into the future, it is considered conservable.

6.9 Summary statement

Detailed examination of the built fabric and the archival research carried out has informed the conservation strategy for the building range.

APPENDIX 7.2

PHOTOGRAPHIC SURVEY

PHOTOGRAPHIC SURVEY

APPENDIX 7.2

ATTACHED TO EIA CHAPTER 7.0 ARCHITECTURAL HERITAGE
MILLTOWN PARK, SANDFORD ROAD, DUBLIN 6

APRIL 2021

M



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CONTENTS

EXTERNAL IMAGES

- A MILLTOWN PARK HOUSE**
- B REAR EXTENSION**
- C TABOR HOUSE**
- D CHAPEL**
- E FINLAY WING**
- F ARCHIVE**
- G LINK BUILDING**

PERIMETER WALL

INTERNAL IMAGES

- A MILLTOWN PARK HOUSE**
- B REAR EXTENSION**
- C TABOR HOUSE**
- D CHAPEL**
- E FINLAY WING**
- F ARCHIVE**
- G LINK BUILDING**

APPENDIX 7.2.1

BUILDING A

MILLTOWN PARK HOUSE – EXTERNAL IMAGES





Plate 1: Milltown Park House entrance with some of its many extensions visible



Plate 2: Main entrance to Milltown Park House with original Ionic columns and cobweb fanlight over



Plate 3: North east gable from drive way passing Tabor House (to right) with rear extension in context



Plate 4: View west of the same elevation with the rear extension, link building and turret of small Sacred Heart Chapel (1911) in view



Plate 5: View of the much modified southern elevation of Milltown Park House where it connects to the Rear Extension, Finlay Wing and the Archive building



Plate 6: As above with view north east towards rear of Finlay Wing (1908)



Plate 7: Southern elevation showing connection to Rear Extension and Archive



Plate 8: View of building range on entering Sandford Road gates from south

APPENDIX 7.2.2

BUILDING B

REAR EXTENSION BLOCK – EXTERNAL IMAGES

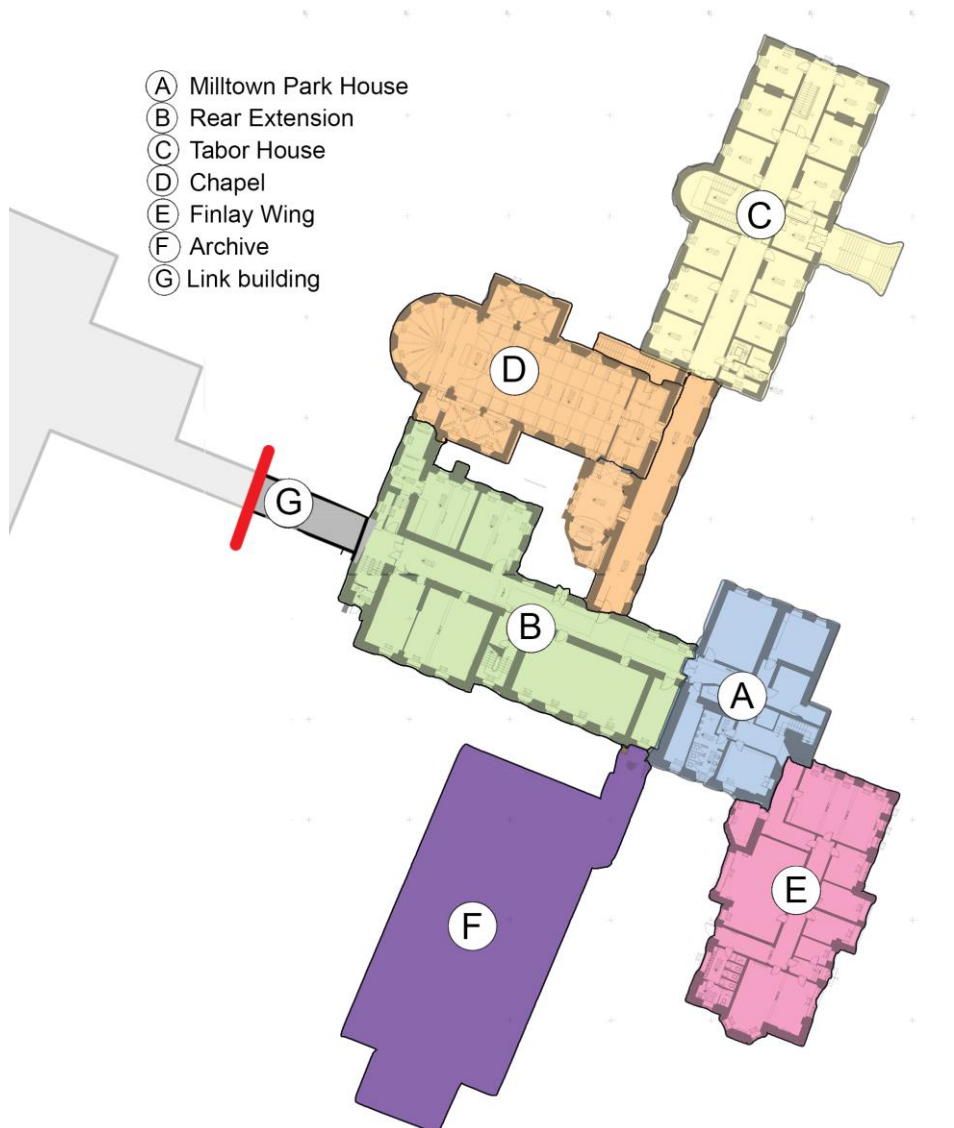




Plate 9: North east gable of rear extension block in context



Plate 10: View west of the same elevation with the rear extension, link building and turret of small Sacred Heart Chapel (1911) in view



Plate 11: North elevation of Milltown Park, which was vertically extended in the late 19th century with north elevation of the higher, rear extension which was constructed in the 20th century



Plate 12: Rear extension connected to red brick link building (Building G – principally outside the applicant boundary)



Plate 13: The rendered south elevation of the rear extension



Plate 14: Trench at base of lower ground of rear extension



Plate 15: Panelled door to rear entrance of rear extension, late 19th century



Plate 16: View of the (later) northern extension from a rear 1st floor window of Milltown Park house, towards the opposing (original) H form comprising a lower building, possibly intended to align with MPH



Plate 17: Southwest view of the rear extension

APPENDIX 7.2.3

BUILDING C

TABOR HOUSE - EXTERNAL IMAGES





Plate 18: Front elevation of Tabor House with chapel and stained glass window in view



Plate 19: Original panelled front door and granite steps to Tabor House



Plate 20: Tabor House rear/west elevation, with bowed bay of central staircase, note the array of fenestration types; the original 2 over 2 sashes being the most prevalent



Plate 21: Tabor House west elevation in context



Plate 22 : North-east gable of Tabor House in context



Plate 23 West elevation with bowed bay



Plate 24: Bowed bay with panelled double doors at rear of Tabor House



Plate 25: North east gable elevation of Tabor House



Plate 26: Side door of Tabor House with stained glass on first floor, a later modification



Plate 27: Connection of Tabor House to the later Chapel: comprising a set of stone steps to first floor level, and a glazed link at second floor to the mezzanine at the rear of the Chapel



Plate 28: Cast iron balustrade on stairs to 1st floor

APPENDIX 7.2.4

BUILDING D

CHAPEL - EXTERNAL IMAGES





Plate 29: Front elevation of Chapel, above linking building, with stained glass Rose window on east gable with copper turret of Sacred Heart Chapel south of it. Both Chapels are accessed from within Milltown Park House



Plate 30: Wider view of Chapel link front to Tabor House



Plate 31: Link building connection to rear extension to Milltown house with small turret of Sacred Heart Chapel in view and larger domestic Chapel just out of view



Plate 32: Rear of Chapel and copper turret



Plate 33: Rear of Chapel, with rock-faced granite lower floor and adjoining link building, with dressed window surrounds



Plate 34: Rear of Chapel and adjoining link building connection to rear extension to Milltown House



Plate 35: Rear of linking building with boundary of neighbouring property. The red brick structure was formerly part of the Milltown Park complex



Plate 36: Gated opening to central courtyard at rear of lining structure, between Chapel and rear extension



Plate 37: Render to apse of church and rock faced granite lower ground level floor. Note modern windows at lower level



Plate 38: Double transept to NW of Chapel, rendered with ashlar quoins, cast iron rain water goods

APPENDIX 7.2.5

BUILDING E

FINLAY WING - EXTERNAL IMAGES





Plate 39: Finlay Wing from new Sandford Road entrance, rendered finish with raised quoins



Plate 40: As above, wider view with archive in background



Plate 41: View of Finlay wing, south west from the main entrance



Plate 42: View of building range on entering Sandford Road gates from south



Plate 43: Eastern elevation of Finlay wing



Plate 44: Southern elevation of Finlay wing



Plate 45: View of NW elevation of Finlay wing and awkward connection to Milltown House. Note stained window panes dating from post 1949 reconstruction



Plate 46: View of west elevation

APPENDIX 7.2.6

BUILDING F

ARCHIVE - EXTERNAL IMAGES

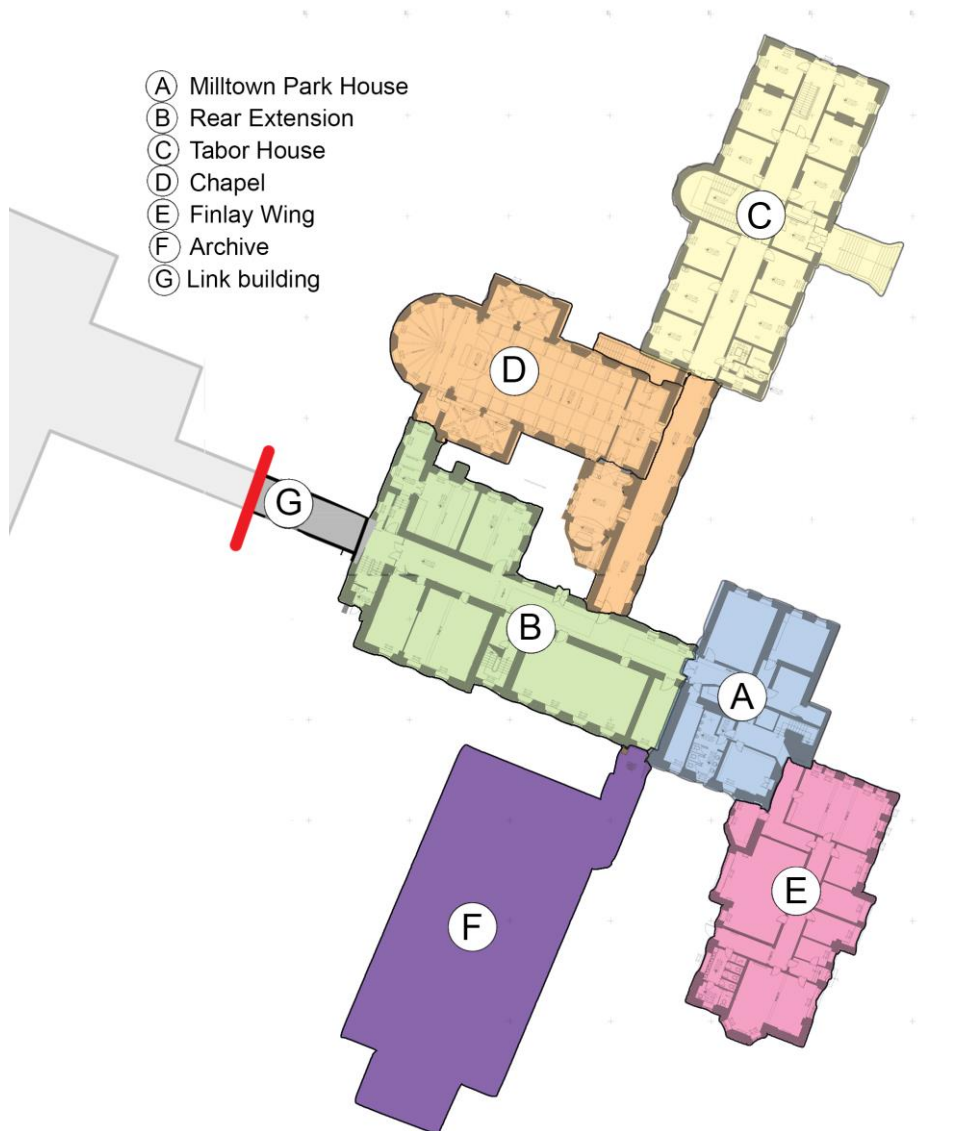




Plate 47: East elevation of the Archive (built 1938) in background (with south side of Finlay wing in view)



Plate 48: South-west gable of archive with 1970's single storey extension in foreground



Plate 49: As above



Plate 50: East elevation, gable to south



Plate 51: NW elevation of archive with 19th c. rear extension in background



Plate 52: SE elevation of Archive wing. Original 1930's window frames. Copper hoppers to rainwater goods, Art deco detailing of parapet walls



Plate 53: Southern elevation of Milltown house with Archive wing in context



Plate 54: SE elevation of Archive wing where it joins the Rear Extension of Milltown Park House. This is the only point of entry which is internally via Milltown Park House and involves a series of level changes



Plate 55: As above closer view of the Link to/from the Archive wing



Plate 56: South west elevation showing the connection of the Archive wing to the Rear Extension. Note 1930's metal window frames



Plate 57: West elevation



Plate 58: As above



Plate 59: East elevation, gable to south



Plate 60: NW elevation of archive with 19th c. rear extension in background

APPENDIX 7.2.7

BUILDING G

LINK BUILDING - EXTERNAL IMAGES





Plate 61: Southwest view of the rear extension with the red brick, link building (principally outside the applicant boundary) in view



Plate 62: Link building (principally outside the applicant boundary) in context with both the Community building range to lhs of image and subject institutional building range within the applicant lands to rhs



Plate 63: Rear extension connection to red brick, link building, viewed from SW.



Plate 64: View of NE side of link building taken from the bowed, bay at the rear of Tabor House.



Plate 65: The red-brick link building (c.1955) connects to the west gable of the rear extension (Building B)



Plate 66: The flat roof arrangement over the red-brick link building, as viewed from stairwell of Building B

APPENDIX 7.2.8

PERIMETER WALL



Plate 67: Vehicular entrance Milltown Park House and Jesuit Institute, with pedestrian gates in each of the flanking walls



Plate 68: Detail of arrows to central bullseye on cast iron gate in flanking wall of front entrance, with carved granite architrave



Plate 69: Side gate on Sandford Road, no longer in use, cut granite step and rendered walls



Plate 70: Perimeter rubble wall on Milltown Road with Chapel, stained glass window and Milltown Park House in background



Plate 71: Section of rubble boundary wall on Milltown Road



Plate 72: View of rubble wall and trees visible from Milltown Road



S

Plate 73: Change in wall composition on Milltown Road near junction with Sandford Road. Rubble wall is rendered and meets later pier



Plate 74: Composition of boundary wall varies, sections of rubble wall have been infilled



Plate 75: Curve of wall looking up Milltown Road towards new entrance, note multiple pointing types cement repairs to rubble wall



Plate 76: Curve of wall looking down Milltown Road, with pedestrian gate in centre



Plate 77: Entrance from Milltown Road outside of the application site boundary (to remaining Jesuit lands)



Plate 78: View of range of buildings on site looking north west down Milltown Road

APPENDIX 7.2.9

BUILDING A

MILLTOWN PARK HOUSE – INTERNAL IMAGES



Milltown Park House – Entrance Level/Ground Floor



Plate 79: Reception area on entering main entrance to Milltown Park House from original front lobby



Plate 80: Entrance door of Milltown Park House with cobweb fanlight visible



Plate 81: Facing south east, view of later stair to 1st floor from rear of reception area



Plate 82: Entrance vestibule which was previously a small chapel, Holy Rosary Chapel used for personal prayer

Milltown Park House – Entrance Level/Ground Floor



Plate 83: Vestibule/Holy Rosary Chapel, due north towards its apsed gable and stained glass window- feature to be salvaged as part of the proposed works



Plate 84: Crucifixion stained glass by Joshua Clarke, Clarke Studios

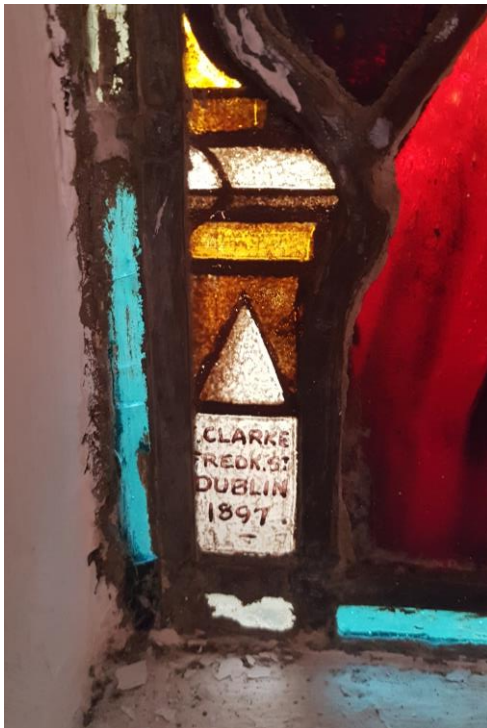


Plate 85: Stained glass signed CLARKE FREDK. ST DUBLIN 1897

Milltown Park House – Entrance Level/Ground Floor



Plate 86: Reception room to northeast off entrance hall. Some original features remain



Plate 87: Sliding shutter to vestibule in same room



Plate 88: Fireplace and stuccoed cornice in same room



Plate 89: Connection with rear extension block, from rear of entrance hall, with dormitories and study rooms on either side of hall

Milltown Park House – Entrance Level/Ground Floor



Plate 90: Storage area to left on entering main door, within later single storey extension to the front of the house



Plate 91: Link within same extension connecting the reception area to the Finlay Wing



Plate 92: Large room within the former Orangery to the south with full height ceiling, missing fireplace, and more recently in use as kitchen/diner



Plate 93: Large chimney breast without fireplace

Milltown Park House – Basement Level



Plate 94: Flagstones in original kitchen at basement level



Plate 95: Basement level plant room, a former kitchen, under existing reception room



Plate 96: Original window at basement level



Plate 97: Original masonry walls within same plant room

Milltown Park House – Basement Level



Plate 98: View from plant room towards central corridor



Plate 99: Void under concrete stair



Plate 100: Early masonry with concrete supports to concrete stairwell, note concrete ceiling slabs above



Plate 101: Historic masonry pier

Milltown Park House – Basement Level



Plate 102: Rising damp



Plate 103: decay of skirting boards within corridor



Plate 104: Former kitchen to northwest at basement level, with original masonry and floor flags evident. Note concrete downstands for concrete floor plate supporting entrance level above



Plate 105: View east in same room

Milltown Park House – First Floor Level



Plate 106: Corridor within first floor extension above original orangery to south



Plate 107: Archway leading to stairs to entrance level



Plate 108: First floor level infilled entrance hall with later wall painted blue. Curved stair leads to vertical extension wing above a former orangerie

Milltown Park House – First Floor Level



Plate 109: As above



Plate 110: Stair access from 1st floor level of Milltown Park House to rear extension block, from within a modified rear room to southwest

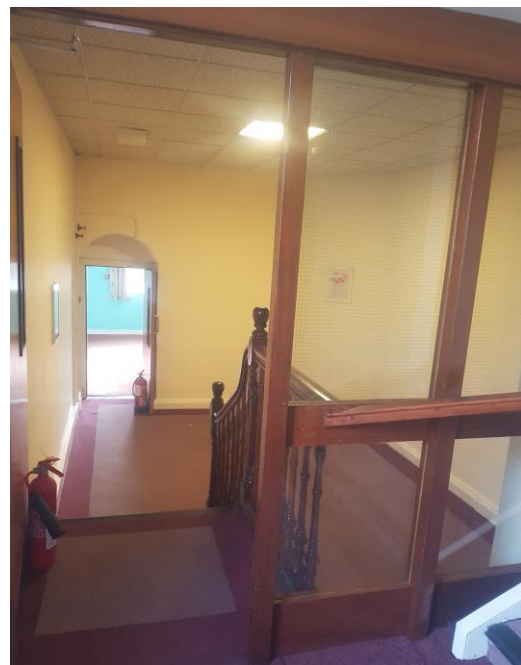


Plate 111: As previous, opposing view

Milltown Park House – Second Floor Level



Plate 112: Stairs from first floor viewing up



Plate 113: View down stairs



Plate 114: Landing with mahogany painted stair rail leading to 1st floor level below



Plate 115: Stair access to lower levels

Milltown Park House – Second Floor Level



Plate 116: Internal circulation within the uppermost level of Milltown Park House



Plate 117: Central hall at 2nd floor level linking to rear extension block. Note water tank room to lhs of image which extends up into roof void



Plate 118: Central hall with doors to rooms to northeast

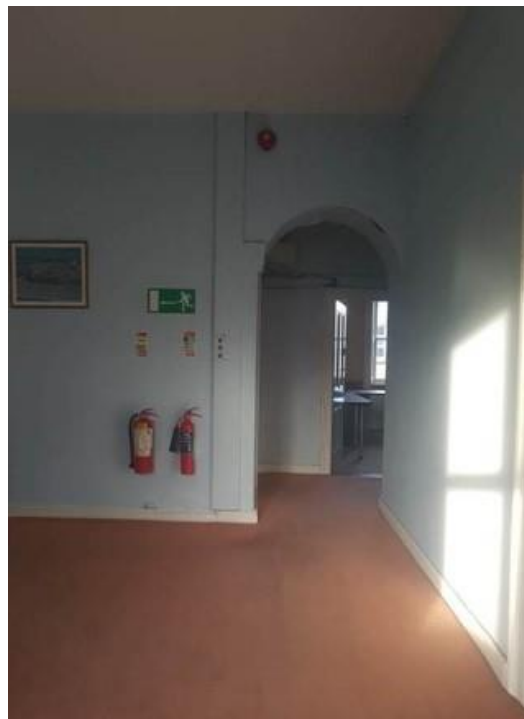


Plate 119: Access to rooms within southern extension of main house

Milltown Park House – Second Floor Level



Plate 120: Toilets with front extension to east, above original entrance porch

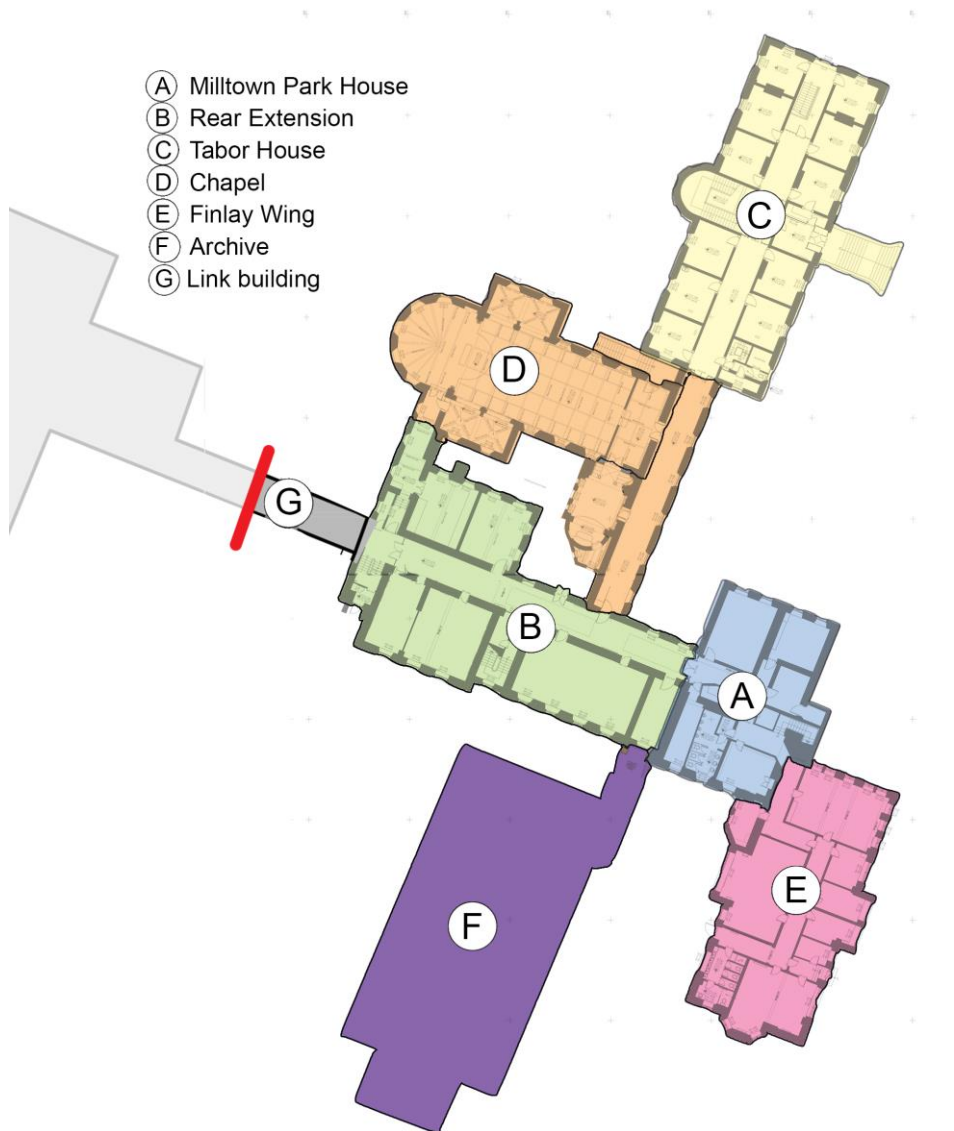


Plate 121: Sample room within vertical extension above main house. Note water ingress from breaches at roof level

APPENDIX 7.2.10

BUILDING B

REAR EXTENSION BLOCK – INTERNAL IMAGES



Rear Extension - Entrance Level

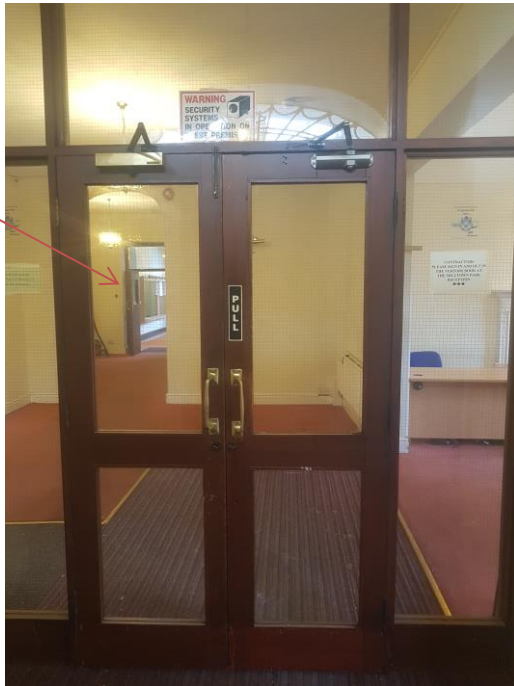


Plate 122: View towards rear extension block from entrance of main house



Plate 123: Connection with rear extension block, from rear of entrance hall



Plate 124: Wide corridor within rear extension block, with dormitories/ meeting rooms on either side



Plate 125: As above, opposing view

Rear Extension - Entrance Level



Plate 126: View from entrance link, from main house to central corridor of rear extension block



Plate 127: Corridor at same level viewing west to east



Plate 128: Security door off main block corridor

Rear Extension - Basement Level



Plate 129: Dormitory at lower ground floor level. Note water ingress



Plate 130: Small service area which was previously used as a photography dark room



Plate 131: Narrow office space with partition wall, to the southwest corner of main house



Plate 132: Corridor viewing back to main house, from west to east

Rear Extension - Basement Level



Plate 133: Same corridor, viewing from east to west



Plate 134: Small room with partitioned wall showing signs of water damage

Rear Extension – First Floor Level



Plate 135: Lecture room within rear extension block at 1st floor level



Plate 136: Lecture room within rear extension block at 1st floor level



Plate 137: As above



Plate 138: Toilet block within 1st floor level

Rear Extension – First Floor Level



Plate 139: Stair linking 1st and entrance level of rear extension block



Plate 140: Stair linking 1st and entrance level of rear extension block

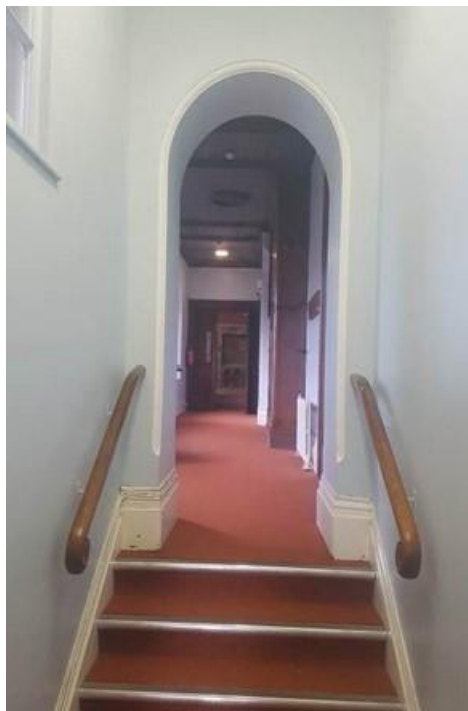


Plate 141: Stair access leading to a suite of rooms adjacent to the former domestic chapel at half level between entrance and 1st floor level of rear extension block



Plate 142: Alternative view of corresponding stair

Rear Extension – First Floor Level

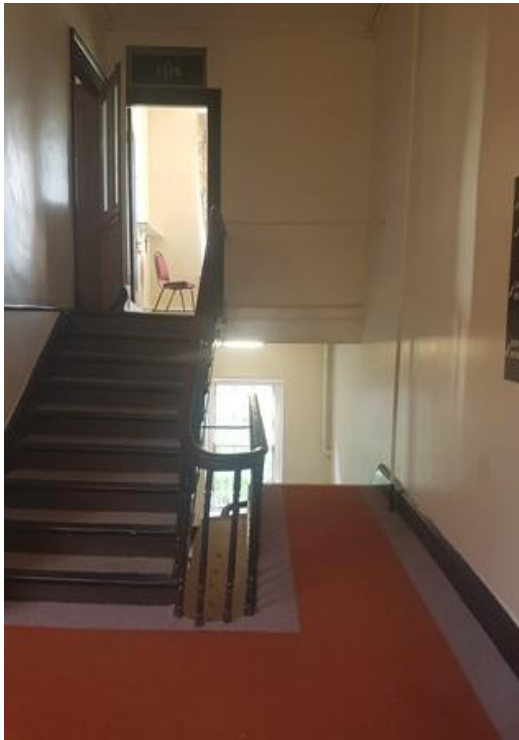


Plate 143: Stairs to rear of former chapel accessing the chapel ante-room



Plate 144: Former domestic chapel, now a reading room, accessed from a short flight within the entrance level corridor within rear extension block



Plate 145: A typical dormitory with modern door



Plate 146: A typical dormitory with replacement arched window

Rear Extension – First Floor Level



Plate 147: A typical dormitory in main corridor with modern door and architrave



Plate 148: A typical dormitory



Plate 149: Larger dormitory room with modern windows



Plate 150: Large dormitory with panelled window reveals, replacement windows

Rear Extension – First Floor Level



Plate 151: Large lecture room with fireplace at first floor level



Plate 152: Same lecture room



Plate 153: Large lecture room with fireplace at first floor level

Rear Extension – Stairs at rear of block



Plate 154: Stair at rear of block



Plate 155: Detail of stairs



Plate 156: Detail of stair from 2nd to 1st floor



Plate 157: Detail of stair at entrance level

Rear Extension – Second Floor Level



Plate 158: 2nd floor level typical study room to front (east) on first floor with signs of water damage



Plate 159: Same level rear room



Plate 160: 2nd floor level office



Plate 161: Larger office space

Rear Extension –Second Floor Level



Plate 162: Rear southwestern room at second floor level



Plate 163: Apsed window in bedroom to southwest

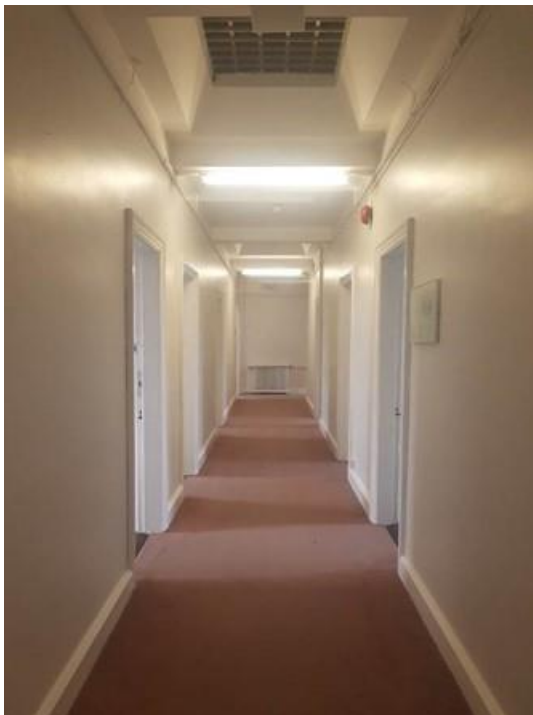


Plate 164: Central corridor at 2nd floor level



Plate 165: Example of cast iron rooflight at 2nd floor level

Rear Extension –Second Floor Level



Plate 166: Typical small lecture room absent of decorative detailing and having modern window at second floor level



Plate 167: Office / store room at same level



Plate 168: Painted stair to rear of block



Plate 169: Second floor landing

APPENDIX 7.2.11

BUILDING C

TABOR HOUSE – INTERNAL IMAGES



Tabor House – Entrance Level



Plate 170: 20th Century stained glass window to north east end of entrance level corridor

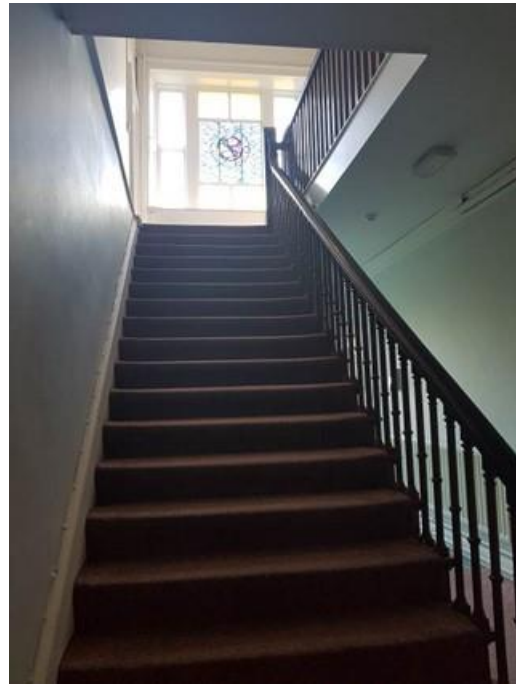


Plate 171: Stairs to entrance level from northeast of basement



Plate 172: Lecture room with laminate flooring at entrance level



Plate 173: Lecture room/office at entrance level

Tabor House – Basement Level



Plate 174: East facing bay window



Plate 175: Lecture room, without fireplace



Plate 176: Interior view of side door to north east with glass panelling



Plate 177: View from interior of side door, down corridor to main house

Tabor House – Basement Level



Plate 178: Under stair cupboard in hall at side entrance



Plate 179: Chimney breast without fireplace



Plate 180: Access to dumb waiter now covered



Plate 181: Lower ground floor bedroom

Tabor House – Basement Level



Plate 182: Kitchen/dining area created by merging retreat rooms



Plate 183: Amalgamated rooms to west



Plate 184: Wider view of dining room



Plate 185: Services area at basement level

Tabor House – Basement Level



Plate 186: Services area at lower ground floor level with original walls exposed and painted



Plate 187: Dumb waiter from kitchen to dining area



Plate 188: Narrow basement corridor



Plate 189: Alternative basement corridor to fire door

Tabor House - First Floor Level



Plate 190: Dormitory facing south east



Plate 191: Dormitory with laminate flooring

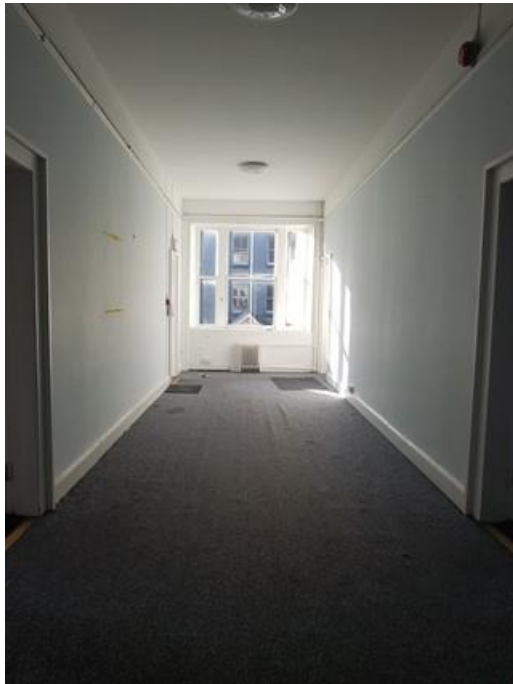


Plate 192: View of south west window and showing wide hallway

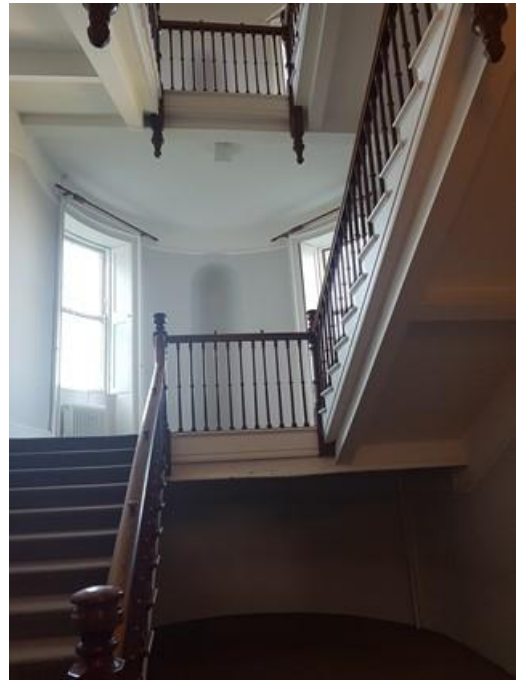


Plate 193: View up stairs at rear/north west side of building

Tabor House - Secondary stair to east



Plate 194: Service staircase of wood and iron



Plate 195: View down winding staircase

Tabor House - Second Floor Level



Plate 196: Large seminar room which runs the width of the NE gable, 2nd floor and has views north, east and west



Plate 197 : As above, north east view



Plate 198: View from second floor bedroom due south



Plate 199: Example of removed chimney piece to typical bedroom

Tabor House - Second Floor Level



Plate 200: Second floor bedroom with laminate flooring



Plate 201: East bedroom overlooking Milltown Road

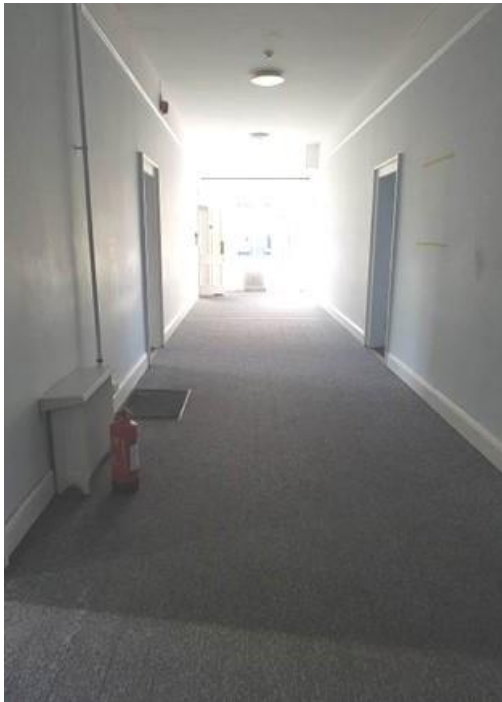


Plate 202: Second floor corridor with retreat rooms each side

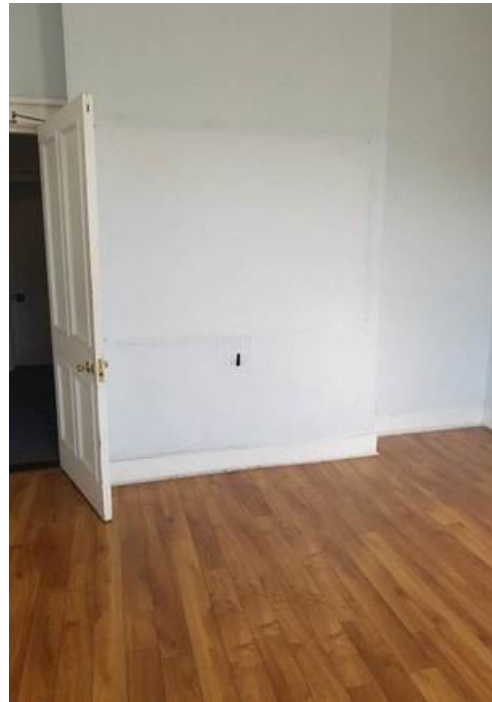


Plate 203: Bedroom with high ceiling, laminate flooring and without fireplace

Tabor House - Second Floor Level

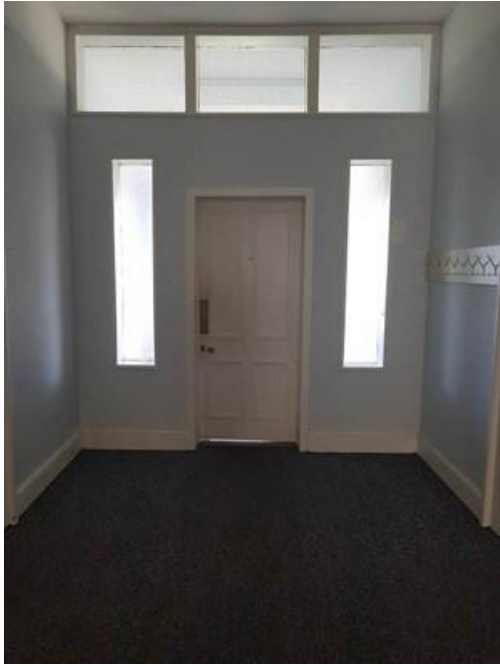


Plate 204: Fire rated partition door with glass panels within central corridor



Plate 205: Example of bedroom without fireplace

Tabor House - Central Stair



Plate 206: Return at top of central stairs



Plate 207: View down central stair



Plate 208: Detail of oak handrail

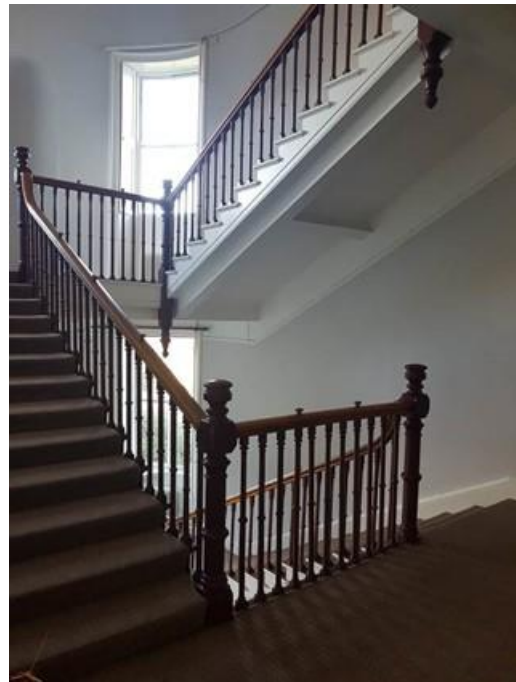


Plate 209: Landing between second and third floors

Tabor House - Central Stair



Plate 210: View up stair



Plate 211: View from second floor landing to third floor with glass door screen to corridor



Plate 212: Opposing view from third floor

APPENDIX 7.2.12

BUILDING D

CHAPEL – INTERNAL IMAGES



Chapel



Plate 213: Carved mahogany entrance doors and pillars to chapel which is accessed from Milltown Park House



Plate 214: Approach to chapel entrance from the entrance level corridor



Plate 215: View of the nave and the carved marble altar from the gallery. Painted 'Angel' canvases behind alter by Harry Clarke (1927)



Plate 216: Stained glass windows behind the sanctuary; at least 4 of which are the work of Joshua Clarke of Clarke Studios

Chapel



Plate 217: Harry Clarke 'Angels' artwork (2 of 8) on the sanctuary walls behind altar



Plate 218: Further examples of the 'Angels' on the opposing side of the sanctuary



Plate 219: Closeup of one of the 'Angels' canvases



Plate 220: 'Retouched' photo of one of the 'Angels'

Chapel



Plate 221: View of the gallery from the nave. The organ was given to Fr. Finlay by Chief Baron



Plate 222: Rose window given to Fr. Finlay by Chief Baron

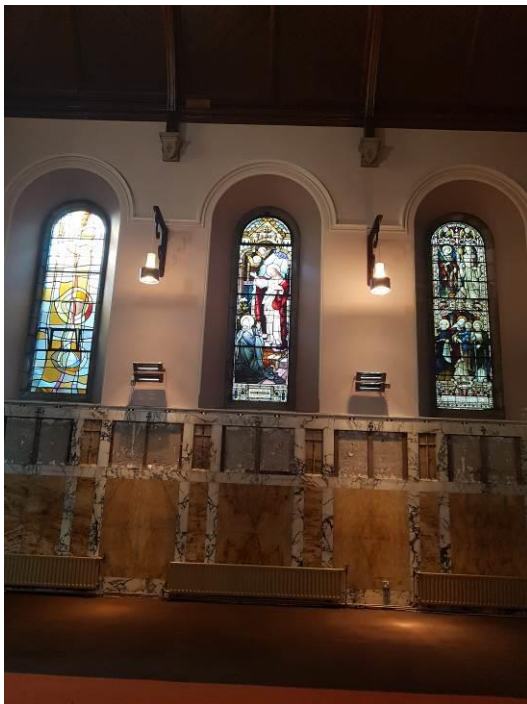


Plate 223: South wall of nave. Note the absence of the Stations of the Cross which were removed



Plate 224: Detail of stained glass window

Chapel



Plate 225: View from the loft overlooking the nave



Plate 226: Side chapels with stained glass windows

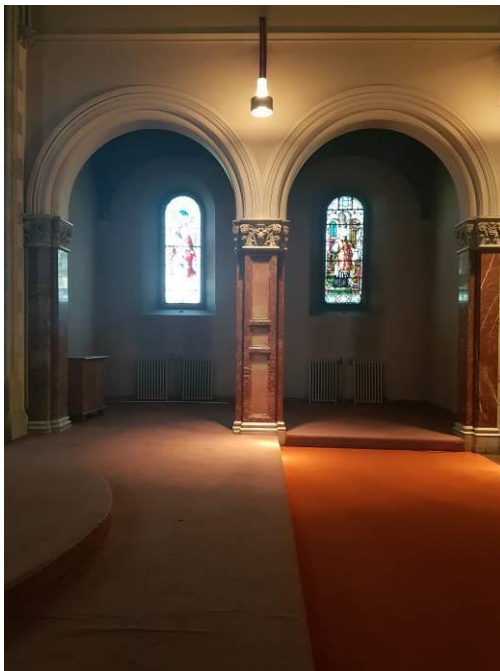


Plate 227: Opposing view, side chapels



Plate 228: Corridor leading to sanctuary

Sacred Heart Chapel



Plate 229: Interior of the Sacred Heart Chapel, built 1911, which is accessed from within the larger domestic Chapel



Plate 230: 5 stained glass windows which appear not to be signed or dated. Archive receipts from 1917 state windows, altar and decorations were by Early & Co, Camden Street, Dublin



Plate 231: Modern, abstract, stained glass, c1980s appear to have replaced original stained glass

Chapel - Basement Level



Plate 232: Corridor at basement level leading to dormitories and study rooms



Plate 233: A typical dormitory showing signs of water ingress beneath floors



Plate 234: Typical basement room



Plate 235: Typical basement room

Link with Chapel at first floor level of Tabor House



Plate 236: Link corridor to Chapel leading to choir stalls in the gallery area



Plate 237: View east from window in linking corridor



Plate 238: View west from linking corridor

APPENDIX 7.2.13

BUILDING E

FINLAY WING – INTERNAL IMAGES



Finlay Wing – Access to Entrance Level



Plate 239: Entrance to the Finlay Wing, through front access link

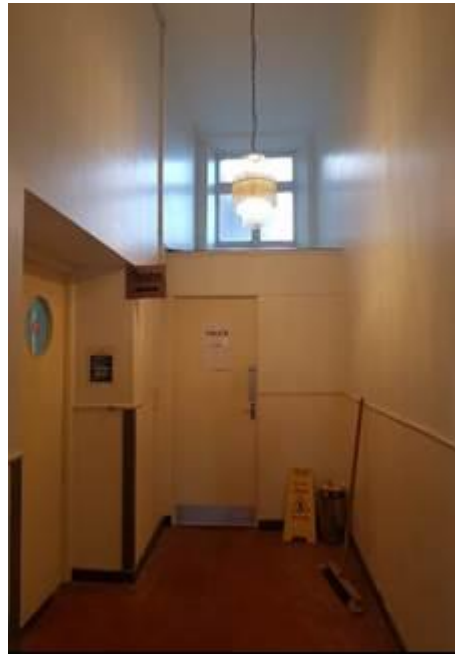


Plate 240: Escape route from same entrance



Plate 241: Stairs to basement



Plate 242: As above

Finlay Wing - Entrance Level



Plate 243: Interior of Finlay Wing Theatre, viewing north to south



Plate 244: Leaded window detail to northern gable



Plate 245: Wider view of room from south to north



Plate 246: Leaded windows in apsed southern gable. Note water ingress at ceiling level

Finlay Wing - Entrance Level



Plate 247: East elevation leaded window



Plate 248: View of theatre from north to south, with folding concertina doors



Plate 249: Internal bay to west



Plate 250: Ceiling showing some signs of water damage

Finlay Wing – Lower Ground Floor Level



Plate 251: Large lecture room within the Finlay Wing, to the northeast

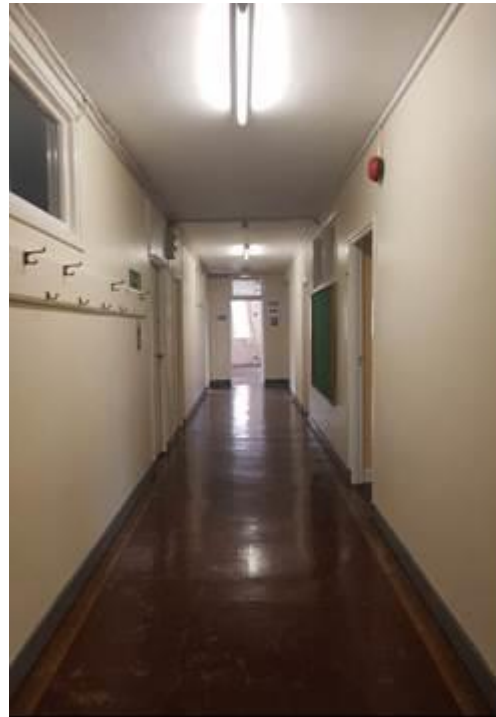


Plate 252: Basement corridor within the Finlay Wing



Plate 253: Lower ground floor level office within the Finlay Wing



Plate 254: Corridor with fire door exit within the Finlay Wing

Finlay Wing – Lower Ground Floor Level



Plate 255: Fire door within central corridor with flood relief barrier evident



Plate 256: Bowed room at southern end of the Finlay Wing



Plate 257: Toilets within the same area

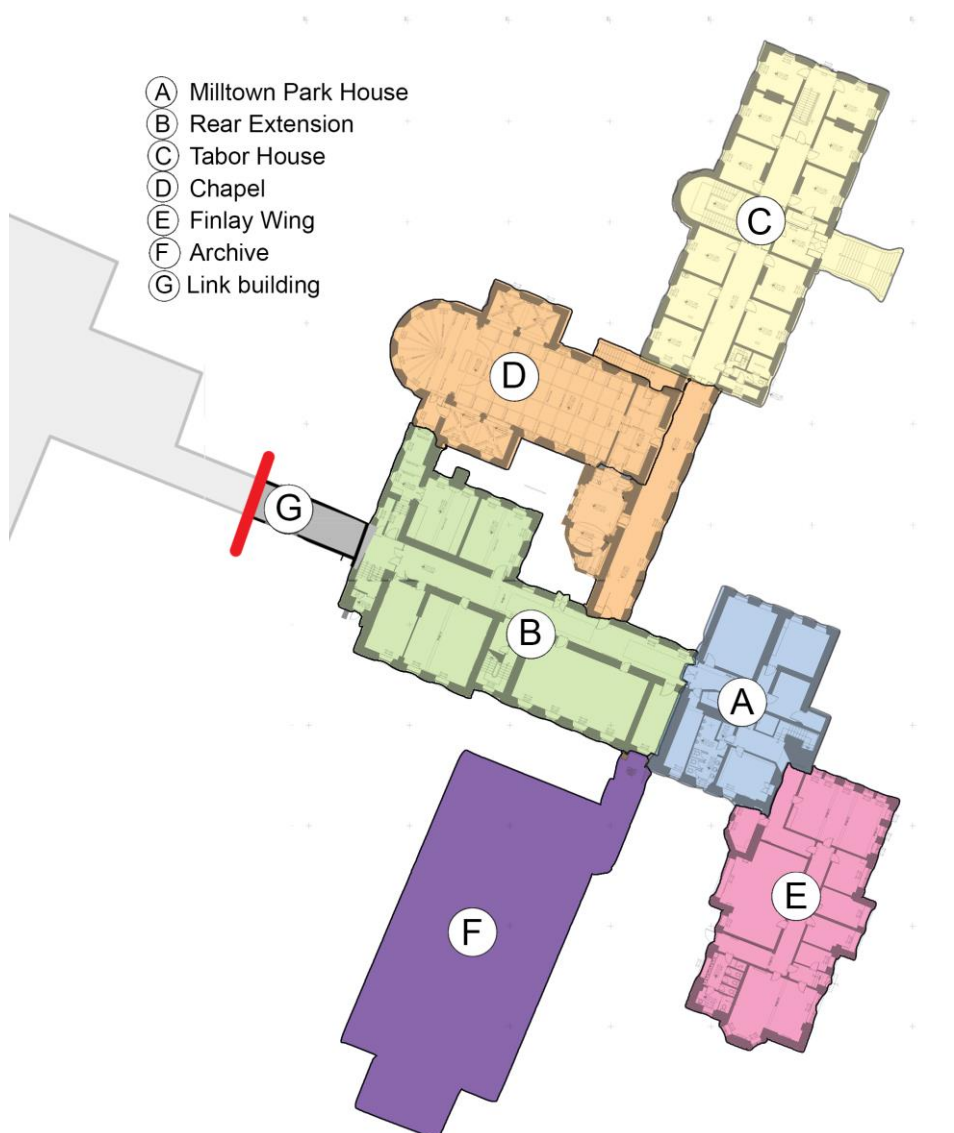


Plate 258: Large storage room

APPENDIX 7.2.14

BUILDING F

ARCHIVE – INTERNAL IMAGES



Archive



Plate 259: View of the Art deco style archive from the entrance door, due south



Plate 260: Interview view due north from second floor stairs



Plate 261: Internal lightwell



Plate 262: Stairs to first and second floor level mezzanines

Archive



Plate 263: Gallery view due south



Plate 264: Detail of bay composition



Plate 265: View due north



Plate 266: View of the metal structure aligned with custom built bookshelves

Archive



Plate 267: As above



Plate 268: As above



Plate 269: Detail of stair steel banister and oak handrail



Plate 270: Detail of curved handrail at end floor mezzanine level

Archive



Plate 271: Alternative view

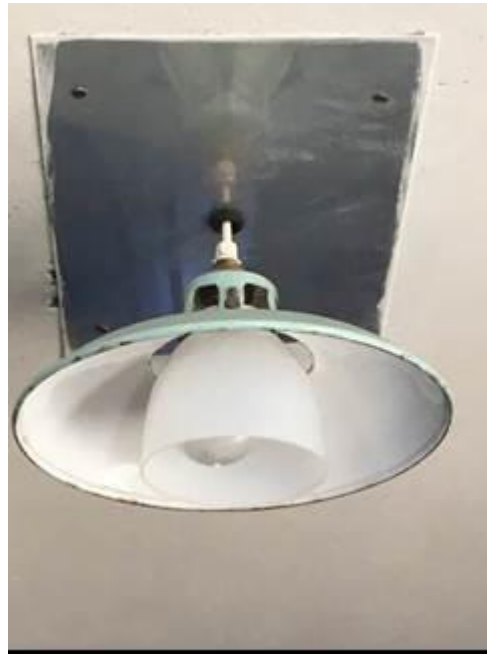


Plate 272: Example of light fitting common throughout

APPENDIX 7.2.15

BUILDING G (principally outside the applicant boundary)

LINK BUILDING – INTERNAL IMAGES



Link Building



Plate 273: View of entrance to link building from Rear Extension



Plate 274: View on entering link building with arched window, mahogany sills and parquet floor. Note partition wall which terminates the link where formerly attached to the Community Building



Plate 275: As above, opposing view towards entrance door



Plate 276: View SW with new Jesuit development in view (outside the applicant boundary)

APPENDIX 7.3

EXISTING BUILDING RANGE

CHRONOLOGICAL DRAWINGS OF EXISTING BUILDING RANGE

APPENDIX 7.3

ATTACHED TO EIR CHAPTER 7.0 ARCHITECTURAL HERITAGE
MILLTOWN PARK, SANDFORD ROAD, DUBLIN 6

MARCH 2021

M



MOLLOY & ASSOCIATES
CONSERVATION ARCHITECTS

MARLAY • PROBY SQUARE • BLACKROCK • CO. DUBLIN • IRELAND



CONTENTS

Appendix 7.3.1.	SUMMARY OF KEY DATES IN THE HISTORY OF THE DEVELOPMENT OF THE SUBJECT BUILDING GROUP
Appendix 7.3.2.	DRAWING LEGEND
Appendix 7.3.3.	LOWER GROUND FLOOR
Appendix 7.3.4.	ENTRANCE LEVEL / UPPER GROUND FLOOR
Appendix 7.3.5.	FIRST FLOOR LEVEL
Appendix 7.3.6.	SECOND FLOOR LEVEL
Appendix 7.3.7.	THIRD FLOOR LEVEL
Appendix 7.3.8.	THE MULTIPLE PHASES OF THE ORIGINAL HOUSE (A) AND THE ‘REAR EXTENSION’(B1, B2 & B3)

Appendix 7.3.1. SUMMARY OF KEY DATES IN THE HISTORY OF THE DEVELOPMENT OF THE SUBJECT BUILDING GROUP***Reiterated from section 3.1, Appendix 7.1*****1782 Reference to a dwelling on the subject lands**

A private archive owned by the Jesuit Community contains notes indicating that in 1782 a house existed in very much the same position as the 'Ministers House', which we know as Milltown Park House. Whilst the exact date of the house is not given it does refer to "some evidence to show that it was not in existence in 1756", separating it from the farmstead evident on the 1757 Roque map.

1795 Cold Blow Demesne

The private archive files reference various small holdings and their ownership to the end of 1795. In that year it says the Right Hon. Denis George, fourth Baron of the Exchequer, bought up the interest in John Hewston's land on 8th December 1795. Some months later he purchased the ground belonging to John Roberts and formed a single demesne which was called 'Cold Blow'. This name had existed in the neighbourhood for many years and Belmont Avenue had been known as 'Cold Blow Lane' for at least thirty years prior to that time. It appears that Coldblow as a name was common in the vicinity. Belmont House, located at the top of Belmont Avenue, dates from 1760. It was originally called Cold Blow House until the avenue was renamed Belmont Avenue. Another Coldblow-named house was demolished for 132/134 Sandford Road in late 1870s.

Baron George laid out the park, planted trees and dug a trench/ dyke as a boundary separating the Cold Blow Demesne from the neighbouring Sandfort Demesne (later renamed 'Sandford Demesne').

1819 Change in occupancy of the Cold Blow Demesne

In 1819, on the death of Baron George, Cold Blow passed to his eldest son, Rev. Edward George, who in 1821 let it to a Mr. Richard Connery, a wealthy timber merchant of Sir John Rogerson's quay.

1827 Cold Blow Demesne re-mortgaged

About six years later, Mr. Connery mortgaged the Cold Blow Demesne to Austin Brothers, a Dublin firm of money lenders for the sum of £10,000.

1833 Cold Blow Demesne renamed as Milltown Park

In 1833 Mr. George Fitzjames Russell, who had bought the property, renamed it Milltown Park.

1858 Milltown Park acquired by the Jesuit Community

The property was purchased with the intention that it would serve as a House of Studies

and a Novitiate. No plans exist of the house acquired with the lands, but early maps show the footprint of adjoining structures to the south and an extended wing to the rear, possibly an orangery or outbuildings. It is likely that the original house was extended shortly after acquisition and we know the original house chapel or domestic chapel was built in 1860.

In 1858 Milltown Park was offered for sale although the Jesuits did not purchase it directly. Instead Mr. Denis Redmond of Belmont Lodge (father of the late Fr. James Redmond, and of Sir. Joseph Redmond) acted as trustee and agent for the Jesuits. Milltown Park was purchased from Mr. J. Calvert Stronge on June 9th 1858, for the sum of £4,500. On October 22nd, 1858, Mr. Redmond formally made over Milltown Park to the Jesuits in a deed declaring that in the previous transactions he had only acted as their agent.

1860 Milltown Park House Rear Extension: The original Domestic Chapel

As mentioned above, the original domestic chapel, which is now the reading room, is positioned behind the original Milltown Park House and absorbed within its rear extension.

1860-95 The Rear Extension: Phase 1, the ‘H-plan’ structure

The rear extension was originally constructed as a ‘H-plan’ four storey element, known as the Juniorate, mirroring the extended original house and the Minister’s House which were linked via a two-storey corridor past the former domestic chapel. Each of the individual building components had pitched roofs. The lower, central section was subsequently extended, in 1932, over the former chapel to match the heights of the end blocks.

1875 Tabor House and the link corridor

Known as Retreat House by the Jesuits it was built, with 43 rooms and 2 parlours, and furnished at a cost of £8,752.50 by Messrs. Donnelly Builders and John Butler Architects. Building commenced in 1873 and it was completed in 1875 and the building was later known as Tabor House.

1896 Community Chapel

A dedicated Community/Domestic or House Chapel is constructed to replace earlier smaller chapels attached to Milltown Park House.

1905 Finlay House

A ‘House of Studies and Spiritual Exercises’ was constructed (present day Finlay Wing).

1911 Sacred Heart Chapel

The Sacred Heart Chapel / side chapel to the south of the main chapel is constructed.

1932-33 Rear Extension: Phase 2

The extension of the lower element of the ‘H-plan’ structure, above the former Chapel was referred to as ‘the Power House’ after Fr. Cyril Power who became rector in 1933. It extends to four storeys above the original Domestic Chapel and link corridor.


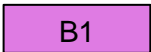
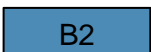




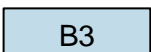
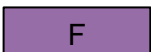
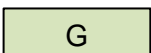
1938 Archive wing

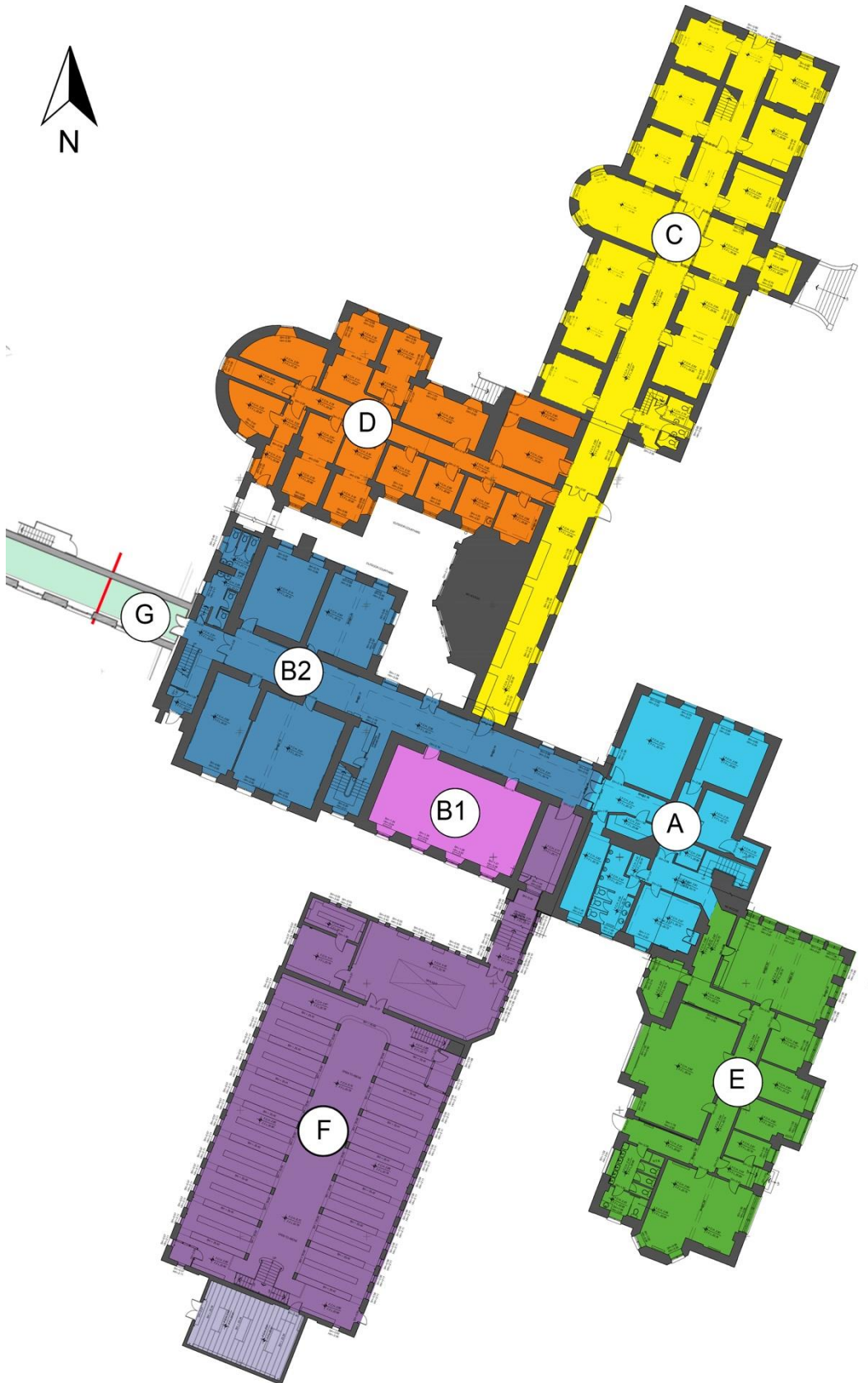
The Archive was built in 1938 to house the vast collection of books/ records held by the Community at the time. A single storey extension to the south was added in the 1970's to facilitate book- binding.

c1955 The red brick building, connected to the west gable of the rear extension

The link structure connecting the Milltown Park building range with a later Community building range, transverses the ownership boundary lines between the Community and the developer.

Appendix 7.3.2. DRAWING LEGEND

	1756-82	Original house with outbuilding / orangerie to the south
	c1860	Rear Extension Phase 1: Original domestic Chapel (present reading room) constructed on site of former outbuildings
	1860-74	Rear extension Phase 2: H—shaped plan
	1875	Tabor House & Granite Link
	1895	Chapel
	1905	Finlay wing (rebuilt to present reduced height post fire in 1950)
	1911	Sacred Heart Chapel constructed
	1933	Rear extension Phase 3: 'The Power House' built above the original chapel in central section
	1938	Archive wing (with 1970's single storey extension to south)
	c1955	Red brick link building



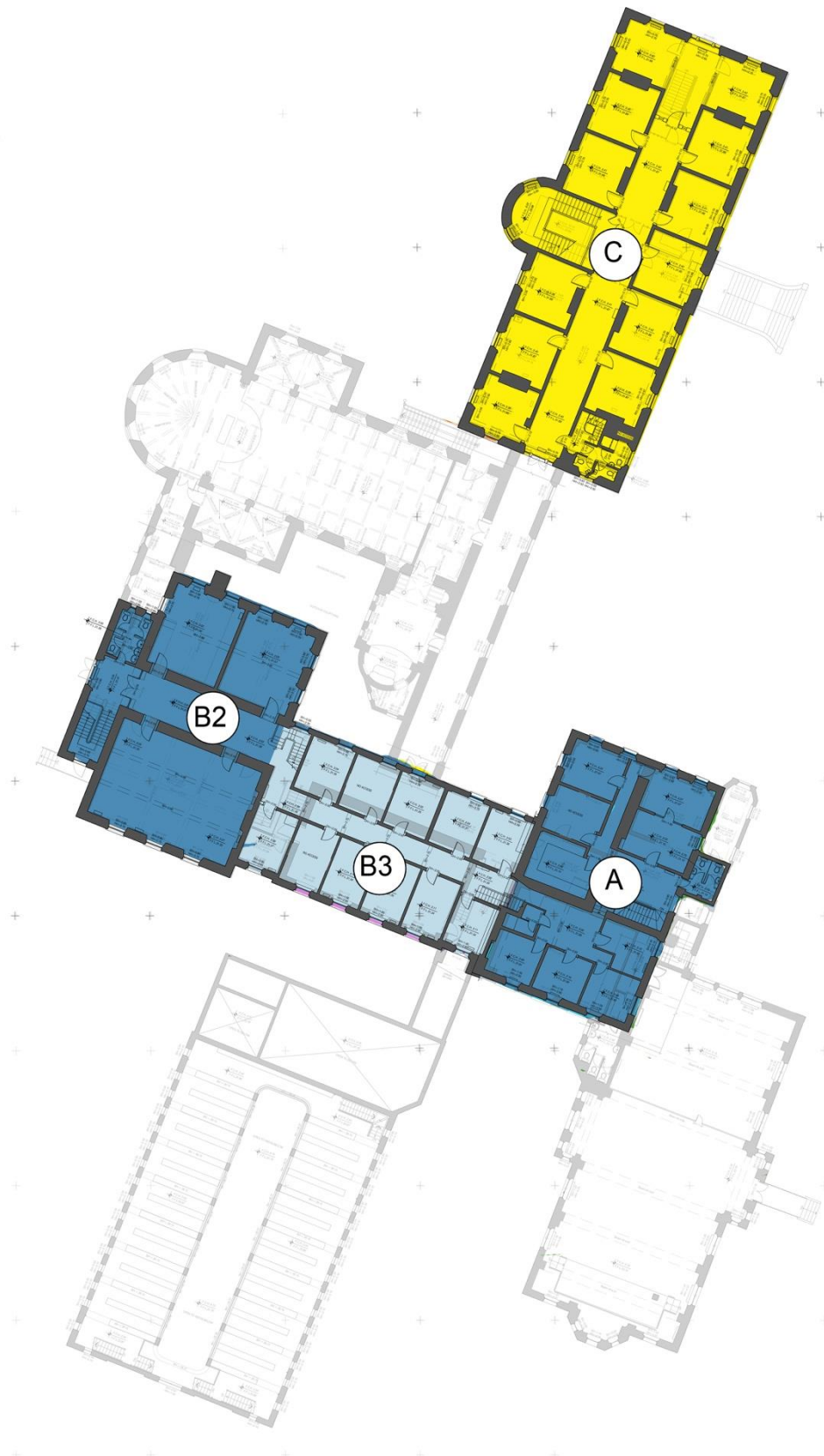
Appendix 7.3.3. LOWER GROUND FLOOR



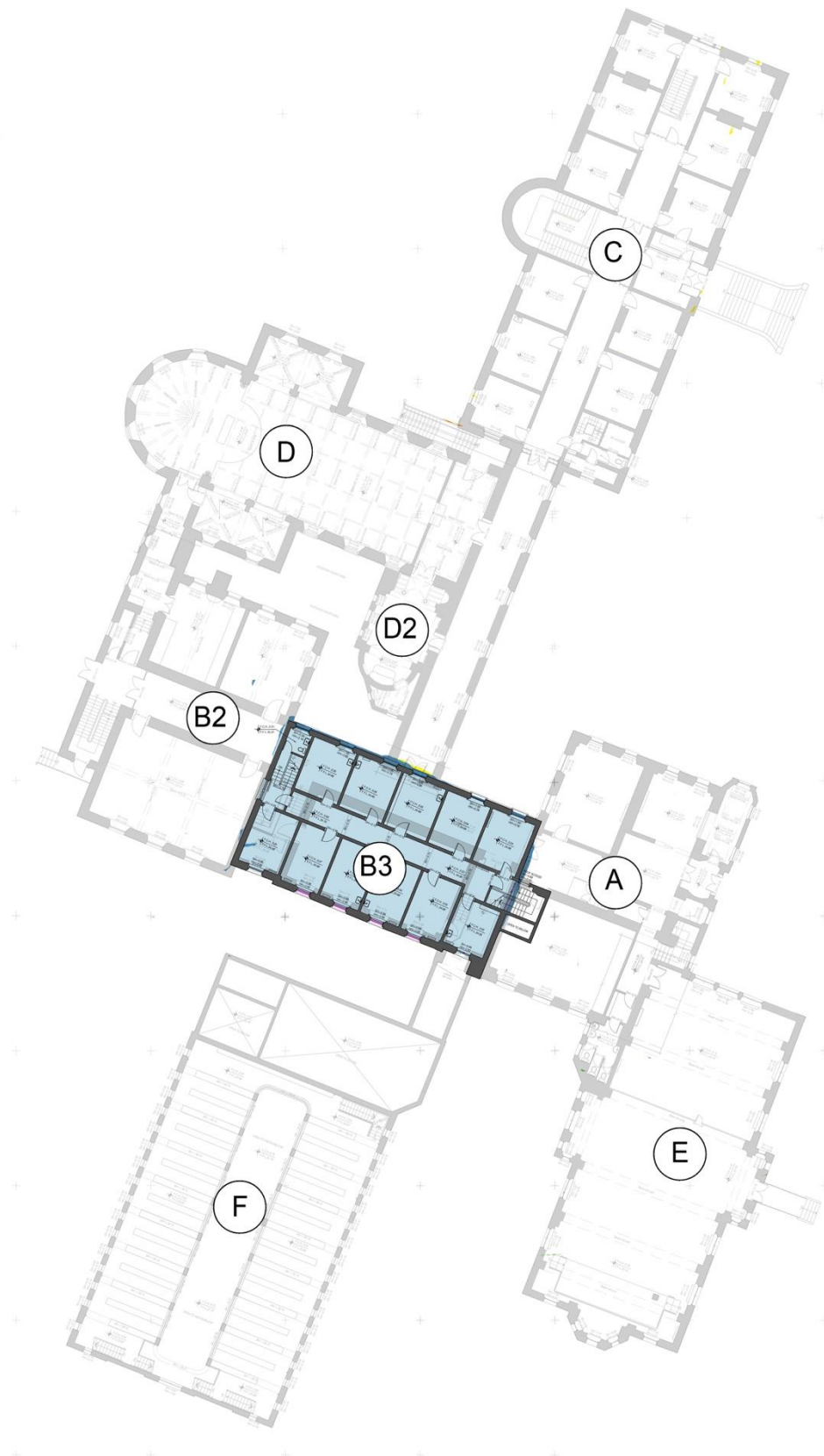
Appendix 7.3.4. ENTRANCE LEVEL / UPPER GROUND FLOOR



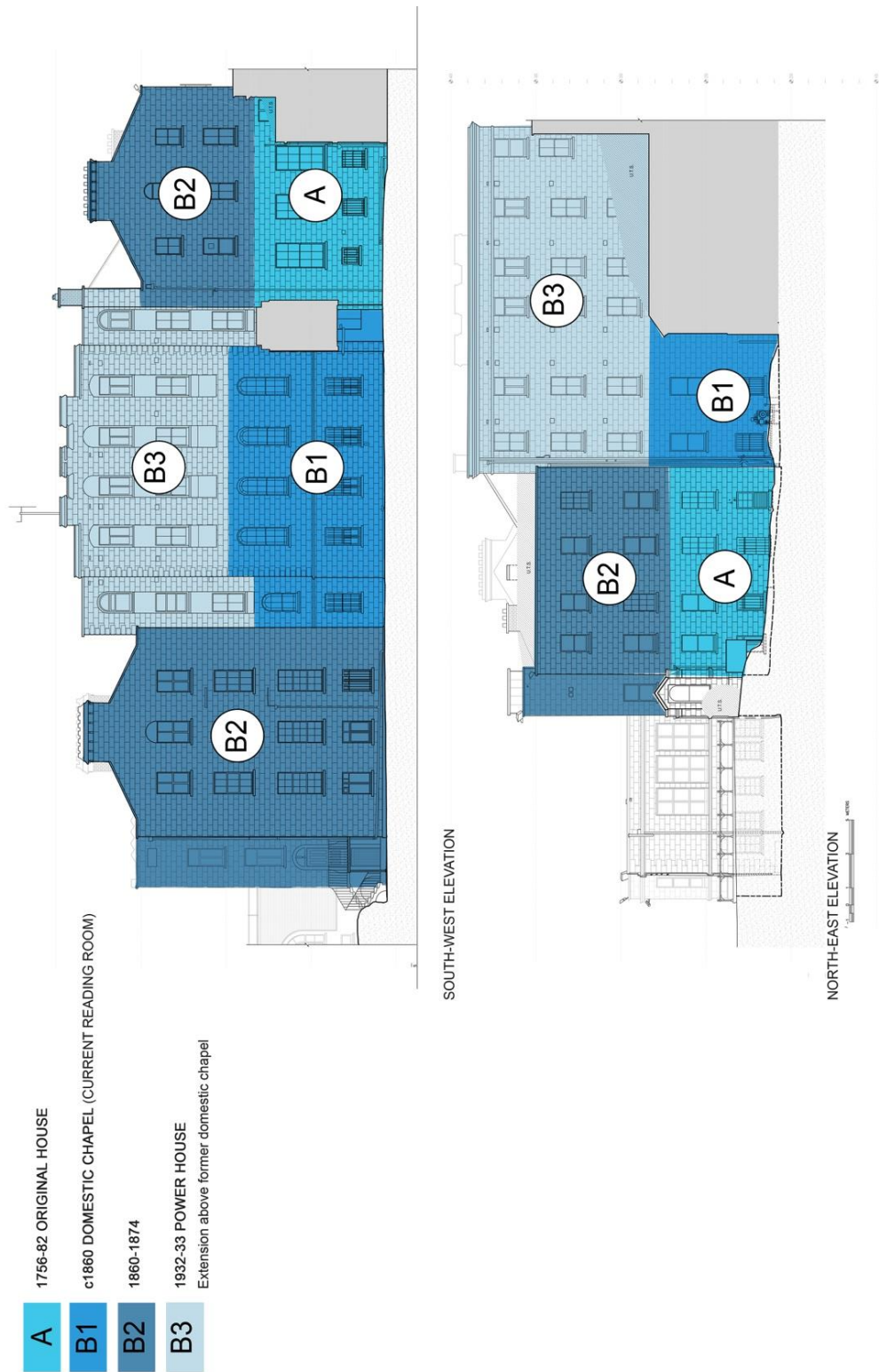
Appendix 7.3.5. FIRST FLOOR LEVEL



Appendix 7.3.6. SECOND FLOOR LEVEL



Appendix 7.3.7. THIRD FLOOR LEVEL



Appendix 7.3.8. The Multiple phases of the original house (A) and the ‘Rear Extension’ (B1, B2 & B3)

APPENDIX 8.1

HYDROLOGICAL & HYDROGEOLOGICAL QUALITATIVE RISK ASSESSMENT (AWN)



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**HYDROLOGICAL &
HYDROGEOLOGICAL
QUALITATIVE RISK
ASSESSMENT**

for

**PROPOSED RESIDENTIAL
DEVELOPMENT SITE AT
SANDFORD ROAD, DUBLIN 6**

Technical Report Prepared For

Sandford Living Limited

Technical Report Prepared By

Marcelo Allende

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Our Reference

MA/21/12238SR01a

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Signature		
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Title	Environmental Consultant	Director
Date	03 August 2021	03 August 2021

TABLE OF CONTENTS		Page
1.0	INTRODUCTION	4
1.1	Background	4
1.2	Hydrological Setting	6
1.3	Objectives of Report	7
1.4	Description of Drainage	8
2.0	ASSESSMENT OF BASELINE WATER QUALITY, RIVER FLOW AND WATER BODY STATUS	10
2.1	Hydrological Catchment Description	10
2.2	Aquifer Description and Superficial Deposits	11
3.0	CONCEPTUAL SITE MODEL	12
3.1	Assessment of Plausible Sources	12
3.2	Assessment of Pathways	14
3.3	Assessment of Receptors	14
3.4	Assessment of Source Pathway Receptor Linkages	14
4.0	CONCLUSIONS	19
5.0	REFERENCES	19

Tables

Table 3.1 - Pollutant Linkage Assessment (without mitigation)	18
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Figures

Figure 1.1 – Site Location in relation to local drainage	6
Figure 1.2 – Existing Surface Water Drainage Infrastructure	7
Figure 2.1 – Aquifer Vulnerability	12

Appendices

Appendix A – Inspector Report ABP-301798-18
Appendix B – Board Order ABP-301798-18

1.0 INTRODUCTION

1.1 Background

AWN have been requested by Sandford Living Limited to carry out a Hydrological and Hydrogeological Qualitative Risk Assessment for a residential scheme at Milltown Park, Sandford Road, Dublin 6.

Sandford Living Limited intend to apply to An Bord Pleanála for permission for a strategic housing development at this c. 4.26 hectare site at Milltown Park, Sandford Road, Dublin 6, D06 V9K7. Works are also proposed on Milltown Road and Sandford Road to facilitate access to the development including improvements to pedestrian facilities on an area of c. 0.16 hectares. The development's surface water drainage network shall discharge from the site via a proposed 300mm diameter pipe along Milltown Road through the junction of Milltown Road / Sandford Road prior to outfalling to the existing drainage network on Eglinton Road (approximately 200 metres from the Sandford Road / Eglinton Road junction), with these works incorporating an area of c. 0.32 hectares. The development site area, road works and drainage works areas will provide a total application site area of c. 4.74 hectares.

The development will principally consist of: the demolition of c. 4,883.9 sq m of existing structures on site including Milltown Park House (880 sq m); Milltown Park House Rear Extension (2,031 sq m); the Finlay Wing (622 sq m); the Archive (1,240 sq m); the link building between Tabor House and Milltown Park House rear extension to the front of the Chapel (74.5 sq m); and 36.4 sq m of the 'red brick link building' (single storey over basement) towards the south-western boundary; the refurbishment and reuse of Tabor House (1,575 sq m) and the Chapel (768 sq m), and the provision of a single storey glass entrance lobby to the front and side of the Chapel; and the provision of a 671 No. unit residential development comprising 604 No. Build-to-Rent apartment and duplex units (88 No. studios, 262 No. one bed units, 242 No. two bed units and 12 No. three bed units) and 67 No. Build-to-Sell apartment and duplex units (11 No. studios, 9 No. one bed units, 32 No. two bed units and 15 No. three bed units).

Block A1 will range in height from part 5 No. storeys to part 10 No. storeys and will comprise 94 No. Build-to-Rent apartments; Block A2 will range in height from part 6 No. storeys to part 8 No. storeys (including part double height at ground floor level) and will comprise 140 No. Build to-Rent apartments and duplex units; Block B will range in height from part 3 No. to part 7 No. storeys and will comprise 91 No. Build-to-Rent apartments; Block C will range in height from part 2 No. storeys to part 8 No. storeys (including part double height at ground floor level) and will comprise 163 No. Build-to-Rent apartments; Block D will range in height from 3 No. storeys to 5 No. storeys and will comprise 39 No. Build-to-Sell apartments; Block E will be 3 No. storeys in height and will comprise 28 No. Build-to-Sell duplex units and apartments; Block F will range in height from 5 No. storeys to part 7 No. storeys and will comprise 92 No. Build-to-Rent apartments; and the refurbished Tabor House (4 No. storeys including lower ground floor level) will comprise 24 No. Build-to-Rent apartments.

The development also includes a creche within Block F (400 sq m) with outdoor play area; and the provision of communal internal amenities (c. 1,248.8 sq m) and facilities (c. 158.3 sq m) throughout the residential blocks, Tabor House and the converted Chapel building including co-working space, gym, lounges, reading rooms, games room, multi-purpose space, concierge, mail rooms and staff facilities.

The proposed works also include a new 2.4 metre high boundary wall across the site from east to west (towards the southern boundary) requiring the demolition of a portion of the red brick link building that lies within the subject site towards the south-western boundary (36.4 sq m) and the making good of the façade at the boundary. The existing Link Building is the subject of a separate application for permission (DCC Reg. Ref. No. 3866/20) that includes a request for permission to demolish that Link Building, including the part of the building on the lands the subject of this application for SHD permission. If that application is granted and first implemented, no demolition works to the Link Building will be required under this application for SHD permission. If that application is refused permission or not first implemented, permission is here sought to demolish only that part of the Link Building now existing on the lands the subject of this application for permission and to make good the balance at the red line with a blank wall.

The development also provides a new access from Milltown Road (which will be the principal vehicular entrance to the site) in addition to utilising and upgrading the existing access from Sandford Road as a secondary access principally for deliveries, emergencies and taxis; new pedestrian access points; pedestrian/bicycle connections through the site; 344 No. car parking spaces (295 No. at basement level and 49 No. at surface level) which includes 18 No. mobility impaired spaces, 10 No. car share spaces, 4 No. collection/drop-off spaces and 2 No. taxi spaces; bicycle parking; 14 No. motorcycle spaces; bin storage; boundary treatments; private balconies and terraces facing all directions; external gantry access in sections of Blocks A1, A2 and C; hard and soft landscaping including public open space and communal open space (including upper level communal terraces in Block A1, Block B and Block C which will face all directions); sedum roofs; PV panels; substations; lighting; plant; lift cores; and all other associated site works above and below ground. The proposed development has a gross floor space of c. 54,871 sq m above ground level over a partial basement (under part of Block A1 and under Blocks A2, B and C) measuring c. 10,607 sq m, which includes parking spaces, bin storage, bike storage and plant.

The proposed development will also include the following associated engineering infrastructure:

- Provision of surface water drainage, foul drainage and water supply infrastructure and connections.
- Construction of a surface water outfall which exits the site along its south-eastern boundary, continues along Milltown Road, through the junction of Milltown Road / Sandford Road prior to discharging to the existing public surface water drainage network in Eglinton Road. The surface water outfall extends approximately 300m from the developable site boundary to the outfall location.
- Provision of a new vehicle access off Milltown Road (primary vehicle access to the proposed development facilitating access to the basement carpark, the forecourt area adjacent to Tabor House and the duplex units along the western boundary). This new site access shall be a priority junction and also serves pedestrians and cyclists.

The residential development will be provided with underground basement for car parking. The dig level for the basement will vary between 4.0 to 4.8 m below ground level (mbgl). The basement will occupy approximately 20% of the full footprint of the site.

1.2 Hydrological Setting

According to the EPA river network (EPA maps, <https://gis.epa.ie/EPAMaps/> accessed on 21-04-2021), the nearest surface water receptor is the Dodder River, which is located c. 500 m to the southeast of the site and flows north-eastward (Refer to figure 1.1 below).

A review of historical maps of this zone was conducted (Geohive web maps; OPW, accessed on 21-04-2021), which does not show any additional historical rivers in the vicinity of the proposed development site.



Figure 1.1 Site Location in relation to local drainage

The EPA (2021) on-line database indicates there is no NPWS protected area in the vicinity of the proposed development site. The nearest protected area is the South Dublin Bay SPA/SAC/pNHA which is c. 2.5km to the east of the site. The Dodder outfalls into the River Liffey at Ringsend c. 3.0Km to the north of the site.

The site generally falls from south to north at a gradient of approx. 1:45 with surface gradients becoming flatter on approach to the existing site access off Sandford Road.

There is limited surface water drainage infrastructure on site at present, given that is mainly undeveloped. An existing 225mm diameter surface water drain is located approximately 80m from the eastern corner of the site on Eglington Road (refer to Figure 1.2 below). However, existing surface water drains on site discharge to the existing combined sewer network along Sandford Road and Milltown Road rather than the existing surface water drain in Eglington Road.

During the operational phase, it is proposed to discharge attenuated flows from the site to the existing drainage network on Eglinton Road (approximately 200m from the Sandford Road / Eglinton Road junction where the public line increases to a 300mm diameter pipe).

The existing surface water drain in Eglinton Road ultimately discharges to the Dodder River.

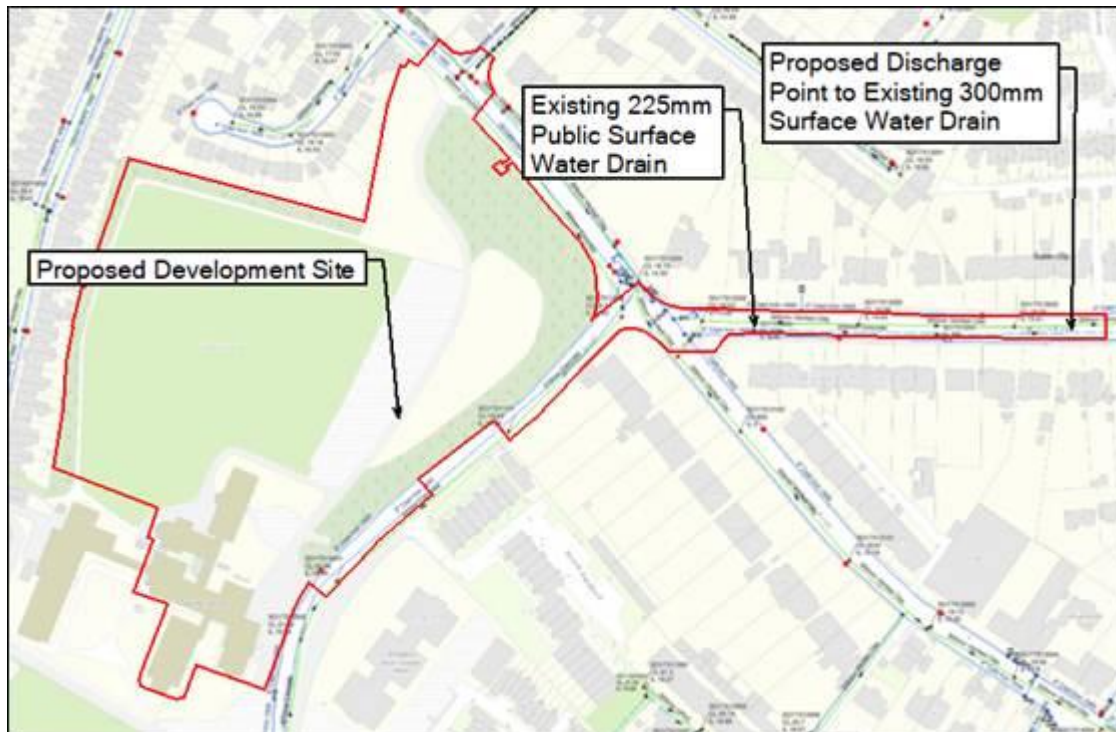


Figure 1.2 Existing Surface Water Drainage Infrastructure (Source: DBFL, 2021)

1.3 Objective of Report

The scope of this desktop review is to assess the potential for any likely significant impacts on receiving waters within protected areas during construction or post development, in the absence of taking account of any measures intended to avoid or reduce harmful effects of the proposed project (i.e. mitigation measures).

In particular, this review considers the likely impact of construction and operation impacts (construction run-off and domestic sewage) from the proposed development on water quality and overall water body status within the Dodder River and ultimately Dublin Bay. The assessment relies on information regarding design provided by Lafferty Project Managers as follows:

- Infrastructure Design Report. Residential Development, Sandford Road, Dublin 6 (DBFL Consulting Engineers, 2021);
- Preliminary Construction Management Plan. Residential Development, Sandford Road, Dublin 6 (DBFL Consulting Engineers, 2021);
- Site Specific Flood Risk Assessment. Residential Development, Sandford Road, Dublin 6 (DBFL Consulting Engineers, 2021);
- Basement Impact Assessment. Residential Development, Sandford Road, Dublin 6 (DBFL Consulting Engineers, 2021);
- Environmental Impact Assessment Report, Sandford Road. Chapter 11: Water & Hydrology (DBFL Consulting Engineers, 2021).

This report was prepared by Marcelo Allende (BEng), and Teri Hayes (BSc MSc PGeol EurGeol). Marcelo is a Water Resources Engineer with over 15 years of experience in environmental consultancy and water resources studies. Marcelo is an Environmental Consultant with Awn Consulting, a member of the International Association of Hydrogeologists (Irish Group) and a member of Engineers Ireland (MIEI). Teri is a hydrogeologist with over 25 years of experience in water resource management and impact assessment. She has a Masters in Hydrogeology and is a former President of the Irish Group of the Association of Hydrogeologists (IAH) and has provided advisory services on water related environmental and planning issues to both public and private sector bodies. She is qualified as a competent person as recognised by the EPA in relation to contaminated land assessment (IGI Register of competent persons www.igi.ie). Her specialist area of expertise is water resource management eco-hydrogeology, hydrological assessment and environmental impact assessment.

1.4 Description of Drainage

The residential development consists of c. 4.26 hectares and is located at the corner of Sandford Road and Milltown Road (refer to Figure 1.1 above). The site is currently occupied by institutional buildings comprising Milltown Park House with 5 No. extensions attached to the original structure, two of which are to be retained within the proposed development (The Chapel and Tabor House). Sandford Road is located along the site's north-eastern boundary and Milltown Road is located along the site's south-eastern boundary.

The nearest surface water receptor is the Dodder River (WFD code: IE_EA_09H D010900; EPA code 09D01), which, according to the EPA maps, is located c. 500m to the southeast of the proposed development site (refer Figure 1.1 above). This river outfalls into the River Liffey at Ringsend c. 3.0Km to the north of the site.

The site generally falls from south-west to north-east becoming flatter on approach to the existing site access off Sandford Road. An existing 225mm diameter surface water drain is located approximately 80m from the eastern corner of the site on Eglinton Road.

The public surface water network on Eglinton Road will provide a suitable surface water discharge point for the proposed development. However, in order to achieve the required drainage invert levels on site, approximately 160m of the existing drainage network along Eglinton Road will need to be replaced with a 300mm pipe running at a flatter gradient. The total length of the surface water outfall from the point it crosses the developable site boundary at Milltown Road to the discharge point on Eglinton Road is approximately 300m.

The design of the surface water drainage network has taken cognisance of the objectives and guidance contained in the Greater Dublin Strategic Drainage Study (GDSDS). Surface water discharge rates from the proposed surface water drainage network will be controlled by a vortex flow control device (Hydrobrake or equivalent) and associated underground attenuation tanks (Stormtech Chambers or equivalent). Surface water discharge will also pass via a full retention fuel / oil separator (sized in accordance with permitted discharge rate from the site).

The proposed surface water drainage network will collect surface water runoff from the site via a piped network prior to discharging off site via an attenuation tank, flow control device and separator arrangement as noted above.

Surface water runoff from apartment roofs will be captured by green roof (sedum blanket or equivalent) prior to being routed to the piped surface water drainage network.

Surface water runoff from the roofs of duplex units located along the western boundary will be routed to the proposed surface water pipe network via porous aggregates beneath permeable paved driveways (providing an additional element of attenuation).

A drainage reservoir (drainage board) is to be provided on the podium slab over basement (for green areas and paved areas).

Surface water runoff from the majority of site's internal street network will be directed to the proposed pipe network via tree pits or other SuDS features (with overflows to conventional road gullies). Part of the site's internal street network drains via 3 no. bio-retention areas.

Surface water runoff from in curtilage parking spaces associated with duplex units located along the western boundary will be captured by permeable paving.

In limited instances, surface water runoff from paved areas will be directed to the proposed pipe network via conventional road gullies.

Any incidental surface water runoff generated from the basement carpark would drain through a separate system beneath the basement slab (out falling to the proposed foul drainage network via a petrol interceptor).

In summary, the following methodologies will be implemented as part of a SuDS treatment train approach:

- Green Roof – The proposed build-up will be an extensive type with 100mm minimum construction depth and sedum planting.
- Roof Areas Draining – Duplex units located along the site's western boundary drain via porous aggregates beneath permeable paved driveways (providing an additional element of attenuation).
- Green Areas Over Podium – Soft landscaped podium areas will have typical soil depths of up to 300mm to facilitate grassed areas, plants, shrubs and trees i.e. similar to a deep intensive green roof build up.
- Permeable Paving Over Podium – Free draining material within the build-up and will reduce the flow rate from these areas.
- Surface water runoff from the site's internal street network will be directed to the proposed pipe network via tree pits or other SuDS features like swales or bioretention areas with overflows to conventional road gullies.
- Surface water runoff from in curtilage parking spaces (duplex units located along the site's western boundary) captured by permeable paving.
- Soft Landscaped/Grassed Areas – Slows runoff at source.
- Attenuation of the 30 and 100 year return period storms within Stormtech Attenuation Chambers or equivalent
- Installation of a vortex flow control device (Hydrobrake or equivalent), limiting surface water discharge from the site to 2.0 l/sec/ha
- Surface water discharge will also pass via a Class 1 full retention fuel / oil separator (sized in accordance with permitted discharge from the site)

With regard to foul water, an existing 600mm diameter combined sewer is located adjacent to the site's north-eastern boundary (Sandford Road). An existing 375mm

diameter combined sewer is also located adjacent to the site's south-eastern boundary (Milltown Road) which outfalls to the 600mm diameter combined sewer on Sandford Road. An existing private foul drainage network is located within the site (typically 150mm diameter) which outfalls to the combined sewer on the Sandford Road via a combined connection with the private surface water drainage network.

Two foul drainage discharge points are proposed for the site (into the Milltown Road and Sandford Road sewers aforementioned). The proposed foul drainage network within the site comprises of a series of 225mm diameter pipes. Duplex units (located along the western boundary) will be serviced by individual 100mm diameter connections.

These foul sewers eventually discharges to the Ringsend Waste Water Treatment Plant (WWTP) where it is treated and ultimately discharges to Dublin Bay. This WWTP operates under the EPA licence D0034-01.

According to the Flood Risk Assessment carried out by DBFL (2021), the site is located within Flood Zone C (i.e., where the probability of flooding from rivers is less than 0.1% or 1 in 1000 years – probability of fluvial flooding is low risk). The abovementioned SuDS measures incorporated in the design will manage run-off rate from the site resulting in no additional impact on the surrounding area with regards to flooding.

2.0 ASSESSMENT OF BASELINE WATER QUALITY, RIVER FLOW AND WATER BODY STATUS

A reliable Conceptual Site Model (CSM) requires an understanding of the existing hydrological and hydrogeological setting. This is described below for the proposed development site and surrounding hydrological and hydrogeological environs.

2.1 Hydrological Catchment Description

The proposed development site lies within the Liffey and Dublin Bay Catchment (Hydrometric Area 09) and Dodder River sub-catchment (WFD name: Dodder_SC_010, Id 09_16) (EPA, 2021). The Dodder River is located approx. 500m southeast of the subject development site. From here the Dodder River flows for approx. 3.0km before discharging into the Liffey Estuary lower transitional waterbody which in turn discharges into Dublin Bay coastal waterbody which includes Special Area of Conservation (SAC)/ proposed Natural Heritage Area (pNHA).

The EPA (2021) on-line mapping presents the available water quality status information for water bodies in Ireland. The Dodder River has a Water Framework Directive (WFD) status (2013-2018) of 'Moderate' and a WFD risk score of 'At risk of not achieving good status'. This moderate status is related to its biological status (invertebrate and fish) and dissolved oxygen conditions (which fails in relation to its percentage saturation); all remaining chemical condition have been classified as 'good'. The most recent quality data (2019) for the Dodder River also indicate that it is 'Slightly polluted'.

The Dodder catchment discharges to the Liffey Estuary Lower which has a WFD status (2013-2018) of 'Good', and Dublin Bay has a WFD status of 'Good'. The Liffey Estuary Lower waterbody has a WFD risk score of 'At risk of not achieving good status' while the Dublin Bay waterbody has a WFD risk score of 'Not at risk'. The surface water quality data for the Liffey Estuary Lower and Dublin Bay (EPA, 2021) indicate that they are 'Unpolluted'. Under the 2015 'Trophic Status Assessment Scheme' classification of the EPA, 'Unpolluted' means there have been

no breaches of the EPA's threshold values for nutrient enrichment, accelerated plant growth, or disturbance of the level of dissolved oxygen normally present.

2.2 Aquifer Description and Superficial Deposits

Mapping from the Geological Society of Ireland (GSI maps, <http://www.gsi.ie> accessed on 21-04-2021) indicates the bedrock underlying the site is part of the Lucan Formation (code CDLUCN) and made up of dark limestone and shale (Calp). The lithological description comprises dark-grey to black, fine-grained, occasionally cherty, micritic limestones that weather paler, usually to pale grey. There are rare dark coarser grained calcarenitic limestones, sometimes graded, and interbedded dark-grey calcar. The beds are predominantly fine-grained distal turbidites in the north Dublin Basin. The formation is intermittently exposed on the coast between Rush and Drumanagh Head. The formation ranges from 300m to 800m in thickness.

The GSI also classifies the principal aquifer types in Ireland as:

- Lk - Locally Important Aquifer - Karstified
- LI - Locally Important Aquifer - Bedrock which is Moderately Productive only in Local Zones
- Lm - Locally Important Aquifer - Bedrock which is Generally Moderately Productive
- PI - Poor Aquifer - Bedrock which is Generally Unproductive except for Local Zones
- Pu - Poor Aquifer - Bedrock which is Generally Unproductive
- Rkd - Regionally Important Aquifer (karstified diffuse)

Presently, from the GSI (2021) National Bedrock Aquifer Map, the GSI classifies the bedrock aquifer beneath the subject site as a 'Locally Important Aquifer – Bedrock which is Moderately Productive only in Local Zones'. The proposed development is within the 'Dublin' groundwater body and is classified as 'Poorly productive bedrock'. The most recent WFD groundwater status for this water body (2013-2018) is 'Good' with a current WFD risk score 'Under Review'.

Aquifer vulnerability is a term used to represent the intrinsic geological and hydrological characteristics that determine the ease with which groundwater may be contaminated generally by human activities. The GSI (2021) guidance presently classifies the bedrock aquifer vulnerability in the region of the subject site as 'Low' which indicates a general overburden depth potential of >10m. This shows that the aquifer is naturally protected by low permeability glacial clays. The aquifer vulnerability class in the region of the site is presented as Insert 2.1 below.

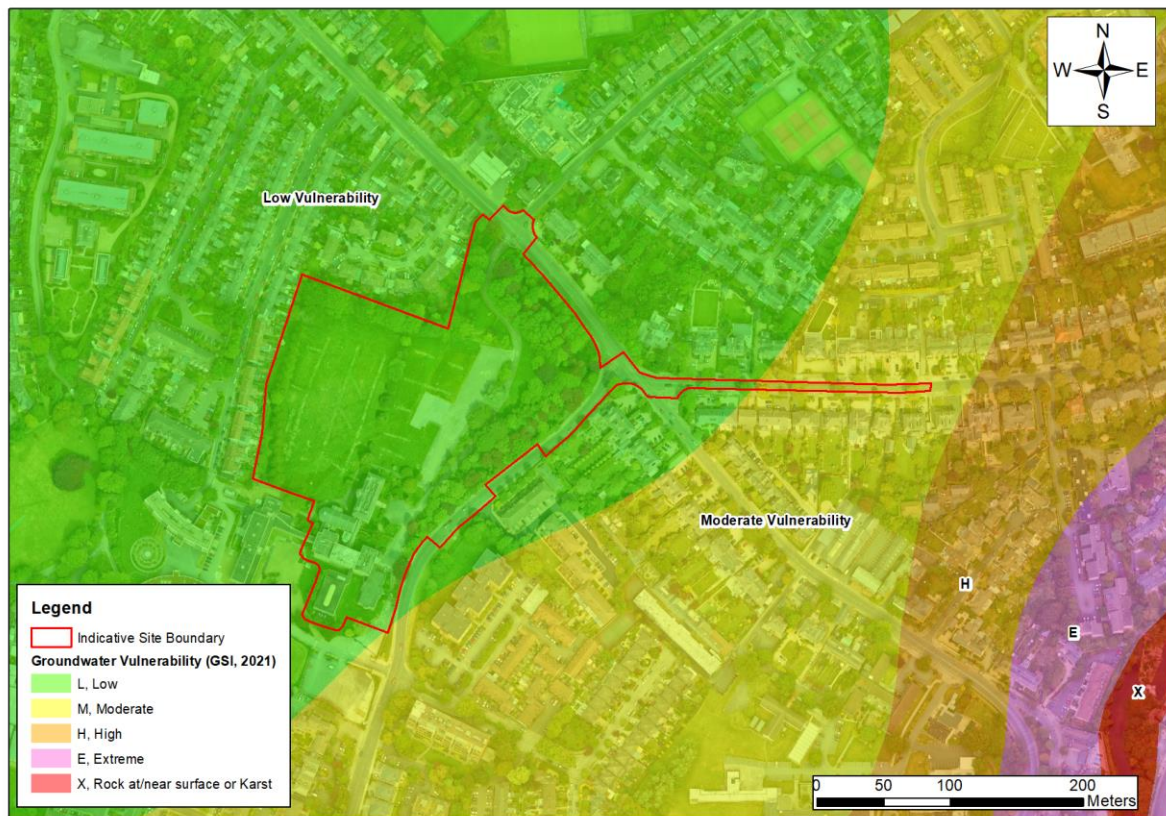


Figure 2.1 Aquifer Vulnerability

The GSI/ Teagasc (2021) mapping database of the quaternary sediments in the area of the subject site indicates the principal subsoil type in the residential area comprises Till derived from quartzites (TLs).

This information is consistent with site investigations carried out at the Milltown Park site between January and June 2020, that show the typical stratification associated with the subject site as follows:

- Topsoil: 0.2-0.4 m depth below ground level (mbgl);
- Made Ground 0.5-1.0 mbgl;
- Sandy gravelly Clay: 0.5-1.0 to 9.0-18.5 mbgl;
- Bedrock below 9.0-18.5 mbgl.

No evidence of contamination was detected during site investigations (refer to DBFL Basement Impact Assessment, 2021).

3.0 CONCEPTUAL SITE MODEL

A conceptual site model (CSM) is developed based on a good understanding of the hydrological and hydrogeological environment, plausible sources of impact and knowledge of receptor requirements. This in turn allows possible Source Pathway Receptor (S-P-R) linkages to be identified. If no S-P-R linkages are identified, then there is no risk to identified receptors. The sources pathways and receptors are presented in the following sections with the overall impact presented in section 3.4.

3.1 Assessment of Plausible Sources

Potential sources during both the construction and operational phases are considered. For the purposes of undertaking the potential of any hydrological/

hydrogeological S-P-R linkages, all potential sources of contamination are considered *without taking account of* any measures intended to avoid or reduce harmful effects of the proposed project (mitigation measures) i.e. a worst-case scenario. Construction sources (short-term) and operational sources (long-term) are considered below.

Construction Phase

The following sources are considered plausible for the proposed construction site:

- (i) Hydrocarbons or any hazardous chemicals will be stored in specific bunded areas. Refuelling of plant and machinery will also be carried out in bunded areas to minimise risk of any potential being discharged from the site. As a worst-case scenario, a rupture of a 1,000 litre tank to ground is considered. This would be a single short-term event.
- (ii) Leakage may occur from construction site equipment. As a worst-case scenario an unmitigated leak of 300 litres is considered. This would be a single short-term event.
- (iii) Use of wet cement is a requirement during construction. Run-off water from recent cemented areas will result in highly alkaline water with high pH. As this would only occur during particular phases of work this is again considered as a single short-term event rather than an ongoing event. If concrete mixing is carried out on site, the mixing plant will be sited in a designated area with an impervious surface.
- (iv) Construction requires soil excavation and removal and potentially groundwater collection. Run-off could contain a high concentration of suspended solids during earthworks. This could be considered an intermittent short-term event, i.e. on the assumption that measures incorporated in the Construction Environmental Management Plan (CEMP) do not work.
- (v) During the excavations for foundations and basement, no significant dewatering is expected given the low permeability overburden underlying the site. Bedrock will not be affected by excavations work given the projected dig level (~4.8 mbgl) and bedrock depth (>9.0 mbgl).

Operational Phase

The following sources are considered plausible post construction:

- (i) The proposed development does not require any bulk chemical storage and therefore the potential for water quality impact is negligible.
- (ii) Leakage of petrol/ diesel fuel may occur from these areas, run-off may contain a worst-case scenario of 70 litres for example.
- (iii) The stormwater drainage system follows SuDS measures, which are composed of an interception storage system (green roof areas, permeable paving, road gullies, tree pits) and an attenuation storage tank. The storage system will discharge following the characteristics of a greenfield run-off into the existing public surface water sewer located on Eglington Road. No additional treatment measures were considered due to the expected loading and provision of the mentioned interception system. It should be noted that all these SuDS measures contribute to reduce impact on water quality.

- (iv) The development will be fully serviced with separate foul and stormwater sewers which will have adequate capacity for the facility and discharge limits as required by Irish Water licencing requirements. Discharge from the site to the public foul sewer will be sewage and grey water only due to the residential nature of the proposed development. The foul discharge from the site will join the public sewer and will be treated at the Irish Water Ringsend Wastewater Treatment Plant (WWTP) prior to subsequent discharge to Dublin Bay. This WWTP is required to operate under an EPA licence and meet environmental legislative requirements as set out its licence. It is noted that an application for a new upgrade to this facility is currently in planning.

3.2 Assessment of Pathways

The following pathways have been considered within this assessment:

The potential for offsite migration due to any construction discharges is low as there is no significant pathway in the aquifer or through land ditches or streams.

- (i) Vertical migration to the underlying limestone is minimised due to the recorded 'Low' vulnerability present at the site resulting in good aquifer protection from any localised diesel/ fuel oil spills during either construction or operational phases. The site is underlain by Calp limestone which is a 'Locally Important Limestone Aquifer' characterised by discrete local fracturing with little connectivity rather than large connected fractures which are more indicative of Regional Aquifers. As such, flow paths are generally local.
- (ii) There is no direct hydrological linkage for construction or operation run-off or any small hydrocarbon leaks from the site to the Dodder River or Dublin Bay. However, an indirect pathway exists through the public stormwater sewer which ultimately discharges into the Dodder.
- (iii) There is no 'direct' pathway for foul sewage to any receiving water body (as identified above). There is however an 'indirect pathway' through the public sewer which ultimately discharges to the Irish Water WWTP at Ringsend prior to discharge to Dublin Bay post treatment.

3.3 Assessment of Receptors

The receptors considered in this assessment include the following:

- (i) Underlying limestone aquifer;
- (ii) Dodder River; and
- (iii) Liffey Estuary Lower and Dublin Bay.

3.4 Assessment of Source Pathway Receptor Linkages

Table 3.1 below summarises the plausible pollutant linkages (S-P-R) considered as part of the assessment and a review of the assessed risk is also summarised below.

The potential for impact on the aquifer is low based on the low chemical storage on site during construction phase and post development. The overburden thickness and low permeability nature of till and a lack of fracture connectivity within the limestone will minimise the rate of off-site migration for any indirect discharges to ground at the site. As such there is no potential for a change in the groundwater body status or significant source pathway linkage through the aquifer to any Natura

2000 site.

Should any silt-laden stormwater from construction or hydrocarbon-contaminated water from a construction vehicle leak manage to enter the public stormwater sewer, the suspended solids will naturally settle within the drainage pipes and hydrocarbons will dilute to background levels (water quality objectives as outlined in S.I. No. 272 of 2009, S.I. No. 386 of 2015 and S.I. No. 77 of 2019); by the time the stormwater reaches any open water based on the distance to waterways. Similarly, during operation, should any leak of hydrocarbon occur from a vehicle, the volume of contaminant release is low and combined with the significant attenuation within in the public stormwater sewers, hydrocarbons will dilute to background levels with no likely impact above water quality objectives as outlined in S.I. No. 272 of 2009, S.I. No. 386 of 2015 and S.I. No. 77 of 2019. It can also be concluded that the in-combination effects of surface water arising from the proposed development taken together with that of other possible proposed residential developments will not be significant given the potential loading of contaminant (a worst-case scenario of 70 litres of leakage of petrol during the operation phase) and the attenuation measures included in the design.

The peak wastewater discharge is calculated at an average wastewater discharge of 21.4 litres/sec. The sewage discharge will be licensed by Irish Water, collected in the public sewer and treated at Irish Water's WWTP at Ringsend prior to discharge to Dublin Bay. This WWTP is required to operate under an EPA licence (D0034-01) and to meet environmental legislative requirements. The plant has received planning permission (2019) and will be upgraded with increased treatment capacity over the next five years. The peak foul discharge calculated for the proposed development is well within the current capacity of the WWTP.

The 2019 planning permission facilitated upgrading works to meet nitrogen and phosphorus standards set out in the licence, which are temporarily exceeded currently. The design includes aerobic granular sludge which will result in treatment of sewage to a higher quality than current thereby ensuring effluent discharge to Dublin Bay will comply with the Water Framework Directive, Urban Wastewater Treatment Directive and Bathing Water Directive. It is understood at this point in time that the upgrade to use of aerobic granular sludge and other phased upgrades (excluding the proposed Clonsaugh development) will result in the WWTP achieving a population equivalent of 2.4 million and are to be completed between by 2027 to 2028. The application for the upgrade of the WWTP in 2012 and the revised upgrade in 2018 was supported by a detailed EIAR. As outlined in the EIAR, modelling of water quality in Dublin Bay has shown that the upgrades (which are now currently underway) will result in improved water quality within Dublin Bay. The 2018 EIAR predicts that the improvement in effluent quality achieved by the upgrade will compensate for the increase in flow through the plant. The ABP inspectors report summarises the positive findings of the modelling for the post WWTP upgrade scenario on Dublin Bay water quality in sections 12.3.5 and 12.3.12 of his report and the overall positive impact for human health and the environment in his conclusions in section 12.9.1. Page 12 of the grant of permission (reference: ABP-301798-18; refer to Appendix A and B) states the positive impact arising from the delivery of the project "...which would improve compliance with EU Directives and corresponding legislation and would be pivotal in supporting planning and economic growth in Dublin City and its region".

The project is being progressed in stages to ensure that the plant continues to treat the wastewater (1.98 million population equivalent) to the current treatment levels throughout the delivery of the upgrade. The project comprises three key elements and underpinning these is a substantial programme of ancillary works:

- Provision of additional secondary treatment capacity with nutrient reduction (400,000 population equivalent);
- Upgrade of the 24 existing secondary treatment tanks to provide additional capacity and nutrient reduction, which is essential to protect the nutrient-sensitive Dublin Bay area; and
- Provision of a new phosphorous recovery process.

In February 2018, the work commenced on the first element, the construction of a new 400,000 population equivalent extension at the Ringsend Wastewater Treatment Plant. These works are at an advanced stage with testing and commissioning stages expected to be completed in the second half of 2021.

Even without treatment at the Ringsend WWTP, the peak effluent discharge, calculated for the proposed development as 21.4 litres/sec (which would equate to 0.19% of the licensed discharge at Ringsend WWTP [peak hydraulic capacity]), would not impact on the overall water quality within Dublin Bay and therefore would not have an impact on the current Water Body Status (as defined within the Water Framework Directive). This assessment is supported by hydrodynamic and chemical modelling within Dublin Bay which has shown that there is significant dilution for contaminants of concern (DIN and MRP) available quite close to the outfall for the treatment plant (Ringsend WWTP 2012 EIS, Ringsend WWTP 2018 EIAR; refer to Section 12.4.22, ABP-301798-18 Inspector's report, included as Appendix A). The most recent water quality assessment of Dublin Bay WFD Waterbody undertaken by the EPA (four yearly monitoring of trends for indicator parameters) also shows that Dublin Bay on the whole, currently has an 'Unpolluted' water quality status (www.catchments.ie).

The assessment of the current proposal has also considered the effect of cumulative events, such as release of sediment laden water combined with a hydrocarbon leak on site. As there is adequate assimilation and dilution between the site and the Natura sites (Dublin Bay), it is concluded that no perceptible impact on water quality would occur at the Natura sites as a result of the construction or operation of this Proposed Development. It can also be concluded that the cumulative or in-combination effects of effluent arising from the Proposed Development with that of other permitted, proposed developments, or with development planned pursuant to statutory plans in the greater Dublin, Meath and Kildare areas, which will be discharged into Ringsend WWTP will not be significant having regard to the size of the calculated discharge from the Proposed Development and having regard to the following:

- Recent water quality assessment for Dublin Bay shows that Dublin Bay currently continues to meet the criteria for 'Unpolluted' water quality status (EPA, 2021).
- The Ringsend WWTP upgrade which is currently being constructed will result in improved water quality to ensure compliance with Water Framework Directive requirements.
- All new developments are required to comply with SuDS which ensures management of run-off rate within the catchment of Ringsend WWTP.
- The natural characteristics of Dublin Bay result in enriched water rapidly mixing and degrading such that the plume has no appreciable effect on water quality at Natura sites.

As the Proposed Development will have no additional stormwater run-off during a stormwater event over and above the current level, surface water run-off from the development in the operational phase will therefore have no impact on the water quality in any overflow situation apart from a minor contribution from foul sewage to surface water, which includes the bathing areas and its quality status. It should be noted that the bathing status has no direct relevance to the water quality status of the Natura sites due to rapid mixing and dilution resulting in no measurable change in water quality within the overall water body.

Finally, in a worst-case scenario not considering the operation of the SuDS already included in the design, no perceptible risk to any Natura Sites 2000 is anticipated given the distance from source to Dublin Bay protected areas (> 2.5 km); potential contaminant loading will be attenuated diluted and dispersed near source area. It can also be considered the fact that there may be some benefit in attenuation in relation to water quality arising where there is a combined sewer.

Source	Pathways	Receptors considered	Risk of Impact
Construction Impacts			
Unmitigated leak from an oil tank to ground/ unmitigated leak from construction vehicle.	Bedrock protected by >9m low permeability overburden. Migration within weathered/ less competent limestone is low (Calp limestone has discrete local fracturing rather than large connected fractures).	Limestone bedrock aquifer (locally Important aquifer)	Low risk of localised impact to shallow weathered limestone due to protective overburden. No likely impact on the status of the aquifer due to low potential loading, natural attenuation within overburden and discrete nature of fracturing reducing off site migration.
Discharge to ground of runoff water with high pH from cement process	Overland flow/ indirect pathway through stormwater drainage to Dodder water course.	Dodder River	No perceptible risk – Distance from source to Dublin Coastal Natura sites (>2.5 km approx.) Low contaminant loading will be attenuated diluted and dispersed to below statutory guidelines within c. 0.5 km of the site i.e.no potential impact to the Natura sites
Unmitigated run-off containing a high concentration of suspended solids	Indirect pathway to Dublin Bay through public sewer.	South Dublin Bay SAC/pNHA and South Dublin Bay and River Tolka SPA	
Operational Impacts			
Foul effluent discharge to sewer	Indirect pathway to Dublin Bay through public sewer	South Dublin Bay SAC/pNHA and South Dublin Bay and River Tolka SPA	No perceptible risk – Even without treatment at Ringsend WWTP, the average effluent discharge (0.6 litres/sec which would equate to 0.19% of the licensed discharge at Ringsend WWTP), would not impact on the overall water quality within Dublin Bay and therefore would not have an impact on the current Water Body Status (as defined within the Water Framework Directive).
Discharge to ground of hydrocarbons from car leak	Indirect pathway through stormwater drainage to Dodder water course	Dodder River and South Dublin Bay	No perceptible risk – Distance from source to Dublin Bay protected area too great (> 2.5 km), potential contaminant loading will be attenuated diluted and dispersed near source area.

Table 3.1 Pollutant Linkage Assessment (*without mitigation*)

4.0 CONCLUSIONS

A conceptual site model (CSM) has been prepared following a desk top review of the site and surrounding environs. Based on this CSM, plausible Source-Pathway-Receptor linkages have been assessed assuming an absence of any measures intended to avoid or reduce harmful effects of the proposed project (i.e. mitigation measures) in place at the proposed development site.

There is no direct source pathway linkage between the proposed development site and open water (i.e. Dodder Catchment or Dublin Bay). It is concluded that there is also no resultant indirect source pathway linkage from the proposed development through public sewers which could result in any change to the current water regime (water quality or quantity) and open water as defined. There is an indirect connection through the foul sewer which will eventually discharge to the Ringsend WWTP and ultimately discharges to Dublin Bay. The future development has a peak foul discharge that would equate to 0.19% of the licensed discharge at Ringsend WWTP (peak hydraulic capacity).

It is concluded that there are no pollutant linkages as a result of the construction or operation (without the use of mitigation) of the proposed development which could result in a water quality impact which could alter the habitat requirements of the Natura sites within Dublin Bay.

With regard to bathing waters in Dublin Bay, as mentioned above the Proposed Development will have no impact on the water quality in any overflow situation apart from a minor contribution from foul sewage.

During the excavations for foundations and basement, no significant dewatering is expected given the low permeability overburden underlying the site. Bedrock will not be affected by excavations work.

Finally, as outlined in the reports prepared by DBFL (Construction Management Plan [2021] and Infrastructure Design Report [2021]), and in line with good practice, mitigation measures have been included during construction. During operation the potential for an impact to ground or storm water is negligible and there are measures incorporated within the proposed development to manage stormwater run-off quality. These specific measures will provide further protection to the receiving soil and water environments. However, the protection of downstream European sites is in no way reliant on any of these measures and has not been taken into account in assessing the impact on water quality for the European sites in and around Dublin Bay.

5.0 REFERENCES

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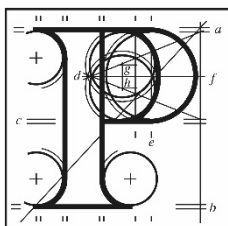
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APPENDIX A

Inspector's Report – ABP-301798-18



An
Bord
Pleanála

Inspector's Report ABP-301798-18

Development	10-year permission for development of the Ringsend wastewater treatment plant upgrade project including a regional biosolids storage facility
Location	Ringsend Wastewater Treatment Plant, Pigeon House Road, Dublin 4 and Newtown, North Road (R135), Dublin 11
Planning Authority	Dublin City Council South and Fingal County Council
Planning Authority Reg. Ref.	n/a
Applicant(s)	Irish Water
Type of Application	Application under the Provisions of S37E of the Planning and Development Act 2000, as amended.
Planning Authority Decision	n/a
Date of Site Inspection	9 th October 2018 & 10 th October 2018
Inspector	Patricia Calleary

Contents

1.0	Introduction.....	4
2.0	Project Background	4
3.0	Site Location and Description.....	5
3.1.	Ringsend WwTP site	5
3.2.	Regional Biosolids Storage Facility (RBSF) site.....	7
4.0	Proposed Development.....	7
5.0	Planning History	10
6.0	Legislative and Policy Context.....	13
7.0	Reports and Submissions.....	21
8.0	Pre-Planning and Consultation.....	31
9.0	Assessment overview.....	31
10.0	Planning & Sustainable Development Assessment.....	31
10.1.	Introduction.....	31
10.2.	Principle and Water Quality	32
10.3.	Legislative and Policy Considerations	41
10.4.	Seveso Considerations.....	48
10.5.	Flood Risk	49
10.6.	Traffic	52
10.7.	Design and Amenity	58
10.8.	Community Gain.....	60
10.9.	Other consents	61
10.10.	Conclusion on Planning Assessment	63
11.0	Environmental Impact Assessment	63
11.1.	Introduction.....	63

11.2.	Compliance with Legislation	64
11.3.	Alternatives.....	66
11.4.	Conclusion on EIAR Compliance with Legislation	68
12.0	Likely Significant Effects on the Environment.....	68
12.1.	Introduction.....	68
12.2.	Population and Human Health.....	68
12.3.	Biodiversity.....	76
12.4.	Land, Soil, Water, Air and Climate	88
12.5.	Materials Assets, Cultural Heritage and Landscape.....	111
12.6.	Vulnerability of projects to Major Accidents and/or Natural Disasters ...	121
12.7.	Environmental Interactions.....	124
12.8.	Cumulative Impacts.....	124
12.9.	Conclusion on EIA.....	126
13.0	Appropriate Assessment	128
13.1.	Introduction.....	128
13.2.	Appropriate Assessment - Stage 1 (Screening)	129
13.3.	Appropriate Assessment – Stage 2.....	142
13.4.	Significant Effects on European Sites	145
13.5.	Conclusion on Appropriate Assessment.....	154
14.0	Recommendation	155
15.0	Reasons and Considerations	155
16.0	Conditions	163

1.0 Introduction

- 1.1. This report relates to the assessment of a planning application made direct to An Bord Pleanála by Irish water under the Provisions of S37E of the Planning and Development Act 2000, as amended (hereinafter referred to as the 'Act'). Permission is sought for revisions and alterations to the existing and permitted development of the Ringsend Wastewater Treatment Plant (WwTP) at Pigeon House Road in Dublin 4, referred to as **component number one** and for a new Regional Biosolids Storage facility (RBSF) at Newtown, Dublin 11 referred to as **component number two**.
- 1.2. The revisions and alterations proposed to the Ringsend WwTP would broadly comprise the omission of the previously approved 9km-long sea outfall tunnel (LSOT) and the associated relocation of the existing effluent discharge point. Instead, it is now proposed to incorporate Aerobic Granular Sludge (AGS) technology into the secondary treatment process together with associated nitrogen (N) and phosphorous (P) removal which it is stated would significantly improve the standard of effluent treatment at the existing wastewater treatment plant. Consequently, it is also proposed to continue to discharge treated effluent through the existing outfall at the Liffey Estuary.
- 1.3. The proposed RBSF would be developed and used to store biosolids arising out of the treatment of sludge generated at the Ringsend WwTP prior to their re-use on agricultural lands.

2.0 Project Background

- 2.1. On the 16th November 2012, An Bord Pleanála granted approval to Dublin City Council (ABP Reference Number: 29N.YA0010) for development at the Ringsend Wastewater Treatment known as the 2012 Approval. The 2012 Approval permitted an expansion of the existing Ringsend WwTP to an average daily capacity of 2.4 million population equivalent (PE) in terms of reduction of Biochemical Oxygen Demand (BOD) and Suspended Solids (SS) and it included the following elements:

- Additional secondary wastewater treatment capacity at the wastewater treatment works site including associated solids handling and ancillary works;
- A 9-km-long sea outfall in tunnel (LSOT), commencing at an onshore inlet shaft approximately 350m east of the wastewater treatment works and terminating in an underwater outlet riser/diffuser in Dublin Bay;
- Various process improvement works known as surgical works;
- Road network improvements during the construction phase.

2.2. Two applications were subsequently made to alter the terms of the 2012 Approval (29N.YM0002 & 29N.YM0004) and An Bord Pleanála approved the alterations sought. An application for further alterations to the 2010 Approval is currently with the Board (29N.YA0010). Details of these are set out under the heading 'Planning History'.

2.3. Certain elements of the 2012 Approval works are stated to have been advanced, primarily comprising preparatory works, mechanical plant installation and construction of access roads.

3.0 Site Location and Description

3.1. Ringsend WwTP site

3.1.1. Ringsend WwTP is located on the Poolbeg peninsula, at the mouth and south of the River Liffey in Dublin city. Treated effluent from the plant discharges to the Lower Liffey Estuary, c.1km to the east. The site with a stated 17.9 ha is located adjacent to and immediately west of ESB Poolbeg Power Station and immediately east of the Dublin Waste to Energy (WtE) facility. Irishtown Nature Reserve comprising an amenity grassland area is located immediately south. In the wider environment, Dublin city is located to the west and Dublin Bay is located to the east.

3.1.2. The Poolbeg peninsula is characterised by industrial, utility and amenity uses with dock facilities to its north. Poolbeg West is designated under Section 166 of Part IX of the Planning and Development Act 2000, as amended, as a Strategic Development Zone (SDZ) with provision for between 3000 and 3500 units as well as

commercial and other uses. In October 2017, under the provisions of the Planning and Development Act 2000, as amended, Dublin City Council decided by resolution to make the Poolbeg West Planning Scheme, which covers an area of 34ha immediately adjoining the south and west of the Ringsend WwTP site. At the date of this assessment and subsequent an appeal to the Board, the Poolbeg West Planning Scheme (ABP Ref. PL29S.ZD2013) remains under consideration by the Board. Part of the Ringsend WwTP application site incorporating a proposed temporary construction compound, C1, is located within the lands associated with the planning scheme.

3.1.3. Access to the site is along Pigeon House Road and through walkways associated with Irishtown Nature Reserve to the south. There are no residential properties in the immediate vicinity of the site. The existing outfall from the WwTP is positioned c.1km to the east of the plant, just east of the ESB Poolbeg Power Station. The wastewater discharge is mixed with water from the ESB power station which is used to cool the gas turbines at the power station before being discharged to the river.

3.1.4. The following provides a summary of the current treatment process which occurs at the Ringsend WwTP.

- **Preliminary Treatment:** includes flow management, stormwater handling and storage, screening and grit removal;
- **Primary Treatment:** comprises sedimentation and creating a primary sludge for treatment;
- **Secondary Treatment:** comprises a biological process which creates an activated sludge stream;
- **Disinfection:** comprises ultra-violet radiation to reduce the pathogenic and other organisms in the final effluent discharge;
- **Sludge Thickening:** comprises thickening, to reduce the volume, and storage of the primary and activated sludges;
- **Sludge Treatment:** comprises hydrolysis and anaerobic digestion which breakdown and stabilise the biological component in the sludge, producing energy as a by-product; and

- **Sludge Drying and Dewatering:** comprises drying or dewatering of the treated sludge, producing biosolids in the form of biofert and biocake.

3.2. Regional Biosolids Storage Facility (RBSF) site

- 3.2.1. The site of the Regional Biosolids Storage Facility (RBSF) occupies a stated 11 ha, located in Fingal at Newtown in Dublin 11, c.19km from the Ringsend WwTP site. It is bounded to the east by the R135 regional road and the N2 national primary road lies further east and curves around to the north. There is an established detached house and a scheme of eight residential units¹ and a community building under construction, located c. 25 metres from the site boundary, to the south east. The Dog's Trust is also located c. 250m to the south of the site.
- 3.2.2. To the immediate north there is an area of semi-natural dry meadow grassland. The site is bounded to the west and south by a stream which is a tributary of the Hunstown stream. The Hunstown stream connects with the River Ward approximately 4 km north of the proposed RBSF site. Hunstown quarry lies to the south and west and Hunstown power station lies to the south. 38 kV and a 110 kV electricity supply lines traverse the site. The surrounding area is primarily occupied by industrial, commercial and warehousing premises and Dublin Airport logistics park lies to the east of the site.
- 3.2.3. Fingal County Council (FCC) was granted approval by An Bord Pleanála under Ref. 06F.EL2045 (21st April 2006) for a waste recovery facility at the proposed RBSF site. Certain enabling works have since been carried out on site including the removal of vegetation and the construction of roads and other hard-standing areas. The development did not proceed further.

4.0 Proposed Development

- 4.1. Permission is sought for a ten-year period to carry out revisions to the development

¹ A scheme of six residential units was originally permitted on the adjoining site in 2015 and following an application for alterations, two additional units were permitted in 2018. The details are set out under the heading of 'Planning History'. It is assumed throughout this report that the construction underway includes eight houses.

which was approved in 2012 at the Ringsend WwTP. The primary difference in the revisions now before the Board and that previously approved is the proposal for the inclusion of AGS technology at the secondary treatment stage and the elimination of the 9-km undersea tunnel/LSOT while continuing to discharge at the existing outfall instead. The development would also comprise the construction of a RBSF at Newtown in Dublin 11. The purpose of the development of the RBSF is to store treated wastewater sludge in the form of biosolids prior to its re-use as a fertiliser / soil conditioner on agricultural lands. The biosolids would be primarily generated from treated sludge at the Ringsend WwTP and the proposed Greater Dublin Drainage (GDD) WwTP² as well as other Fingal municipal wastewater treatment plants. The facility would be used for storage of biosolids only and no treatment of sludge would take place.

4.2. The Ringsend WwTP has an existing discharge authorisation licence (D0034-01) in accordance with the requirements of the Waste Water Discharge (Authorisation) Regulations 2007, as amended. The licence was granted by the EPA in 2010 and has been amended in 2016 and 2018. It is proposed to continue to operate the plant as a live plant during construction.

4.3. Specific elements of the proposed development at each of the two sites are listed below.

4.3.1. **Ringsend WwTP**

- Proposals to reconfigure and retrofit up to 24 of the existing Sequencing Batch Reactor (SBR) tanks to facilitate the use of new Aerobic Granular Sludge (AGS) technology;
- Associated works including a sludge pasteurisation building and a phosphorous recovery building;
- Use on a permanent basis of a vehicular entrance granted a temporary permission under ABP Ref. 29N.YM0002 off Pigeon House Road;

² The GDD WwTP proposal is being progressed as a separate strategic infrastructure development planning application and is currently with the Board for its consideration.

- Underground electrical connection to an existing underground ESB cable along the south west corner of the southern boundary;
- Bypass culvert, ultraviolet lamps, internal road configurations and additional car parking;
- Continued use of two temporary construction compounds (C1 and C2), previously permitted for three years under ABP Ref. 29N.YM0004, for 10 years;
- Omission of the previously approved 9-km undersea tunnel / LSOT and the continued use of the existing outfall to the River Liffey serving the Ringsend WwTP;
- Omission of three temporary construction compounds previously permitted.

4.3.2. **RBSF**

- Demolition of a number of small structures, removal of internal roads and partial removal/diversion of existing drainage infrastructure;
- Provision of two biosolids storage buildings with a combined capacity to store up to 48,000 cubic metres of biosolids at any one time;
- Installation of odour control flues;
- Provision of mechanical and electrical control building and an administration building;
- Use of existing vehicular access off the R135.

4.4. Throughout the planning application documentation, reference is made to the **'Proposed Upgrade Project'** which is intended to mean the proposed development which is the subject matter of the current strategic infrastructure development (SID) application in combination with the elements of the 2012 Approval which are also being progressed. The relationship between the proposed development which is the subject matter of the current application and the 2012 Approval are set out in diagrammatic format in Figure 10 of the applicants planning report and Table 8 of the

report presents a list of the specific work elements proposed. The Environmental Impact Assessment Report (EIAR) accompanying the current application addresses the overall 'proposed upgrade project'. The proposed development is identified in the documentation as comprising two principal components as follows:

- **Component 1** - Ringsend WwTP: Upgrade works at the Ringsend WwTP;
- **Component 2** - RBSF: A Regional Biosolids Storage Facility at Newtown.

4.5. The planning application is accompanied by the statutory documents and drawings required for a SID application. It is also accompanied by a Planning Report, Technical Reports including Greater Dublin Drainage Study: Overview & Future Strategic Needs, Flood Risk Assessments for both sites, Engineering Design Report – RBSF and Architectural Design Statement – RBSF, an EIAR for both the Ringsend Wastewater Treatment Plant Upgrade Project and the Regional Biosolids Facility (Volumes 1 to 4 inclusive along with several supporting documents as appendices) and an Appropriate Assessment Screening Report and Natura Impact Statement. Following receipt of all reports and submissions by various consultees and observers, the applicant furnished a written response to the reports and submissions.

5.0 Planning History

5.1. The Ringsend WwTP has operated on its current site within the Poolbeg Peninsula since the early 20th century. An activated sludge system was introduced at the plant in the 1960s. Further improvement works were undertaken incrementally including the construction of a new inlet works, SBRs and new sludge handling facilities.

5.1.1. Approvals at the Ringsend WwTP site

An Bord Pleanála Ref. **29N.YA0010** – The Board granted approval (16th November 2012) for the following: Ringsend Wastewater Treatment Works Extension Project which would expand the existing wastewater treatment to its ultimate capacity of 2.4 million PE within the confines of its current site and achieve the required discharge standards. The proposed extension includes the following elements:

- Additional secondary wastewater treatment capacity at the wastewater treatment works site (c.400,000 PE) including associated solids handling and ancillary works;
- A 9-km LSOT commencing at an onshore inlet shaft approximately 350m east of the wastewater treatment works and terminating in an underwater outlet riser/diffuser in Dublin Bay;
- Road network improvements in the vicinity of the site (during the construction phase);

5.1.2. Alteration Decisions on the Ringsend WwTP site

- **PL29N.YM0002** – In June 2016, the Board altered the Approval in respect of certain temporary works and removal of temporary landscaping bunds at the Ringsend WwTP site;
- **PL29N.YM0004** – In January 2018, The Board altered the Approval to allow for the omission of three construction site compounds previously permitted and the provision of three new temporary construction site compounds at the Ringsend WwTP site;
- **ABP-301773-18** (current application) - This is a concurrent application whereby a request is sought by Irish Water to alter the terms of the 2012 Approval (29.YA0010). The nature of the request relates solely to condition no.1 attached to the Approval;

5.1.3. Planning Applications in the vicinity of the Ringsend WwTP site

- **An Bord Pleanála Reg. Ref. No. PL29S.ZD2013** – Poolbeg SDZ Planning Scheme appeal is currently under consideration by An Bord Pleanála;
- **An Bord Pleanála Reg. Ref. No. PL29S.EF2022** – Dublin Waste to Energy / Covanta granted permission on 19th Nov 2007;
- **An Bord Pleanála Reg. Ref. No. PL29N.PA0034** – Alexandra Basin Redevelopment (Dublin Port) granted permission on 8th July 2015;

- **Dublin City Council Reg. Ref. 2656/16** – National Oil Reserves Agency granted permission on 13th April 2016 for redevelopment/extensions;

5.1.4. Planning Applications on the RBSF site

- **PL06F.EL2045** – In April 2006, An Bord Pleanála granted approval to FCC for development of a construction and demolition waste recovery facility processing 75,000 tonnes per annum (tpa), a biological waste treatment facility treating 45,000 tpa of segregated domestic and commercial organic waste; a waste transfer facility processing 65,000 tpa of municipal solid waste and a sludge hub centre treating 26,511 tpa of municipal sludge;
- **FCC Reg. Ref. F08A/0624** – In August 2008, permission was granted to ESB to divert a section of the existing Finglas-Ashbourne 38kv line;

5.1.5. Planning Applications in the vicinity of the RBSF site

- **FW13A/0089/E1** – On 19th January 2018, FCC granted an extension of permission for the construction of a 3.6 MW renewable bioenergy plant;
- **F18/0146** – On 16th May 2018, FCC granted permission for a storage and distribution centre for new and imported vehicles;
- **F16A/0128** – On 30th March 2016, FCC granted permission for industrial and warehouse development;
- **FW14A/0162** On 2nd June 2015, FCC granted permission for the demolition of two houses and the construction of six new houses. Permission was subsequently granted on 11th June 2018 under **FW18A/0038** for amendments to develop an additional building to accommodate two additional residential units.

5.1.6. EPA Licence

- **Reg Ref. D0034-01** - Under the provisions of the Wastewater Discharge (Authorisation) Regulations 2007, as amended, the EPA granted a licence (July 2010) to discharge treated effluent into the Lower River Liffey. The licence was subsequently amended under Technical Amendments A and B.

5.1.7. Compulsory Purchase Order

- The lands at Newtown, North Road (R135) Dublin 11 were the subject of a separate application made under Section 37A of the Planning and Development Act, 2000, as amended, providing for the compulsory purchase of those lands. No objections were received in relation to the CPO.

6.0 **Legislative and Policy Context**

6.1. The following sets out the European, national, regional and local legislative and planning policy framework relevant to the assessment of the application.

6.1.1. **European Directives**

6.1.2. European Union Water Framework Directive 2000/60/EC (WFD) was adopted in 2000 as a single piece of legislation covering rivers, lakes, groundwater and transitional (estuarine) and coastal waters and includes heavily modified and artificial waterbodies. The overarching aim of the WFD is to prevent further deterioration of and to protect, enhance and restore the status of all bodies of water with the aim of achieving at least 'good' ecological status by 2015 (or where certain derogations have been justified to 2021 or 2027).

6.1.3. The European Union Urban Waste Water Treatment Directive 91/271/EEC amended by Directive 98/15/EC (UWWTD) sets out the legal requirements for the collection, treatment and discharge of urban wastewater and specifies the quality standards which must be met before treated wastewater is released into the environment.

6.1.4. The European Union Bathing Water Directive 2006/7/EC (BWD) establishes

procedures and standards for bathing waters. Under the Directive, all waterbodies are required to achieve a minimum of 'sufficient' quality which as a category lies above 'poor' and below 'good' based on main parameters for analysis Intestinal Enterococci and Escherichia coli (E. Coli).

6.1.5. **Other EU Directives of relevance**

- EIA Directive 2011/92/EU amended by Directive 2014/52/EU (EIA Directive);
- Birds Directive (79/409/EEC) amended by Directive (2009/147/EC);
- Habitats Directive (92/43/EEC);
- Groundwater Directive (2006/118/EC);
- Waste Framework Directive (2008/98/EC);
- Seveso III Directive (2012/18 EU);
- Sewage Sludge Directive (86/278/EEC);
- Nitrates Directive (91/676/EEC);

6.1.6. **National Legislation of relevance**

- The Waste Water Discharge (Authorisation) Regulations 2007, as amended;
- The European Communities Environmental Objectives (Surface Waters) Regulations 2009, as amended;
- European Communities (Water Policy) Regulations 2003, as amended;
- European Communities Environmental Objectives (Groundwater) Regulations 2010, as amended;
- Urban Waste Water Treatment Regulations 2001, as amended;
- Bathing Water Quality Regulations 2008, as amended;
- European Communities (Birds and Natural Habitats) Regulations 2011, as amended;
- European Communities (Waste Water Treatment) (Prevention of Odours and Noise) Regulations 2005;
- Waste Management (Registration of Sewage Sludge Facility) Regulations 2010;

- European Union (Good Agricultural Practice for Protection of Waters) Regulations 2017, as amended;

6.1.7. **National Planning and Related Policy**

6.1.8. 'National Planning Framework – Ireland 2040' (NPF) sets out 10 National Strategic Outcomes including Strategic Outcome 9:

- Water - Implement the Greater Dublin Strategic Drainage Study (GDSDS), through enlarging capacity in existing wastewater treatment plants (Ringsend) and providing a new treatment plant in North County Dublin - known as the Greater Dublin Drainage (GDD) Project;
- Effective Waste Management - Waste planning in Ireland is primarily informed by national waste management policies and regional waste management plans. Planning for waste treatment requirements to 2040 would require:
 - Additional sewage sludge treatment capacity and a standardised approach to managing wastewater sludge and including options for the extraction of energy and other resources;
 - Biological treatment and increased uptake in anaerobic digestion with safe outlets for bio-stabilised residual waste;

6.1.9. Within the related National Development Plan, 2018-2027, National Strategic Objective 9 (Investment Actions) identifies that €8.5 billion would be invested by Irish Water over the period of the National Development Plan. A number of projects are listed under Investment Actions including:

- Ringsend Wastewater Treatment Plant (WwTP) project: This €190 million project would provide further capacity to support development in the Greater Dublin Region;
- Investment in waste management infrastructure is critical to our environmental and economic wellbeing for a growing population and to achieving circular economy and climate objectives;

6.1.10. Irish Water's Water Services Strategic Plan – A Plan for the Future of Water Services 2015 – 2040 (WSSP) outlines strategic objectives and aims including in particular:

- Objective WW - Provide Effective Management of Wastewater; Aims: WW1- manage the operation of wastewater facilities in a manner that protects environmental quality, WW2- manage the availability and resilience of wastewater services now and into the future and WW3- manage the affordability and reliability of wastewater services;
- Objective EN - Protect and Enhance the Environment; Aims: EN1- ensure that Irish Water services are delivered in a sustainable manner which contributes to the protection of the environment, EN2- operate water services infrastructure to support the achievement of waterbody objectives under the Water Framework Directive and obligations under the Birds and Habitats Directives and EN3- manage all residual waste in a sustainable manner;
- Objective SG - Support Social and Economic Growth; Aims: SG1- support national, regional and local economic and spatial planning policy, SG2- facilitate growth in line with national and regional economic and spatial planning policy and SG3- ensure that water services are provided in a timely and cost-effective manner;
- Objective IF - Invest in our Future; Aims: IF1 - manage assets and investments in accordance with best practice asset management principles to deliver a high quality, secure and sustainable service at lowest cost; IF2 - invest in assets while maintaining a sustainable balance between meeting customer standards, protecting the environment and supporting the economic development and growth of the country; IF3 - establish a sustainable funding model to ensure that Irish Water can deliver the required capital investment in order to achieve the required outcomes; IF4 - promote research and proven innovative technical solutions to meet standards set by our regulators including our objectives for cost and energy efficiency;
- Compliance with the UWWTD is considered a priority for Irish Water as is the

expansion and upgrading of the Ringsend WwTP.

6.1.11. National Wastewater Sludge Management Plan 2016 – 2041 (NWSMP)

- The NWSMP aims to ensure that the management of wastewater sludge over the next 25 years is standardised nationwide. The Plan recommends the development of regional facilities for the storage of biosolids;

6.1.12. River Basin Management Plan for Ireland 2018 – 2021 (RBMPI)

- The RBMPI sets out a range of actions aimed at achieving the objectives of the EU Water Framework Directive (WFD) and leading to a standardised approach to assessments;
- Regarding the Ringsend WwTP, it is located in Dublin City area of the Liffey catchment. In terms of transitional waters, the current ecological status (2010-2015) of the lower Liffey Estuary remains 'moderate' and the coastal water of Dublin Bay has a 'good' status. The intention of the RBMPI is to achieve or maintain a 'good' status for both by 2027;
- The proposed upgrade to the Ringsend WwTP is identified as an upgrade to be undertaken in support of compliance with the requirements of the UWWTD;

6.1.13. **Regional Planning and Development Framework**

6.1.14. Regional Planning Guidelines (RPGs) for the Greater Dublin Area (GDA) 2010 – 2022. While under review, the RPGs remain the appropriate regional planning policy framework document pending the preparation and adoption of the Regional Spatial and Economic Strategies (RSES) for the more recently formed Eastern and Midland Regional Assembly (EMRA).

- Under 'Strategic Policy – Physical Infrastructure', Policy 3 (PIP 3) seeks to: 'Protect and work to improve water quality in, and impacted by, GDA and seek that investment in water and surface water treatment and management projects is prioritised to support the delivery of the economic and settlement

strategy for the GDA through the coordinated and integrated delivery of all essential services supporting national investment’.

- In achieving this policy, Table 11 (Critical Strategic Projects – Wastewater & Surface Water) sets out 10 critical projects needed to address PIP3 including ‘expansion of the Ringsend Wastewater treatment plant to ultimate capacity’;

6.1.15. Draft Regional Spatial & Economic Strategy (RSES)

- Regional policy objectives include RPO 10.5 (Support Irish Water and authorities in planning growth and increasing compliance with the UWWTD);
- RPO 10.6 (Delivery of infrastructure, including Ringsend WWTP project);

6.1.16. Eastern-Midlands Region Waste Management Plan 2015 – 2021 (EMRWMP)

- Policy H1: Work with the relevant stakeholders and take measures to ensure systems and facilities are in place for the safe and sustainable management of sludges (sewage, waterworks, agricultural, industrial and septic tank) generated in the region having due regard to environmental legislation and prevailing national guidance documents, particularly in relation to the EU Habitats and Birds Directive;

6.1.17. Greater Dublin Strategic Drainage Study - 2005 (GDSDS)

- Section 10.8 – The wastewater treatment strategy for the Dublin Region is in the first instance to maximise the capacity of existing facilities. This requires immediate expansion of Ringsend WwTP to its maximum capacity while engaging in an active programme of load management of existing and new non-domestic effluent loads to buy time to allow for the planning and construction of both the expansion of Ringsend and new regional drainage and wastewater infrastructure;

6.1.18. Greater Dublin Drainage Strategy: Overview & Future Strategy - May 2018 (GDDS)

- The review concludes that the projected loading on the Ringsend WwTP would reach the site capacity of 2.4 million PE between 2024 and 2027 depending on the actual growth realised in the catchment;

6.1.19. **Local Planning Context – Ringsend WwTP component**

6.1.20. Dublin City Development Plan 2016-2022 includes a host of policies and objectives relevant for the assessment of the Ringsend WwTP component including those which are set out under:

Policies

- SI1: Support Irish Water in the development of water and wastewater systems;
- SI2: Support and facilitate Irish Water to ensure the upgrading of wastewater infrastructure, in particular the upgrading of the Ringsend WwTP;
- GI17: Develop and protect coastal, estuarine, canal and riverine recreational amenities, GI20: seek continued improvement in water quality, GI22: Promote nature conservation of Dublin Bay, GI24: Conserve NHAs, SACs and SPAS;

Objectives

- SIO1: Support Irish Water in the implementation of the 'Water Services Strategic Plan – A Plan for the Future of Water Services';
- SIO2: Work closely with Irish Water to identify and facilitate the timely delivery of the water services required to realise the development objectives of this plan;
- GIO17: seek improvement of water quality and GIO19: maintain beaches to a high standard;

Land Use Zoning

- For the most part, the Ringsend WwTP site is zoned as 'Z7' with a stated objective 'To provide for the protection and creation of industrial uses and to facilitate opportunities for employment creation including port related activities';
- The proposed temporary compounds span across lands which are zoned Z7, Z9 and Z 14;

Other Local Policy Documents relevant to Ringsend WwTP

- Other local policy documents of relevance include the Dublin Port Masterplan 2040, Sandymount Village and Environs Architectural Conservation Area Report 2013, Village Design Statement - Sandymount, 2011;

6.1.21. **Local Planning Context – Regional Biosolids Storage Facility component**

6.1.22. Fingal Development Plan 2017-2023 includes numerous policies and objectives relevant to the assessment of the RBSF component including those which are set out under:

Strategic Policy

- Work with Irish Water to secure the timely provision of water supply and drainage infrastructure necessary to end polluting discharges to waterbodies, comply with existing licences and Irish and EU law and facilitate the sustainable development of the county and the region;

Objectives

- Objective WT03: Facilitate the provision of appropriately sized and located wastewater treatment plants and networks including a new regional wastewater treatment plant and the implementation of other recommendations of the GDSDS, in conjunction with relevant stakeholders and services providers, to facilitate development in the county and region and to protect the water quality of Fingal's coastal and inland waters through the provision of adequate treatment of wastewater;
- Objective WM15: Work with Irish Water and other relevant stakeholders to ensure the provision of facilities for the safe and sustainable management of sludges (sewage, waterworks, agricultural, industrial and septic tank);

Land Use Zoning

- 'HI' – Heavy Industry, the objective of which is: - 'Provide for heavy industry'. 'A waste disposal and recovery facility (High Impact)' is a permissible use within this zoning designation;

Local Objective

- Local Objective 78: Facilitate the development of infrastructure for waste management, including construction and demolition waste processing, biological treatment of organic waste, a sludge treatment facility and a waste transfer station;

Aviation Policies and Objectives

- The RBSF site falls within the Outer Airport Noise Zone and outside the Inner Airport Noise Zone. Aviation objectives of relevance include DA10 and DA16.

7.0 Reports and Submissions

- 7.1. Planning Authorities within whose functional areas the development is proposed.

Dublin City Council

- 7.1.1. Dublin City Council's Chief Executive's report focuses on the Ringsend WwTP upgrade works (component one). It is submitted that the proposal is supported by applicable European, national, regional and local planning policy. The applicant's submitted NIS is considered to be generally satisfactory. It is stated that disturbance impacts including noise on birds using Sandymount strand during summer should be given further consideration, as should the matter of potential impacts on prey species. Dublin City Council state that they recognise the need for the project to meet wastewater provisions of the region and consider the new AGS technology would ensure both capacity and compliance in the shortest timeframe, with less risk than the original LSOT option. It is considered that the proposed use of the C1 and C2 construction compounds for up to 10 years is not ideal. In conclusion, DCC state

that they do not object to the development and a number of conditions are recommended.

7.1.2. Reports from internal departments are included or referred to in the Planning report summarised as follows:

- Environment and Transportation Department – no objection;
- Roads and Streets Department, Road Planning Division – no objection subject to conditions;
- Parks & Landscape Services Division – no objection subject to conditions;
- SDZ team – no objection subject to conditions;
- Environmental Health – no objection.

7.1.3. It is set out in internal correspondence to the assistant Chief Executive that a resolution was adopted by the elected members, the details which are summarised as follows:

- Use of lands referenced C1, within the Poolbeg West SDZ boundary (currently under consideration by An Bord Pleanála) need to be reconsidered. DCC notes the temporary use of this land to service the construction phase but also notes that this should not prejudice the future development potential of these lands;
- Requests that the zoning agreed by Dublin City councillors during its consideration of the Poolbeg Planning Scheme SDZ should be maintained and no decision should be made pending the outcome of the Poolbeg West SDZ appeal.

7.1.4. In addition, elected members of the City Council made the following comments:

- The proposed WwTP is large and detrimental to the amenity of residents of large suburbs within Dublin City and should be relocated to a site in north Fingal;
- Development would result in serious construction impacts on local communities;
- Residents are concerned about odour impacts;
- Traffic impacts would arise on the local road network;

- Employment opportunities would be welcome;
- An Bord Pleanála should employ experts to analyse the environmental impacts, rather than accept environmental reports as given;
- Wastewater infrastructure should be provided in a number of locations apart from Ringsend.

Fingal County Council

7.1.5. The Chief Executive's report focuses on the proposed RBSF facility (component two). It is considered that the proposal is of strategic importance and is generally in accordance with the provisions of the Fingal Development Plan 2017-2023. The RBSF would be an integral part of Irish Water's infrastructure, used to store biosolid waste arising from the upgrade of the Ringsend WwTP. The Planning Authority states that they have no objection to the granting of permission for the RBS facility subject to conditions and their report includes recommended conditions.

7.1.6. Reports from internal departments are included. Of note are comments from:

- Archaeology – no archaeological features were identified within the site and therefore no archaeological mitigation recommended;
- Environment – no objection subject to conditions;
- Parks Division – conditions recommended;
- Transportation Planning – no objection subject to conditions;
- Water Services (foul sewer, surface water and water) – no objection subject to conditions;
- EHO – no objection subject to conditions;

7.1.7. In addition, elected members of the council expressed their welcome for the proposed development and made the following comments:

- Concerns expressed regarding the traffic route and submitted that the local road network would require alterations;
- Requested attachment of a condition requiring that no discharge of untreated effluent into Doldrum Bay would occur;
- Archaeological report noted;

7.2. Prescribed Bodies

DCHG

- Notes the findings of the archaeological assessment and recommends that the mitigation measures detailed are carried out in full;

HSE

- Refers to initial submission which it received during the non-statutory consultation period in 2016 and states that it has no further comments to add;

Inland Fisheries Ireland (IFI)

- Ringsend WwTP represents a significant ecological pressure on the regional fisheries resource. Estuaries serve as the natural linkage for migratory species such as salmon, sea trout, lamprey and eels migrating between freshwater and ocean environments;
- It is imperative that options of enhancing the treatment capability of the existing and proposed solutions are achieved so that the 2.4 million PE capacity for Nitrogen (N) and Phosphorous (P) emission limit values would be realised by 2022 (i.e. ahead of the planned 2028 year);
- Construction works for both projects should be in line with a Construction Environmental Management Plan (CEMP) and spoil material should be handled in accordance with the waste management legislation. Drainage within the RBSF buildings should be discharged directly to the foul sewer;

Transport Infrastructure Ireland (TII)

- Refers to plans for the Eastern Bypass of Dublin City and TII Corridor protection studies prepared and issued to the relevant planning and roads authorities in 2009 with revisions in 2014;
- Notes that the proposed 10-year temporary construction compound south west of the Ringsend WWTP (C1) would lie within the Eastern bypass protection corridor and submits that no permanent new development within the protection corridor would be appropriate;

Dun Laoghaire-Rathdown County Council

- Expresses support for the proposed development;

Meath County Council

- Section 7.12 of the Meath County Development Plan 2013-2019 sets out policies which support the upgrade proposal;
- Provision of a well-maintained quality wastewater treatment infrastructure with adequate available capacity is essential to facilitate sustainable development in Meath;

7.3. Public/Semi-State Bodies

ESB

- States that ESB is the owner and operator of significant energy generating assets in the Ringsend/Poolbeg area;
- Expressed support for the proposal;
- Capacity of the outfall channel needs to be assessed and any limitations identified;
- Requests a number of technical clarifications;

Dublin Airport Authority (DAA)

- The observation relates solely to the Biosolids facility;
- Essential that the construction and operation of the facility would not give rise to any increase in bird activity;
- Requests that mitigation measures outlined in the EIAR are implemented;
- Requests noise control requirements are implemented;
- Requires condition to any grant of permission requiring developer to agree crane operations;
- Requires that future growth demand of Dublin Airport would be catered for;

7.4. Observers

Chambers Ireland

- As the Ringsend WwTP is experiencing significant overload it should be upgraded to full capacity as an immediate priority to facilitate the current and future growth and needs of the region;

Dublin Chamber

- Welcomes and supports the proposal and considers it a much-improved proposal than that previously approved in 2012;

Sandymount & Merrion Residents Association

- No objection to the proposed RBSF. However, if this should fail to be installed, any increase in sludge volumes would give rise to serious problems;
- Pleased to note omission of the LSOT element previously proposed;
- Expresses serious concern with the use of lands marked C1 as a construction compound for a 10-year period. Requires that area which would be occupied by construction compound C1 would be reinstated to the condition which prevailed prior to its use by the Dublin Waste to Energy plant;
- Local Authority may have a conflict of interest if they are part of the PPP for the Waste to Energy Plant;

Meakstown Community Council

- Concerns made relate to the Regional Biosolids facility;
- Traffic concerns raised and seeks commitment that truck movements are surveyed / monitored;
- Seeks commitments regarding odour and noise control;
- Health impacts and monitoring of compliance required;
- Suggests that a community fund should be put in place;
- Seeks that community would be consulted by Irish Water regarding job creation linked to the proposal;

7.5. Applicant's response to submissions received from Planning Authorities within

whose functional areas the development is proposed.

Dublin City Council

- The construction works would not be visible to waterbirds on Sandymount Strand;
- Similar to wintering waterbirds, summering waterbird populations (which are a subset of the wintering waterbird species and which mainly present in smaller numbers) are also considered to be habituated to construction noise and no impacts on the waterbirds would result during the construction phase;
- Impacts to roosting terns would not arise as they would be well separated from the construction site and they would occupy roosts at Sandymount strand at night time;
- The WwTP upgrade works would not affect the conservation objectives for the South Dublin Bay and River Tolka Estuary SPA as no significant changes in fish populations are predicted and any changes in macroinvertebrate populations are likely to be minor and may improve tern prey resources;
- Use of construction compounds C1 and C2 would be limited to the construction phase for up to a period of 10 years. The use of C1 would not prejudice the implementation of the proposed Poolbeg West SDZ Planning Scheme and recognises future plans for the Eastern Bypass and Dublin District Heating system;
- Other matters around clarity about no use of local roads, removal of invasive species and landscape proposals are included;

Fingal County Council

- Puts forward suggestions for the achievement of FCC's suggested planning conditions concerning footpath and the payment of a special development contribution;
- Appropriate threshold for construction noise limits at nearby residential

receptors are consistent with BS 5228-1:2009+A1:2014: Code of practice for noise and vibration control on construction and open sites which sets out the rationale for the suggested noise limits at the nearest sensitive receptors;

- Proposals for monitoring dust as set out in the EIAR are sufficient to protect air quality for nearby sensitive receptors and states that it would be disproportionate to impose a requirement for continuous monitoring;

7.6. Applicant's response to submissions received from Prescribed Bodies

DCHG (DAU)

- Notes recommended mitigation proposals;

HSE

- Refers to submission made by HSE in April 2016 at the time of non-statutory consultation and states that topics raised at that point have been addressed in the EIAR. A copy of the HSE submission made at that point is enclosed;

Inland Fisheries Ireland

- The upgrade of the WwTP would result in greater capacity in terms of BOD and SS by 2021 and there is a proposed follow-on programme of retrofitting new technology until 2028 to meet nitrogen (N) and phosphorous (P) emission limit values, reaching a capacity of 2.4m PE by 2028;
- Applicant is exploring options centred around enhancing treatment capability of the existing SBRs and use of AGS solution in order to reach 2.4m PE capacity sooner;

Transport Infrastructure Ireland (TII)

- No permanent new development is proposed within the Eastern Bypass protection corridor. The use of C1 lands is required for a 10-year construction period;

Meath County Council

- Supportive statement noted;

EPA

- Waste Water Discharge Licence Register No. D0034-01 was issued in respect of the development and was since amended (December 2016 and February 2018);
- As part of its consideration of any licence review application that may be received which addresses the changes proposed, the Agency shall ensure that before the revised licence is granted, the licence application will be made subject to an Environmental Impact Assessment regarding the matters that come within the functions of the Agency;
- In the event of an application for a review of the licence, all matters relating to emissions to the environment from the activities proposed and the licence application documentation and EIAR will be considered and assessed by the Agency;

7.7. Applicant's response to Public/Semi-State Bodies Submissions

ESB

- Impact assessment of proposed discharge flow and dispersion of treated effluent from Ringsend WwTP is not dependant on the variable operation of the ESB generating station. Water quality would improve as a result of the development;

Dublin Airport Authority (DAA)

- Conditions relating to the RBSF noted and no objection raised;
- Within Irish Water's GDDS, headroom capacity of 20% provided for domestic/commercial growth and this can be utilised to meet industrial growth;

7.8. Applicant's response to observer's submissions

Chambers Ireland and Dublin Chamber

- Notes the submissions from Chambers Ireland and Dublin Chamber are supportive of the proposed development;

Sandymount and Merrion Residents Association

- Construction compounds C1 and C2 are required to facilitate the development for a construction period of up to 10 years. Compound C3 does not form part of this application *per se* as it would not be required beyond its permitted 3-year planning lifetime;
- The GDD project is a separate project being progressed by Irish Water and is currently before ABP for its consideration;

Meakstown Community Council

- Facility would require a certificate of registration from the Local Authority;
- HGVs should be required to adhere to a route via the M50 and the roads in Meakstown area would not be used in the deliveries to and from the RBSF;
- Vehicular traffic would give rise to noise increase of less than 1 dB, which can be regarded as imperceptible;
- The RBSF would be operated and managed in accordance with an Odour Management Plan (OMP) and details of same are summarised. States that noise impact would not be insignificant;
- There are currently no proposals to change the agricultural lands on which the biosolids would be landspread;
- c.98% of biosolids are currently re-used on agricultural lands as a soil conditioner and fertiliser;
- Land spreading is subject to a number of environmental controls (details provided);
- Commitments to support the community are outlined and include clauses to leverage employment opportunities for local communities and associated contract conditions;
- Improvement works are proposed (footpath and landscaped verge) to the R135 along the front (east) of the RBSF site.

8.0 Pre-Planning and Consultation

8.1. Summary of consultations

- Pre-planning consultation held with An Bord Pleanála under Section 37B(1) of the Act under File Reference No. **PL29S.PC0203**;
- Meetings with DCC (planning and internal departments);
- Meetings with FCC (planning and internal departments);
- EIAR Scoping consultation (consultation with prescribed bodies and key stakeholders);
- Public Consultation (public open days, additional meetings, online information and a direct phone-line, media campaign, E-Zine Newsletter, website);
- Seven weeks of statutory public consultation.

9.0 Assessment overview

9.1. Having regard to the requirements of the Planning and Development Act 2000, as amended, my overall assessment is considered under the headings of Planning Assessment, Environmental Impact Assessment (EIA) and Appropriate Assessment (AA). There is inevitable overlap between certain aspects of the three sections, for example, with matters raised falling within both the planning assessment and the environmental impact assessment. In this regard and to avoid repetition, assessment of matters covered in any of the three sections are not repeated. My assessment is informed by all of the documentation received with the planning application for the proposed development and all of the subsequent reports, submissions and observations and the applicant's response received as well as information gathered during my site visits of both the Ringsend WwTP and RBSF sites and their surrounding areas.

10.0 Planning & Sustainable Development Assessment

10.1. Introduction

10.1.1. I consider that the key issues arising in respect of the planning assessment comprise

the following:

- Principle and Water Quality
- Legislative and Policy Considerations
- Seveso Considerations
- Flood Risk
- Traffic
- Design and Amenity
- Community Gain
- Other Consents

10.2. Principle and Water Quality

10.2.1. Ringsend WwTP component

10.2.2. The current WFD status of the Liffey Estuary Upper, Liffey Estuary Lower and Tolka Estuary are 'moderate' and Dublin Bay has an overall status of 'good' in accordance with the criteria set out in schedule 4 of the European Communities Environmental Objectives (Surface Waters) Regulations 2009, as amended.

10.2.3. The Tolka and Lower Liffey Estuaries are classified under the UWWTD and corresponding Urban Wastewater Treatment Regulations 2001, as amended, as 'sensitive' waterbodies because they are subject to eutrophication. Consequently, if effluent is to continue to be discharged to the Liffey Estuary at the existing outfall, it is required to achieve 10 mg/l Total Nitrogen (N)³ and 1 mg/l Total Phosphorus (P).

10.2.4. Under the BWD and Bathing Water Regulations 2008, as amended, the status for designated bathing waters in 2017 are Dollymount Strand: 'Good Quality', Sandymount Strand: 'Poor Quality', Merrion Strand: 'Poor Quality' and Seapoint: 'Excellent Quality'. Under the Directive, all waterbodies are required to achieve a minimum of 'sufficient' status.

³ Total nitrogen = the sum of the inorganic **nitrogen**, organic **nitrogen**, and ammonia

10.2.5. It is well reported that the Ringsend WwTP is currently overloaded, whereby it is experiencing average daily loads of 1.8-1.9m PE. With the completion of the planned and previously permitted capacity upgrade under the 2012 Approval, it is expected that in terms of reduction of BOD and SS, capacity at the plant will increase to 2.4m PE by 2021. Nonetheless the treated effluent would continue to remain above the limits set in its discharge licence (mirroring those of the UWWTD) in terms of Total N and Total P. Table 1 below sets out the emission limit values (ELVs) required to be met under the current Discharge licence.

Table 1: Standards of Treatment (ELVs) for Upgraded Ringsend WwTP

Parameter	Emission Limit Values	Commentary
pH	6-9	-
Toxicity	5 TU	-
Faecal Coliforms	100,000 MPN/100ml	Bathing Season
BOD5	25 mg/l	Annual 95th Percentile. Peak Limit: 50mg/l
COD	125 mg/l	Annual 95th Percentile. Peak Limit: 250mg/l
Suspended Solids	35 mg/l	Annual 95th Percentile. Peak Limit: 87.5mg/l
Total Nitrogen (N)	10 mg/l	Annual Average
Total Phosphorus (as P)	1 mg/l	Annual Average

10.2.6. The proposal under the 2012 Approval involved relocating the treated effluent outfall to a point beyond the area subject to designation as 'sensitive' waterbody. As the current proposal intend to eliminate the undersea/LSOT tunnel, the key issue which arises in the assessment is whether or not that the treated effluent would reach the required standards under the Discharge Licence and UWWTD such as to be capable of continuing to discharge at its current outfall location.

10.2.7. The proposals which are the subject matter of the current SID application involve the retrofitting of new AGS technology across 24 existing Sequencing Batch Reactor (SBR) tanks over a phased basis with the intention of meeting the required nitrogen (N) and phosphorous (P) emission limit values detailed above. AGS technology involves a biological nutrient removal process as part of the wastewater treatment

cycle resulting in a higher standard of treated effluent. The overall intention is that with the application of AGS, the treatment capacity of 2.4m PE in terms of Total P and Total N would be reached by 2028. The applicant has stated that they are investigating options of providing increased capacity earlier though these options although these do not form part of the current SID application.

- 10.2.8. The principal anticipated changes in effluent discharge load from the WwTP are summarised in Table 2 below.

Table 2 - Final Effluent Discharge – Load Reduction Summary

Final Effluent Discharge – Load Reduction Summary Parameter	Current Average Load	Future Average Load	% Reduction
BOD	8,739 kg/day	7,206 kg/day	17.5%
Suspended Solids	16,205 kg/day	10,508 kg/day	35.2%
Ammonia	4,370 kg/day	600 kg/day	86.3%
(Dissolved Inorganic Nitrogen (DIN)	5,939 kg/day	4,804 kg/day	19.1%
Molybdate Reactive Phosphate (MRP)	1,056 kg/day	420 kg/day	60.2%

- 10.2.9. In addition, the incorporation of AGS would lead to a reduction in bacteriological (E.Coli) content in the final effluent.

- 10.2.10. It is set out in the EIAR (Volume 2) that the proposed development together with the permitted capacity upgrade would enable the upgraded WwTP to meet the level of treatment required to achieve ELVs set out in the EPA Discharge licence and the current national and European legislative requirements. In Volume 3 of the EIAR, under the heading of Biodiversity, it is stated that the current emission values are approximately 13.6 mg/l N and 3.9 mg/l P and when the overall project is implemented, the licence ELVs of 10 mg/l N and 1 mg/l P would be achieved. Water quality modelling was carried out to assess the dispersal, dilution, and decay of the final effluent parameters on the receiving waters. The details and output are presented in Volume 3 of the EIAR, under the heading of Water. I have discussed

the modelling and associated outputs in my assessment of water under the EIA section of this report.

- 10.2.11. Outside of this application, the current discharge licence (D0034-01) would be subject to a review process by the EPA in which, in relation to effluent discharge, environmental impact assessment and appropriate assessment would be taken into account. By reference to the 'sensitive' status attributed to the Lower Liffey under the UWWTD, it can be assumed that the ELVs of 10 mg/l N and 1 mg/l P respectively would not be changed in any licence review.
- 10.2.12. Separately, outside the scope of this application, Irish Water is progressing the Greater Dublin Drainage (GDD) wastewater treatment facility in North County Dublin together with alterations to the drainage network including diversion of flows from the Ringsend catchment. A map showing the two intended catchments (Ringsend WwTP and GDD WwTP) in context and the proposed diversion of drainage flows is presented as Fig 4 (Future Ringsend WwTP and GDD catchments) in the applicant's planning application report accompanying this application.
- 10.2.13. **AGS Technology / Omission of LSOT**
- 10.2.14. As stated above, the intention behind the proposed development at Ringsend WwTP is that by incorporating AGS technology leading to Total N and Total P reduction, a higher treatment standard of effluent would be achieved. Consequently, it is submitted that the effluent could continue to discharge at its current outfall and the proposal for the discharge to Dublin Bay through a 9-km piped outfall in an undersea tunnel or LSOT could accordingly be eliminated. AGS was not a proven technology at the time of the application for 2012 approval. It has since been scientifically proven as a means to produce higher treatment of effluent at the secondary treatment stage. As a process, the AGS also allows for recovery of phosphorous.
- 10.2.15. Reference plants which employ AGS technology have been detailed in Volume 2 of the EIAR. These include two such plants located in the Netherlands and more recently (2015-2016) three smaller scale plants in Ireland.

10.2.16. **AGS Technology Trials**

10.2.17. To assess the suitability of the AGS technology at the Ringsend WwTP, a programme of trials referred to as 'process proving' was undertaken on existing tanks using 'Nereda' AGS technology, developed in the Netherlands. Details of the trial at the Ringsend plant and resultant outcomes are presented in the applicant's submitted AGS Process Proving summary report which is contained as an appendix within Part B of Volume 2 of the EIAR. Essentially the trial involved a small-scale Process Proving Unit (PPU), known as Process Proving Step 1 (PPS1) which ran for a year followed by a full-scale trial / Process Proving Step 2 (PPS2) which ran for a three-month period. The key elements of the trail are outlined and considered below.

PPS1

10.2.18. PPS1 included loadings comparable to the WwTP's raw influent once the future Upgrade project would be complete including a phosphorous fixing process stage.

10.2.19. Results of effluent quality in this trial demonstrated that the AGS technology process met the performance standards required under the UWWTD and the UWWT Regulations, 2001 as amended. I have provided a summary of the results below in Table 3.

Table 3: PSS1 Trial – Effluent Parameters

Effluent Parameter	Effluent Standard required (Annual)	Effluent Standards Achieved in PPS1 Period (June 2015-June 2016)
Total Nitrogen (N) - Average	<=10	6.9
Total Phosphorous (P) - Average	<=1	1.0
BOD – 95 th percentile	<25	10.9
COD – 95 th percentile	<125	61.0
TSS – 95 th percentile	<35	22.0

10.2.20. In relation to Total Phosphorous (P), the required performance standard was met and it is stated that there were a number of factors specific to the trial of the PPU

installation that could readily be addressed with a full-scale operation. This coupled with the intention to include phosphorous fixing and the ability for occasional chemical dosing with metal salts to precipitate phosphorus in the process units is stated would further reduce P levels in the full-scale operation.

PPS2

10.2.21. PPS2 involved a full-scale trial of the technology in a retrofit of one of the existing 24 SBR cells at the Ringsend WwTP and it was operated using design flows and design loads which were representative of the full-scale operation. Recording of results excluded an 8-day period after a pump was taken out of service following failure. Results of effluent quality demonstrated that use of AGS technology met the performance standards required under the UWWTD in all but P. I have summarised these in Table 4.

Table 4: PSS2 Trial – Effluent Parameters

Effluent Parameter	Effluent Standard (Annual) required	PPS2 Period (June 2015-June 2016)
Total N – Average	<=10	6.1
Total P - Average	<=1	1.1
BOD – 95th percentile	<25	9
COD – 95th percentile	<125	56
TSS – 95th percentile	<35	26

10.2.22. The Total P value achieved during the PPS2 trial is slightly above the required standard. This is stated to have been linked to a period where a feed pump failed during the trial. No correction was applied and it is stated that the introduction of a limited use of backup chemical dosing would have been sufficient to bring Total P back to compliant levels. The chemical dosing was not applied and the reason put forward by the applicant is that the trial had not yet been completed. It is submitted that with the planned backup chemical dosing, this standard would have been achieved in the trial.

10.2.23. **Discussion**

- 10.2.24. It can readily be concluded that the need for the project to bring the plant back in compliance with both the UWWTD and the corresponding ELVs attached to the EPA licence is necessary. I am satisfied that it has been demonstrated that this is technically achievable using the proposed AGS technology with associated phosphorous and nitrogen reduction as has been demonstrated through trials, the details of which I have outlined above. While the Total P performance standard was not achieved in the PPS2 trial period, I am satisfied with the rationale put forward as to how this could be addressed in the full-scale operation such that its adoption would produce higher quality of final effluent which could continue to be discharged to the lower Liffey Estuary.
- 10.2.25. In their report, DCC have expressed their support for the development proposal which it is stated would ensure both capacity and compliance in the shortest timeframe and with less cost and less risk than the previously proposed undersea tunnel (LSOT).
- 10.2.26. If the current development is not progressed, the non-compliance with the required effluent standards would continue and the quality could potentially further deteriorate as the wastewater influent volumes increase in line with increases in economic activity and population growth in the Greater Dublin Area as proposed in the national and regional planning policy documents. This scenario would also mean continuing non-compliance with the UWWTD and the ELVs attached to the plant's licence which would not be acceptable or sustainable and failure to provide the needed infrastructure would risk substantial fines for Ireland from the Court of Justice of the European for reasons of non-compliance with the nutrient standards in the Directive. It must be acknowledged however that the option to pump the treated effluent via the 9 km LSOT beyond the 'sensitive' waters in Dublin Bay would continue to be available. However, it is clearly evident that the LSOT option is currently less preferred and would result in higher levels of environmental risk and cost.
- 10.2.27. The achievement of improved standards and bringing the plant into compliance with the requirements of the UWWTD would clearly result in a significant positive benefit on the receiving water environment such that the LSOT is no longer required. The

revision to use of AGS technology and omit the LSOT would clearly result in environmental benefits which are further detailed in the EIA section of this report.

10.2.28. Overall, the development to treat the effluent to a higher standard and to omit the LSOT is clearly a more sustainable wastewater solution. There is no doubt that the overall project delivery is crucial in serving the planned economic and population growth targets set for the Dublin region. I have considered the project in terms of the legislative and policy framework further below.

10.2.29. **RBSF Component**

10.2.30. Treatment of wastewater results in the production of two types of raw sludges which in turn require treatment and processing. These include primary sludge (PS) in the form of solids removed in the primary settlement tank and surplus activated sludge (SAS) or surplus activated granular sludge (SAGS) which is a sludge biomass arising from the sludge treatment process. Subsequent to treatment of sludge, which occurs and would continue to occur at the Ringsend WwTP site, biosolids consisting of biocake and biofert would continue to be produced. Biosolids are biologically stable and generally have a low odour and are free of harmful pathogens. Biocake is a wet cake with c.26% dry solids and biofert is drier with c.92% dry solid matter.

10.2.31. The intended purpose of the RBSF is to store the biosolids from the Ringsend WwTP and the WwTP under the GDD project (if permitted). The RBSF is included as part of the overall planning application incorporating Ringsend WwTP Upgrade Project. Separately, the Board will be aware that the RBSF is also included as part of the overall planning application for the GDD project.

10.2.32. Biosolids currently produced at the Ringsend WwTP are stored at a facility in Thornhill in County Carlow which it is stated by the applicant to have a certificate of registration from Carlow County Council for a maximum annual throughput of 25,000 tonnes. Following the upgrade at the Ringsend WwTP, it is anticipated that the volumes of sludge and biosolids would increase because of improvement in wastewater quality and there would be insufficient storage capacity in Thornhill to cater for the current Ringsend WwTP and the new GDD WwTP. Annual production and storage volume anticipated are set out in Table 2-1 'Storage volume requirement for all scenarios' of the applicants engineering design report for the RBSF. In 2040,

in 'the most likely scenario', 90,311 tonnes of biosolids would be generated in the catchment including 16,630 tonnes of biofert and 41,968 of biocake from the Ringsend WwTP, 21,115 tonnes of biocake from the GDD WwTP and 10,578 tonnes of imported sludges in the form of biocake from smaller municipal treatment plants and septic tanks. Collectively, this is shown as requiring 34,615 cubic metres of storage. In a 'high volume scenario', 90,331 tonnes would be generated in the catchment, requiring 40,464 cubic metres of storage. A breakdown and further details of biosolids volumes are presented in Table 2-1.

10.2.33. A third biosolid material, 'struvite', which is 'recovered phosphorous', would also be produced at Ringsend WwTP following the commissioning of the phosphorous recovery system planned to occur in 2021. Struvite has a moisture content of c.92%. Irish Water have set out their future intention to apply for an 'end-of-waste' approval and/or approval under regulations for Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) for the 'struvite', however, pending such approvals, it is intended to be stored in segregated bays at the RBSF. An estimated quantity of 6,000 tonnes per year of struvite is anticipated to be stored at the facility and would be handled similar to other biosolids generated at the Ringsend WwTP whereby it would be stored for certain months of the year prior to its use in agriculture. This is stated to be an interim storage solution as it is anticipated that post 2025, the product would be bagged at the Ringsend WwTP and made directly available to market as a fertiliser.

10.2.34. The rationale for the development of the RBSF to store biosolids produced at the Ringsend WwTP and the proposed WwTP under the GDD project has been clearly set out and it can be concluded that there is a requirement for such a facility to allow for storage of increased volumes of biosolids at a central location prior to land spreading during periods in Spring and Autumn. Land spreading would occur under nutrient managements plans and these would require approval by the respective local authorities as regulated under European Union (Good Agricultural Practice for Protection of Waters) Regulations 2017, and subsequently amended by SI 65 of 2018, European Union (Good Agricultural Practice for Protection of Waters) (Amendment) Regulations 2018. I am satisfied that this is a preferred method for sludge/biosolids management and in line with the policy direction outlined below.

10.3. **Legislative and Policy Considerations**

10.3.1. **European Legislation and Policy**

10.3.2. In terms of improving water quality, the outcome would be a higher standard of final effluent discharge and an overall improvement in the quality of the receiving waters. This would be consistent with the aims of the WFD which seek to protect, enhance and restore the status of all bodies of water with the aim of achieving at least 'good status'. In the case of the receiving waters in Dublin Bay, the target date was extended from 2015 originally to 2027 due to Dublin Bay's location at the bottom of the catchments for the Rivers Liffey, Dodder and Tolka. The development proposed would assist in ensuring that Ireland improves its compliance with the WFD.

10.3.3. This positive outcome would also be consistent with the Bathing Water Directive which requires a minimum target of 'sufficient' required to be achieved for all bathing waters. The ratings are based on the amount of colony forming units of microbiological parameters E.coli and Intestinal Enterococci within a sample.

10.3.4. As is evident in consideration of the principle of the development outlined above, improvement would significantly assist Ireland in complying with its obligations under the UWWTD through the higher standard of effluent treatment proposed and subsequent improved quality of water to be discharged to the receiving water environment.

10.3.5. The provision of the RBSF would assist in delivering the aims of the Sewage Sludge Directive which seeks to encourage the use of sewage sludge in agriculture while regulating its use to prevent harmful effects on soil, vegetation and man. It would also assist in achieving compliance with the EU Nitrates Directive by allowing biosolids to be stored when application of fertilisers of land is prohibited and hence preventing nitrates from agricultural sources polluting ground and surface waters.

10.3.6. **National Policy Framework**

10.3.7. Strategic Outcome 9 of the NPF (Water) envisages the implementation of the GDSDS, through enlarging capacity in existing wastewater treatment plants including Ringsend and providing a new treatment plant in North County Dublin (GDD Project).

In terms of effective waste management, this Strategic Outcome also requires a standardised approach to managing wastewater sludge. The proposed development is clearly consistent with this strategic outcome.

- 10.3.8. Under Strategic Investment Priorities, The National Development Plan 2018-2027 makes specific reference to the Ringsend WwTP as a project proposed to provide further capacity to support development in the Greater Dublin region. It also includes provision for waste management and resource efficiency to achieve a circular economy and meet climate change objectives. The implementation of the proposed development is clearly in line with the strategic outcome and if permitted would support the growth of Dublin as the capital city of Ireland and its surrounding region.
- 10.3.9. Under the River Basin Management Plan for Ireland 2018-2021 (RBMPI), Ringsend WwTP is identified as the single largest wastewater treatment plant in the country, accounting for some 41% of the total wastewater load. The proposed upgrade to the Ringsend WwTP is identified in this plan.
- 10.3.10. In 2017, Irish Water carried out an internal review of the GDSDS and the findings are set out in a document – Greater Dublin Drainage Strategy Overview & Future Strategic Needs Asset Planning (May 2018). This review sets out the need for the Ringsend WwTP project. The plant capacity is designed to cater for 1.65m PE and is currently experiencing 1.9m PE, resulting in breaches of both the EPA discharge licence and the UWWTD.
- 10.3.11. Irish Water’s WSSP sets out its priority for compliance with the UWWTD and highlights the need for upgrading of wastewater infrastructure. It is noted that the Ringsend WwTP upgrade forms a crucial part of this compliance and would facilitate the delivery of objectives set out in the WSSP.
- 10.3.12. The NWSMP, published by Irish Water in 2016, identifies the reuse of treated wastewater sludges (biosolids) on agricultural land under nutrient management plans as the current preferred option in the short to medium term. The NMSMP contains a recommendation for the development of regional facilities for the storage of biosolids. The RBSF would be strategically located to serve the Ringsend WwTP and also the GDD project (if permitted).

- 10.3.13. Overall, having regard to the above, I am satisfied that the proposed development including the Ringsend WwTP and the RBSF components align with applicable national policy. The development would assist Ireland in meeting its obligations under the aforementioned EU Directives and related national legislation. It would undoubtedly be pivotal in enabling sustainable urban growth by providing such crucial wastewater treatment and would address the current environmental risk posed by non-compliances at the existing WwTP. The proposed RBSF would support the overall development for the reasons outlined above.
- 10.3.14. **Regional Planning Policy**
- 10.3.15. While under review, the RPGs for the GDA 2010-2020 remain the appropriate regional policy framework document until such time the RSES for the EMRA are finalised and adopted. In terms of the RPGs, strategic investment priorities in relation to wastewater infrastructure are identified in Table 11 of the Guidelines. The expansion of the Ringsend WwTP to its ultimate capacity is listed as a critical strategic project.
- 10.3.16. The Draft RSES for the EMRA identifies both the Ringsend WwTP and the GDD projects as wastewater infrastructure projects which are ongoing to deliver capacity at a large scale to the metropolitan area. Regional Policy Objectives include RPO 10.5 (Support Irish Water and Authorities in planning growth and increasing compliance with the UWWTD) and RPO 10.6 (Delivery of infrastructure including Ringsend WwTP project).
- 10.3.17. The Eastern-Midlands Region Waste Management Plan 2015 – 2021 sets out policies for the management and re-use of what would otherwise be waste. Of relevance to the proposed RBSF development, Section 7.4.7 sets out that the management of sludge would be co-ordinated between Local Authorities and Irish Water. Policy H1 seeks to ‘work with relevant stakeholders and take measures to ensure systems and facilities are in place for the safe and sustainable management of sludges (sewage, waterworks, agricultural, industrial and septic tank) generated in the region having due regard to environmental legislation and prevailing national guidance documents, particularly in relation to the EU Habitats and Birds Directive’.
- 10.3.18. It is evident that the proposed development is supported by and would comply with

applicable regional policies and would provide improved infrastructural benefits for the existing and future GDA growth while improving the receiving water environment.

10.3.19. Local Planning Policy - Ringsend WWTP

10.3.20. At a local level, the development is supported by a host of policies and objectives set out in the Dublin City Development Plan 2016-2022. The Development Plan identifies the efficient and timely delivery of necessary infrastructure capacity as necessary for successful urban development. Ensuring the delivery of infrastructure in a sustainable manner is recognised as being crucial to support the sustainable growth of the city. The Development plan references the expansion and upgrading of the Ringsend WwTP as an urgent priority for Irish Water.

10.3.21. Policies of specific relevance include: SI1 (support provision of water, conservation and wastewater systems), SI2 (support and facilitate Irish Water to ensure upgrading of wastewater infrastructure, including Ringsend WwTP) and GI17 (develop and protect coastal, estuarine, canal and riverine recreational amenities).

10.3.22. Objectives include: SIO1 (support Irish Water in the implementation of the 'Water Services Strategic Plan'), SIO2 (work closely with Irish Water for delivery of water services), GIO17 (seek improvement of water quality, bathing facilities and recreational opportunities) and GIO19 (maintain beaches to a high standard).

10.3.23. In terms of zoning, the Ringsend WwTP facility spans across the two areas divided by Pigeon House Road. The majority of the site is zoned 'Z7' with a corresponding objective 'To provide for the protection and creation of industrial uses and facilitate opportunities for employment creation'. Public service installations are permissible uses in this zoning category (Appendix 21 of Volume 2 of the Dublin City Development Plan). I am satisfied that the upgrade of the wastewater treatment plant at Ringsend readily fits this category of development.

10.3.24. The area proposed to be used as construction compound C1 is primarily zoned 'Z14' with an objective 'To seek the social, economic and physical development and/or rejuvenation of an area with mixed use of which residential and 'Z6' would be the predominant use'. Public service installations are a permissible use within this zoning category. The remainder of C1 is zoned 'Z9' with an objective 'to preserve, provide

and improve recreational amenity and open space and green networks'. Permissible uses include 'public service installations which would not be detrimental to the amenity of Z9 zoned lands'. It is acknowledged that a note accompanying the Z9 zoning states: - 'Generally, the only new development allowed in these areas, other than the amenity/recreational uses, are those associated with the open space use'. C1 lands recently received permission for use as a temporary compound (ABP Ref: 29N.YM0004, January 2018). In the current development proposal, it is stated that the compound would be maintained in its existing use as a car park facility, storage area and site offices. For clarity, based on an examination of the drawings and aerial photography and site visit, it is evident that the lands which form part of the C1 compound and which are governed by the 'Z9' zoning do not extend into the Irishtown Nature Reserve.

- 10.3.25. The site area proposed to be occupied by construction compound C2 is primarily zoned 'Z7' with a small portion to the east zoned 'Z9'. The temporary use of the portion of the construction compound sites C1 and C2 in this instance would in my view not be detrimental to the planned use of the lands in the longer term.
- 10.3.26. Compound C3 is zoned 'Z14' where public service installations are permissible uses. A small set down area associated with the storm tanks to the north is also zoned 'Z9'. No development is proposed at this location and as stated above, the use of C3 does not form part of the current application.
- 10.3.27. In October 2017, Dublin City Council adopted the Poolbeg West SDZ planning scheme over an area of 34ha immediately adjoining the Ringsend WwTP site to the south and west. At the date of my assessment, following an appeal to the Board, the Planning Scheme (PL29S.ZD2013) is under consideration. The location of the Ringsend WwTP site lies largely outside of this SDZ area. However, the greater part of the C1 construction compound is located within the area of the SDZ on lands which are denoted 'Mixed Use' which includes uses such as commercial, creative industries, industrial (including port related activities). Concerns were raised by elected members of the city council that the use of this section of land as a temporary construction compound for 10 years may effectively sterilise the lands and request that no decision would be taken on the current application until such time as the outcome of the Poolbeg West SDZ application is decided on. Through written

correspondence set out in the Chief Executive's report, Dublin City Council have stated their view that the use of this land as a temporary construction compound would be compatible with the zoning.

- 10.3.28. While I note that 10 years is not a short timeframe, nonetheless, I am satisfied that the use of C1 lands as a construction compound would not conflict with or prevent the eventual delivery of the Poolbeg West SDZ. The DCC SDZ team noted this area shown to be occupied by construction compound C1 is likely to be used for cargo storage in the long term and the use of the lands as temporary storage would be consistent with the zoning. I revisit this point below under consideration of the Dublin Port Masterplan. The Dublin City Council SDZ team also stated that the overall SDZ lands would, to some extent, be dependent on the WWTP upgrade. In addition, they stated their requirement that Irish Water would liaise with Dublin City Council with regard to the delivery of Dublin District Heating requirements, where a backup boiler may be required in the vicinity of C1, to ensure minimal impacts on this project.
- 10.3.29. The planned Eastern Bypass protected corridor runs through the C1 lands. DCC require that the proposals for the use of this land would not interfere with the timely delivery of the Bypass. TII require that no permanent development would occur within the corridor. In response, the applicant stated that no permanent development is in fact proposed in the reserved corridor and that it is the intention to liaise with DCC and the landowner, Dublin Port company, regarding the use of the lands. I have had regard to the study entitled Dublin Eastern Bypass Corridor Protection Study prepared on behalf of NRA/TII in 2014. C1 area is shown within a protected corridor in this study and the delivery of the Eastern Bypass is stated to be a medium to long term objective of the NRA/TII.
- 10.3.30. The duration for the use of the construction compound C1 would be for a temporary period, albeit for up to 10 years and I am satisfied that its location for the construction stage would not jeopardise the eventual delivery of the future Eastern Bypass or form a reason to withhold permission. For similar reasons, I am satisfied that the Dublin District heating system can also be delivered.
- 10.3.31. The Ringsend WwTP site is located c.1km north-east of the Sandymount Village and Environs Architectural Conservation Area (ACA) and given the existing brownfield

nature of the site and the separation distance of the site from the ACA, it would not negatively impact on the architectural conservation status or characteristics of the ACA or of associated policies and objectives. Neither would it be prejudicial to the delivery of the aims set out in the Sandymount Village Architectural Conservation Area report, 2013 or the principles set out in the Village Design Statement, Sandymount, 2011.

10.3.32. Outside of the current Dublin City Development Plan, I have examined the Dublin Port Masterplan 2040 (as reviewed in 2018) prepared by Dublin Port. This is a non-statutory framework document which sets out the intended activities and development options for the Dublin Port area up to 2040. C1 lands lie within the ownership of Dublin Port and are shown planned to provide land capacity for the throughput of a new 600m long container terminal quay further east along the River Liffey in front of the ESB's Poolbeg Power Station. As no permanent development is planned in this area, the expansion of Dublin Port or related port activity development would not be prejudiced.

10.3.33. The proposed development is strongly supported in local planning policy terms and would be generally compatible with the land use zoning objectives assigned to the site. As stated above, the development is pivotal to the realisation of multiple policies and objectives relating to the development and sustainable growth of the city and surrounding region in addition to the protection of the environment.

10.3.34. **Local Planning Policy - RBSF**

10.3.35. At a local level, FCC, through its development plan sets out its strategic policy to 'work with Irish Water to secure timely provision of water supply and drainage infrastructure necessary to end polluting discharges to waterbodies, comply with existing licences and Irish and EU law, and facilitate the sustainable development of the County and the Region'. Objective WT03 of the Plan seeks to facilitate the provision of appropriately sized and located wastewater treatment plants and networks including a new regional wastewater treatment plant and the implementation of other recommendations of the GDSDS.

10.3.36. The proposed RBSF would lie on lands zoned 'HI' – Heavy Industry, the objective of which is: - 'Provide for heavy industry'. 'A Waste Disposal and Recovery facility (High

Impact)' is a permissible use within this zoning designation. The RBSF can readily be considered as aligning with the land use zoning objective. Objective WM15 supports the provision of facilities for the safe and sustainable management of sludges. Local Objective 78 (development of infrastructure for waste management), attributed to the site, also supports the development proposal.

10.3.37. The RBSF site falls within the Outer Airport Noise Zone and outside the Inner Airport Noise Zone. It falls outside the Outer Public Safety Zone and is therefore also outside the Inner Public Safety Zone. It also falls outside the flight path to the existing east-west runway. Given the modest nature of the development, I am satisfied that it can proceed without conflicting with aviation objectives including Objective DA10 (restrict inappropriate development which would give rise to conflicts with aircraft movements).

10.3.38. Overall, I am satisfied that the RBSF would form a key element of the overall proposal for which development is sought and is strongly supported by local planning policy.

10.4. **Seveso Considerations**

10.4.1. **Ringsend WwTP**

10.4.2. The existing Ringsend WwTP is not an establishment within the meaning of the Directive 2012/18 EU ("Seveso III") which was transposed into Irish law under the European Communities (Control of Major Accident Hazards involving Dangerous Substances) Regulations 2015 (COMAH Regulations). However, there are seven 'Upper Tier' Seveso establishments within the general vicinity of the plant, including Dublin Waste to Energy Ltd. facility and the National Oil Reserves Agency facilities. There are also eight 'Lower Tier' Seveso Establishments within the vicinity including two proximate to Ringsend WwTP including Synergen Power Plant and ESB Poolbeg Power Station both which are sited along Pigeon House Road. The existing relationships between the Ringsend WwTP and the Seveso establishments would not change as a result of the development.

10.4.3. As the competent Authority, the HSA were consulted in relation to the Seveso establishments within the consultation distance which is set at 300m from Seveso

sites most proximate to the Ringsend WwTP. Specifically, the HSA was a consultee during the EIA scoping stage and as part of the statutory public consultation in which they were provided a copy of the planning application documentation. No response was received from the HSA and accordingly it can be concluded that the authority does not object to the Ringsend WwTP component in the context of the Seveso Directive. I am satisfied that the Seveso / COMAH context is well understood and would not constitute a reason to withhold permission.

10.4.4. **RBSF**

10.4.5. There are four 'Upper Tier' establishments and four 'Lower Tier' establishments in Fingal. The proposed site for the RBSF is within the Seveso consultation distance (300m) for the Huntstown Power Station, a 'Lower Tier' establishment for the purposes of the Seveso Directive. Specifically, the northern perimeter of the Huntstown Power Station is located approximately 100m from the southern boundary of the proposed RBSF site. The structures themselves would lie just outside of the 300m consultation distance.

10.4.6. As stated above, the HSA were consulted during the scoping stage of the EIA process and during the SID planning application process and as no response was received, it can be concluded that the HSA do not object to the RBSF component of the proposed development.

10.4.7. For similar reasons outlined under my consideration of the Ringsend WwTP, I am satisfied that the Seveso context is well understood and should not form a reason to withhold permission for the RBSF component.

10.5. **Flood Risk**

10.5.1. **Ringsend WwTP**

10.5.2. The application was accompanied by a Flood Risk Assessment (FRA) which followed the methodology laid down in 'The Planning System and Flood Risk Management' (FRA) Guidelines for Planning Authorities 2009 (DoEHLG and OPW). The FRA Guidelines refers to Draft Flood Risk Management Plans (FRMPs). More recently, the OPW has developed a new website (www.floodinfo.ie) which provides

access to plans and maps focussing on areas of significant risk throughout the county.

- 10.5.3. Based on the mapping information on the above website, the proposed development site including the site compounds lie outside of the 0.1% fluvial Annual Exceedance Probability (AEP)⁴ event and is therefore located within Fluvial Flood Zone C where risk of flooding is considered to be low.
- 10.5.4. The portion of the site where the primary development is proposed lies outside of the 0.1% Tidal AEP event and is therefore located within Coastal Flood Zone C, with a corresponding low risk of flooding. By reference to the matrix of vulnerability versus Flood Zone (Table 3.2 of the FRA Guidelines), the proposed WwTP development, considered to be a highly vulnerable development, is deemed appropriate in an area categorised as 'Flood Zone C'. The northern portion of the site which contains the storm water tanks lies partially within the 0.1% and 0.5% Tidal AEP flood event, however, I note that there is no development proposed as part of this current application at this location. Site Compound C2 lies within the 0.1% AEP tidal event and is therefore within Coastal Flood Zone B. Referring to the vulnerability matrix, and noting that the construction compound development is classified as less vulnerable, this type of development is appropriate in Flood Zone B.
- 10.5.5. As shown on a map entitled Dublin City – Pluvial Flood Extent Map, dated August 2016, (www.floodinfo.ie), Pluvial Flooding is associated with the site. The Dublin City Strategic Flood Risk Assessment (SFRA) Pluvial Flood Hazard Map indicates the site has for the most part a low flood hazard. Pluvial flood risk is therefore not considered to be significant. I note that the site is by its nature, a brownfield site and it is not intended to have add any significant additional impermeable area and surface water is proposed to be managed by appropriate SuDS measures. Therefore, no significant additional surface water runoff is likely. Any build-up of groundwater would discharge to the drainage system or to Dublin Bay, therefore

⁴ The term 'Annual Exceedance Probability' or 'AEP' is used to describe the probability of a flood event of this severity, or greater, occurring in any given year. A 0.1% AEP flood event has a 0.1% or 1 in a 1000 chance of occurring in any given year. A 0.5% AEP flood event has a 0.5% or (1 in 200) chance of occurring in any given year.

groundwater risk is not considered to be significant.

- 10.5.6. The design finished floor levels (FFLs) of +4.46m OD would cater for future flood risk including an allowance for climate change and freeboard. Some existing buildings would have FFLs below the +4.46 OD design level, however, I am satisfied that it is not a requirement to retrospectively apply this level to existing buildings, particularly as the site is in Flood Zone C where a low risk of flood occurrence is expected.
- 10.5.7. I note the applicant's point that development proposed for the construction stage (i.e. compound areas) should be set above the 0.5% AEP current scenario of +3.11m OD given the duration of the construction stage would be deemed short term in the context of climate change. This is reasonable.
- 10.5.8. Overall, I am satisfied that following assessment, it has been demonstrated that subject to commitments around FFLs and SuDS measures, the Ringsend WwTP component would not have any noticeable impact on the existing flood regime.
- 10.5.9. **RBSF**
- 10.5.10. The RBSF site is not covered in the flood maps produced under the CFRAM study to date. The PFRA flood extent map and Fingal County Council Strategic Flood Risk Assessment flood zone map both indicate that the existing site lies outside of the 1% and 0.1% AEP fluvial flood extents and as such it can be considered as within Flood Zone C where the probability of flooding is lowest. Based on the Matrix of Vulnerability versus Flood Zone set out in the aforementioned guidelines, 'highly vulnerable development including essential infrastructure' is considered appropriate in a site categorised as 'Flood Zone C' and while the RBSF is categorised as a highly vulnerable development, no justification test is required to be applied.
- 10.5.11. Groundwater risk is not considered to be significant as there is no historical evidence of groundwater flooding at the site and the available PFRA map indicates that no groundwater flood risk exists near the proposed development site.
- 10.5.12. OPW do not have historical records of any previous flood related occurrences at the site (www.floodmaps.ie). One such occurrence has been recorded just north of the site at Kilshane cross in November 2002 stated to be as a result of surface water

runoff. A report from FCC in 2005 identified that drainage works were undertaken to alleviate any flooding issues.

10.5.13. The available Preliminary Flood Risk Assessment (PFRA) maps indicate pluvial flood risk associated with an area of the site, predominately along the south east /east boundary. The drainage design is stated to include attenuation and SuDS measures sufficient to ensure there would be no increase in the risk of pluvial flooding as a result of the development at this site.

10.5.14. Overall, I am satisfied that the risk of flooding has been adequately addressed in respect of the RBSF site and it can be concluded that no increased risk of flooding is likely to result because of the development.

10.6. **Traffic**

10.6.1. **Ringsend WwTP**

10.6.2. The applicant's EIAR (Volume 3) sets out its consideration of traffic under Section 13. I deal with this issue of traffic below as part of my planning assessment. Separately I have considered the road network as a material asset within the EIA section of this report. In terms of assessing traffic, the methodology used by the applicant is based on published guidance as referenced in Section 13.10 of the EIAR, primarily TII 'Traffic and Transport Assessment Guidelines' May 2014. Criteria used in the assessment of traffic include Ratio of Flow to Capacity (RFC), queue delay and maximum queue length.

10.6.3. The extent of the study area determined by the applicant was agreed in consultation with Dublin City Council's Road and Traffic Department and includes nine sections of roads which are illustrated in Figure 13-1 of Section 13 of the EIAR – Volume 3.

10.6.4. Overall the site is well served in terms of road infrastructure and the surrounding road network currently accommodates large volumes of traffic. It is served by local roads including Pigeon House road, Whitebank road and South Bank road. South Bank road connects with the R131 regional road at a roundabout intersection with the Seán Moore road. The R131 then continues northwards across the East Link toll bridge and connects with the North Quays port tunnel and M50.

- 10.6.5. There are five existing access points serving the WwTP site, including three located off Pigeon House road. These are intended to continue in use as part of the current proposals. An entrance c.250m east of the main site entrance which it is stated was used in 2005 during construction at the site is proposed to be re-opened and used as an entrance for both construction and operational phases. A new temporary pedestrian access is also proposed from construction compound C1.
- 10.6.6. It is anticipated that there would be 240 HGV trips daily and 396 cars/light vehicles during 2020 peak construction year with approximately one third of the HGV trips occurring during night-time. During the operation of the proposed WwTP component, an increase in HGV trips from the current average of 22 to 100 trips per day, comprising 50 deliveries and 50 departures are anticipated to result.
- 10.6.7. Traffic count surveys were carried out at seven locations along the surrounding road network and information gathered from these surveys was used to ascertain the 2017 AM and PM peak baseline situation which in turn fed into traffic modelling. Baseline Annual Average Daily Traffic (AADT) flows for the surrounding roads are presented in Table 13-9 within Section 13 (Traffic) of the EIAR (Volume 3).
- 10.6.8. The Point Depot junction, Seán Moore junction and Whitebank junctions were examined for 2020 (peak construction) and 2027 (final year of construction) in both the 'with' and 'without' development scenarios. Dublin City Council intend to upgrade The Point Depot junction to a signalised junction by 2020, however it was examined in its current configuration in the 2020 scenario which it is suggested gives a more conservative assessment. In the analysis, it was assumed that the planned Point Depot Improvement scheme would be complete by 2028. It was also assumed that the Poolbeg SDZ would be in place in 2028. Traffic analysis also considered the impacts on the road network in the 2028 (Year of opening) and 2035 (Design year).
- 10.6.9. Overall it is submitted that the proposed WwTP component would result in a slight negative short-term impact during 2020 peak construction year and 2028 final year of construction. It is also predicted that the slight negative long-term impacts would arise during the 2028 year of opening and 2025 design years.
- 10.6.10. It is submitted that as the Ringsend WwTP itself is located off the public road network, it would have an imperceptible impact on road safety during the

construction or operational phases. Noting the increase in traffic which would result, in particular the increase in number of HGV trips to and from the site, in the absence of mitigation, I consider the impact on road safety would result in a 'slight' impact.

- 10.6.11. Mitigation measures proposed include the preparation of a traffic management plan, adherence to good traffic management and adopting best practice during the construction phase. The HGV cordon which operates in the city centre would prohibit HGV traffic associated with the development entering the city centre and therefore all traffic from the site would be required to access the M50 via the Port Tunnel. An application for an Abnormal Load permit would be a requirement and abnormal load movements are stated to be limited to evening and night periods in order to minimise traffic disruption and delays during business hours. No mitigation is considered necessary or proposed during the operational phase.
- 10.6.12. Notwithstanding the mitigation measures proposed, residual impacts are anticipated to the traffic flows on the adjoining road network resulting in a slight negative long-term residual impact during the 2020 peak construction year and 2028 final year of construction in AM and PM periods. Residual traffic impacts have also been assessed as resulting in a slight negative long-term impact in the AM and PM periods during operation including 2028 year of opening and 2035 design year.
- 10.6.13. Post mitigation, no negative residual impacts are predicted on the safety of the road network as a result of construction or operation of the WwTP component.
- 10.6.14. The Roads and Transport Division of DCC have examined the proposals and stated their satisfaction with the substance and level of detail submitted as part of the EIAR. No objection was raised regarding the access arrangements including proposals to use a previously permitted temporary access off Pigeon House road on a permanent basis. DCC require that no local roads would be used as part of the haul route. Overall, the Roads and Traffic Division have expressed their support for the proposal.
- 10.6.15. Traffic flow and vehicle queue lengths at the Seán Moore Junction and the Point Depot junction are proposed to be monitored as part of the Traffic Management Plan and restrictions are proposed to be put in place on the movement of construction related traffic if deemed necessary by DCC and/or An Garda Síochána.

10.6.16. Based on the information contained in the EIAR, which I consider represents a realistic analysis of the traffic likely to be generated, I am satisfied that the proposed development would give rise to slight negative short term (construction) impacts and long term (operation) traffic impacts. These relate to traffic flow, capacity and vehicle queues. Given the benefits for the delivery of improved wastewater treatment, slight negative impacts are not unacceptable and would not constitute reasonable grounds for refusal. While road safety is always a priority, it is reasonable to conclude that once the traffic management plan is implemented and noting that all road users including those travelling to and from the site would be required to adhere to road safety legislation, no unacceptable impact on road safety is likely to arise during construction or operation as a result of the proposed development. It is important to note that because the proposal no longer requires the construction of the tunnel element, the volume of HGVs would significantly reduce during construction. An estimated 70,000 HGV movements carrying spoil and rock from the tunnel site over an 18-month period are no longer required. The elimination of these tunnel related trips would be significantly positive on traffic and the surrounding road network.

10.6.17. **RBSF**

10.6.18. The R135 regional road lies to the east of the RBSF site and provides access to the site. The regional road connects with Kilshane cross north of the site and the N2 is located to the east of the R135. The site is located c. 1.6km north of the M50 Junction 5 and lies c.1.5 km west of Dublin airport.

10.6.19. Access to the site is currently provided via an existing entrance off the R135. Visibility available is above 90m in each direction which is the desirable minimum sight distance for a road with a 60 kph speed limit. The access would be upgraded and the details would be agreed with the Transportation Department of FCC.

10.6.20. It is anticipated that the proposed RBSF component would be constructed over two phases in 2020-2021 and 2024-2025. The assessment assumes that all the surrounding lands comprising 182 ha zoned for warehousing and distribution and general employment would be developed by 2040 with associated increase in traffic volumes. Results of traffic surveys undertaken at five locations are presented in Section 13 (Traffic) of the EIAR – Volume 4. AADT flows were derived based on

traffic count data obtained from these surveys.

- 10.6.21. Traffic analysis focused on 2020 (Phase 1 construction year) and 2024 (Phase 2 construction year). Kilshane Cross, R135 Signalised junction, Elm Road Roundabout junction and N2 Northbound Slip Road were examined in 2020 and 2024 in both the 'with' and 'without' project scenarios.
- 10.6.22. It is anticipated that there would be 25 HGVs arrivals and departures and 70 cars/light vehicles arrival and departures daily during each of 2020 and 2024 construction years. In 2024 there are also 30 HGVs and 10 cars/light vehicles predicted to arrive and depart the site associated with the operation of the facility. In 2040, 70 HGV arrivals and departures and 10 car/light vehicle arrivals and departures daily are predicted to arise during operation.
- 10.6.23. Based on the assessment of RFC and associated queue delay and queuing length, it has been assessed that the proposed RBSF component would likely result in a slight-negative short-term impact during the 2020 and 2024 construction years at AM and PM peak periods. Post construction, the proposed RBSF would result in an imperceptible negative long-term impact in both the AM and PM peak hours.
- 10.6.24. In the 2020 and 2024 construction years and in the 2025 (year of opening) and 2040 (design year) scenarios, Kilshane Cross is anticipated to operate above the design threshold and theoretical capacity in both the AM and PM scenarios. The N2 northbound slip road junction would be approaching usual design thresholds in AM and PM scenario 'without' project and marginally above the usual design threshold 'with' project scenario. However, in comparing the 'with' and 'without' project scenario, only marginal reductions in capacity and increase in queue lengths at these junctions are anticipated as a result of the project.
- 10.6.25. It is assessed that the proposed development would cause an imperceptible impact on road safety during the construction or operational phases. Noting the increase in traffic which would result in increased vehicular and HGV movements in and out of the site, I am of the opinion that, in the absence of mitigation, the impact on road safety during construction would be rated as 'slight' reducing to 'imperceptible' during operation.

- 10.6.26. Mitigation measures proposed include the preparation of a traffic management plan and adherence to good traffic management and best practice during the construction phase. An application is proposed to be made for Abnormal Load permit and abnormal load movements would be restricted to evening and night to minimise disruption to traffic during business hours. No mitigation is considered necessary or proposed during the operational phase.
- 10.6.27. Post mitigation and based on the assessment of RFC, queue delay and queue length it has been determined that the proposed RBSF component would likely result in a slight negative long-term residual impact during the construction phase and an imperceptible negative long-term residual impact during the operational phase.
- 10.6.28. No residual impacts to the safety of the road network are anticipated as a result of the construction or operational phases of the Proposed RBSF Component. Similar to my considerations of the Ringsend WwTP, while road safety is always a priority, it is reasonable to conclude that once the traffic management plan is in place and noting that all road users including those travelling to and from the site would be required to adhere to workplace safety and road safety legislation, no residual impact on road safety is likely to arise during construction or operation phases as a result of the proposed development.
- 10.6.29. Traffic flow and vehicle queue lengths at the N2 Northbound slip road Junction are proposed to be monitored as part of the detailed traffic management process and restrictions would be placed on the movement of construction related traffic if deemed necessary by FCC and/or An Garda Síochána.
- 10.6.30. FCC's Transport Department was generally satisfied with the proposal subject to conditions including the attachment of a special contribution to improve the upgrade of the R135 and N2 north bound slip priority junction to a signalised junction.
- 10.6.31. **Concluding Comments on Traffic**
- 10.6.32. Having regard to the information contained in the EIAR and the wider application documents, in respect of the Ringsend WwTP or RBSF components, I am satisfied that the proposed development would not give rise to levels of traffic which would result in unacceptable congestion on the strategic road network or compromise road

safety for road users.

10.7. Design and Amenity

10.7.1. Ringsend WwTP

10.7.2. In relation to the Ringsend WwTP component, it is stated to have been designed to reflect the function of the WwTP within an established industrial / utility area. Some elements would undoubtedly be prominent when viewed outside of the site, however, given their location in an established industrial site and the adjoining area which is characterised by industrial development, views of additional structures can be readily assimilated into an industrial/utility context. Landscape and visual impacts are considered in further detail in assessing significant effects on the environment in which it is concluded that post mitigation, the landscape and visual impact resulting from the proposed development would be imperceptible and acceptable.

10.7.3. DCC have expressed some concern with the proposal to use C1 and C2 construction compounds for up to 10 years and considers that this might give rise to impacts to heritage and visual amenity. To that end, DCC considers their use should directly relate to the construction phase and decommissioning should follow in a short timeframe thereafter. In response, the applicant states that the duration of the use of the compounds would be limited to the construction phase and the decommissioning would occur at that point. DCC Parks and Landscape Services Division were generally satisfied with landscape proposals including site perimeter planting to assist in screening the development and recommends further planting along the southern boundary. The Division also seek the removal of temporary works and full restoration of these areas. I am satisfied that this matter can be dealt with by attachment of an appropriate planning condition.

10.7.4. Given that the closest residential dwelling is c.950m away from the Ringsend WwTP and houses proposed on the Poolbeg West SDZ would be separated c.975m, no direct impacts on residential amenity arise. In the longer term, the proposed development would result in enhanced water quality which would be of significant benefit to the amenities of the area including bathers and those who are actively involved in water sports in the Bay.

- 10.7.5. Overall, having regard to the above and subject to appropriate conditions around noise, odour and landscaping, it is clear that the benefits associated with the development over the long-term would far outweigh any temporary adverse impact on the amenities of the area and as such any impact on the amenities would not constitute reasonable grounds for refusal in my opinion. Impacts on other related environmental factors are dealt with in the EIA section of this report and traffic impacts are dealt with above under the heading of traffic.
- 10.7.6. **RBSF**
- 10.7.7. The rationale for the architectural design of the RBSF is set out in an 'Architectural Concept Statement' which was included with the application. Each of the two storage buildings are proposed to be 105m long and 50m wide internally and would be laid out in bays to facilitate segregation of material. As presented, the buildings would read as typical industrial steel framed structures finished with insulated metal cladding panels, grey and silver in colour. The design incorporates a curved roof which gives a lighter ridge line and a more sympathetic visual presence. The RBSF building design is stated to also have been informed by fire safety requirements. A PV solar array of 1,545 square metres is proposed to be placed on one of the buildings which is stated would contribute upwards of 40% of the sites annual energy load by means of renewable solar energy.
- 10.7.8. The administration and welfare building is presented as a single storey building 10m wide and 13m long with a 4.1m ridge height. Similar to the main buildings proposed, it would also incorporate a curved roof. Its design is complimentary to the main storage buildings. A new substation would be constructed to ESB Networks requirements. A number of smaller structures on site are proposed to be demolished.
- 10.7.9. An odour control system has been incorporated to ensure that odour would not give rise to any nuisance beyond the boundary of the RBSF site. The system would involve extracting air from within the storage buildings on a continuous basis as well as sub-dividing each building into two zones so that they could be independently operated fast-action doors would be fitted to control and minimise the time that these doors would be open. Assessment of odour is given further consideration under the assessment of likely significant effects of the environment below. The preparation of

an Operation Environmental Management Plan (OEMP) is proposed and operations staff would be required to ensure that the conditions attached to the required certificate of registration including those which may relate to odour would be adhered to. DAA require that no organic matter such that would attract bird activity on site would be allowed to be present in the open on the site. It is planned that the biosolids would be stored indoors only and therefore no bird hazard on air safety should arise.

10.7.10. A 'Glint and Glare' assessment concludes that the photovoltaic solar array proposed would not result in any nuisance or hazard effect upon local residences or on routes running through the study area including the N2 and airport approach routes. In this regard, I note that the solar arrays which are proposed to be mounted on the roof of the northern building would be partially screened by the adjacent second storage building. Any glare experienced by road users along the northbound carriageway would be limited, occurring through a gap in the vegetation and which I am satisfied would not result in any safety hazard or similar nuisance to motorists. It is also concluded that any glare predicted for the southbound carriageway of the N2 would fall outside of the field of view of motorists and would not present any nuisance effect. Any glare likely to be experienced on approach paths into Dublin Airport is predicted to be of an intensity within acceptable Federal Aviation Administration (FAA) Irish Aviation Authorities (IAA) standards. Having examined the Glint and Glare assessment, the conclusions which I have highlighted above, I am satisfied that Glint and Glare would not present any adverse impacts overall.

10.7.11. Having regard to the above and subject to appropriate conditions, the development of the RBSF should not be withheld on the grounds of design and amenity.

10.8. **Community Gain**

10.8.1. The issue of community gain has arisen in the consideration of the RBSF component. Meakstown Community Council requested that the applicant would be required to consult with the community council regarding job vacancies and seeks that a community fund would be set up to support facilities or services in the area that would benefit the community.

- 10.8.2. Under section 37G(7)(d) of the Act, the Board can attach a condition requiring the construction or financing (in whole or part) of the construction of a facility or the financing or provision of a service in the area of the development, if they were of the view that it would constitute a substantial gain to the community. In this instance, the overall development comprises alterations and improvements to the existing Ringsend WwTP component and the development of a new RBSF at Newtown. It is the latter component that is of interest to the Meakstown Community Council.
- 10.8.3. Key issues of public concern raised through the applicant's public consultation and open days have been considered in the EIAR and I have considered these environmental topics in my assessment. Post adoption of appropriate mitigation measures, no adverse significant effects are likely to arise on the communities surrounding the RBSF.
- 10.8.4. The applicant has stated their intention to include social clauses as a performance condition of contracts to leverage employment opportunities for the local communities and to work closely with local employment services to fill employment positions. They also set out their intention to provide improvements to the R135 along the road frontage to the RBSF site. Beyond this, no community fund is proposed.
- 10.8.5. Given the nature of the development and measures proposed by the applicant and that no adverse impacts are likely to result on the local communities, I do not recommend the attachment of a community gain condition.

10.9. **Other consents**

- 10.9.1. It is of relevance to note that outside of the assessment of the planning application, both components would require separate consents as appropriate, including but not limited to those listed under.
- In accordance with the requirements of the Waste Water Discharge (Authorisation) Regulations 2007, as amended, (S.I. No 684 of 2007) Ringsend WwTP would be subject to a review of the existing Wastewater Discharge Licence from the EPA. Under this authorisation process the EPA can regulate wastewater discharge to ensure the potential effects on the

receiving water are controlled. In deciding on an application and in the event of a grant of permission, the Board can attach conditions relating to emissions other than those associated with the actual wastewater discharge as beyond controlling wastewater discharge, other emissions do not come within the scope of the Wastewater Discharge Authorisation regulations or the associated licencing regime.

- The RBSF would be subject to regulation by the local authority under the Waste Management (Registration of Sewage Sludge Facility) Regulations 2010. The local authority can issue a certificate of registration (COR) and in doing so can attach conditions on matters concerning types and quantities of sludge to be stored, reception and entry/exist areas, control of odours, integrity of all storage tanks and bays, maintenance and records and requirements concerning environmental pollution. The Waste Permit and the Certificate of Registration database register for waste facility permits and certificates of registration issued by local authorities are held by the National Waste Collection Permit Office (NWCPO).
- Both the Ringsend WwTP and the RBSF components would be required to comply with the requirements set out under the Building Control Acts 1990 - 2007 and the associated Building Control Regulations 1997-2018, including seeking such consents (e.g. Fire Safety certificate and Disability Access certificate) for buildings as may be appropriate.

10.9.2. The information presented with the application states that all of the biosolids generated and stored would be used in agriculture and it is also stated that a certificate of registration is required for the facility. To this end, I note that under Section 51(2) of the Waste Management Act 1996, as amended, a waste licence is not required for the recovery of sludge for use in agriculture. Notwithstanding this, in the event that the facility would require any other consent or waste licence, either now or in the future, this would be a matter for the applicant to ensure such consent is obtained.

10.10. **Conclusion on Planning Assessment**

10.10.1. The benefits of the proposed development are considered to be overwhelmingly positive. It's delivery would assist Ireland in meeting obligations set down under EU Directives, national legislation and planning policy expressed through the hierarchy plans which regulate development at a national, regional and local level. The development would enable sustainable residential and economic growth through the delivery of increased wastewater treatment capacity while protecting the environment through improving the quality of effluent discharged to the receiving water environment. It has been demonstrated in the application that the improvement envisaged in final effluent quality can be achieved at the existing Ringsend Wastewater treatment plant by the incorporation of scientifically proven aerobic granular sludge technology into the treatment process together with associated nitrogen and phosphorous removal. When compared to the previously permitted and proposed long sea outfall (in tunnel) option, the current proposal has significant advantages and would be less intrusive on the receiving environment. The regional biosolids storage facility would assist in meeting the aims of the Sewage Sludge Directive, regulating the use of sewage sludge in agriculture to prevent harmful effects. Outside of matters considered above, environmental impact assessment and appropriate assessment are considered in the following sections of my assessment set out below. Subject to consideration of these matters, it can be concluded that the proposed development is in accordance with the proper planning and sustainable development of the area.

11.0 **Environmental Impact Assessment**

11.1. **Introduction**

11.1.1. This section of the report comprises an assessment of the likely significant effects of the overall project, referred to by the applicant as the 'proposed upgrade project' which includes the proposed development which is the subject matter of the current SID application in combination with the elements of the 2012 Approval which are also being progressed. A number of the matters to be considered have already been addressed in the Planning Assessment above. This section of the report should therefore be read, where necessary, in conjunction with the relevant sections of the

Planning Assessment. As the application is being made under Section 37E of the Act, it is required to be accompanied by an environmental impact assessment report. With a design capacity for 2.4 million PE, it also falls within and exceeds the thresholds (150,000 PE) of Class 13 of Part 1 of the fifth schedule of the regulations.

11.1.2. The application was submitted after 16th May 2017, the date for transposition of Directive 2014/52/EU amending the 2011 EIA Directive. The application is therefore supported by an EIAR. The Directive was transposed into Irish legislation on September 1st of 2018 under the European Union (Planning and Development) (Environmental Impact Assessment) Regulations, 2018, after the application was received.

11.1.3. The Department of Housing, Planning and Local Government (DHPLG) issued Guidelines entitled – Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment (August 2018). These provide guidance in relation to various sections of the Act arising from the transposition of the Directive. I have noted the above and I have also had regard to other guidance documents including: Draft Guidelines on the information to be contained in Environmental Impact Assessment Reports, EPA and European Commission guidance documents on the implementation of the EIA Directive (Directive 2011/92/EU as amended by 2014/52/EU) and also the Board's internal guidance on EIA.

11.2. **Compliance with Legislation**

11.2.1. The EIAR addresses the overall 'proposed upgrade project', which as I have outlined above is meant to include elements of the previous 2012 Approval being progressed together with the development for which permission is currently sought and which includes both the WwTP component at Ringsend and the RBSF at Newtown.

11.2.2. It comprises five volumes, grouped as follows:

- Volume 1: EIAR Non-Technical Summary,
- Volume 2: Introduction (Part A – Report and Part B – Appendices),

- Volume 3: Ringsend Wastewater Treatment Plant (Part A: Report and Part B: Appendices),
- Volume 4: Regional Biosolids Storage Facility (Part A: Report and Part B: Appendices),
- Drawings (Part A: Ringsend Wastewater Treatment Plant Upgrade and Part B: Regional Biosolids Storage Facility).

11.2.3. In total, each of Volumes 3 and 4 of the EIAR contains 19 chapters which are entitled 'Sections'.

11.2.4. As is required under Article 3(1) of the EIA Directive, the EIAR identifies, describes and assesses in an appropriate manner, the direct and indirect significant effects of the project on the following environmental factors: (a) population and human health; (b) biodiversity, with particular attention to species and habitats protected under Directive 92/43/EEC and Directive 2009/147/EC; (c) land, soil, water, air and climate; (d) material assets, cultural heritage and the landscape and it equally considers the interaction between the factors referred to in points (a) to (d).

11.2.5. In accordance with Article 5 and Annex IV, the EIAR provides a description of the project comprising information on the site, design, size, characteristics and other relevant features of the project. It also provides a description of the likely significant effects of the project on the environment and a description of the features of the project and/or measures envisaged in order to avoid, prevent or reduce and, if possible, offset likely significant adverse effects on the environment.

11.2.6. The EIAR includes a non-technical summary of the information referred to in Article 5 (a) to (d) and additional information specified in Annex IV relevant to the specific characteristics of the overall project and project type and to the environmental features likely to be affected. In this regard, the EIAR provides a description of the evidence used to identify and assess the significant effects on the environment. The EIAR provides an adequate description of forecasting methods/ evidence used to identify and assess the significant effects on the environment. Any difficulties which were encountered in compiling the required information are set out under the respective environmental topics which were individually assessed.

- 11.2.7. The features of the project and/or mitigation measures envisaged to avoid or prevent what might otherwise be significant adverse effects on the environment are set out under each environmental topic considered. The potential impacts and mitigation measures are summarised under Section 17 and a summary of residual impacts is set out within Section 18 of Volumes 3 (Ringsend WwTP) and 4 (RBSF) of the EIAR. Where proposed, monitoring arrangements are also outlined. Environmental interactions and cumulative impacts are also addressed. Consultation undertaken by the applicant meets with the statutory requirements listed under Article 6 of the EIA Directive.
- 11.2.8. I am satisfied that the information provided in the EIAR is sufficiently complete and up to date. It is of a high level of quality, containing comprehensive studies and scientific analyses which are evidently prepared by qualified and competent experts. In this regard, I note that the qualifications and expertise listed and demonstrated by the experts involved in the preparation of the EIAR. I am also satisfied that the participation of the public has been effective and the application has been made accessible to the public by electronic and hard copy means with adequate timelines afforded for submissions.
- 11.2.9. My assessment is based on the information provided by the applicant, including the EIAR, the reports and submissions made in the course of the application by Planning Authorities, prescribed bodies and observers and the applicant's response to reports and submissions.

11.3. **Alternatives**

- 11.3.1. Alternatives which were studied are addressed within Volume 2 of the EIAR in respect to both project components. In respect of the Ringsend WwTP proposals, it is outlined that the GDSDS recommended the Ringsend WwTP should be maximised within the confines of its current location and that a new wastewater treatment facility would be sited in north County Dublin (the Greater Dublin Drainage Project). It also references that the GDSDS was the subject of a Strategic Environmental Assessment (SEA) and that the process considered a comprehensive assessment of alternative locations for the additional wastewater treatment required for the region and concluded that the Ringsend WwTP was the optimum location. In

addition, the current EIA considered alternative technologies which could potentially be employed. These include the following:

1. Sequencing Batch Reactors (SBR) and Capacity Upgrade (SBR + CU) continuing to use the Long Sea Outfall Tunnel (LSOT);
2. Deep Shaft Aeration (DSA) with SBR discharging to the Lower Liffey Estuary;
3. Integrated Fixed-Film Activated Sludge (IFAS) discharging to the Lower Liffey Estuary;
4. Membrane Bioreactor (MBR) discharging to the Lower Liffey Estuary and;
5. Aerated Granular Sludge (AGS) discharging to the Lower Liffey Estuary.

11.3.2. The options were scored against 15 parameters following which a conclusion was reached that the preferred option based on technical, environmental and cost grounds would be the use of AGS treatment on site to improve effluent quality discharging into the Lower Liffey Estuary at its existing outfall. A comparison was then presented between the AGS and LSOT (permitted under the 2012 Approval) options and the AGS option was considered as being more favourable at the end of the process.

11.3.3. In relation to the RBSF, five alternative locations were shortlisted and assessed against four criteria (Environmental, Economic & Engineering, Planning and Social & Community). At the end of this process, the current site at Newtown emerged as the preferred site.

11.3.4. For both the Ringsend WwTP and the RBSF components, the 'do-nothing' option was also considered and ruled out as not being a suitable option in each case.

11.3.5. Overall, a description of the reasonable alternatives studied by the developer, which are relevant to the proposed project and its specific characteristics have been clearly presented, together with an indication of the main reasons for selecting the chosen option for each of the Ringsend WwTP and RBSF components, taking into account the effects on the environment.

11.4. **Conclusion on EIAR Compliance with Legislation**

- 11.4.1. I am satisfied that the information provided in the EIAR is reasonable and sufficient to allow the Board to reach a reasoned conclusion on the significant effects of the development on the environment, taking into account current knowledge and methods of assessment to be incorporated into its decision on the planning application. I am also satisfied that the information contained in the EIAR complies with the provisions of Article 3, 5 and Annex (IV) of EU Directive 2014/52/EU amending Directive 2011/92/EU.

12.0 **Likely Significant Effects on the Environment**

12.1. **Introduction**

- 12.1.1. In this section of my assessment, I consider the direct and indirect significant effects of the development against the factors set out under Article 3(1) of the EIA Directive 2014/52/EU, which include:

- a) population and human health;
- b) biodiversity, with particular attention to species and habitats protected under Directive 92/43/EEC and Directive 2009/147/EC;
- c) land, soil, water, air and climate;
- d) material assets, cultural heritage and the landscape;
- e) the interaction between the factors referred to in points (a) to (d).

- 12.1.2. My assessment is structured to follow items (a) to (e) directly above in respect of each of the two project components. I have dealt with noise and odour under the heading of c) land, soil, water, air and climate. I have considered all of the documentation lodged with the EIAR and all of the documents and drawings on the planning application file, including written submissions.

12.2. **Population and Human Health**

12.2.1. **Population and Human Health – Ringsend WwTP component**

Introduction and Existing Environment

- 12.2.2. In terms of population, the EIAR provides details of the resident population, working

population and the visiting community, including recreational amenities. The local area comprising electoral divisions Pembroke East A, Pembroke East B and Pembroke East C is identified as the area which would be most likely to experience local impacts arising from the Proposed WwTP component.

- 12.2.3. The closest residential dwellings are located c. 950m to the south-west of the proposed WwTP, along Beach road/Strand road. Dwellings are also located c.975m west of this site along Pigeon House road. Poolbeg West, located to the south west of the Ringsend WwTP site, has been designated as a Strategic Development Zone (SDZ), which is earmarked to deliver approximately 3,500 homes and other commercial and mixed uses.
- 12.2.4. In terms of the working population, employment is concentrated in Dublin city centre, which forms a large proportion of the c.750,000 working population in the GDA as a whole. According to the 16th Issue of Dublin Economic Monitor published in February 2019, the latest unemployment figures for Dublin is 5.3% (Q4 2018). The unemployment rate for the State is 5.3% (CSO Jan 2019). The Ringsend WwTP facility currently provides employment for c. 40 full time employees.
- 12.2.5. Regarding the visiting population, there are multiple visitor attractions and leisure and recreational amenities, sporting facilities and clubs, recreational walks, parks and hotels, bars and restaurants in the local and regional area. The local coastal walkway extends from the Merrion Gates to the Great South Wall. The Aviva stadium, hosting sporting and other events is located c. 2km to the south west of the site. Under the Quality of Bathing Waters Regulations 2008, as amended, four stretches of Beach (Dollymount Strand, Sandymount Strand, Merrion Strand and Seapoint) have been designated as bathing waters and are used as a recreational amenity by the local and visiting population.
- 12.2.6. The EIAR provides information on the general Health Status of persons from the CSO 2016 census across local EDs (Pembroke East A, Pembroke East B and Pembroke C). Sensitive receptors within the local area are identified as including: Irishtown Health Centre, St. Patrick's Boys National School, Cambridge Road, St. Patrick's Girls National School, Ringsend College / Coláiste na Rinne and Ringsend Community Centre, all of which are located in the Dublin 4 area.

Potential Impacts

- 12.2.7. The assessment concludes that the proposed Ringsend WwTP component would not give rise to significant adverse effects on the local or wider population. If permitted and implemented, the development would give rise to employment for c.150 construction workers (at peak) and 15 new employment positions during operation, resulting in positive impacts through economic benefits. Once complete and operational, the Ringsend WwTP would have increased capacity for wastewater treatment and would be pivotal in supporting planned residential growth aligned with the growth of the economy in Dublin city and region which it serves.
- 12.2.8. In considering human health impacts, the DPHLG guidance states that the 'notion of human health should be considered in the context of other factors in Article 3(1) of the EIA Directive'. The delivery of the Ringsend WwTP upgrade would result in a higher standard of wastewater treatment. Effluent discharged to Dublin bay would comply with the Water Framework Directive (WFD), the Urban Waste Water Treatment Directive (UWWTD) and the Bathing Water Directive (BWD).
- 12.2.9. Slight adverse impacts are predicted to arise because of an increase in traffic on the road network during the construction and operation phases. Further details on traffic impacts including road safety are considered under the heading of Traffic, as set out under the Planning Assessment section of this report.
- 12.2.10. Concerns were raised regarding human health during the applicant's initial consultation with the public prior to lodging the application. Potential impacts identified include concerns that pollution might cause a deterioration in water quality. It is of relevance to note that Dublin Bay waters are not used as a resource for drinking water, but parts of the bay are used as a recreation area for swimming and other activities and it is stated that the bay is a resource for fish and shellfish intended for human consumption. It is stated under Section 5.5.3.1 of Volume 3 of the EIAR that no shellfish are collected within the inner part of Dublin Bay. It has been determined in the assessment of the water environment that, for the most part, the construction phase would not result in impacts on designated bathing waters and as such would not give rise to effects on human health. It is acknowledged however that there would be a deterioration of bathing water quality in 2019/2020, due to

decommissioning of aspects of the WwTP in advance of new phases being added. As is stated in the EIAR, this would lead to a 'slight' negative indirect impact for the bathing population and others undertaking water-based activities, removing their enjoyment and use of this amenity for the stated period. While accepting this impact would be short term in duration, I would be more inclined to conclude that this impact would be 'moderate' rather than 'slight' in terms of significance for the community that use the bay for recreation. This is particularly so as it is stated in the EIAR under the heading of Population and Human Health that the impact would be largely dependent on overall water quality in the area at the time and whether the current bathing restrictions in place would continue to remain in place over that time.

- 12.2.11. Concerns have also been raised during the course of the application concerning impacts on air quality and dust, noise, odour, traffic and impacts as a result of rodents (as potential vectors of disease), management of sludge and safe disposal of hazardous material. These impacts have been considered in detail in the EIAR by the appropriate specialists, which I deal with under the assessment of the respective environmental factors. However, insofar as they relate to human health, I have considered the mitigation measures proposed and residual impacts likely to arise post implementation of mitigation, as set out below.

Mitigation Measures

- 12.2.12. There are no specific mitigation measures proposed in relation to population or human health during construction or operational phases beyond those proposed to address other environmental impacts. The overarching design measures proposed for the construction stage centre around the preparation and adherence to the CEMP and a traffic management plan.
- 12.2.13. Regarding deterioration in water quality during the period of decommissioning of aspects of the WwTP, these works are proposed to be carried out during the winter of 2019/2020 when recreational swimmers and water based sports activities are at seasonally low levels and as set out in Section 4 of the EIAR, this impact is not anticipated to result in an overall deterioration in bathing water quality at the designated bathing areas.
- 12.2.14. Dust would be controlled by applying the German air pollution control limit, known as

the TA Luft limit of 350 mg/m²/day (averaged over a one-year period) for receptors outside the site boundary. At this level, no unacceptable dust that would give rise to adverse impact on population or human health or on the enjoyment of amenities in the vicinity of the proposed WwTP component are anticipated.

- 12.2.15. Air quality dispersion modelling found that during the construction phase, there would be no impact greater than imperceptible for receptors as a result of traffic emissions and, as such, there is no likelihood of adverse effects on human health in this regard.
- 12.2.16. The noise and vibration assessment concludes that once best practice measures are employed during construction and operation, noise and vibration generated would fall within acceptable limits.
- 12.2.17. Regarding odour, it is intended that the predicted odour concentrations at all areas of long-term public exposure and potential areas of future residential use, including the Poolbeg West SDZ, would be below the adopted odour criterion of 3 ou_E/m³ as the 98th percentile (hourly average) limit and hence no negative impacts are predicted on population or human health from odour as a result of the proposed development at Ringsend WwTP component. During construction, this criteria of 3 ou_E/m³ would be met apart from where there is the temporary shut-down of existing odour control units to facilitate new connections, though during this time, no perceptible change in odour concentrations outside of the site is predicted.
- 12.2.18. With the implementation of good traffic management, apart from slight impacts due to traffic delays, no adverse effects on population or human health are likely to arise as a result of traffic during the construction or operational phases. It is proposed that the local community would be kept informed of developments, including any traffic diversions, through a dedicated point of contact.
- 12.2.19. A rodent and pest control plan is proposed to be prepared and implemented to prevent impacts that could occur from the spread of pathogens from rodents that might be disturbed during construction.
- 12.2.20. Hazardous materials that may be encountered would be required to be handled and appropriately governed by comprehensive waste management legislation. This is

dealt with in greater detail under the heading of Land and Soils in this assessment.

- 12.2.21. Sludge generated would be treated at the existing facility to form biosolids and the biosolids would be transported to the RBSF for storage prior to its use as a fertiliser on land. I revisit this matter in greater detail as part of my assessment of the RBSF component.

Residual Impacts

- 12.2.22. It is clear that residual impacts on population and human health would be broadly positive as a result of providing improved wastewater treatment quality and an increase in capacity to cater for sustainable residential and economic growth, as well as safeguarding health and the environment.
- 12.2.23. During construction, there would inevitably be some nuisance associated with construction activity, detracting from the amenity value of public walkways close to the Ringsend WwTP site and resulting in a slight negative impact for the visiting population. Alterations to the boundary treatment along the southern and eastern boundaries of the WwTP are predicted to also result in impacts, which are slight/neutral significant in the longer-term operational phase along this section.
- 12.2.24. There is potential for short-term residual moderate impact on bathers and participants in other water sporting or recreational activities during the expected deterioration of water quality during 2019/2020, as tanks are taken off-line on a phased basis while being upgraded, as dealt with above. I am satisfied that the duration of this impact would be short-term in duration and given the overall long-term benefits that would result, this is acceptable.
- 12.2.25. Overall, I am satisfied that mitigation measures identified throughout the EIAR are sufficient to ensure that no unacceptable residual impacts or effects on population or human health are likely to arise during construction or operation.

Monitoring

- 12.2.26. No monitoring specific to population or human health is proposed. Monitoring is proposed in relation to other environmental factors which I have considered and referenced as relevant under specific sections of my assessment.

12.2.27. **Population and Human Health - RBSF Component**

Introduction and Existing Environment

- 12.2.28. The population of the EDs Ward and Dubber are identified as those which would be most likely to be aware of or be impacted by the development of the proposed RBSF component. The larger residential areas are concentrated within two and three kilometres from the RBSF site, separated by employment and industrial uses. There is a detached house at the eastern boundary of the site. A development of up to eight residential units is under construction on a site of two former houses, located c.25m from the eastern site boundary. In line with Dublin and the State there is a downward trend in unemployment.
- 12.2.29. In terms of the visiting population, recreational facilities and amenities within the immediate area include the Ward River, golf clubs and St. Margaret's GAA club. The Tolka Valley Regional Park is located 4.1 km to the south and west.
- 12.2.30. The EIAR provides information on the health status of the population from CSO 2016 census across local EDs (Dubber and The Ward). Sensitive receptors are identified as including: Charlestown medical and dental centre, St. Margaret's Primary and St. Luke's Primary school, Le Chéile secondary school and Tyrellstown community centre.

Potential Impacts

- 12.2.31. The construction and/or operation phases could potentially give rise to impacts on population / human health, including air quality and dust, noise, sludge storage and management, odour, traffic and pest control.
- 12.2.32. These impacts have been considered in detail in the EIAR by the appropriate specialists and I have dealt with these also under the assessment of the respective environmental factors. However, insofar as they overlap with human health, I have considered the mitigation measures proposed, as set out below, together with the residual impacts likely to arise post implementation of mitigation.
- 12.2.33. If permitted and implemented, the development would give rise to employment for c.70 construction workers and 10 new employment positions during operation,

resulting in positive impacts through economic benefits.

- 12.2.34. At a wider scale, positive indirect benefits would result for population and human health in supporting improved water treatment and providing a regional facility for the sustainable management of biosolids generated at the Ringsend WwTP and GDD Plant (if permitted).

Mitigation Measures

- 12.2.35. There are no specific mitigation measures proposed in relation to the resident, working or visiting population during construction or operational phases beyond those proposed under other specific environmental headings. The overarching design measure proposed for the construction stage centres around the preparation and adherence to the CEMP and a traffic management plan.
- 12.2.36. Air quality dispersion modelling found that in relation to traffic emissions during the construction phase, there would be no impact greater than imperceptible for receptors as a result of traffic emissions and, as such, there is no likelihood of adverse effects on human health arising out of air quality.
- 12.2.37. With employment of best practice, construction and operation noise is expected to fall within acceptable noise limits and, as such, would not give rise to negative impacts on human health.
- 12.2.38. With the implementation of good traffic management, no adverse effects on population or human health are likely to arise as a result of traffic during either the operational or construction phases. It is proposed that the local community would be kept informed of developments through a dedicated point of contact, including any traffic diversions.
- 12.2.39. In relation to odour, given that the treated biosolids would generate low odours and they are proposed to be stored indoors in a specially-designed building where odour control features are proposed to be employed, I am satisfied that significant effects on human health as a result of odour would not likely arise.
- 12.2.40. A rodent and pest control plan is proposed to be prepared and if implemented, this would prevent impacts to human health which could arise from the spread of

pathogens from rodents potentially disturbed during construction.

Residual Impacts

- 12.2.41. I would agree with the conclusion that the proposed RBSF component would result in slight negative short-term impacts on the local population during construction and no impacts would remain during the operation phase. Positive short-term impacts would also occur as a result of employment for 70 construction workers during this construction phase and opportunities for an additional 10 employees would arise in the operational phase.

Monitoring

- 12.2.42. No specific monitoring in relation to Population or Human Health is proposed. Specific monitoring relating to other environmental factors, as relevant are outlined under each specific Section of the EIAR.

12.2.43. **Conclusion on Population and Human Health**

- 12.2.43.1. Having regard to the above, I am satisfied that the impacts identified would be avoided, managed or mitigated by measures forming part of the proposed development, proposed mitigation measures and measures within suitable conditions. I am therefore satisfied that the proposed development would not have any unacceptable significant direct, indirect or cumulative impacts on **Population and Human Health**.

12.3. **Biodiversity**

12.3.1. **Marine Biodiversity - Ringsend WwTP component**

Introduction and Existing Environment

- 12.3.2. The site associated with the Ringsend WwTP, including the existing outfall is located outside but adjacent to the boundaries of eight European sites. These are listed under the heading of Terrestrial Biodiversity – Ringsend WwTP and are considered also under the heading of Appropriate Assessment.
- 12.3.3. The current status of the Liffey Estuary Lower (2015) remains ‘moderate’ and the coastal waters of Dublin Bay have a ‘good’ ecological status (Ref: Coastal Water

Quality Status 2010-2015 available on www.catchments.ie). The most recent Trophic Status Assessment (EPA, 2015) indicated that waters in the Lower Liffey Estuary and Dublin Bay can be regarded as 'Unpolluted', while the Upper Liffey Estuary is regarded as 'Eutrophic' and Tolka Estuary as 'Potentially Eutrophic'.

12.3.4. It is submitted in Section 5 of Volume 3 (Biodiversity - Marine) of the applicant's EIAR, that in the existing baseline scenario, the River Liffey and, to a lesser extent, the Tolka River, account for most of the total oxidised nitrogen (TON) input to Dublin Bay, while the WwTP is responsible for most of the phosphates and ammonia that are released into the bay. In this section, information is also provided about details of the intertidal marine benthic collection, marine mammals and fisheries together with results obtained from intertidal benthic surveys carried out in September 2015 and analyses of those results. Waterbirds are dealt with in my assessment under the heading of Biodiversity – Terrestrial.

12.3.5. In considering the marine environment, the area of the zone of influence of the effluent from the Proposed Ringsend WwTP component is presented in Figure 5-16 of Volume 3 of the EIAR and is stated to be based on the predicted modelled output for the winter depth averaged 50 percentile for Dissolved Inorganic Nitrogen (DIN). The zone broadly comprises the sea water inside the retaining walls, an area of the bay west of Bull Island and a small section to the south east of Bull Island.

12.3.6. Intertidal habitats of Dublin Bay include sandflats of fine to very fine sand and areas of soft muddy sand. The marine species recorded in Dublin Bay included anemone, worm types, crabs, shrimps, prawns, mussels, cockles, snails and fish. Marine mammals recorded in proximity to Dublin Bay included Minke Whale, Humpback Whale, Killer Whales, Harbour Porpoise, Bottlenose Dolphin, Common Seal and Grey Seal. Fish species recorded in the mouth of the River Liffey included: Trout, Bass, Sand Smelt, Common Goby, Mullet, Plaice, Nilsson's Pipefish, Sea Scorpion, Lemon Sole, Pollock, Spratt, Lesser Sand Eel, Eel, Flounder and Shore Rockling. Other species stated to be known to occur in the area include Salmon, Lamprey and Mackerel.

Potential Impacts

12.3.7. The Ringsend WwTP is currently not capable of achieving the necessary nutrient

reduction to meet the standards set out under the EPA Wastewater Discharge Licence and the UWWTD. It is expected that, in the absence of the proposed WwTP component, i.e. in the 'do-nothing/baseline' scenario, water quality in the receiving environment in the inner bay would likely deteriorate even further as wastewater volume / loading increase, leading to an increase in organic enrichment, oversupply of DIN to the area impacted by the existing outfall and a consequential decline in biodiversity in the Tolka Estuary and North Bull Island in particular. In this 'do nothing/baseline' scenario, the outer and south bays have been assessed as being unaffected by nutrient inputs from the WwTP at Ringsend. Notwithstanding this finding, it has been assessed that while localised impacts could occur, these would not be to a scale that could pose a threat to shellfish, fish or marine mammal populations in the Dublin Bay area.

- 12.3.8. During construction, the undersea tunnel / LSOT would not form part of the development and, as such, no direct physical disturbance of the seabed would occur. Therefore, Dublin Bay would not experience any negative impact including habitat destruction and/or changes in the nature or quantity of species. During the construction phase, there would be some reduction in effluent quality for a nine-month period in the winter of 2019/2020 during construction of the AGS structures and the SBR retrofit. There would also be an increase in the number of stormwater overflows from c.1.2% to between 2.5% and 3.3% of influent. It is submitted that the impact on marine aquatic and benthic ecology would not be discernible for this temporary period.
- 12.3.9. During the operation phase, the main impact on the marine biodiversity environment is predicted to be positive, due to improved water quality and decrease in nutrient loading in the treated effluent, leading to an increase in oxygen availability in Dublin Bay and, consequently, a substitution of algae and other microorganisms for a more biologically-diverse species. Such positive impacts are assessed as being limited to the species in the Tolka Estuary and the lagoons in the intertidal mudflats of North Bull Island. The changes/improvements are predicted as slow, as the areas of the bay would continue to be influenced by nutrient loads from the Liffey and Tolka rivers.
- 12.3.10. No significant adverse impacts on marine mammals or fisheries are predicted and

any changes to a richer fauna community is expected to be slow for the same reasons outlined. It has been assessed that seals may benefit from an increase in fish life in the inner part of Dublin Bay, as a result of improved water quality.

Mitigation Measures

- 12.3.11. Given that the proposed Ringsend WwTP component would lead to an improvement of water quality in Dublin Bay and a predicted corresponding improvement to the marine biodiversity environment, no mitigation measures are deemed to be required. Works throughout the construction phase would be required to comply with statutory requirements and adhere to the CEMP and best practice measures embedded into the design.

Residual Impacts

- 12.3.12. The assessment concludes that the proposed Ringsend WwTP component would give rise to an improvement in water quality status and positive impacts in the parts of inner Dublin Bay (the mouth of the Liffey, the Tolka estuary and the lagoons off North Bull island) resulting in increased diversity of benthic macroinvertebrates. Areas and habitats beyond these areas are considered to experience negligible changes as a result of the proposed WwTP component. It is also assessed that birds and marine mammals that forage within Dublin Bay would likely experience positive impacts because of the substitution of algae and other microorganisms for a more biologically-diverse species, though this impact is anticipated to be slow to occur. Residual impacts for the outer bay, sandflats off Bull Island and areas south of the South Great Wall have been assessed as negligible with habitats remaining unaffected by the proposed WwTP. I am satisfied with the conclusion that construction impacts would be no greater than indiscernible.

Monitoring

- 12.3.13. Monitoring of macroinvertebrate communities is proposed to detect any changes in the nature and abundance of the constituent taxa and post-construction water quality surveys are proposed to validate the mathematical results from modelling.

12.3.14. **Marine Biodiversity - RBSF component**

Residual Impacts

12.3.15. The assessment concludes that the proposed RBSF Component would not have any negative impacts on **Marine Biodiversity**, due to its large separation distance from the sea. I am satisfied that this is the case and that no further assessment is required.

12.3.16. **Terrestrial Biodiversity - Ringsend WwTP component**

Introduction and Existing Environment

12.3.17. It is submitted that the effluent from Ringsend WwTP cannot be detected outside of Dublin Bay, and therefore the assessment is confined to those European sites within the area of the bay along the seaward limit, which extends from Baily Lighthouse to Dalkey Island, as presented on Figures 6-1 (SAC European sites in Dublin Bay) and 6-2 (SPA European sites in Dublin Bay) of Section 6 in Volume 3 to the EIAR.

12.3.18. Accordingly, there are eight European sites identified as having potential to be adversely affected by the proposed Ringsend WwTP component. These are presented in Figures 6.1 and 6.2 of Section 6 of the EIAR (Volume 3) and are listed under as follows:

- South Dublin Bay and River Tolka Estuary SPA (site code 004024);
- South Dublin Bay cSAC (site code 000210);
- North Bull Island SPA (site code 004006);
- North Dublin Bay cSAC (site code 000206);
- Howth Head Coast SPA (site code 004113);
- Howth Head cSAC (site code 000202);
- Dalkey Islands SPA (site code 004172) and
- Rockabill to Dalkey Island cSAC (site code 003000).

12.3.19. As the Proposed WwTP Component could potentially result in significant effects on the designated European Sites within Dublin Bay and the immediate vicinity, having regard to the sites conservation objectives, a Natura Impact Statement is included

with the application and I consider this aspect under the heading of Appropriate Assessment below. These European sites are described in the Natura Impact Statement that accompanies this Planning Application.

12.3.20. The following proposed NHAs lie within Dublin Bay and the surrounding environment:

- South Dublin Bay pNHA (site code 000201);
- North Bull Island pNHA (site code 000206);
- Howth Head pNHA (site code 000202);
- Grand Canal pNHA (site code 002104);
- Royal Canal pNHA (site code 002103) and
- Dalkey Coastal Zone & Killiney Hill pNHA (site code 002106).

12.3.21. Intertidal areas support large waterbird populations. Terrestrial habitats include coarse grassland outside of the WwTP and a bund to the east which contains an area of immature woodland and ornamental shrub which I am satisfied is of low conservation value. The eastern bund also contains invasive plant species (Japanese Knotweed). Irishtown Nature reserve to the south and this is used by wintering waterbirds. It is stated in the EIAR that it was originally provided as a winter feeding area for light-bellied Brent Geese. Waterbird numbers were drawn from monitoring surveys carried out as a condition attached to the adjoining Waste to Energy plant and surveys carried out by Birdwatch Ireland. Brent Geese were evidently recorded on this grassland from November to April each year varying between 34 and 411 over the eight winters 2007/08 to 2014/15. The grassland is stated to be also used by waders, with peak counts in winter 2014/2015 of 44 Oystercatcher, 3 Black-tailed Godwit, 1 Curlew, 2 Redshank and 3 Black-headed Gull (Mayes, 2015). Occasionally large flocks of Black-headed Gulls and Herring Gulls are stated to have also been recorded on the grassland.

12.3.22. At a wider level, Dublin Bay hosts internationally important bird species including: Light-bellied Brent Goose, Knot, Black-tailed Godwit and Bar-tailed Godwit, as well as 19 other species in nationally important numbers. Both Common Tern and Arctic Tern breed in Dublin Port. In late summer and autumn, large numbers of post-

breeding terns congregate in South Dublin Bay, originating from a wide area throughout Ireland. The terns forage in Dublin Bay, including the area potentially affected by the effluent arising from the Ringsend WwTP.

- 12.3.23. A colony of Black Guillemots is also known to breed in the quayside areas of Dublin Port and in the tidal stretches of the River Liffey. These birds forage in Dublin Bay, including the area potentially affected by the effluent arising from the Ringsend WwTP.

Potential Impacts

- 12.3.24. In the 'baseline/without project' scenario, invasive species (Japanese Knotweed) would spread further on the eastern boundary of the site. In addition, the nutrient outputs from the WwTP due to operational overload and stormwater discharges could result in a decline in the biodiversity of invertebrate communities in the Tolka Estuary and the North Bull Island channel, though it is stated to be unlikely that this scenario would have any significant impact on the waterbird populations that forage in Dublin Bay.
- 12.3.25. The removal of the bund at the eastern end of the WwTP site would involve the removal of recently planted trees and shrubs which would lead to a loss of habitats of low biodiversity value. Connection of a high-voltage ESB cable is a requirement and during construction of this element, this could lead to temporary impacts on the terrestrial biodiversity environment, as the work would occur in an area within South Dublin Bay and River Tolka SPA.
- 12.3.26. It is submitted in the EIAR that there is potential for indirect visual disturbance to Brent Geese and other waterbirds using this amenity grassland immediately south of the WwTP, arising from construction activity and movement of construction workers. I note however that the waterbirds would be accustomed to visual interaction with similar type of activities during the current operation of the plant and adjoining industrial maintenance and operation activities, which leads me to conclude that this impact would not likely be significant.
- 12.3.27. It is submitted that construction noise would not result in significant impacts on both wintering and summering waterbirds in Dublin Bay, as these waterbirds are

habituated to noise from similar construction and industrial activities in the surrounding environment and, therefore, construction is not considered to be threatening to waterbirds and terns which are qualifying interests of the European sites in Dublin Bay. It is also submitted that the noise levels which the tern colony would generate, stated to be up to 70 to 80 dB(A) would far exceed the level of construction noise. While that may be so, noise associated with construction activities would be of a different type than noise type generated by the waterbirds or tern colonies themselves. However, given the nature of the area which is predominately characterised by heavy industry and similar activity whereby construction and maintenance are not new features, I accept that the waterbird populations would be accustomed to such noise and that there would be no significant impacts likely on waterbirds or terns in the absence of mitigation. By way of comparison, it is stated that during the construction of the sewage treatment plant at Mutton Island in Inner Galway Bay, numbers and diversity of wader species roosting close to the construction site remained stable or slightly increased (Nairn, 2005).

- 12.3.28. It is stated that effects of dust deposition on flora or fauna would be imperceptible as the levels would not be high enough such as to cause any adverse impacts on flora or fauna. In addition, waterbird species are not sensitive to NO_x concentrations contained in air emissions which could occur during construction and operation phases.
- 12.3.29. During operational phases, the potential indirect impacts on intertidal habitats in Dublin Bay would be neutral or somewhat positive in the vicinity of the existing discharge location or in the wider coastal and marine area.
- 12.3.30. The EIAR addresses concerns that an improvement in water quality and biological status of estuaries through the project delivery and a reduction in nutrient loads could have a knock-on effect on the trophic food chain and consequently waterbird populations. While some changes are expected to occur, particularly to algal blooms which are a source of organic matter to the benthic ecosystems, it is submitted that this would be limited to the northern sections of Dublin Bay. It is submitted that the proposed WwTP component would not have any detrimental impacts on the aquatic food chain in the bay and that as a result of the proposed WwTP component, benthic

macroinvertebrates are assessed as likely to become more diverse and phytoplankton is unlikely to become less abundant, but rather more diverse and such changes would likely be slow to occur. It is stated that the Tolka Estuary would continue to be affected by some level of organic enrichment from the Liffey and Tolka rivers. The conclusion reached, based on previous scientific studies and results from surveys is that the bird populations, whether dependent on aquatic plants or infaunal macroinvertebrates are not being likely to be impacted by the proposed WwTP component. I am satisfied based on the scientific information submitted that the proposed WwTP component would not lead to any detrimental impacts in the bay and the bird populations would not be negatively impacted on.

Mitigation Measures

- 12.3.31. Solid screening is proposed to be erected prior to construction to reduce or eliminate any visual disturbance from construction activities to Brent Geese and other waterbirds using the amenity grassland to the south. I note that this is already in place, stated to be part of a works contract and I assume would also serve to secure the construction site.
- 12.3.32. No mitigation is considered to be required in relation to noise impacts on waterbirds or nesting terns, as these species are accustomed to traffic and machinery noise in the area.
- 12.3.33. An Invasive Species management plan is proposed to be prepared and implemented as a control measure to prevent the spread of Japanese Knotweed. A dust management plan is proposed to be implemented during construction. No dust mitigation measures are stated to be required or proposed during operation.
- 12.3.34. The required connection to the ESB high voltage cable would be carried out in the period between 1st May and 31st August (when the Brent Geese are absent from the SPA) and the construction area would be fully reinstated by backfilling with the original soil and laying of grass turves in their original position. The grassland is proposed to be fully reinstated in time for the return of the geese in September/October.

Residual Impacts

- 12.3.35. The assessment concludes that with mitigation in place, no negative impacts are predicted on terrestrial biodiversity (including flora and fauna) during either the construction or operation phases, as a result of the Ringsend WwTP component. Based on scientific information presented in the EIAR, there is no evidence to suggest that the anticipated reduction in nutrient loading would give rise to adverse impacts on the trophic food chain and consequently waterbird populations.
- 12.3.36. The Parks and Landscape Services Division of Dublin City Council state their requirement that all invasive species are removed entirely from the Ringsend WwTP site and they request that a condition be attached seeking proposals to be submitted in this regard. No submission was received from the Department of Culture, Heritage and the Gaeltacht / National Parks and Wildlife Service (NPWS) addressing biodiversity.

Monitoring

- 12.3.37. It is stated that monitoring of waterbirds on the grassland would take place during construction and for a year after to establish the efficacy of the mitigation measures on potential disturbance. A comprehensive monitoring programme currently being undertaken by Birdwatch Ireland for all of Dublin Bay, is also proposed to be used to inform the assessment of the efficacy of potential changes in waterbird populations related to effluent discharge.
- 12.3.38. Annual monitoring to determine the efficacy of measures used to control the spread of invasive species is also proposed.

12.3.39. **RBSF component**

Introduction and existing environment

- 12.3.40. The site comprises mainly open areas of grassland, with dry meadow and grassy verges and areas are being grazed by horses. It is not covered by any nature conservation designations.
- 12.3.41. There are three European designated sites within 10 km radius of the site: Malahide Estuary cSAC (site code 000205), Malahide Estuary SPA (site code 004025) and

South Dublin Bay and River Tolka Estuary SPA (site code 004024).

- 12.3.42. Two pNHAs are also located within a 5km radius: Royal Canal pNHA (site code 002103) and Santry Demesne pNHA (site code 000178). There are no ecological pathways between these pNHAs and the RBSF component and I am therefore satisfied that no impacts would arise on these pNHAs.
- 12.3.43. A drainage ditch runs along the western perimeter of the site. It is submitted to be of negligible biological value due to it having a silty substrate and very slow flow. It flows into the Huntstown stream which is a tributary of the Ward River, c.5km from the site. As informed by IFI, the Ward River is an important salmonid system, having resident salmon and sea trout populations. The river enters the Broadmeadow River north of Swords and ultimately discharges into the Malahide Estuary cSAC.
- 12.3.44. Bird species recorded on the site are common in farmlands with one species, Robin, amber-listed (medium conservation concern) in the 'Birds of Conservation Concern in Ireland' (Colhoun and Cummins, 2013). No larger mammals were observed on site. Badger foraging and commuting signs were found on the site. Five bat species were recorded on the site, largely associated with Leisler's bat, with some activity of Common pipistrelle, and low numbers recorded for other species (Soprano pipistrelle, unidentified Myotis species and unidentified Pipistrellus species). Trees and structures on site are not considered suitable for roosting of bats.
- 12.3.45. Overall, I would accept the applicant's conclusion that the site is of local importance in terms of terrestrial biodiversity.

Potential Impacts

- 12.3.46. In terms of terrestrial biodiversity, dry meadow and grass habitats would invariably be lost as a result of the development. No hedgerows or treelines are proposed to be removed as part of the proposed RBSF component and breeding birds would not be adversely impacted during construction.
- 12.3.47. Bats would be able to continue to feed in remaining grassland areas and along field boundaries. As approximately half of the grassland would remain undeveloped, adequate area would remain for foraging by badgers.

12.3.48. Impacts would be no greater than imperceptible and negative in the long-term / operational phase.

Mitigation Measures

12.3.49. During construction, no vegetation would be cleared from the site during the bird breeding season (between 1st March to 21st August) to avoid disturbance to nests, subject to results of a breeding bird survey, prior to construction. If no breeding birds are observed during the survey, it is stated that this mitigation measure would not be required. I consider this approach to be reasonable. Noting observations of badger usage of the site for foraging, confirmatory surveys for badgers are proposed prior to construction and, if required, appropriate mitigation measures would be put in place. Stormwater would be attenuated and discharged at greenfield runoff rate. Petrol and oil interceptors would be used to remove any potential contaminants from run-off from the site. Any run-off with potential for containing biosolids would be collected and discharged to a public wastewater sewer.

12.3.50. During the operation phase the northern site area would be planted with deciduous trees to mitigate loss of foraging areas for bats. Floodlighting would be directed downwards to avoid light spread to cover this proposed planting. As part of the design, during operation, wastewater and run-off within the buildings and any run-off with potential for containing biosolids would be collected and pumped to a public sewer.

Residual Impacts

12.3.51. I would agree with the conclusion arrived at, that with mitigation in place, no negative impacts are predicted on the terrestrial biodiversity environment beyond neutral and imperceptible, as a result of the RBSF component.

Monitoring

12.3.52. No monitoring is proposed, which is acceptable.

12.3.53. Conclusion on Biodiversity

12.3.54. Having regard to the above, I am satisfied that the impacts identified would be avoided, managed or mitigated by measures forming part of the proposed

development, proposed mitigation measures and measures within suitable conditions. I am therefore satisfied that the proposed development would not have any unacceptable significant direct, indirect or cumulative impacts on **Biodiversity**.

12.4. **Land, Soil, Water, Air and Climate**

12.4.1. **Land and Soil - Ringsend WwTP Component**

Introduction and Existing Environment

12.4.2. Subsurface information from geotechnical investigation and published data indicates that the site comprises a minimum of 6.3m of made ground on marine sediments to depths of up to 14.5m below ground level (bgl). During investigations, glacio-marine deposits were encountered below this layer to depths of up to 22.8m bgl. Bedrock comprising weathered limestone with interbedded siltstone and mudstone was encountered at levels between 41.3m and 47.1m bgl.

12.4.3. The made ground encountered on site comprises predominately sand, clay and gravel. It is stated that large proportions of manmade waste material were observed in the geotechnical investigations, containing building waste, tyres, metal, cinders and some hazardous material including asbestos.

12.4.4. No geological heritage sites are located within the proposed WwTP site. Two such areas, North Bull Island and Bottle Quay, are located relatively close.

12.4.5. In terms of hydrogeology, the aquifer classification for the Calp Limestone formation by the Geological Survey of Ireland (GSI) is locally important (Li). There is no detailed vulnerability classification on the GSI database from the site, however, by applying GSI guidance, the vulnerability of the shallow groundwater is assessed as 'high' and the deeper aquifer is assessed as 'low'. Groundwater underlying the site is hydraulically connected to Dublin Bay and responds to tidal changes. It is saline in nature and not considered a suitable groundwater resource. Results for permeability coefficient (k) within the made ground were quite variable, ranging from 1.5×10^{-9} m/s to 2.4×10^{-2} m/s (Causeway, 2012 and 2016).

Potential Impacts

12.4.6. Spoil from excavation works within made ground would comprise an estimated 2,030

cubic metres of hazardous waste material, as well as other made ground with marine sediments, which could lead to negative impacts if not appropriately handled.

- 12.4.7. Piling works proposed have the potential to create vertical pathways in which potentially contaminated soils, sediment and groundwater could migrate downwards. However, as stated above, the underlying aquifer is not a potable groundwater resource.
- 12.4.8. Dewatering abstractions would require sheet piling to prevent groundwater inflows during excavations. However, no significant volumes of water are intended to be abstracted and the dewatering is not therefore considered to result in significant effects on the hydrogeological environment.
- 12.4.9. A 'do-nothing' approach to the Japanese Knotweed would result in a significant permanent negative impact. It is submitted that the control of the Japanese Knotweed would need to be addressed regardless or not of whether the Proposed WwTP Component proceeds.
- 12.4.10. Proposals for the removal of Japanese Knotweed is planned and it would be appropriate to condition same.
- 12.4.11. Potential impacts could occur from accidental spillages of pollutants or hydrocarbons during construction.
- 12.4.12. During the operation phase no direct discharges to the soil or hydrological environment are proposed and as such no significant impacts are anticipated.
- 12.4.13. When compared to the LSOT option, the AGS option would result in significantly less excavations. It is stated that the LSOT would have generated 850,000 tonnes of spoil during construction (and associated c. 70,000 truck movements) over an 18-month period. In addition, the current AGS option allows for the recovery of most of the phosphorous from the wastewater as distinct from the LSOT option in which c. four times as much phosphorous would have been discharged 9km out to sea. Therefore, in terms of waste recovery, the AGS option can be deemed to bring significantly greater benefits.

Mitigation Measures

- 12.4.14. The proposed CEMP is the overarching mitigation embedded in the project design and delivery and, if implemented appropriately, would ensure good construction management and best practice and accordingly minimise the potential for harmful impacts on the land and soils environment.
- 12.4.15. A site-specific waste management plan is also proposed to be prepared by the contractor and agreed in advance of the works. Disposal of unusable soils and waste materials encountered would be the responsibility of the contractor, who would be required to comply with statutory obligations. Three waste facilities with operational licences for acceptance of non-hazardous waste have been identified. Hazardous waste would be required to be exported overseas. Contaminated soils would be removed from the site for safe treatment and therefore no impact is predicted regarding waste disposal. It is stated that a project waste manager would be appointed by the contractor to oversee the implementation and adherence to the plan during the construction phase of the Proposed WwTP Component.
- 12.4.16. The appointed contractor would be required to provide a method statement for the dewatering of excavation below the water table.
- 12.4.17. Management of construction induced settlement would form part of the contract documents and these would include condition surveys and physical monitoring of settlements.
- 12.4.18. In order to mitigate potential impacts associated with the spread of invasive species, contract documents for the proposed WwTP are proposed to include a requirement that a suitably qualified ecologist would be engaged to oversee the implementation of the Invasive Species management plan and monitor the success of the mitigation measures post-construction.
- 12.4.19. No specific mitigation is proposed for the operational phase apart from adherence to best practice.

Residual Impacts

- 12.4.20. I am satisfied that with mitigation in place, no significant negative impacts are likely

to arise on land and soils as a result of the Ringsend WwTP component. As contaminated soils would be removed from site, the predicted impact on the land and soils environment would result in a slight positive permanent impact. The removal of Japanese Knotweed currently on site would also result in a slight positive permanent impact.

Monitoring

12.4.21. No monitoring is proposed for land and soils outside of monitoring for the success of invasive species removal and monitoring for construction induced settlement. I consider this to be acceptable.

12.4.22. **Water - Ringsend WwTP**

Introduction and Existing Environment

12.4.23. This section of my report should be read in conjunction with the section – Principle and water quality set out under the planning assessment above. Section 4 of the EIAR in Volume 3 addresses the water environment at the Ringsend WwTP. The assessment of water focuses on the discharge from the treatment plant and considers the impact that would arise from the increase in flow and the improvement in the effluent quality. Groundwater/hydrogeology is considered separately under Section 7 (Land and Soils) of the EIAR (Volume 3) and I have dealt with this under the heading of Land and Soils above. The principal wastewater discharge point is located in the Poolbeg power station cooling water discharge channel in the Liffey Estuary and a stormwater overflow discharge point is located at Pigeon House harbour.

12.4.24. The required standards for the final effluent discharge are set out in the EIAR and are presented in Table 1 within the planning assessment section above. While the required ELVs relate to total Nitrogen (N) and total Phosphorous (P), water quality legislation and the assessment carried out in the computer modelling considered the parameters DIN and MRP. DIN is related to total Nitrogen as it represents the soluble organic fraction in water, available for biological uptake. Similarly, MRP is related to total Phosphorous representing the soluble organic fraction available for biological uptake. Total N and Total P include insoluble inorganic and soluble organic fractions which are not measured as part of DIN and MRP. The future DIN is

estimated to be between 80% and 90% of Total N and the future MRP is estimated to be between 70% and 80% of Total P.

- 12.4.25. The computer models used in the assessment included DHI MIKE 3 FM model and CEFAS CDPM model. The DHI MIKE 3 FM model is a hydrodynamic model and was used to analyse how the final effluent discharge disperses within the receiving water, while the CEFAS DCPM model was used to analyse the biological response (chlorophyll and macroalgae) to the final nutrients (nitrogen and phosphorous) inputs in the effluent being discharged into the receiving water. The CEFAS DCPM model focused on the Tolka Estuary, as the DHI MIKE3 model identified the Tolka Estuary as experiencing the highest impact from the Ringsend WwTP final effluent discharge. Both models drew on available scientific data and data collected from marine surveys. Water quality in the receiving water is monitored on an ongoing basis by the EPA and Dublin City Council and is therefore well understood. The MIKE 3 model was constructed from available data and refined and calibrated using additional marine survey results. It was then validated by comparing ongoing field sampling of the receiving waters (BOD, DIN and MRP). The DCPM model was calibrated from the boundary conditions identified in the MIKE 3 model at the entrance to the Tolka estuary.

Potential Impacts

- 12.4.26. The main changes in water quality arising from the upgraded Ringsend WwTP would be positive in that there would be a higher quality of treated effluent achieved and a reduction in pollutants released to the water environment.
- 12.4.27. The proposal to omit the LSOT and associated diffuser point 9 km out to sea would mean that there would be no deterioration of water quality at this location.
- 12.4.28. It was assessed through the modelling that as a result of the Ringsend WwTP upgrade, once complete and operational, there is a predicted positive imperceptible impact on the receiving water environment in respect of BOD and SS. In respect of ammonia, there is a predicted positive moderate impact. A reduction in the total DIN load discharged from the Ringsend WwTP is predicted and would be experienced primarily in the Tolka Estuary. The overall impact from the change in DIN discharge is considered positive and imperceptible. The impact of the Proposed WwTP

component in respect of the MRP parameter is also predicted as being positive and moderate.

- 12.4.29. It is also predicted that there would be a positive and not significant impact from the Proposed WwTP Component, in respect of the E.Coli parameter, both during normal operation and during storm events. A neutral impact is predicted on designated bathing areas as a result of E.coli.
- 12.4.30. During the construction phase, in the winter of 2019/2020, as stated above some processes would be removed on a phased basis resulting in reduced treatment capacity and hence a reduction in the final effluent quality is predicted. It is submitted that the nutrient (DIN and MRP) levels are not as critical during the winter months. It is also predicted that there would be a negative imperceptible and temporary impact with regard to the BOD and SS during this period. In terms of BOD, the quality standard is predicted as remaining below the 4 mg/l which is the parameter for 'good status' in transitional waters. This has been rated in the EIAR as having minor or slight significance on water. Similar to my consideration of the impact on recreational water based activities (and as assessed under the heading of population and human health), I would be more inclined to conclude that this impact would be 'moderate' rather than 'slight' in terms of significance on the water environment as it is stated in the EIAR, under the heading of Population and Human Health, that the impact would be largely dependent on overall water quality in the area at the time of the works which is stated to be largely carried out over a winter period but with an overlap of nine months.

Mitigation Measures

- 12.4.31. As the impacts on water quality of the receiving waters are identified as positive, no mitigation is proposed or necessary which, noting the intention of the development is to approve quality of effluent to the required standards is acceptable. I am mindful that there is an expected temporary moderate negative impact during the construction phase arising from the removal of some processes as outlined above over winter 2019/2020. While this could be mitigated by extending the specific works over a longer timescale, I accept the point made regarding the benefit of completing the construction over the intended shorter timeframe would bring positive benefits

earlier in the timeline that would outweigh any negative impacts were the timeline to be extended.

Residual Impacts

- 12.4.32. The residual impact of the Proposed WwTP component with respect to water quality would clearly be significantly positive in the long-term, arising from the improved final effluent and the proposed development would ensure the upgraded plant would be consistent with the UWWTD. In addition, the development would serve to protect the status of the receiving waters as required under the WFD and the BWD. As stated above, during the winter of 2019/2020 there would be a moderate impact on water quality for a short period during the period of decommissioning tanks. No long-term impacts beyond positive impacts are anticipated to arise because of these works. Accordingly, a short term moderate impact is acceptable.

Monitoring

- 12.4.33. The final effluent would be monitored in accordance with the terms of the Wastewater Discharge Authorisation (EPA Licence D0034-01) for the plant and this licence would likely be reviewed. Beyond this, no additional monitoring is proposed, which I consider is acceptable.

12.4.34. **Air and Climate - Ringsend WwTP component**

Introduction and Existing Environment

- 12.4.35. Baseline data and data available from similar environments indicates background concentrations in the vicinity of the Ringsend WwTP (2017) as follows:

- Nitrogen dioxide (NO₂) = 32 µg/m³
- Particulates (PM₁₀) = 15 µg/m³
- Particulates (PM_{2.5}) = 10.05 µg/m³
- Benzene = 1 µg/m³
- Carbon Monoxide (CO) = 0.44 mg/m³

- 12.4.36. These all lie below the National and EU ambient air quality standard limits. Records

on prevailing winds were examined from the nearest representative weather station at Dublin airport, located 10 km north of the site.

Potential Impacts

- 12.4.37. Dust deposition arising from the construction phase has the potential to cause temporary slight local impacts at nearby residential properties within a separation distance of up to 200m. The closest residence to the main construction works is c.950m and I am satisfied that the residential receptors are unlikely to be affected by dust emissions from the WwTP site.
- 12.4.38. Vehicles transporting material also have potential to lead to dust generation along haul routes to and from the site. Four residential receptors were identified and modelled to establish the air quality and predicted impacts. Their locations are shown on Figure 8.2 within Section 8 of Volume 3 of the EIAR. I am satisfied that as submitted by the applicant, receptor R03 at Seán Moore Road would be representative of residential development that may be delivered at the Poolbeg SDZ.
- 12.4.39. The maximum impact identified is a predicted increase of 4.6% of NO₂ at receptor R2, deemed to be a slight adverse impact during construction. The potential impact is considered to be insignificant at all other receptor locations. The predicted impact of the proposed WwTP component during the construction phase with regard to PM₁₀ and PM_{2.5}, CO and Benzene is predicted to be imperceptible, short-term and reversible at all four of the receptors assessed and the impact would inevitably decrease post completion of construction works.
- 12.4.40. During the operation phase, there is potential for a number of emissions to be released to the atmosphere. Emissions of NO_x (NO + N₂O) from the nitrifying and denitrifying cycles within the plant could cause an impact to local air quality. However, it is stated that these emissions currently occur on site without issue and with the improved AGS process and improved process control, this would limit the volume of NO_x released.
- 12.4.41. In the operation phase, impacts on air quality would potentially arise as a result of increased traffic volumes which could lead to increased quantities of air pollutants. This impact has been assessed by modelling emissions from the traffic generated. In

this regard impacts of the proposed WwTP component during operation from release of air pollutants (NO₂, PM₁₀ and PM_{2.5}, CO and Benzene) are predicted to be imperceptible.

- 12.4.42. Greenhouse gas emissions produced during construction phase of the proposed WwTP are expected to account for 0.03% of Ireland's EU 2020 target. The AGS option is predicted to give rise to a lower emissions during construction particularly because of lower level of excavations and HGV movements and associated energy consumption.
- 12.4.43. During operation, an overall comparison of power consumptions for both the LSOT and AGS options found that the energy consumption during operation is expected to be comparable for both options. In terms of energy management, it is stated that the WwTP currently operates Ringsend WwTP to energy management standard ISO 50001 and would continue with improvements to achieve economic and energy efficiency including the recovery of renewable energy.

Mitigation Measures

- 12.4.44. During construction, no mitigation is proposed apart from adherence to good practice and the overarching CEMP, including dust minimisation measures. No site-specific mitigation measures are required during the operational phase of the proposed Ringsend WwTP component.

Residual Impacts

- 12.4.45. The assessment concludes that once dust minimisation measures are employed during construction, no negative residual impacts are predicted on the Air and Climate environment as a result of the Ringsend WwTP component. Neither are any residual impacts anticipated during the operational phase of the Proposed WwTP Component. I am satisfied that with the Ringsend WwTP component in place, air pollutants in the local area would be below the National and EU ambient air quality standard maximum limits.

Monitoring

- 12.4.46. During the construction phase, dust deposition monitoring using the Bergerhoff Gauge is proposed such as to ensure dust mitigation measures are adequately

controlling emissions. The TA Luft limit value of 350 mg/m²/day would be applied during the monitoring period of between 28 - 32 days. No monitoring of dust is proposed during the operational phase, which, given that all biosolids would be stored indoors, is acceptable.

12.4.47. **Noise and Vibration - Ringsend WwTP component**

Introduction and Existing Environment

12.4.48. Noise and Vibration are considered together under Section 9 of Volume 3 of the EIAR. The residential receptors most sensitive to noise are identified as including houses along Strand Road (R131), which are located approximately 950m to 1,250m from the nearest boundary of the WwTP. The assessment considered the impacts on these receptors and also Poolbeg West SDZ lands, which have been identified for residential development, where the nearest receptor (R03) would be located 600m from the construction compound (C1). BS 5228-1:2009+A1:2014 sets out guidance on permissible noise levels relative to the existing noise environment and based on this, the proposed threshold for the Ringsend WwTP proposal would be 70 L_{Aeq(1 hour)} dB (daytime), 65_{Aeq(1 hour)} dB (evening) and 55_{Aeq(1 hour)} dB (night-time) at the nearest noise sensitive receptor.

12.4.49. By reference to BS8233:2014, during the operational phase, the following noise limits would apply at the façades of residential properties closest to the Ringsend WwTP project:

- Daytime (07:00 to 23:00 hours) 55 dB_{L_{Aeq,16hour}};
- Night-time (23:00 to 07:00 hours) 45 dB_{L_{Aeq,8hour}}.

12.4.50. Vibration was considered across the category of human comfort and cosmetic damage. The allowable vibration limits were applied to nine residential receptors, marked R01 to R08 and R11 on Figure 9-2 Vibration Sensitive Receptors within Section 9 of Volume 3 of the submitted EIAR. Vibration impacts on Pigeon House Fort (a protected structure immediately partially within the site) and Old Pigeon House Hotel (a protected structure located further north) were also considered.

Potential Impacts

12.4.51. Typical construction noise is predicted to arise during the construction phase, which

due to the size of the site and the scale of the works, could be significant during daytime. Construction hours proposed are 08:00 to 18:00 for week days and from 08:00 to 13:00 on Saturdays. These are standard and acceptable. The predicted external construction noise levels are predicted to fall within the relevant noise criteria over the construction phase during both the capacity upgrade and the proposed retrofit works to incorporate AGS technology.

- 12.4.52. The level of construction traffic noise would be significantly below the prevailing existing daytime noise levels and just slightly above evening time noise levels. Overall, the impact of construction-related traffic on public roads is regarded as insignificant.
- 12.4.53. Noting the distance of the piling works from the closest sensitive structure (the wall of Pigeon House Fort), the expected vibration levels are estimated to be significantly below the limits recommended to prevent cosmetic damage to sensitive buildings or structures. Vibration impacts arising out of construction traffic are deemed to be insignificant.
- 12.4.54. For the operational phase, noise models predict noise levels would be in the region of 15dB to 35dB at nearby residential receptors. Such levels are at or below existing background noise levels and well below the 45dB night time threshold set out in the British Standard BS8223:2014.
- 12.4.55. During the operation phase, the proposed AGS reactor block is stated would provide additional acoustic screening to the existing plant items on the site. It is envisaged that a reduction in operational noise level of between 3 and 5dB could result once the reactor block is in place and the impact of the proposed WwTP component during operation can therefore be considered slight positive. Noise associated with traffic during operation is assessed as insignificant.
- 12.4.56. No impacts are expected to occur as a result of vibration during operation.
- 12.4.57. Discussion on the potential noise impacts of the development on local fauna is dealt with above under the heading Biodiversity – Terrestrial.

Mitigation Measures

- 12.4.58. During construction, the appointed contractor would be required to prepare and adhere to a Noise and Vibration Management Plan (NVMP) which would include measures to manage and remove or reduce any significant noise and vibration impacts arising at construction stage.
- 12.4.59. Mitigation for the operation phase would include a number of items, such as selection of 'low noise' equipment and plant, vibration isolation mounts and appropriate siting of fixed plant.

Residual Impacts

- 12.4.60. The assessment concludes that once best practice measures are employed during construction and operation phases, noise and vibration generated would fall within acceptable limits which is acceptable. For further assurances in this regard, these should be regulated by condition.

Monitoring

- 12.4.61. The assessment concludes with a recommendation that the appointed contractor monitor levels of noise and vibration at nearby sensitive locations and/or development site boundaries.

- 12.4.62. **Odour - Ringsend WwTP component**

Introduction and Existing Environment

- 12.4.63. It is well reported that the Ringsend WwTP caused an odour nuisance to the local community in the early years. More recently, a number of measures were put in place to control odour and this coupled with odour management are stated to have been successful in significantly reducing odour nuisance at the plant.
- 12.4.64. It is stated that further works are ongoing including the recent provision of the three new Bord na Móna Odour Control Units (OCUs).

Potential Impacts

- 12.4.65. The potential odour impact is assessed by reference to two standards which are:

1. **Ringsend Project Odour Goal** – This standard is specific to the Ringsend WwTP and requires that odour emanating from the site shall not exceed $10 \text{ ou}_E/\text{m}^3$ as the 99.4th percentile of hourly averages at the boundary of the Ringsend WwTP site. The plant storm tanks are not included in the assessment of this odour goal.
2. **Ringsend Odour Target** - This is a general standard and relates to EPA Guidance in which an odour limit of $3 \text{ ou}_E/\text{m}^3$ is set at sensitive receptor locations on a 98th percentile of hourly averages. Once odour concentrations lie below this level, odour annoyance is unlikely to occur. The plant storm tanks are included in the assessment of this odour goal.

- 12.4.66. The likely odour to occur was assessed using the United States Environmental Protection Agency (US EPA) approved AERMOD model, which is a dispersion model based on the Gaussian theory of plume dispersion. I am satisfied that this method is widely used in Ireland and internationally for assessment of odour and is appropriate for the current proposals.
- 12.4.67. It is reasonable to accept the applicant's assertion that there is no likely significant odour impact anticipated as a result of construction activity. Post construction, the assessment concludes that the maximum predicted concentrations at the site boundary would fall between 6.20 and 7.30 ou_E/m^3 , as the 99.4th percentile of hourly averages, which is less than 75% of the assessment criterion 'Project Odour Goal' of $10 \text{ ou}_E/\text{m}^3$. The improvements in odour due to the expected reduced odour emission from the open sources is predicted to reduce the odour concentration by between 5% and 13% compared to the future 'baseline/without project' scenario.
- 12.4.68. The results of the odour assessment found that the predicted odour concentrations at all areas of long-term public exposure and potential areas of future residential use, including the Poolbeg West SDZ, would lie below the adopted limit of $3 \text{ ou}_E/\text{m}^3$ as the 98th percentile of hourly averages. The area occupied by the construction compound C1, included in the Poolbeg West SDZ is designated for mixed uses, predicted to have an odour concentration of between 1 and 8.5 ou_E/m^3 as the 98th percentile of hourly averages. These lands are stated to be in the ownership of Dublin Port and based on examination of the Dublin Port Masterplan, the lands shown are currently proposed to be redeveloped to support cargo handling activities.

The primary planned use of these lands is set out in the masterplan as one which would provide sufficient land capacity for the throughput of the new 600-metre-long container terminal quay wall. In its report to the Board on the current application, Dublin City Council SDZ team state that the lands are proposed to be utilised for cargo storage. I am satisfied that such a use would not be sensitive to odour and is well understood in advance of its development.

- 12.4.69. It is also of particular relevance to note that in comparing the implementation of the proposed WwTP component scenario to the future 'without project' scenario, the proposed WwTP component would result in an imperceptible positive impact as a result of a slight reduction in odour concentration at existing receptor locations.

Mitigation Measures

- 12.4.70. It is submitted that the principles of the site Odour Management Procedures (OMP) would be followed to include odour management for the construction phase of the new processes.
- 12.4.71. During operation, the site OMP would be updated to reflect odour management of new processes and identification of new odour emission sources for operational, management and maintenance procedures. Certain new sources associated with the upgrade would be covered and treated.

Residual Impacts

- 12.4.72. It has been demonstrated through the assessment that once mitigation and best practice measures are employed during construction and operation, negative impacts are not predicted on the environment as a result of odour emanating from the Ringsend WwTP upgrade.
- 12.4.73. Dublin City Council's Parks and Landscape Service considered the issue of odour impact to the adjacent nature reserve and coastal recreational area and concluded that as the facility is designed to achieve appropriate odour standards and that odour nuisance is not expected to occur. I am satisfied that this has been determined through assessment.

Monitoring

12.4.74. It is proposed to monitor odour sources at the Ringsend WwTP to ensure the effective management of the facility including olfactometry survey of elements, of the converted AGS reactors.

12.4.75. **Land and Soils - RBSF component**

Introduction and Existing Environment

12.4.76. Site investigations carried out in 2001 and 2017 revealed that the RBSF site comprises cohesive glacial tills underlain by sand/gravel on silt (with organics) on a layer of made ground. Bedrock comprising weathered limestone was encountered at depths between 13m and 22.3m bgl. No contaminated soil was encountered at the site. Huntstown Quarry to the south west of the site is a county geological site, designated because the limestone quarry face exposes the base of Tober Colleen, an important geological formation.

12.4.77. According to the GSI mapping, the aquifer classification is Li (locally important). The water quality status in the area is rated as 'good' and it is not considered at risk of deterioration. Groundwater varies from 2.6m to 10.1m in depth below ground across the site with groundwater flows towards the south west and stated to be influenced by the dewatering activities in the Huntstown quarry.

12.4.78. The GIS groundwater mapping classifies the groundwater vulnerability as 'Extreme' (<3m of overburden), though it is stated that the bedrock aquifer is in fact greater than 10m of low permeability glacial till and, accordingly, can be reclassified as 'low', which indicates that infiltration is low and runoff is high. There are no groundwater supply wells within a 10km radius of the site. It is submitted that the site has been determined as not suitable for quarry reserves.

Potential Impacts

12.4.79. There would be no alteration to the existing groundwater flow regime or impact on the available groundwater resource as a result of the development and I am satisfied that no such impacts would therefore arise.

12.4.80. Unsuitable material excavated for foundations and site levelling would be reused on

site for bunding and landscaping. Accordingly, no significant impacts are likely as a result of earthworks.

- 12.4.81. During construction and as a result of excavations, there is potential for an increase in aquifer vulnerability due to a reduction in depth of overburden in those construction and excavation areas and this may lead to potential for migration of contaminants (from accidental spills) to the underlying bedrock aquifer. However, due to the thickness of overburden, stated to be 19.3 m - 22.3 m, in the vicinity of the areas where excavations would occur and the low groundwater vulnerability classification based on site specific information, I am satisfied with the conclusion put forward by the applicant that the impact arising out of a reduction in overburden depth on the groundwater quality would be imperceptible.
- 12.4.82. During the operational phase, the development is not predicted to impact on the geological heritage site within Huntstown quarry. The impact on the groundwater resource due to loss in recharge area would be imperceptible. The impact of accidental spillages on soils is also assessed as imperceptible.
- 12.4.83. The development would also lead to indirect positive effects regarding land spreading by providing storage for periods when land spreading is not permitted (due to seasonal restrictions) and therefore ensuring avoidance of adverse environmental impacts on receiving waters in accordance with Nutrient Management Plans.

Mitigation Measures

- 12.4.84. For the construction phase, the overarching mitigation measure is the implementation of a CEMP, which would ensure good construction management and protection of the environment. A site-specific waste management plan would be required to be prepared and adhered to by the contractor. Measures set out in the CIRIA guidance document on 'control and management of water pollution from construction sites' are stated to be adhered to. Suitable excavated materials would be utilised for landscaping and screening bunds. No operational impacts are anticipated on the land, soils and hydrogeological environments and, as such, no specific mitigation is proposed with regard to the RBSF component.

Residual Impacts

- 12.4.85. I am satisfied with the conclusion drawn on the applicant's assessment that with mitigation in place, no negative impacts beyond imperceptible are predicted on land and soils for either the construction or operation phases of the RBSF component.

Monitoring

- 12.4.86. No monitoring is proposed, which I am satisfied is acceptable.

12.4.87. Water - RBSF component

Introduction and Existing Environment

- 12.4.88. A tributary of the Huntstown Stream, which itself is a tributary of the River Ward, borders the site to the west and south. The drainage from the Huntstown Quarry, located to the south west of the site, also feeds into this network. These are shown in Figure 4-1 (Proposed RBSF Site Location) within Section 4 of Volume 4 of the EIAR. There is a surface water pipe traversing the site in an east-west direction which drains an adjoining site. It is planned to relocate this pipe to allow for the development of the RBSF facility.
- 12.4.89. Water samples were taken from the stream adjoining the western boundary of the site to provide baseline data on the water quality upstream and downstream of the proposed discharge point for the surface water runoff from the proposed RBSF Component. The analysis revealed elevated calcium and sulphate concentrations, which it states is reflective of activities at Huntstown quarry, including cement leaching. It is concluded that the stream is already quite polluted at the upper perimeter of the proposed RBSF component site due to upstream pressures. This is at variance to the 'good' status assigned under the WFD, which it is stated is based on samples collected in the Ward River at Owens Bridge, located c. 1.7km downstream to the north east.

Potential Impacts

- 12.4.90. In the absence of control measures, potential impacts could arise during construction from an increase in suspended solids and pollutants reaching watercourses. During construction, no hydromorphological impacts are predicted on streams or rivers as

there are no proposals for excavations within or altering the receiving stream. During operation, it is submitted that no impacts would arise from fluvial flooding as the site is located in Flood Zone C (based on the Flood Risk Guidelines) and also no risk would arise from pluvial flooding as the drainage design would include attenuation measures resulting in no increase in the risk of pluvial flooding from the site. I have dealt with the issue of flood risk in greater detail within the Planning Assessment section of this report.

12.4.91. The main impact that could potentially arise on the receiving stream would be as a result of accidental spillages of chemicals, hydrocarbons or other contaminants entering the drainage system and discharging to the stream thereafter. Given the inherent control measures including hydrocarbon interceptors, silt traps/sedimentation and attenuation prior to discharge to the watercourse, impacts would be no greater than imperceptible in significance.

12.4.92. During operation, in the event of a fire, the firefighting water could become contaminated and enter the receiving water through the drainage system. The significance of this potential impact is predicted as slight negative and temporary in duration.

Mitigation

12.4.93. In the construction stage, the overarching measure proposed is the adherence to the site-specific CEMP and standard best practice such that would protect water quality. It is submitted that measures set out in the CIRIA on the 'control and management of water pollution from construction sites' would be implemented and that construction works in the vicinity of the stream on the western boundary of the site would be undertaken in accordance with the requirements of the IFI 'Guidelines on Protection of Fisheries during Construction Works in and Adjacent to Waters' (2016).

12.4.94. During operation, the drainage has been designed to follow best practice and includes mitigation measures embedded in the design in the form of attenuation, adoption of SuDS and incorporation of hydrocarbon interceptors to capture hydrocarbons / chemicals that might otherwise enter the adjoining receiving water. A shut-off valve is proposed to be installed on the outlet to the stream, which would be used to contain any contaminated runoff in the event of a major environmental

accident on site. In the event of a fire, water used for fire-fighting would be contained in the attenuation storage system.

Residual Impacts

- 12.4.95. I am satisfied that the residual impact on the hydrology and the receiving water environment following the implementation of this mitigation measure would be neutral and imperceptible.

Monitoring

- 12.4.96. No monitoring is proposed, which I am satisfied is acceptable.

- 12.4.97. **Air and Climate - RBSF component**

Introduction and Existing Environment

- 12.4.98. Baseline data and data available from similar environments indicates background concentrations in the vicinity of the RBSF as:

- Nitrogen dioxide (NO₂) = 29 µg/m³
- Particulates (PM₁₀) = 18 µg/m³
- Particulates (PM_{2.5}) = 11.9 µg/m³
- Benzene = 1 µg/m³
- Carbon Monoxide (CO) = 0.5 mg/m³

- 12.4.99. These all lie below the National and EU ambient air quality standards limits. Records of prevailing winds were examined from the nearest representative weather station at Dublin Airport, located 4.5 km east of the site.

Potential Impacts

- 12.4.100. Dust deposition arising from the construction phase has the potential to cause temporary slight local impacts at nearby residential properties within a 200m radius from the site. At the time of the applicant's assessment there were three residential properties located less than 50m from the proposed site along with two commercial premises located within 300m of the site. The risk of dust impacts arising from the

proposed RBSF component was assessed as being no greater than low. It is noted in the EIAR that subsequent to the assessment of Air and Climate, two of the three residential receptors (houses) were demolished and a residential development comprising eight houses and community building had since commenced. I accept, that as submitted by the applicant, this change would not alter the outcome of the assessment carried out.

- 12.4.101. Greenhouse gas emissions produced during the construction phase for the RBSF are expected to account for 0.00075% of Ireland's EU 2020 target and, therefore, impacts are stated would be imperceptible.
- 12.4.102. In the operational phase, I would agree that the transport of biosolids material would give rise to the greatest source of dust emissions with potential to impact on the nearby sensitive receptors including the existing houses and the residential development that is under construction. As the internal access roads are proposed to be paved, the overall risk of dust soiling is predicted to be low.
- 12.4.103. It is predicted that any potential impacts to climate as a result of the proposed operation phase of the RBSF component would be imperceptible. I note that solar panels are proposed to be incorporated on the roof of one of the buildings and would generate substantial portion (c.40%) of the energy requirements for the proposed RBSF component.

Mitigation Measures

- 12.4.104. During construction, a schedule of dust control measures has been incorporated into the CEMP and the adherence to the measures of the CEMP would be a requirement. Vehicles delivering biosolids material would be enclosed and the vehicles would have restricted speeds. Roads outside of the site are stated would be cleaned on an ongoing basis, as necessary.
- 12.4.105. During the operation phase, there is potential for dust emissions as a result of the storage of biosolids material. Measures taken to reduce the risk of dust impacts off-site would include loading and unloading of biosolids within sealed buildings and, if necessary, the establishment of a wheel-wash facility.
- 12.4.106. The impact of the proposed RBSF component on climate would be imperceptible,

therefore, no site-specific mitigation is proposed, which based on my assessment, is acceptable.

Residual Impacts

12.4.107. The assessment concludes that once dust minimisation measures are employed during construction and operation, impacts on the Air and Climate environment have been assessed to be insignificant as a result of the RBSF component. In addition, there are no residual impacts to air quality or climate envisaged as a result of the operation of the proposed RBSF Component.

Monitoring

12.4.108. During the construction phase of the Proposed RBSF Component monitoring of construction dust deposition would be put in place to ensure emissions are controlled.

12.4.109. **Noise and Vibration - RBSF component**

Introduction and Existing Environment

12.4.110. Baseline data for noise relating to the RBSF site was found to be typical of a suburban setting and close to a busy regional road network and aircraft flightpaths. The nearest noise sensitive receptors include the house and the residential units under construction to the south east of the site.

Potential Impacts

12.4.111. With employment of best practice, construction noise is expected to fall within acceptable noise limits set out in BS 5228-1:2009+A1:2014. Noise impact is therefore considered to be insignificant to slight negative and short term. It is submitted that construction related traffic noise would lie below the prevailing road traffic noise levels.

12.4.112. Vibration during the construction phase is not expected to result in any perceptible changes at the nearest receptors.

12.4.113. Increase in noise levels during the operation phase is predicted to be less than one dBA, which can be rated as insignificant.

12.4.114. Vibration during the operational phases is not expected to result in any perceptible changes at the nearest receptors and has been assessed as insignificant.

Mitigation Measures

12.4.115. All construction works would be required to be completed in accordance with best practice standards.

12.4.116. The contractor would be required to prepare and adhere to a Noise and Vibration Management Plan (NVMP), which would deal with measures concerning noise and vibration arising from the construction phase.

12.4.117. Noise would be required to meet the following limits at the nearest sensitive receptor during construction:

- 70 L_{Aeq} (1 hour) dB – Daytime (07:00 – 19:00) and Saturdays (07:00 – 13:00)
- 65 L_{Aeq} (1 hour) dB – Evening (19:00 – 23:00)
- 55 L_{Aeq} (1 hour) dB – Night time (23:00 – 07:00)

12.4.118. Mitigation for the operation phase would include a number of items such as selection of 'low noise' equipment and plant, vibration isolation mounts and appropriate siting of fixed plant. During the operational phase, noise arising from the facility would be required to achieve the following limits, when measured at the nearest noise sensitive receptor:

- 55 dB $L_{A,T}$ Daytime (07:00 to 19:00 hrs);
- 50 dB $L_{A,T}$ Evening (19:00 to 23:00 hrs);
- 45 dB $L_{A,T}$ Night-time (23:00 to 07:00 hrs).

Residual Impacts

12.4.119. The assessment concludes that once mitigation and best practice measures are employed during construction and operation, no negative impacts beyond imperceptible are predicted on the environment from noise and vibration emanating from the RBSF component as it is predicted that levels would all fall within appropriate limits.

Monitoring

12.4.120. A recommendation is put forward that the appointed contractor would monitor levels of noise and vibration at nearby sensitive locations and/or the proposed RBSF component site boundaries during the construction phase and at commissioning stage.

12.4.121. **Odour - RBSF component**

Introduction and Existing Environment

12.4.122. The area immediately surrounding the proposed RBSF site including the residential properties would be the most sensitive receptors to odour impacts. The wider area is largely considered to be free from odour-generating sources.

Potential Impacts

12.4.123. I am satisfied that there would not be any noticeable odour emissions during the construction phase of the development. All potential odour impacts are limited to the operational phase.

12.4.124. The material to be stored is that of treated, de-watered and stable biosolids in a manner that is highly regulated. It would be stored indoors under a controlled environment.

12.4.125. The applicant's odour assessment concluded that the odour effects would not be significant as odour concentrations at all receptor locations were identified as falling below $3 \text{ ou}_E/\text{m}^3$ as the 98th percentile of hourly averages.

Mitigation Measures

12.4.126. I am satisfied that no mitigation is required for the construction phase. During operation, the facility would employ an odour management regime that would ensure that physical systems and operational practices minimise the potential for odour emissions.

Residual Impacts

12.4.127. No residual impacts are predicted for the construction stage. During operation, the adopted odour annoyance criterion of $3 \text{ ou}_E/\text{m}^3$ as the 98th percentile of hourly

averages is not predicted to be exceeded at any receptor location, which is acceptable.

Monitoring

12.4.128. It is proposed to monitor odour sources at the RBSF during the operational phase to ensure that actual emissions do not exceed those predicted within the assessment. The monitoring would include Olfactometry testing.

12.4.129. **Conclusion on Land, Soils, Water, Air and Climate**

12.4.130. Having regard to the above, I am satisfied that the impacts identified would be avoided, managed or mitigated by measures forming part of the proposed development, proposed mitigation measures and measures within suitable conditions. I am therefore satisfied that the proposed development would not have any unacceptable significant direct, indirect or cumulative impacts on **Land, soils, water, air and climate**.

12.5. **Materials Assets, Cultural Heritage and Landscape**

12.5.1. **Material Assets - Ringsend WwTP**

Introduction and Existing Environment

12.5.2. The land around the Ringsend WwTP site comprises industrial and storage facilities. The Dublin Waste to Energy Plant lies immediately west of the site. The ESB power generation plant and Synergen Dublin Bay Power Plant are located proximate to the Ringsend WwTP. Dublin Port is located across the Liffey and existing passenger ship facilities at Alexandra Basin are currently being upgraded as part of a redevelopment programme.

12.5.3. The Poolbeg Peninsula is an important amenity used by members of the public for walking, cycling and water-based leisure activities. The Great South wall is a particular focus of leisure activity in the area. Clanna Gael Fontenoy GAA club, situated at Seán Moore Park lies c.1km from Ringsend WwTP. Irishtown athletics track and stadium are also close by, c.1.4km to the west. North of the bay there are recreational facilities and clubs in the Clontarf/Sutton/Howth area. Dublin Bay has become popular for water-based activities.

- 12.5.4. As stated earlier, the neighbouring site has been designated as the Poolbeg West 'Strategic Development Zone' (SDZ). Irishtown, Ringsend and Sandymount villages are the main residential and commercial areas within a two kilometre radius of the site. There are no residential areas or retail properties within 500 metres of the site.
- 12.5.5. The site is serviced by water, electricity, telecoms and gas utilities. The National Oil Reserves Agency manages Ireland's emergency oil stocks, through holding tanks at Pigeon House road, c.300 metres from the perimeter of Ringsend WwTP site.
- 12.5.6. The existing road network includes: Pigeon House road, Shellybanks Road, Whitebank road, South Bank road, R131 Seán Moore road, York Road, R131 East Link Bridge, North Wall Quay and East Link road. Traffic is described and impacts relating to traffic are assessed under the heading of Traffic, as set out in my Planning Assessment above.

Potential Impacts

- 12.5.7. During construction, the road network surface is predicted as experiencing a moderate short-term negative impact due to wear of road surfaces and periods of roadworks as a result of additional construction traffic anticipated. Impacts on the road network during operation has been assessed as having no greater than imperceptible impact.
- 12.5.8. Potential negative impacts on existing public utilities could arise due to the severing of existing utility networks (including electricity or gas) during the construction phase of the Proposed WwTP component, thus disrupting supply to the WwTP and to the surrounding facilities.
- 12.5.9. During operation, I am satisfied that potential for impacts on material assets would be no greater than imperceptible.
- 12.5.10. When completed the upgrade of the Ringsend WwTP would result in a significant long term positive impact, because of the provision of increased wastewater treatment capacity and the improved quality of treated effluent, thus facilitating future sustainable growth of the Greater Dublin Region.

Mitigation Measures

- 12.5.11. Mitigation measures would include the preparation and adherence to a Traffic Management Plan for the construction phase. Any damage arising to the road network is stated would be addressed in conjunction with Dublin City Council roads department. The appointed contractor would be required to engage with public utility providers in advance of any excavation in the vicinity of such services.
- 12.5.12. Apart from preparation of method statements to ensure public utilities are protected and communication with public utility providers ahead of construction, I would agree that no specific mitigation is required during the operation phase. Method statements would be developed during the construction phase to ensure underground services are well understood in advance of onsite excavations.

Residual Impacts

- 12.5.13. Following the implementation of mitigation measures, the residual impacts of the material assets arising out of the construction and operation phases of the proposed Ringsend WwTP component are stated to be no greater than imperceptible.
- 12.5.14. Significant positive remaining impacts on wastewater treatment would result.

Monitoring

- 12.5.15. No monitoring is proposed and I am satisfied that there is no such monitoring requirement in terms of material assets.
- 12.5.16. **Cultural Heritage - Ringsend WwTP component**

Introduction and Existing Environment

- 12.5.17. One protected structure, RPS Ref. 6794 (remnants of Pigeon House Fort) lies partially within the Ringsend WwTP site. There are three others in the vicinity of the site (the former Pigeon House Hotel RPS Ref. 6795, Pigeon House power station RPS Ref. 6796 and Great South Wall RPS Ref. 6798).
- 12.5.18. The area around Pigeon House Harbour to the east of the site is designated as a Conservation Area under the Dublin City Development Plan. A small area located between the principal WwTP and the storm tanks to the north is a designated Zone

of Archaeological interest.

- 12.5.19. There are two Recorded Monuments located partly within the Ringsend WwTP site which include DU019-027 (Dublin South City Blockhouse) and DU019-029002 (Dublin South City Sea wall).

Potential Impacts

- 12.5.20. Construction activities including excavations and vibrations from driving piled foundations could impact on Pigeon House Fort and Pigeon House Harbour. There is also potential to cause accidental vehicular damage to the structure of the Fort Wall. The access works within the interior of the Pigeon House Fort would require topsoil stripping for the access road and have the potential to uncover material associated with the fort. In addition, cranes would be located within the footprint of Pigeon House Fort and would require the placement of hardstanding materials which could impact on subsurface archaeological material. During construction, works in the area of construction compound C3 has the potential to cause accidental vehicular damage to a paved area east of Pigeon House power station.
- 12.5.21. The development is proposed to omit the construction of the undersea tunnel / LSOT and therefore, I am satisfied that no underwater survey is required for the current proposal. No potential impacts on cultural heritage during the operational phase of the proposed WwTP component have been identified.

Mitigation Measures

- 12.5.22. During construction, vibration from piling would not exceed allowable vibration limits for sensitive buildings. The walls of Pigeon House Fort would be protected with concrete barriers during construction. The site preparation within the interior of the Pigeon House Fort, including topsoil stripping for the access road and hardstanding areas, would be subject to archaeological monitoring which I propose should be strengthened by way of a planning condition.
- 12.5.23. As no impacts on cultural heritage are predicted during the operational phase, no mitigation measures are required or proposed, which is acceptable.

Residual Impacts

- 12.5.24. The assessment concludes that once mitigation measures are employed during the construction phase, no negative impacts are predicted on the cultural heritage as a result of the Ringsend WwTP component.

Monitoring

- 12.5.25. Certain aspects of construction work that could impact on Pigeon House Fort would be monitored by a suitably qualified archaeologist, as outlined under the mitigation measures above. Beyond this, no further monitoring is proposed.

12.5.26. **Landscape – Ringsend WwTP**

Introduction and Existing Environment

- 12.5.27. The proposed Ringsend WwTP component is located on the site of the existing Ringsend WwTP, which is on the Poolbeg peninsula. The site is of a low landscape and visual sensitivity and does not have any specific landscape or visual-related designations, however and as set out above, the peninsula is important as an amenity and recreational resource. The proposal would result in an extension to the existing wastewater utility. The existing facility is more readily visible from local views, including those from the nature park south of the plant and those from Shellybanks Road and Shellybanks beach to the east. A planted belt on a mound of c.3m high provides for a landscape and visual buffer along the majority of the eastern and northern boundaries of the Ringsend WwTP site.

- 12.5.28. Dublin Bay has been awarded Biosphere Designation by UNESCO and the site is located in an area known as a Transition Zone. No national landscape or visual designations pertain to the site. There are multiple policies and objectives contained in the Dublin City Development Plan 2016-2022 concerning landscape and visual amenities, including policies to maintain the character of the coastline and Dublin Bay.

Potential Impacts

- 12.5.29. Construction activity would be most visible from local areas adjoining the site. There would be views of construction activity and cranes during the construction phase,

which is planned for up to a 10-year period. Construction activities are normal in this area and I am satisfied that in terms of landscape and visual impacts, these can be rated for the most part as slight short-term impacts at a local level along the adjoining public roads. The use of the southern construction compound area, C1, could give rise to temporary slight to moderate landscape and visual impacts to Irishtown Nature park to its south. The formation of a new entrance off Pigeon House Road would require the removal of a small area of semi-mature planting, which I consider would give rise to slight visual impact at a local level. Moving away from the site, the proposed development would result in imperceptible landscape and visual impacts.

- 12.5.30. During the operation stage, new structures would be consistent with the character of the existing development. Some new structures including the proposed phosphorous facility measuring c. 40m x 20m x 20m in height would be visible from Irishtown Nature Park and from Shellybanks Road/Beach. I have examined the photomontages presented from nine viewpoints. I am satisfied that where views of the development would be discernible, these would continue to be consistent with the current WwTP facility. The site is for the most part characterised by heavy industrial and port uses and the proposed WwTP component would not have any other direct impacts on landscape or visual character of the area.

Mitigation

- 12.5.31. During construction, screening is proposed to be erected/maintained in place on the southern and eastern site boundaries and around temporary compounds, which I am satisfied would also serve as a security barrier. Existing trees and shrub planting located along Pigeon House Road is proposed to be retained and protected. Additional shrubs and trees would be added in accordance with a landscape plan and I propose that such a requirement would be attached by way of a planning condition in the event of a grant of planning.
- 12.5.32. Following construction, all construction compound areas are stated would be required to be fully reinstated.
- 12.5.33. For the operational phases, proposed landscape works would be maintained and replaced as necessary.

Residual Impacts

- 12.5.34. It is concluded in the assessment that once planting is reinstated and matures, the residual landscape and visual effects would be imperceptible in the wider area post construction. Locally, some degree of visual change would be discernible, however, this would continue to be consistent with the existing visual environment.
- 12.5.35. I would therefore conclude that the landscape and visual impact resulting from the proposed development would be imperceptible and acceptable.

Monitoring

- 12.5.36. No monitoring is proposed.

12.5.37. **Material Assets - RBSF**

Introduction and Existing Environment

- 12.5.38. The area in the vicinity of the proposed RBSF is within a mix of agricultural and industrialised areas, interspersed with commercial and residential properties, including those under construction.
- 12.5.39. Public utilities such as water, telecoms and partially developed foul and surface water drainage networks exist on the site and both a 38 kV and a 110 kV electricity supply lines traverse the site. A gas transmission line has been completed to serve the adjacent Huntstown Power station, but this line lies outside of the RBSF site. The site is 1.5 km west of Dublin Airport. Recreational facilities and amenities within the immediate area are limited and include the Ward River, three golf clubs and St. Margaret's GAA club. Swords lies c.10 km from the site and Ashbourne is c.12 km from the site.

Potential Impacts

- 12.5.40. There is a temporary negative impact predicted on the road network surface quality and minor roadworks during construction due to HGV traffic. Traffic is further considered under my planning assessment above. Negative impacts are not predicted on land utilisation, utilities, water and drainage infrastructure during the construction phase.

- 12.5.41. During operation, potential for impacts on material assets would be no greater than imperceptible.

Mitigation Measures

- 12.5.42. During the construction phase, mitigation measures proposed include the preparation and adherence to a Traffic Management Plan for the construction phase. Specific wheel-washing facilities are proposed to be installed on site, to allow all HGVs exiting the site to be cleaned prior to leaving site. The appointed contractor would be required to prepare and adhere to a contract-specific Construction Environmental Management Plan (CEMP). Method statements on the detection of underground services and drainage infrastructure and the protection of such services would also be a requirement.
- 12.5.43. During operation, wheel-wash facilities are proposed to be installed and all HGVs would be cleaned prior to leaving the site.

Residual Impacts

- 12.5.44. Once mitigation measures have been implemented, no negative residual impacts are predicted on material assets during the construction or operation phases for the RBSF component.

Monitoring

- 12.5.45. No monitoring is proposed and I am satisfied that none is required.

12.5.46. Cultural Heritage - RBSF Component

Introduction and Existing Environment

- 12.5.47. There are no protected structures within the site. There is one such structure within the study area, the remains of Kilshane Motte (Ref: 0662), which was demolished in 1952. The site has been assessed for archaeology by the carrying out of test excavations and no archaeological material was identified.
- 12.5.48. The closest recorded monument to the application site is Newtown Castle, a Motte and Bailey (RMP DU014-013), located 30m north of the site. It is stated to have been demolished in 1952 and now survives as a cropmark and central raised oval area.

Other recorded monuments are located beyond 200m of the site and these are considered to be too far from the site to be impacted on.

- 12.5.49. There are two undesignated monuments, i.e. Sites and Monuments recorded (SMR) sites, outside of the site, but within the study area, the closest of which is a Ring-ditch in Newtown townland (SMR DU014-0100---). This monument is situated 560m north-east of the Site and I am satisfied that it is too far distant to be impacted by the proposed RBSF Component.

Potential Impacts

- 12.5.50. The construction or operational phases would not have direct impacts on any items of cultural heritage, archaeology or heritage interest on site or in the vicinity of the Proposed RBSF Component. The main storage buildings within the overall development site would be situated greater than 100m south of the neighbouring Motte and Bailey, which would be protected by a landscape buffer zone and no impact is therefore likely.

Mitigation measures

- 12.5.51. As no impacts (direct or indirect) have been identified following assessment, no mitigation measures during construction or operational phases are proposed, which I am satisfied is acceptable.

Residual Impacts

- 12.5.52. No negative residual impacts are predicted for the RBSF component.

Monitoring

- 12.5.53. No monitoring is deemed to be required.

- 12.5.54. **Landscape and Visual - RBSF Component**

Introduction and Existing Environment

- 12.5.55. The landscape at the RBSF Component site is relatively flat and open and surrounding land uses include industrial and business developments with houses to the south east adjoining the site. The site is zoned 'HI' in the Fingal Development Plan with a corresponding objective to provide for heavy industry uses. The

proposed site has no specific landscape or visual designations in the Fingal Development Plan 2017-2023. The site was previously partly developed and the proposed construction works would not be out of the ordinary in this utility/industrial landscape setting.

Potential Impacts

- 12.5.56. During construction, visual impacts have been assessed as significant and temporary from the adjacent houses on the R135. Visual impacts on passing views from elevated sections of the N2 are assessed as slight negative for the construction phase. It is submitted, and I would agree, that the works would be consistent with the nature and scale of works that would be expected to arise in any event as a result of the landuse zoning for the proposed site and its environs.
- 12.5.57. Construction works would not have any impact on landscape character, landscape setting, or on views away from the immediate site boundaries or from nearby elevated sections of the N2.
- 12.5.58. In the longer term, while the buildings would be prominent initially, once planting matures and given that buildings of such a nature would not be out of character, I am satisfied that the development would read as part of the emerging and developing landscape.

Mitigation

- 12.5.59. During construction, hoarding (2.4m in height) is proposed to be erected adjoining the sensitive houses, including housing under construction, and construction compounds would be kept away from the south-eastern corner. Landscape measures including a low-level landscaped berm and extensive planting would be completed as part of the construction works. Landscaping would be augmented and managed during the operation phase. Lighting standards are stated to be fitted with horizontal cut-off fittings to avoid light spill.

Residual Impacts

- 12.5.60. No negative residual landscape or visual impacts are predicted for the RBSF component either during construction or operation. The RBSF component would be consistent with the existing land use zoning for the site.

Monitoring

12.5.61. During construction, landscape works are proposed to be monitored by a qualified landscape architect.

12.5.62. **Conclusion on Material Assets, Cultural Heritage and Landscape**

12.5.63. Having regard to the above, I am satisfied that the impacts identified would be avoided, managed or mitigated by measures forming part of the proposed development, proposed mitigation measures and measures within suitable conditions. I am therefore satisfied that the proposed development would not have any unacceptable significant direct, indirect or cumulative impacts on **Material Assets, Cultural Heritage and Landscape**.

12.6. **Vulnerability of projects to Major Accidents and/or Natural Disasters**

12.6.1. The EIA Directive requires consideration on the vulnerability of projects to major accidents and/or natural disasters. This is considered in Section 15 of Volumes 3 (Ringsend WwTP component) and 4 (RBSF component) in the EIAR under the heading of Risk Management. Drawing from the information available and the requirements of the EIA Directive, this matter is considered under.

12.6.2. **Ringsend WwTP component**

12.6.3. At the Ringsend WwTP site, risks of major accident and / or natural disasters could include:

- Damage or breakdown leading to a plant shutdown during construction or operation leading to direct untreated effluent discharge to sensitive waters
- Fire or explosion resulting in significant or widespread damage, including environmental damage on site;
- Incident at adjacent Seveso sites or caused by activities in the harbour and port area leading to shutdown of the WwTP during construction stage;
- Highly-concentrated toxic influent discharged into Ringsend WwTP Network resulting in WwTP shutdown due to breakdown of biological treatment process.

- 12.6.4. While risk of traffic collisions has also been included by the applicant, I am satisfied that such risks are governed by both construction safety and road safety legislation and noting construction safety requirements and traffic management, they would not fall within the specific category envisaged for the consideration on the vulnerability of this element of the project to major accidents and/or natural disasters. I have therefore excluded these from this aspect of this section of my assessment. Traffic impacts including impacts on road safety have been considered in the planning assessment section of this overall report. It is of relevance to also note that when compared to the LSOT option approved and which is now proposed to be omitted.
- 12.6.5. It is put forward in the Risk Assessment that the vulnerability of the Ringsend WwTP to major accident or natural disasters would be medium due to its location proximate to Seveso establishments. I have excluded risk from coastal flooding having regard to the conclusions reached in my assessment of Flood Risk in the planning assessment above that the Ringsend WwTP component would not have any noticeable impact on the existing flood regime.
- 12.6.6. Mitigation measures include those inherent in the project design, fire safety and emergency response plans and safety management systems and environmental incident response plan are outlined. Storm tanks would provide short term storage of effluent discharge. Mitigation considered relevant also includes the Dublin City Council Major Emergency Plan 2010 and the Dublin Port Emergency Management Plan 2013.
- 12.6.7. Post mitigation, the likelihood of risks from each of the above fall into the categories of 'unlikely' and 'very unlikely'. Having reviewed the information on file, I am satisfied that risks from major accident and/or natural disaster and their consequences have been adequately considered. It is the applicant's conclusion that post mitigation, the vulnerability of the Ringsend WwTP component to major and / or natural disasters accidents would remain as medium due to the site location adjacent to a Seveso establishment. I would be inclined to conclude that the adjoining Seveso establishment and others in the area would be operated in accordance with the Seveso / COMAH regulations and I have dealt with this in more detail under the heading of 'Seveso Considerations' in my Planning Assessment above. Given that the proposed site is not itself a Seveso establishment I would therefore rate the

vulnerability as low. I also note and agree with the findings of the assessment that the proposed works would not alter the risk profile of the site or the adjacent Seveso sites, which are regulated under Seveso/COMAH regulations.

- 12.6.8. It is submitted that activities on site would be monitored to ensure risk does not increase over time at the site. In conclusion, I am satisfied that the risk of a major accident or natural disaster have both been adequately considered and given the nature of the development, the low probability of such an occurrence and the mitigation measures proposed, it is not likely that significant effects on the environment would arise in this regard.
- 12.6.9. **RBSF component**
- 12.6.10. Risks of major accident and / or natural disasters identified which would result in a medium risk score (pre-mitigation) have been identified to include:
- Fire resulting in significant or widespread damage on site;
 - Damage to high voltage overhead powerlines crossing the site.
- 12.6.11. Similar to my considerations of the Ringsend WwTP development, I have excluded traffic collisions for the consideration of accidents and/or natural disasters, noting that these risks are governed by separate legislation in terms of construction safety and road safety and are considered in the traffic section of the planning assessment section above.
- 12.6.12. Mitigation measures include those inherent in the design of the RBSF component design, including fire safety and emergency response plans, safety management systems, adequate water supply for fire-fighting and preparation and adherence to an environmental incident response plan.
- 12.6.13. Post mitigation, the likelihood of risks of each of the above fall into the categories of 'unlikely' and 'very unlikely'. Having reviewed the information on file, I am satisfied that risks of major accident and their consequences have been adequately considered and post mitigation, the vulnerability of the RBSF Component to major and / or natural disasters would be low.
- 12.6.14. It is submitted that activities on site would be monitored to ensure risk does not

increase over time at the site.

12.7. **Environmental Interactions**

- 12.7.1. Environmental interactions are addressed within each of the individual sections of both EIAR Volumes 3 and 4 and mitigation and environmental standards are recommended.
- 12.7.2. Table 16-1 (Summary of Interactions) tabulates the interactions, providing a useful tool in understanding the interactions likely to arise with a summary of same provided in Section 16.2 of both Volume 3 (Ringsend WwTP component) and Volume 4 (RBSF component) of the EIAR. For example, water has potential to interact with other environmental factors such as biodiversity, material assets and population and human health. The potential arises for population and human health to interact with all of the other factors (biodiversity, land, soil, water, air and climate, material assets, cultural heritage and the landscape). I have examined the interactions throughout each section of the EIAR for the development proposed at each of the Ringsend WwTP (set out in Volume 3) and RBSF components (set out in Volume 4). I am satisfied that the EIAR documents has satisfactorily addressed interactions. I am also satisfied that the proposed development, including both components, is not, in my view, likely to result in significant adverse impacts in terms of the interaction of individual environmental factors.

12.8. **Cumulative Impacts**

- 12.8.1. Cumulative impacts have been undertaken by each specialist and addressed in each section of the EIAR across Volumes 3 and 4. The assessment focussed on where the impacts of the proposed development have been assessed to be of slight significance or worse, but when combined with the impact of other concurrent or future developments the overall impact may worsen. Where such impacts are identified, additional mitigation measures may be required.
- 12.8.2. Cumulative impacts considered in respect of the Ringsend WwTP in combination with other projects in the area include: discharges to the Liffey Estuary and Dublin Bay, as well as noise, odour, traffic and air quality. Projects that were considered

include: Dublin Waste to Energy, Alexandra Basis Redevelopment, ESB Site Poolbeg Power station, National Oil Reserves Agency, Greater Dublin Drainage and the Poolbeg West SDZ. The EIAR considered cumulative impacts arising from both the construction and operational phases of the Ringsend WwTP component in accordance with the EIA Directive.

- 12.8.3. When all impacts are examined in combination with other projects in the local area and beyond, it is submitted that the proposed upgrade project is not likely to give rise to any significant environmental effects in combination with existing and/or permitted projects in the area.
- 12.8.4. The RBSF was considered in combination with other projects in the area and cumulative impacts are stated to include noise, odour, traffic and air quality.
- 12.8.5. Projects that were considered with respect of the RBSF include: Huntstown Quarry, Huntstown Power Station, Dublin Airport Authority development, Huntstown BioEnergy Limited and the Greater Dublin Drainage project.
- 12.8.6. The cumulative assessment for the RBSF also considered cumulative elements from the GDD project and the proposed Ringsend WwTP Upgrade projects and the existing and/or approved projects associated with the NWSMP.
- 12.8.7. It is also of note that the assessment itself considered the entire project referred to as the 'proposed upgrade project' meaning the totality of the proposed development and the elements of the 2012 approval being progressed.
- 12.8.8. When all impacts are examined in combination with other projects in the local area and beyond, it is submitted that the proposed RBSF is not likely to give rise to any significant cumulative effects when taken in combination with existing and/or permitted projects in the area, including those outlined above. It is also submitted that the proposed RBSF component has been designed to accommodate the biosolids volumes from both the GDD WwTP and the proposed Ringsend WwTP upgrade project components, in a manner that would not give rise to significant environmental effects on the environment.
- 12.8.9. Having reviewed the information on file and considered all of the impacts identified

above, I am satisfied that the proposed upgrade project incorporating the proposed development would not give rise to any unacceptable significant cumulative effects on the environment.

12.9. Conclusion on EIA

12.9.1. I have carried out an examination of environmental information contained above in which I have had regard to the EIAR and supplementary information provided by the applicant and the reports and submissions from Planning Authorities, prescribed bodies and observers in the course of the application. Following on from this assessment, it is considered that the main significant direct and indirect effects (positive and negative) of the proposed development on the environment are those arising from the impacts listed below. A Construction Environmental Management Plan (CEMP) is the overarching general mitigation embedded in the project design and delivery for the construction stage. In addition, plans relating to Waste Management, Invasive Species Management, Traffic Management, Monitoring Plans and Emergency Response Plans are also proposed. The remaining impacts, both positive and negative likely to arise on such as would potentially give rise to significant effects on the environment are:

- Benefits/positive impacts to **population and human health** arising as a result of the overall project upgrade due to providing increased treatment infrastructural capacity and improved level of treatment which would improve compliance with EU Directives and corresponding legislation and would be pivotal in supporting planned residential and economic growth in Dublin city and the region.
- Negative temporary impact on **population and human health** (recreational swimmers/water based sporting activities) because of a deterioration in water quality during a nine-month period of decommissioning of aspects of the WwTP (during construction) and a corresponding temporary loss of recreational amenity which would be partially mitigated by carrying out the works in winter period when the recreational water based activities are at seasonally low levels;

- Benefits/positive impacts on the environment (**soils, traffic, water quality, climate**) as a result of reduction in excavation and truck movements (estimated to be 70,000 HGV movements over an 18-month period) which would otherwise have been required to remove and transport rock and spoil during the construction phase of the undersea tunnel. During the operation phase, the proposal to omit the tunnel and associated diffuser point 9 km out to sea would also mean that there would be no deterioration of water quality at this location.
- Impacts arising on **land and soils** as a result of spread of invasive species (Japanese Knotweed) present on the Ringsend wastewater treatment site and which would be mitigated by the preparation and implementation of an Invasive Species Management Plan and method statement for the control of disturbance of soils containing Japanese Knotweed and the requirement that a suitably qualified ecologist would be engaged to oversee the implementation of the Invasive Species Management Plan and monitor the success of the mitigation measures post-construction;
- Risk of pollution of **receiving water environment** as a result of accidental spillages of chemicals, hydrocarbons or other contaminants entering the drainage system and discharging to the stream thereafter during the construction and operational phases. The impacts would be mitigated by measures within a Construction and Environmental Monitoring Plan (CEMP) and adherence to best practice construction measures and incorporation of appropriate drainage facilities. Measures set out in the CIRIA guidance document on 'control and management of water pollution from construction sites' would be implemented. The guidelines provided by the Inland Fisheries Ireland (2016) on the protection of fisheries habitats during construction projects would also be adhered to.
- **Noise** impacts for the construction and operation phases which would be mitigated by the requirements to prepare and adhere to the Noise and Vibration Management Plans (NWMP) and comply with appropriate noise and vibration limits which are set out in the EIAR in respect of the development at Ringsend wastewater treatment plant and the development of the regional

biosolids facility.

- **Odour impacts** for the operational phase which would be mitigated by the following:
 - Ringsend WwTP: odour from the wastewater treatment plant (excluding storm tanks) would be required not to exceed 10 ouE/m³ as the 99.4th percentile of hourly averages at the boundary of the Ringsend WwTP site. The adopted odour annoyance criterion of 3 ouE/m³ as the 98th percentile of hourly averages would not be exceeded at any sensitive receptor location. The Odour Management Plan would be updated as necessary and implemented to ensure the above standard is achieved during construction and operation.
 - RBSF: The adopted odour annoyance criterion of 3 ouE/m³ as the 98th percentile of hourly averages would not be exceeded at any sensitive receptor location.

13.0 **Appropriate Assessment**

13.1. **Introduction**

- 13.1.1. Special Areas of Conservation (SACs) / candidate Special Areas of Conservation (cSACs) and Special Protection Areas (SPAs) are part of the Natura 2000 network considered to be of international importance. In the Irish context, they are referred to as European sites. SACs/cSACs are designated under the EU Habitats Directive (92/43/EEC). SPAs are designated under the EU Birds Directive (79/409/EEC) amended by EU Directive 2009/147/EC. Article 6(3) of the Habitats Directive requires that any plan or project not directly connected with or necessary to the management of a European site, but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subject to appropriate assessment of its implications for the site(s) in view of the site(s) conservation objectives. The Habitats Directive has been transposed into Irish law by the European Union (Birds and Natural Habitats) Regulations 2011, as amended, the later which consolidates earlier Regulations.

13.1.2. In accordance with these requirements and noting the Board's role as the competent authority who must be satisfied that the proposal would not adversely affect the integrity of the European sites, this section of my report assesses in view of best scientific knowledge, if the project, individually or in combination with other plans or projects, is likely to have a significant effect on any European Site, in view of the sites' conservation objectives.

13.1.3. The applicant submitted an Appropriate Assessment (AA) Screening Report and a Natura Impact Statement and I refer to both of these documents in my assessment below, as well as drawing from information on relevant European sites available from the NPWS website and other documentation, including the EIAR, submitted with the planning application. I am satisfied that the information submitted is sufficient to allow the Board to carry out an AA. The NPWS were evidently consulted by the applicant at scoping stage in which issues of relevance were discussed. During the course of the application, the wider DCHG were consulted and I note that no response was received in respect of the European sites.

13.1.3.1. Count data from the Irish Wetland Bird Survey (I-WeBS) 2013/14 and information from the Waterbird Survey Programme of 2011/12 (NPWS, 2014) were used by the applicant as was data from the Dublin Bay Birds Project carried out by BirdWatch Ireland with support from Dublin Port Company (2013-2016).

13.1.3.2. Field surveys of the habitats on the construction site and immediate surrounds were undertaken in 2015 and 2016 (Ringsend WwTP) and 2017 (RBSF). A biological survey of the stream that borders the RBSF site was undertaken in December 2017 and a breeding bird survey of the RBSF site was undertaken in May 2018.

13.2. **Appropriate Assessment - Stage 1 (Screening)**

13.2.1. In relation to Stage 1 screening, the issue to be addressed is whether the project is likely to have a significant effect, either individually or in combination with other plans and projects on European sites in view of the sites' conservation objectives.

13.2.2. A description of the proposed development is set out in Section 4 of this report. In essence, it would comprise revised upgrade works at Ringsend WwTP and the construction of the RBSF at Newtown in North Dublin.

13.2.3. In deciding on the zone of influence of the proposal, guidance contained in 'Appropriate Assessment of Plans and Projects in Ireland – Guidance for Planning Authorities, DoEHLG 2009' recommends that 'the distance should be evaluated on a case-by-case basis with reference to the nature, size and location of the project, and the sensitivities of the ecological receptors, and the potential for in combination effects'. The applicant refers to its use of the Source-Pathway-Receptor model in order to determine the geographic extent to which the proposed development may result in the rise of significant effects. The 'source' of impact was identified as comprising activities or emissions that may be associated with the construction and operation of the proposed development. Receptors are European sites or their qualifying interests for which conservation objectives have been set and the pathway is that which exists between the source and receptor, for instance waterbodies connecting the proposed development to a European site. I would agree with the applicant's assertion that the likelihood for significant effects depends upon the characteristics and relationship between all three elements (Source, Receptor and Pathway) and that the presence of a pathway does not automatically mean that significant effects would arise.

13.2.4. **European Sites: Component 1 - Ringsend WwTP**

13.2.5. With regard to the Ringsend WwTP component, a zone of influence of 10 km was chosen. It is stated that this has been determined following examination of the EIAR that accompanied the planning application together with the NPWS maps and datasets. It is also stated that the zone of influence was considered appropriate having regard to objective information such as output from water quality models and construction noise estimates. In this regard, I have examined the water quality models presented in the EIAR which are also provided in Appendix 2 of the Appropriate Assessment Screening and NIS Report. Regarding construction noise, it has been estimated that construction may be audible for a distance of 2.5km from the site. A 10km buffer was applied to cater for all other identified potential significant effects. Having regard to the output from the water quality models and to audible noise distances referred to above, I am satisfied that the 10km distance around the WwTP and its associated existing effluent outfall which was selected as the zone of interest to be reasonable in this instance. A map showing the zone of influence of the

WwTP component and the European sit boundaries is presented in Fig 1 in the applicant's Appropriate Assessment Screening report and NIS.

13.2.6. The applicant listed eight European sites within this 10-km zone of influence around the Ringsend WwTP and its associated outfall, comprising four cSACs and four SPAs All of the sites are located either wholly or partly within Dublin Bay and include the following:

- South Dublin Bay and River Tolka Estuary SPA (site code 004024)
- South Dublin Bay cSAC (site code 000210)
- North Bull Island SPA (site code 004006)
- North Dublin Bay cSAC (site code 000206)
- Howth Head Coast SPA (site code 004113)
- Howth Head cSAC (site code 000202)
- Dalkey Islands SPA (site code 004172)
- Rockabill to Dalkey Island cSAC (site code 003000)

13.2.7. In addition, and noting that both Baldoyle SPA (site code 004016) and Baldoyle cSAC (site code 000199) are located 7.6km NE from the Ringsend WwTP component and therefore within the selected 10km zone of influence selected, I also propose to include these two sites in my assessment.

13.2.8. Table 5 below sets out details of each of the 10 sites including conservation objectives set out on the NPWS website at the time of carrying out this assessment together with listed qualification interests, the distance and location of the site relative to the Ringsend WwTP and the connectivity using the source-pathway-receptor model. The consequent potential for significant adverse effects on each of the sites having regard to the sites' conservation objectives is also included. Where marked with an astrix (*) this indicates that those qualification interests are a priority habitat under the Habitats Directive.

Table 5 – Relevant European sites for the purposes of Appropriate Assessment Screening (Component 1 – Ringsend WwTP).

European site (SAC/SPA)	Conservation Objectives and Qualifying Interests (Habitats and Species)	Distance of European Site to WwTP	Connectivity (Source-Pathway-Receptor) with potential to result in significant adverse effects.
<p>South Dublin Bay and River Tolka Estuary SPA (004024)</p>	<p>Conservation Objectives Version 1.0 (09/03/2015)</p> <p>To maintain the favourable conservation condition of (qualifying interests individually listed) in South Dublin Bay and River Tolka Estuary SPA, which is defined by a list of attributes and targets.</p> <p>Qualifying Interests: A046 Light-bellied Brent Goose <i>Branta bernicla hrota</i> A130 Oystercatcher <i>Haematopus ostralegus</i> A137 Ringed Plover <i>Charadrius hiaticula</i> A141 Grey Plover <i>Pluvialis squatarola</i> A143 Knot <i>Calidris canutus</i> A144 Sanderling <i>Calidris alba</i> A149 Dunlin <i>Calidris alpina</i> A157 Bar-tailed Godwit <i>Limosa lapponica</i> A162 Redshank <i>Tringa totanus</i> A179 Black-headed Gull <i>Chroicocephalus ridibundus</i> A192 Roseate Tern <i>Sterna dougallii</i> A193 Common Tern <i>Sterna hirundo</i> A194 Arctic Tern <i>Sterna paradisaea</i> A999 Wetlands</p>	<p>Directly adjacent to the proposed works (south and east)</p>	<p>Potential for Direct Effects – Yes</p> <p>Potential for Indirect Effects – Yes</p>
<p>South Dublin Bay cSAC (000210)</p>	<p>Conservation Objectives Version 1.0 (22/08/13)</p> <p>To maintain the favourable conservation condition of mudflats and sandflats not covered by seawater at low tide in South Dublin Bay SAC which is defined by a list of</p>	<p>Adjacent (south and east)</p>	<p>Potential for Direct Effects – No</p> <p>Potential for Indirect Effects – Yes</p>

	<p>attributes and targets.</p> <p>Qualifying Interests: 1140 Mudflats and sandflats not covered by seawater at low tide</p>		
North Bull Island SPA (004006)	<p>Conservation Objectives Version 1.0 (09/03/2015)</p> <p>To maintain the favourable conservation condition of (qualifying interests individually listed) in North Bull Island SPA, which is defined by a list of attributes and targets.</p> <p>Qualifying Interests: A046 Brent Goose <i>Branta bernicla hrota</i> A048 Shelduck <i>Tadorna tadorna</i> A052 Teal <i>Anas crecca</i> A054 Pintail <i>Anas acuta</i> A056 Shoveler <i>Anas clypeata</i> A130 Oystercatcher <i>Haematopus ostralegus</i> A140 Golden Plover <i>Pluvialis apricaria</i> A141 Grey Plover <i>Pluvialis squatarola</i> A143 Knot <i>Calidris canutus</i> A144 Sanderling <i>Calidris alba</i> A149 Dunlin <i>Calidris alpina alpina</i> A156 Black-tailed Godwit <i>Limosa limosa</i> A157 Bar-tailed Godwit <i>Limosa lapponica</i> A160 Curlew <i>Numenius arquata</i> A162 Redshank <i>Tringa totanus</i> A169 Turnstone <i>Arenaria interpres</i> A179 Black-headed Gull <i>Chroicocephalus ridibundus</i> A999 Wetlands</p>	1.7 km north west	<p>Potential for Direct Effects – No</p> <p>Potential for Indirect Effects – Yes</p>
North Dublin Bay cSAC (000206)	<p>Conservation Objectives Version 1.0 (06/11/13)</p> <p>To maintain the favourable conservation condition of (qualifying interests individually listed) in North Bull Bay cSAC,</p>	1.7km from the WwTP outfall	<p>Potential for Direct Effects – No</p> <p>Potential for Indirect Effects – Yes</p>

	<p>which is defined by a list of attributes and targets.</p> <p>Qualifying Interests: 1140 Mudflats and sandflats not covered by seawater at low tide 1210 Annual vegetation of drift lines 1310 <i>Salicornia</i> and other annuals colonising mud and sand 1330 Atlantic salt meadows (<i>Glauco-Puccinellietalia maritima</i>) 1395 Petalwort <i>Petalophyllum ralfsii</i> 1410 Mediterranean salt meadows (<i>Juncetalia maritimi</i>) 2110 Embryonic shifting dunes 2120 Shifting dunes along the shoreline with <i>Ammophila</i> (white dunes) 2130 Fixed coastal dunes with herbaceous vegetation (grey dunes)* 2190 Humid dune slacks</p>		
Howth Head Coast SPA (004113)	<p>Conservation Objectives Generic Version 6.0 (21/02/2018)</p> <p>To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA</p> <p>Qualifying Interests: A188 Kittiwake (<i>Rissa tridactyla</i>)</p>	c. 9 km north west	<p>Potential for Direct Effects – No</p> <p>Potential for Indirect Effects – Yes</p>
Howth Head cSAC (000202)	<p>Conservation Objectives Version 6.0 (06/12/2016)</p> <p>To maintain the favourable conservation condition of (qualifying interests individually listed) in Howth Head SAC, which is defined by a list of attributes and targets:</p> <p>Qualifying Interests: 1230 Vegetated sea cliffs of the Atlantic and Baltic coasts 4030 European dry heaths</p>	c.7.0 km north west.	<p>Potential for Direct Effects – No</p> <p>Potential for Indirect Effects – No</p>

<p>Dalkey Islands SPA (004172)</p>	<p>Conservation Objectives Generic Version 5.0 (21/02/18)</p> <p>To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA.</p> <p>Qualifying Interests: A192 Roseate Tern <i>Sterna dougallii</i> A193 Common Tern <i>Sterna hirundo</i> A194 Arctic Tern <i>Sterna paradisaea</i></p>	<p>c. 9.0 km south west</p>	<p>Potential for Direct Effects – None</p> <p>Potential for Indirect Effects – Yes</p>
<p>Rockabill to Dalkey Island SAC (003000)</p>	<p>Conservation Objectives Version 1.0 (07/05/13)</p> <p>To maintain the favourable conservation condition of (qualifying interests individually listed) in Rockabill to Dalkey Island SAC, which is defined by a list of attributes and targets:</p> <p>Qualifying Interests: Annex I Habitats 1170 Reefs</p> <p>Annex I Species 1351 Harbour porpoise <i>Phocoena phocoena</i></p>	<p>c. 6.2 km from the outfall</p>	<p>Potential for Direct Effects – None</p> <p>Indirect Effects – Yes</p>
<p>Baldoyle Bay SPA (004016)</p>	<p>Conservation Objectives Version 1.0 (27/02/13)</p> <p>To maintain the favourable conservation condition of the waterbird population and wetland habitat in Baldoyle Bay SPA, which is defined by a list of attributes and targets:</p> <p>Qualifying Interests: A046 Brent Goose <i>Branta bernicla hrota</i> A048 Shelduck <i>Tadorna tadorna</i> A137 Ringed Plover <i>Charadrius hiaticula</i></p>	<p>7.0 km NE</p>	<p>Potential for Direct Effects – No</p> <p>Potential for Indirect Effects – No</p>

	A140 Golden Plover <i>Pluvialis apricaria</i> A141 Grey Plover <i>Pluvialis squatarola</i> A157 Bar-tailed Godwit <i>Limosa lapponica</i> A999 Wetlands		
Baldoyle Bay cSAC (000199)	<p>Conservation Objectives Version 1.0 (19/11/12)</p> <p>To maintain the favourable conservation condition of (qualifying interests individually listed) in Baldoyle Bay SAC, which is defined by a list of attributes and targets:</p> <p>Qualifying Interests: 1140 Mudflats and sandflats not covered by seawater at low tide 1310 Salicornia and other annuals colonizing mud and sand 1330 Atlantic salt meadows <i>Glauco-Puccinellietalia maritimae</i> 1410 Mediterranean salt meadows <i>Juncetalia maritimi</i></p>	7.0 km NE	<p>Potential for Direct Effects – No</p> <p>Potential for Indirect Effects – No</p>

13.2.9. European Sites: Component 2 - RBSF

13.2.10. In respect of the RBSF component, the applicant identified three European sites comprising one cSAC and two SPAs within the 10km zone of influence of the RBSF. The sites are presented in Figure 2 of the Appropriate Assessment Screening and NIS and listed as follows:

- South Dublin Bay and River Tolka Estuary SPA (site code 004024)
- Malahide Estuary cSAC (site code 000205)
- Malahide Estuary SPA (site code 004025)

13.2.11. Table 6 below sets out details of each of the three sites including conservation objectives as contained on the NPWS website at the time of carrying out this assessment, together with listed qualification interests, the distance and location of the site relative to the RBSF site and the connectivity using the source-pathway-receptor model. The consequent potential for significant adverse effects on each of

the sites is also included.

13.2.12. Table 6 – Relevant European sites for the purposes of Appropriate Assessment Screening (Component 2 – RBSF).

European site (SAC/SPA)	Conservation Objectives and Qualifying Interests (Habitats and Species)	Distance of European Site to WwTP	Connectivity (Source-Pathway-Receptor) with potential to result in significant adverse effects.
<p>South Dublin Bay and River Tolka Estuary SPA (004024)</p>	<p>Conservation Objectives Version 1.0 (09/03/2015)</p> <p>To maintain the favourable conservation condition of (qualifying interests individually listed) in South Dublin Bay and River Tolka Estuary SPA, which is defined by a list of attributes and targets.</p> <p>Qualifying Interests: A046 Light-bellied Brent Goose <i>Branta bernicla hrota</i> A130 Oystercatcher <i>Haematopus ostralegus</i> A137 Ringed Plover <i>Charadrius hiaticula</i> A141 Grey Plover <i>Pluvialis squatarola</i> A143 Knot <i>Calidris canutus</i> A144 Sanderling <i>Calidris alba</i> A149 Dunlin <i>Calidris alpina</i> A157 Bar-tailed Godwit <i>Limosa lapponica</i> A162 Redshank <i>Tringa totanus</i> A179 Black-headed Gull <i>Chroicocephalus ridibundus</i> A192 Roseate Tern <i>Sterna dougallii</i> A193 Common Tern <i>Sterna hirundo</i> A194 Arctic Tern <i>Sterna paradisaea</i> A999 Wetlands</p>	<p>9km directly from RBSF site. No hydrological pathway</p>	<p>Potential for Direct Effects – No</p> <p>Potential for Indirect Effects – No</p>
<p>Malahide Estuary cSAC (000205)</p>	<p>Conservation Objectives Version 1.0 (27/05/2013)</p> <p>To maintain the favourable conservation condition of</p>	<p>9.5 km direct, 13.3km via hydrological pathways.</p>	<p>Potential for Direct Effects – No</p> <p>Potential for Indirect Effects – No</p>

	<p>(qualifying interests individually listed) in Malahide Estuary cSAC, which is defined by a list of attributes and targets.</p> <p>Qualifying Interests 1140 Mudflats and sandflats not covered by seawater at low tide 1310 Salicornia and other annuals colonising mud and sand 1320 Spartina swards <i>Spartinion maritimae</i> 1330 Atlantic salt meadows <i>Glauco-Puccinellietalia maritimae</i> 1410 Mediterranean salt meadows <i>Juncetalia maritimi</i> 2120 Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes) 2130 Fixed coastal dunes with herbaceous</p>		
<p>Malahide Estuary SPA (004025)</p>	<p>Conservation Objectives Version 1.0 (16/08/2013)</p> <p>To maintain the favourable conservation condition of (qualifying interests individually listed) in Malahide Estuary SPA, which is defined by a list of attributes and targets.</p> <p>Qualifying Interests A005 Great Crested Grebe <i>Podiceps cristatus</i> A046 Brent Goose <i>Branta bernicla hrota</i> A048 Shelduck <i>Tadorna tadorna</i> A054 Pintail <i>Anas acuta</i> A067 Goldeneye <i>Bucephala clangula</i> A069 Red-breasted Merganser <i>Mergus serrator</i> A130 Oystercatcher <i>Haematopus ostralegus</i> A140 Golden Plover <i>Pluvialis apricaria</i> A141 Grey Plover <i>Pluvialis</i></p>	<p>9.5 km direct, 13.3km via hydrological pathways.</p>	<p>Potential for Direct Effects – No</p> <p>Potential for Indirect Effects – No</p>

	<i>squatarola</i> A143 Knot <i>Calidris canutus</i> A149 Dunlin <i>Calidris alpina</i> <i>alpina</i> A156 Black-tailed Godwit <i>Limosa limosa</i> A157 Bar-tailed Godwit <i>Limosa lapponica</i> A162 Redshank <i>Tringa</i> <i>totanus</i> A999 Wetlands		
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13.2.13. **Likely Significant Effects**

13.2.14. The possibility of whether or not significant effects are likely to arise is assessed by the applicant using the established source-pathway-receptor model. The project is not necessary for the management of any European site. The likely significant effects (direct and indirect) which could arise as a result of the Ringsend WwTP component are listed under Table 1 of the applicants AA Screening /Statement / NIS. I am satisfied that using the Source-Pathway-Receptor model and having regard to the qualifying interests and conservation objectives that the information contained in this table is representative of the significant effects likely to arise. I have summarised these likely significant effects under.

13.2.15. **Likely significant effects (Direct and Indirect) which could potentially arise are:**

Direct Effects as a result of the Ringsend WwTP component

- Temporary disturbance to habitat and species as a result of laying of a new underground electrical connection to an existing underground ESB cable in an area c.30m x 10m, which is within the South Dublin Bay and River Tolka Estuary SPA (site code 004024).

Indirect /Secondary Effects as a result of the Ringsend WwTP component

- Discharge of treated effluent from the WwTP both during the construction and operational phases of the proposed Ringsend WwTP Component. As the proposed discharge point would remain at the same location in the Liffey Estuary, there is potential that these changes could affect habitats or species that occur in the tidal part of Dublin Bay.

- Deterioration of receiving water quality during construction and operation phases arising from accidental discharge or pollution and resulting in deterioration of receiving watercourses and associated habitats and species.
- Construction activities on site at the Ringsend WwTP component have the potential to cause visual disturbance to waterbird populations that use the replacement grassland area that forms part of the South Dublin Bay and River Tolka Estuary SPA, immediately south of the WwTP.
- The construction phase of the Ringsend WwTP component has potential to give rise to temporary disturbance from dust and changes in air quality during construction.
- Construction noise may affect Brent geese and breeding terns within the South Dublin Bay and River Tolka Estuary SPA.
- Potential spread of Invasive species could lead to loss/deterioration of habits on the South Dublin Bay and River Tolka Estuary SPA.
- (Given the change to odour has been assessed as not resulting in any residual impacts as a result of the proposed development, I do not consider that based on odour, impacts would arise on qualifying interests of cSACs / SPAs in view of their conservation objectives).

Direct Effects as a result of the RBSF component

- None

Indirect /Secondary Effects as a result of the RBSF component

- There is a potential pathway between the RBSF component and the Malahide Estuary cSAC (site code 000205) via the surface water network. Deterioration of receiving water quality during construction and operation phases arising from accidental discharge or pollution and resulting in deterioration of receiving watercourses and associated habitats and species could potentially occur.

13.2.16. I am satisfied that Howth Head cSAC can be screened out as there are no hydrological pathways from either the Ringsend WwTP or RBSF components to this European site. Both project components are also sufficiently separated to conclude

that there would not be any potential for significant effects in relation to airborne noise or visual disturbance impacts. Equally, I am satisfied that the project as a whole, including both components collectively, is not likely to give rise to significant effects on this site, having regard to its conservations objectives.

13.2.17. In relation to Malahide Estuary cSAC and also Malahide SPA, I note that while there is a potential pathway between the RBSF component and the Malahide Estuary cSAC, no discharge or emissions are proposed to leave the RBSF site, except for rainfall and clean surface water, once best practice is employed in construction and the CEMP is implemented. Both components are also sufficiently remote from these European sites such as to conclude that there would be no potential for significant effects in relation to airborne noise or visual disturbance. Equally, I am satisfied that the project as a whole is not likely to give rise to significant effects on this site, having regard to their conservations objectives.

13.2.18. In relation to Baldoyle Bay SAC and Baldoyle Bay SPA, these European sites are sufficiently remote from the proposed RBSF site to objectively conclude a finding of no significant effect in relation to noise. The water quality modelling output shows that there is no impact from the construction of works on Baldoyle Bay or from the operation of the project. These two European sites can thus objectively be screened out from further assessment.

13.2.19. I am satisfied that the conclusion that no such in-combination effects are likely to arise is correct. By applying the precautionary principle, the requirement to proceed to Stage 2 in relation to the remaining seven sites where the evaluation determined the likelihood of significant effects (including in-combination effects) could not be discounted without further examination is, I consider, reasonable.

13.2.20. **Stage 1 - Screening Conclusion**

13.2.21. It is reasonable to conclude that on the basis of the information on the file, which I consider adequate in order to issue a screening determination, that the proposed development including the proposed development, individually or in combination with other plans or projects would not be likely to have a significant effect on the European Sites:

- Howth Head cSAC (site code 000202)
- Malahide Estuary cSAC (site code 000205)
- Malahide Estuary SPA (site code 004025)
- Baldoyle cSAC (site code 004016)
- Baldoyle SPA (site code 000199)

in view of the sites' conservation objectives, a Stage 2 Appropriate Assessment is not therefore required in respect of these sites. Potential for significant indirect effects on the features of interest of the following European sites, having regard to their conservation objectives, cannot be ruled out in respect of the remaining seven European sites:

- South Dublin Bay and River Tolka Estuary SPA (site code 004024)
- South Dublin Bay cSAC (site code 000210)
- North Bull Island SPA (site code 004006)
- North Dublin Bay cSAC (site code 000206)
- Howth Head Coast SPA (site code 004113)
- Dalkey Islands SPA (site code 004172)
- Rockabill to Dalkey Island cSAC (site code 003000)

13.2.22. Accordingly, a Stage 2 Appropriate Assessment is required to determine the potential of the proposed development to adversely affect the integrity of the said European Sites.

13.3. **Appropriate Assessment – Stage 2**

13.3.1. **Introduction**

13.3.2. The sites brought forward to stage two, seven in total, are listed in the Stage 1 Screening conclusion above. The project description is set out in detail in Section 4 of my overall assessment and summarised above in consideration of Appropriate Assessment – Stage 1 Screening.

13.3.3. **European Sites**

13.3.4. Below I provide a brief description of each of the European sites with specific regard to their qualifying interests and their conservations objectives. I have examined the sites potential for significant effects on the integrity of the European sites arising from the proposed development. I have drawn on information provided by the applicant including information in their submitted Natura Impact Statement and throughout relevant sections of the EIAR, particularly those which deal with Biodiversity and Water. I have also extensively referred to the NPWS website. The qualifying interests for each of the seven sites are identified and are as set out in Tables 5 and 6 above.

South Dublin Bay and River Tolka Estuary SPA (Site Code 004024)

13.3.5. As noted in the NPWS site synopsis, the South Dublin Bay and River Tolka Estuary SPA is of ornithological importance as it supports an internationally important population of light-bellied Brent Goose and nationally important populations of a further nine wintering species. Furthermore, the site supports a nationally important colony of breeding Common Tern and is an internationally important passage/staging site for three tern species. Four of the species that regularly occur at this site are listed on Annex I of the E.U. Birds Directive, i.e. Bar-tailed Godwit, Common Tern, Arctic Tern and Roseate Tern.

13.3.6. **Conservation Objectives** for South Dublin Bay and River Tolka Estuary SPA (March 2015) are to ensure that waterbird populations and their wetland habitats are maintained at, or restored to, favourable conservation condition. Grey Plover is proposed for removal from the list of Special Conservation Interests for the SPA. As a result, a site-specific conservation objective has not been set for this species.

South Dublin Bay cSAC (Site Code 000210)

13.3.7. The NPWS lists the South Dublin Bay cSAC as a fine example of extensive intertidal flats, of predominantly sand with muddy sands in more sheltered areas. It provides a supporting role to important populations of wintering bird populations of Dublin Bay.

13.3.8. **Conservation Objectives** for the South Dublin Bay cSAC (NPWS, 2013) are to maintain the favourable conservation condition of mudflats and sandflats not covered by seawater at low tide in South Dublin Bay SAC which is defined by a list of

attributes and targets.

North Bull Island SPA (Site Code 004006)

- 13.3.9. The North Bull Island SPA is considered an excellent example of an estuarine complex and is one of the top sites in Ireland for wintering waterfowl. It is stated to be of international importance because of both the total number of waterfowl and the individual populations of Light-bellied Brent Goose, Black-tailed Godwit and Bar-tailed Godwit that use it. There is a regular presence of several species that are listed on Annex I of the E.U. Birds Directive, notably Golden Plover and Bar-tailed Godwit.
- 13.3.10. **Conservation Objectives** for the North Bull Island SPA (NPWS 2014) are to ensure that waterbird populations and their wetland habitats are maintained at, or restored to favourable conservation condition.

North Dublin cSAC (Site Code 000206)

- 13.3.11. The NPWS lists the North Dublin cSAC (Site Code 000206) as a fine example of extensive intertidal flats. This site covers all of the inner part of north Dublin Bay, with the seaward boundary extending from the Bull Wall lighthouse across to Drumleck Point at Howth Head. This European site is of international importance because of both the total number of waterfowl and the individual populations of light-bellied Brent Goose, black-tailed godwit and bar-tailed godwit that use it. Also of note is the regular presence of several species that are listed on Annex I of the EU Birds Directive.
- 13.3.12. **Conservation Objectives** for the North Dublin cSAC (NPWS, 2013) are to maintain the favourable conservation condition of qualifying interests, which are defined by a list of attributes and targets.

Howth Head Coast SPA (Site Code 004113)

- 13.3.13. The NPWS lists the Howth Head Coast SPA as being of high ornithological importance as it supports a nationally-important population of Kittiwake. It is also a traditional nesting site for Peregrine Falcon, a species that is listed in Annex I of the E.U. Birds Directive. The site is easily accessible and has important amenity and

educational value due to its proximity to Dublin City.

- 13.3.14. **Conservation Objective** for Howth Head Coast SPA (Feb 2018) are to maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA.

Dalkey Island SPA (Site Code 004172)

- 13.3.15. The NPWS lists this SPA of particular importance as a post-breeding/pre-migration autumn roost area for Roseate Tern, Common Tern and Arctic Tern. The NPWS also notes that the recent nesting by Roseate Tern is highly significant. All three of the tern species using the site are listed on Annex I of the E.U. Birds Directive.

- 13.3.16. **Conservation Objective** for Dalkey Island SPA are to maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA.

Rockabill to Dalkey Island cSAC (Site Code 003000)

- 13.3.17. This Rockabill to Dalkey Island cSAC site is of conservation importance for reefs, listed on Annex I, and Harbour Porpoise, listed on Annex II of the E.U. Habitats Directive. A number of marine species have also been identified in the cSAC. The NPWS site synopsis notes that a large number of terns (Arctic, Common and Roseate) are known to use Dalkey Island as a staging area (c. 2,000) after breeding. Other seabirds commonly seen include Kittiwake, Razorbill, Guillemot, Puffin, Fulmar, Shag, Cormorant, Manx Shearwater, Gannet and gulls.

- 13.3.18. **Conservation Objective** for the Rockabill to Dalkey Island cSAC (May 2013) are to maintain or restore the favourable conservation condition of the habitats/ species for which the cSAC has been selected.

13.4. **Significant Effects on European Sites**

- 13.4.1. The direct and indirect impacts from the proposed project components that have the potential (in the absence of mitigation) to result in a likelihood of significant adverse effects on qualifying interests having regard to the conservation objectives of the European sites brought forward to Stage 2 Appropriate Assessment are listed and

assessed below.

13.4.2. **Direct Effects as a result of the Ringsend WwTP component**

Impact	Temporary disturbance to habitat and species as a result of laying of a new underground electrical connection to an existing underground ESB cable in an area c.30m x 10m, which is within the South Dublin Bay and River Tolka Estuary SPA (site code 004024).
Assessment of Likely Significant Effects	<p>The grassland area is used by bird species including light-bellied Brent Goose, Oystercatcher, black-tailed Godwit, Redshank and Curlew, all of which are qualifying interests of the SPAs in Dublin Bay.</p> <p>Works are proposed to take place in summer months (May to August) outside of the nesting season and when the Brent Geese are absent from the SPA. The construction area would be fully reinstated by backfilling with the original soil and laying of grass turves in their original position. The grassland is proposed to be fully reinstated in time for the return of the geese in September/October.</p> <p>No remaining significant effects are anticipated.</p> <p>Monitoring of waterbirds on the grassland south of the project is proposed each winter between October and April during construction and for a year after to allow the efficacy of the mitigation measures to be verified.</p>
Assessment Conclusion	In conclusion, the proposed development would not adversely affect the integrity of the designated site and no reasonable scientific doubt remains as to the absence of such effects.

13.4.3. **Indirect /Secondary Effects as a result of the Ringsend WwTP component**

<p>Impact</p>	<p>Discharge of treated effluent from the WwTP both during the construction and operational phases of the proposed Ringsend WwTP Component. As the proposed discharge point would remain at the same location in the Liffey Estuary, there is potential that these changes could affect habitats or species that occur in the tidal part of Dublin Bay.</p>
<p>Assessment of Likely Significant Effects</p>	<p>During construction, there would be some reduction in treatment capacity during a nine-month period between the construction of AGS and SBR retrofit. In addition, there would be an increase in stormwater overflows. Temporary impacts on marine ecology could arise but the duration of the project and the magnitude of impact would not be of a sufficient scale as to result in adverse significant effects on European sites, having regard to the sites' conservation objectives.</p> <p>During the operation phase, water quality in the inner part of Dublin Bay would be improved primarily as a result of reduction of P and N leading towards a more diverse community of species and positive effects are predicted on the significant effects on the favourable conservation status of the qualifying interests or on the conservation objectives of the European sites within Dublin Bay. Given the relatively high background nutrients in Dublin Bay, no significant effects on waterbirds including Brent Geese and Wigeon that forage on macroalgae, Harbour Porpoise (a qualifying interest of the Rockabill to Dalkey cSAC), Kittiwake (a qualifying interest for Howth Head SPA) and Artic Tern, Common Tern and Roseate Tern (a qualifying interest for Dalkey Island SPA) that forages on shoaling fish, are anticipated.</p> <p>Overall it is submitted that the resulting impacts would not give rise to any significant effects on the favourable conservation status of the qualifying interests or on the conservation objectives of the</p>

	<p>European sites within Dublin Bay. It is assessed that it would be unlikely that the food resource of waterbirds in the Tolka Estuary would be negatively affected given the increase in diversity of species that would occur. Such changes are expected to be slow and would result in long-term positive impacts.</p> <p>Apart from the adherence to the project CEMP and related Environmental Incident response procedures as standard best practice, no other specific mitigation measures are required.</p> <p>No significant adverse effects are anticipated.</p> <p>Outside of monitoring of waterbirds on the grassland for construction and a year after construction, no other specific monitoring of waterbirds is proposed. Instead, it is proposed to make use of a monitoring programme by Birdwatch Ireland for all of Dublin Bay which can be conditioned to extend to a three year period post construction.</p>
<p>Assessment Conclusion</p>	<p>In conclusion, the proposed development would not adversely affect the integrity of the designated sites and no reasonable scientific doubt remains as to the absence of such effects.</p>

<p>Impact</p>	<p>Deterioration of receiving water quality during construction and operation phases arising from accidental discharge or pollution and resulting in deterioration of receiving watercourses and associated habitats and species.</p>
<p>Assessment of Likely Significant Effects</p>	<p>Accidental release of contaminants / pollution in the form of oils, hydrocarbons, concrete/cement could potentially discharge into the Liffey Estuary and thereafter travel to Dublin Bay. If this were to occur at significant magnitude and duration, it could result in significant effects on intertidal and subtidal habitats in South Dublin Bay cSAC and North Dublin Bay cSAC and qualifying</p>

	<p>interests of SPAs within Dublin Bay.</p> <p>Apart from the adherence to the project CEMP and related Environmental Incident response procedures as standard best practice, no other specific mitigation measures are required.</p> <p>Remaining significant effects are unlikely.</p> <p>No specific monitoring is proposed or required.</p>
Assessment Conclusion	<p>In conclusion, the proposed development would not adversely affect the integrity of the designated sites and no reasonable scientific doubt remains as to the absence of such effects.</p>

Impact	<p>Construction activities on site at Ringsend WwTP Component have the potential to cause visual disturbance to waterbird populations that use the replacement grassland area that forms part of the South Dublin Bay and River Tolka Estuary SPA, immediately south of the WwTP.</p>
Assessment of Likely Significant Effects	<p>Any visual disturbance has potential to result in significant effects on the qualifying interests of the Tolka Estuary SPA (important population of Light-bellied Brent Goose and nationally-important populations of a further nine wintering species), having regard to the site's conservation objectives.</p> <p>Solid screening would be erected between the construction site and the grassland area prior to construction in order to reduce or eliminate any visual disturbance.</p> <p>No remaining significant effects are likely.</p> <p>Monitoring of waterbirds on the grassland south of the project is proposed each winter between October and April during construction and for a year after to allow the efficacy of the mitigation measures to be verified.</p>
Assessment	<p>In conclusion, the proposed development would not adversely affect the integrity of the designated site and no reasonable</p>

Conclusion	scientific doubt remains as to the absence of such effects.
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Impact	The construction phase of the Ringsend WwTP components has potential to give rise to temporary disturbance from dust and changes in air quality during construction.
Assessment of Likely Significant Effects	<p>The movement of excavated soils and other material has the potential to generate fugitive dust which could travel through wind exposure to adjacent European sites. As part of the CEMP, a dust management plan would be put in place such that dust emissions on site would remain at or below 350 mg/m²/day to ensure it does not impact on air quality.</p> <p>No significant effects are therefore anticipated as a result of dust. Dust monitoring would be undertaken in accordance with commitments outlined in the CEMP and the EIAR.</p> <p>Potential arises for NO_x emissions to impact on grasslands and intertidal habitats. The maximum increase in the NO₂ dry deposition rate is 0.22 kg(N)/ha/yr is well below the critical load for inland water habitats on the improved grassland or on the bird species that use the South Dublin Bay and River Tolka Estuary SPA. No significant effects are therefore likely to arise as a result of air quality.</p>
Assessment Conclusion	In conclusion, the proposed development would not adversely affect the integrity of the designated site and no reasonable scientific doubt remains as to the absence of such effects.

Impact	Construction noise may affect Brent geese and breeding terns within the South Dublin Bay and River Tolka Estuary SPA.
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<p>Assessment of Likely Significant Effects</p>	<p>Construction noise has the potential to cause disturbance to wintering waterbirds and nesting terns within South Dublin Bay and River Tolka Estuary SPA.</p> <p>The common tern (<i>Sterna hirundo</i>) colony at Poolbeg, which forms part of South Dublin Bay and River Tolka Estuary SPA is located c.380m from the nearest part of the proposed development. Construction noise has been assessed as typically ranging between 40 to 45 dB LA_{eq} at the tern colony area.</p> <p>It is submitted that the tern colony itself generates a noise level of up to 70 to 80 dB(A), well in excess of any construction noise, through calling of terns during the breeding season.</p> <p>While the noise made by terns themselves cannot in my view be considered as comparable to construction noise, I note that as stated in the EIAR, the tern colony and other waterbirds in the area are habituated to noise from the plant itself and from the surrounding industrial operations and the city itself.</p> <p>A construction noise and vibration management plan and CEMP are proposed.</p> <p>Therefore, I accept the conclusion overall that noise from the proposed upgrade site would not be threatening to birds and construction noise would have imperceptible impacts on conservation objectives for any of the European sites brought forward to Stage two of the AA.</p> <p>Monitoring of waterbirds on the grassland south of the project is proposed each winter between October and April during construction and for a year after to allow the efficacy of the mitigation measures to be verified. Birdwatch Ireland monitoring programme would also be used.</p>
<p>Assessment</p>	<p>In conclusion, the proposed development would not adversely</p>

Conclusion	affect the integrity of the designated site and no reasonable scientific doubt remains as to the absence of such effects.
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Impact	Potential spread of Invasive species could lead to loss/deterioration of habits on the South Dublin Bay and River Tolka Estuary SPA.
Assessment of Likely Significant Effects	<p>Japanese Knotweed (<i>Fallopia japonica</i>) is known to exist at four locations along the east boundary. Where it would be disturbed during construction, it has the potential to spread to surrounding sites and/or the receiving water. If left uncontrolled, this could be considered a permanent, significant impact on European sites due to habitat loss. The invasive species management plan, which is prepared to outline stage would be required to be further developed and adhered to and I am satisfied that subject to implementation and adherence to the plan, no significant effects are likely.</p> <p>Annual monitoring of invasive species is proposed and if the results indicate any failures or shortcomings, in consultation with NPWS and other statutory undertakers, the applicant would commit to develop and implement additional control measures.</p>
Assessment Conclusion	In conclusion, the proposed development would not adversely affect the integrity of the designated site and no reasonable scientific doubt remains as to the absence of such effects.

13.4.4. **Direct Effects as a result of the RBSF component**

- None

13.4.5. **Indirect /Secondary Effects as a result of the RBSF component**

13.4.6. The assessment as presented in the NIS has determined that there would be no

potential for adverse effects on habitats or species.

13.4.7. Within the 10km zone of influence of the RBSF, the only European site brought forward to Stage two is the South Dublin Bay and River Tolka Estuary SPA. This site is remote from the proposed RBSF and given that no hydrological or hydrogeological pathways are present, the possibility of significant numbers of birds from this SPA being impacted by the RBSF is unlikely. Consequently, it can be concluded that the proposed development would not adversely affect the integrity of this SPA having regard to the conservation objectives of the site.

13.4.8. Nonetheless, the site is required to be assessed as part of the applicant's overall assessment for in-combination effects and I have dealt with such effects directly below.

13.4.9. **In-combination Effects**

13.4.10. The NIS considers the potential in-combination/cumulative impacts which could possibly arise when other plans and projects are taken into account. The assessment carried out included the wider overall project, referred to as the 'proposed upgrade project'. The assessment and the EIAR (Water and Biodiversity section) concludes that the proposed WwTP would not give rise to impacts on waterbird population and long-term changes to the waterbird population might be difficult to discern in the context of wider cumulative changes arising beyond those caused by the proposed development.

13.4.11. Beyond impacts assessed in relation to water and terrestrial biodiversity, I am satisfied that the construction and operation of the proposed development (taking into account proposed mitigation) is unlikely to result in any other in-combination impacts that would lead to significant effects.

13.4.12. **Monitoring**

13.4.13. Monthly surveys of waterbirds (between October and April) would be undertaken by the applicant on the grassland area to the south for the duration of the project and for one year after. In addition, it is stated that monitoring carried out by BirdWatch Ireland would be utilised. Given that the construction period would extend for a

period of approximately 10 years and that the plant would operate as a live plant during this time, I am satisfied with this proposed monitoring period.

13.4.14. Monitoring of invasive species is proposed to be carried out on an annual basis.

13.4.15. Together the monitoring outcomes would allow an assessment of the efficacy of mitigation measures proposed and where any shortcomings are discovered, the applicant proposed to develop and implement additional control measures.

13.5. **Conclusion on Appropriate Assessment**

13.5.1. On the basis of the information provided with the application, including the Natura Impact Statement, which I consider adequate in order to carry out a Stage 2 Appropriate Assessment, I am satisfied that the proposed development, individually or in combination with other plans or projects, would not adversely affect the integrity of the following European sites:

- South Dublin Bay and River Tolka Estuary SPA (site code 004024)
- South Dublin Bay cSAC (site code 000210)
- North Bull Island SPA (site code 004006)
- North Dublin Bay cSAC (site code 000206)
- Howth Head Coast SPA (site code 004113)
- Dalkey Islands SPA (site code 004172)
- Rockabill to Dalkey Island cSAC (site code 003000)

or any other European site, in view of the sites' conservation objectives.

14.0 Recommendation

- 14.1. On the basis of the above assessment, I recommend that the Board grant permission for the proposed development for the reasons and considerations and subject to the conditions set out below.

15.0 Reasons and Considerations

- 15.1. In coming to its decision, the Board had regard to a range of matters including the following:

European legislation, including of particular relevance:

- EIA Directive 2011/92/EU amended by Directive 2014/52/EU (EIA Directive);
- European Union Water Framework Directive 2000/60/EC;
- The European Union Urban Waste Water Treatment Directive 91/271/EEC;
- The European Union Bathing Water Directive 2006/7/EC;
- Groundwater Directive (2006/118/EC);
- Sewage Sludge Directive (86/278/EEC);
- Nitrates Directive (91/676/EEC);

National legislation including of particular relevance:

- The European Communities Environmental Objectives (Surface Waters) Regulations 2009, as amended;
- European Communities (Water Policy) Regulations, 2003, as amended;
- European Communities Environmental Objectives (Groundwater) Regulations 2010, as amended;
- Urban Waste Water Treatment Regulations 2001, as amended;
- The Waste Water Discharge (Authorisation) Regulations 2007, as amended;

- Bathing Water Quality Regulations 2008, as amended;

National and regional planning and related policy including:

- 'National Planning Framework – Ireland 2040' including Strategic Outcome 9 and corresponding Investment Action contained in the National Development Plan, 2018-2027;
- Water Services Strategic Plan where the upgrading of Ringsend Treatment Plant is recognised as a significant contribution in meeting its obligation under the Urban Wastewater Treatment Directive;
- National Wastewater Sludge Management Plan (2016 – 2041);
- River Basin Management Plan for Ireland 2018 – 2021;
- Greater Dublin Strategic Drainage Study (2005) and Greater Dublin Drainage Strategy: Overview & Future Strategy (2018);
- Regional Planning Guidelines for the Greater Dublin Area 2010-2022;
- Draft Regional Spatial and Economic Strategy (RSES);
- Eastern-Midlands Region Waste Management Plan 2015 – 2021;

Local planning context – Ringsend WwTP component

- The provisions of the Dublin City Development Plan 2016-2022, including Policies SI1 and SI2 which support development of water and wastewater systems by Irish Water in which the upgrading of the Ringsend Wastewater Treatment Plant is specifically referenced; related Planning Objectives SIO1 and SIO2 together with stated policies and objectives in support of the proposed development in the context of proper planning and sustainable development. Regard was also had to the land use zoning objectives for the area.

Local planning context – RBSF component

- The provisions of the Fingal Development Plan 2017-2023 including stated policies and objectives, particularly Objective WM15 which requires to work with Irish Water and other relevant stakeholders to ensure the provision of facilities for the safe and sustainable management of sludges (sewage, waterworks, agricultural, industrial and septic tank) and Local Objective 78, in support the proposed development in the context of proper planning and sustainable development. Regard was also had to the land use zoning objectives for the area.

and to the following matters

- the current performance of the existing wastewater treatment plant and the demonstrated need to improve discharge standards in order to increase capacity and meet water quality standards for bathing waters, coastal waters, transitional waters and designated sensitive waters in Dublin Bay in accordance with the requirements set out under the legislation and emissions limit values contained in the licence granted by the EPA under licence number D00-34-01;
- the entirety of the documentation that accompanied the planning application and reports and submissions, which were submitted by all parties, planning authorities, prescribed bodies and observers and the further submission made by the applicant during the course of the application;
- the established site context on the Poolbeg peninsula, spatially separated from residential development and the pattern of development in the area;
- the planning history of the site;
- the nature, scale and design of the proposed development including in particular the proven AGS technology and the associated nitrogen and phosphorous removal in relation to the Ringsend WwTP component and the nature, scale, design and purpose of the RBSF component,

- the range of proposed mitigation measures set out in the submitted Environmental Impact Assessment Report and Natura Impact Statement (incorporating Appropriate Assessment Screening);
- the submissions made in relation to the application and the report and recommendation of the inspector;

15.2. **Proper Planning and Sustainable Development**

15.2.1. The benefits of the proposed development are considered to be overwhelmingly positive. It's delivery would assist Ireland in meeting obligations set down under EU Directives, national legislation and planning policy expressed through the hierarchy plans which regulate development at a national, regional and local level. The development would enable sustainable residential and economic growth through the delivery of increased wastewater treatment capacity while protecting the environment through improving the quality of effluent discharged to the receiving water environment. It has been demonstrated in the application that the improvement envisaged in final effluent quality can be achieved at the existing Ringsend Wastewater treatment plant by the incorporation of scientifically proven aerobic granular sludge technology into the treatment process together with associated nitrogen and phosphorous removal. When compared to the previously permitted and proposed long sea outfall (in tunnel) option, the current proposal has significant advantages and would be less intrusive on the receiving environment. The regional biosolids storage facility would assist in meeting the aims of the Sewage Sludge Directive, regulating the use of sewage sludge in agriculture to prevent harmful effects. Outside of matters considered above, environmental impact assessment and appropriate assessment are considered in the following sections of my assessment set out below. Subject to consideration of these matters, it can be concluded that the proposed development is in accordance with the proper planning and sustainable development of the area.

15.3. **Environmental Impact Assessment**

The Board completed an environmental impact assessment of the proposed development and wider proposed upgrade project, taking into account:

- (a) The nature, scale, location and extent of the proposed development across the Ringsend WwTP and RBSF components;
- (b) The environmental impact assessment report and associated documentation submitted with the application;
- (c) The reports and submissions received from the planning authority, observers and prescribed bodies and the applicant's further submission in the course of the application;
- (d) The planning inspector's report;

The Board agreed with the summary and examination set out in the inspector's report, of the information contained in the environmental impact assessment report and associated documentation submitted by the applicant and submissions made in the course of the application. The Board is satisfied that the inspector's report sets out how these were addressed in the examination and recommendation and are incorporated into the Board's decision.

The Board considered that the environmental impact assessment report, supported by the documentation submitted by the applicant, provided information which is reasonable and sufficient to allow the Board to reach a reasoned conclusion on the significant effects of the project on the environment, taking into account current knowledge and methods of assessment. The Board is satisfied that the information contained in the EIAR is up to date and complies with the provisions of EU Directive 2014/52/EU amending Directive 2011/92/EU. The Board considered that the main significant direct and indirect effects of the proposed development on the environment are those arising from the impacts listed below. A Construction Environmental Management Plan (CEMP) is the overarching general mitigation embedded in the project design and delivery for the construction stage. In addition, plans relating to Waste Management, Invasive Species Management, Traffic Management, Monitoring Plans and Emergency Response Plans are also proposed. The remaining impacts, both positive and negative are:

- Benefits/positive impacts to **population and human health** arising as a result of the overall project upgrade due to providing increased treatment

infrastructural capacity and improved level of treatment which would improve compliance with EU Directives and corresponding legislation and would be pivotal in supporting planned residential and economic growth in Dublin city and the region.

- Negative temporary impact on **population and human health** (recreational swimmers/water based sporting activities) because of a deterioration in water quality during a nine-month period of decommissioning of aspects of the WwTP (during construction) and a corresponding temporary loss of recreational amenity which would be partially mitigated by carrying out the works in winter period when the recreational water based activities are at seasonally low levels;
- Benefits/positive impacts on the environment (**soils, traffic, water quality, climate**) as a result of reduction in excavation and truck movements (estimated to be 70,000 HGV movements over an 18-month period) which would otherwise have been required to remove and transport rock and spoil during the construction phase of the undersea tunnel. During the operation phase, the proposal to omit the tunnel and associated diffuser point 9 km out to sea would also mean that there would be no deterioration of water quality at this location.
- Impacts arising on **land and soils** as a result of spread of invasive species (Japanese Knotweed) present on the Ringsend wastewater treatment site and which would be mitigated by the preparation and implementation of an Invasive Species Management Plan and method statement for the control of disturbance of soils containing Japanese Knotweed and the requirement that a suitably qualified ecologist would be engaged to oversee the implementation of the Invasive Species Management Plan and monitor the success of the mitigation measures post-construction;
- Risk of pollution of **receiving water environment** as a result of accidental spillages of chemicals, hydrocarbons or other contaminants entering the drainage system and discharging to the stream thereafter during the construction and operational phases. The impacts would be mitigated by

measures within a Construction and Environmental Monitoring Plan (CEMP) and adherence to best practice construction measures and incorporation of appropriate drainage facilities. Measures set out in the CIRIA guidance document on 'control and management of water pollution from construction sites' would be implemented. The guidelines provided by the Inland Fisheries Ireland (2016) on the protection of fisheries habitats during construction projects would also be adhered to.

- **Noise** impacts for the construction and operation phases which would be mitigated by the requirements to prepare and adhere to the Noise and Vibration Management Plans (NWMP) and comply with appropriate noise and vibration limits which are set out in the EIAR in respect of the development at Ringsend wastewater treatment plant and the development of the regional biosolids facility.
- **Odour impacts** for the operational phase which would be mitigated by the following:
 - Ringsend WwTP: odour from the wastewater treatment plant (excluding storm tanks) would be required not to exceed 10 ouE/m³ as the 99.4th percentile of hourly averages at the boundary of the Ringsend WwTP site. The adopted odour annoyance criterion of 3 ouE/m³ as the 98th percentile of hourly averages would not be exceeded at any sensitive receptor location. The Odour Management Plan would be updated as necessary and implemented to ensure the above standard is achieved during construction and operation.
 - RBSF: The adopted odour annoyance criterion of 3 ouE/m³ as the 98th percentile of hourly averages would not be exceeded at any sensitive receptor location.

The Board completed an environmental impact assessment in relation to the proposed development forming part of the overall proposed upgrade project and concluded that, subject to the implementation of the mitigation measures referred to above including proposed monitoring as appropriate, subject to compliance with the

conditions set out below, the effects on the environment of the proposed development, by itself and in combination with other development in the vicinity, would be acceptable. In doing so, the Board adopted the report and conclusions set out in the inspector's report.

15.4. **Appropriate Assessment**

15.4.1. The Board agreed with and adopted the screening (Appropriate Assessment Stage one) and conclusions carried out in the inspector's report that South Dublin Bay and River Tolka Estuary SPA (site code 004024), South Dublin Bay cSAC (site code 000210), North Bull Island SPA (site code 004006), North Dublin Bay cSAC (site code 000206), Howth Head Coast SPA (site code 004113), Dalkey Islands SPA (site code 004172) and Rockabill to Dalkey Island cSAC (site code 003000) are the only European Sites in respect of which the proposed development has the potential to have a significant effect.

15.4.2. The Board considered the Natura Impact Statement and associated documentation submitted with the application, the mitigation measures contained therein, the submissions and observations on file, and the inspector's assessment. The Board completed an appropriate assessment of the implications of the proposed development as part of the overall proposed upgrade project for the aforementioned European Sites in view of the sites' conservation objectives. The Board considered that the information before it was adequate to allow the carrying out of an appropriate assessment. In completing the appropriate assessment, the Board considered, in particular, the following:

- a. the likely direct and indirect impacts arising from the proposed development at Ringsend WwTP and the RBSF sites both individually, when taken together and in combination with other plans or projects,
- b. the mitigation measures, which are included as part of the current proposal, and
- c. the conservation objectives for the European Sites.

In completing the appropriate assessment, the Board accepted and adopted the appropriate assessment carried out in the Inspector's report in respect of the potential effects of the proposed development on the aforementioned European

Sites, having regard to the sites' conservation objectives. In overall conclusion, the Board was satisfied that the proposed development, by itself or in combination with other plans or projects, would not adversely affect the integrity of the European Sites, in view of the sites' conservation objectives.

16.0 Conditions

16.1. Ringsend WwTP and the RBSF components

1. The proposed development shall be carried out and completed in accordance with the plans and particulars lodged with the planning application and the information contained in the Environmental Impact Assessment Report and Natura Impact Statement, except as may otherwise be required in order to comply with the following conditions. Where such conditions require details to be agreed with the planning authority, the developer shall agree such details in writing with the planning authority prior to commencement of development, or in default of agreement, shall be referred to An Bord Pleanála for determination, and the proposed development shall be carried out and completed in accordance with the agreed particulars.

Reason: In the interest of clarity and the proper planning and sustainable development of the area and to ensure the protection of the environment.

2. With the exception of the development hereby permitted, the proposed development at the Ringsend Wastewater Treatment Plant shall otherwise comply with the terms and conditions of permission granted under ABP Ref: 29N.YA0010, as amended by planning permission granted for alterations under ABP Ref. 29N.YM0002 and 29N.YM0004 and any further applications or alterations where permitted.

Reason: In the interest of clarity and the proper planning and sustainable

development of the area.

3. The period during which the development hereby permitted may be carried out shall be ten years from the date of this order.

Reason: Having regard to the nature and extent of the proposed development, the Board considered it appropriate to specify a period of validity of this permission in excess of five years.

4. Mitigation

- a) All mitigation and environmental commitments identified in the EIAR (Table 17-1 of Volume 3 and 4) shall be implemented in full as part of the proposed development except as may otherwise be required to comply with the following conditions.

Monitoring

- b) All monitoring measures identified in the EIAR (Table 17-2-of Volume 3 and 4) shall be carried out and the details of monitoring results shall be submitted to the Planning Authorities (Dublin City Council in respect of the Ringsend wastewater treatment plant and Fingal County Council in respect of the Regional Biosolids facility) except as may otherwise be required to comply with the following conditions.

Reason: In the interest of clarity and to protect the environment.

5. A contract specific Construction and Environmental Management Plan (CEMP) and Waste Management Plan (WMP) shall be submitted to and agreed in writing with both Planning Authorities in respect of the development at the Ringsend WwTP site and the RBSF site. The CEMPs and WMPs shall detail and ensure Best Construction Practice and compliance with statutory obligations.

As part of the CEMP, the submitted invasive species management plan

shall be updated as necessary for the control or disturbance to soils containing Japanese Knotweed in accordance with 'Irish Water Information and Guidance Document on Japanese Knotweed. The plan shall include a method statement for the removal of invasive species identified as being present on site.

The implementation of the invasive species management plan shall be overseen by a suitably qualified ecologist/botanist familiar with Japanese Knotweed.

Reason: To protect the environment during construction.

6. a) Prior to commencement of the development, a Traffic Management Plan for the construction and operational phases shall be submitted to, and agreed in writing with the Planning Authorities in respect of the development at the Ringsend WwTP site and the RBSF site.
- b) The developer shall comply with the requirements of the Planning Authorities in respect of minimising traffic disruption on the local communities, cleaning and repair of any damage to the public road networks during the construction and operation phases.

Reason: To protect the public road network and in the interest of traffic safety.

7. The development shall adhere to the Noise and Vibration Management Plans (NWMP) and comply with appropriate noise and vibration limits set out in the EIAR in respect of the overall development at Ringsend wastewater treatment plant and the development of the regional biosolids facility.

During the construction and demolition phases, the proposal development shall comply with British Standard 5228 Noise Control on Construction and open sites Part 1. Code of practice for basic information

and procedures for noise control.

Construction Noise at the nearest sensitive receptor shall comply with the following limits:

- 70 L_{Aeq} (1 hour) dB – Daytime (07:00 – 19:00) and Saturdays (07:00 – 13:00)
- 65 L_{Aeq} (1 hour) dB – Evening (19:00 – 23:00)
- 55 L_{Aeq} (1 hour) dB – Night time (23:00 – 07:00)

Mitigation for the operation phase would include a number of items such as selection of 'low noise' equipment and plant, vibration isolation mounts and appropriate siting of fixed plant.

The developer(s) shall require the appointed contractor to employ and implement best practice construction noise and vibration management techniques throughout the construction phase in order to further reduce the noise and vibration impact to nearby noise sensitive receptors.

During the operation phase, noise shall be minimised by the selection of 'low noise' plant and equipment and incorporation of appropriate attenuation.

Noise monitoring during construction and commissioning and/or operation shall be carried out in accordance with the requirements of the Planning Authorities.

Reason: In the interest of the amenities of the surrounding area.

8. a) Ringsend WwTP

During operation, odour from the wastewater treatment plant (excluding storm tanks) shall not exceed 10 ou_E/m^3 as the 99.4th percentile of hourly averages at the boundary of the Ringsend WwTP site.

The adopted odour annoyance criterion of 3 ou_E/m^3 as the 98th percentile of hourly averages shall not be exceeded at any sensitive

receptor location. The Odour Management Plan shall be updated as necessary and implemented to ensure the above standard is achieved during construction and operation.

b) RBSF

The adopted odour annoyance criterion of 3 ouE/m³ as the 98th percentile of hourly averages shall not be exceeded at any sensitive receptor location.

Reason: In the interest of the amenities of the surrounding area.

9. The developer shall facilitate the preservation, recording and protection of archaeological materials or features that that may exist within and proximate to the Ringsend wastewater treatment site.

In this regard the developer shall –

- a) Notify the Department of the Culture, Heritage and the Gaeltacht in writing at least four weeks prior to the commencement of any site operation (including hydrological and geotechnical investigations) relating to the proposed development.
- b) Employ a suitably qualified archaeologist who shall monitor all site investigations and other excavation works and,
- c) Provide arrangements for the recording and for the removal of any archaeological material which the Department of Culture, Heritage and the Gaeltacht considers appropriate to remove.

In default of an agreement on any of these requirements, the matter shall be referred to An Bord Pleanála for determination.

Reason: In order to conserve the archaeological heritage of the site and to secure the preservation and protection of any remains that may exist within the site.

10. a) Prior to the commencement of the development, the developer shall submit a detailed landscaping plan for each of the development components at Ringsend WwTP and the RBSF sites. Details, including strengthening of boundary treatment, screening of compounds and general landscape details including timescales shall be submitted to and agreed in writing with the planning authorities and the landscaping shall be carried out in accordance with the agreed details thereafter.
- b) Prior to the commencement of the development, a detailed decommissioning and site restoration plan in respect of the construction compounds, together with a timescale for its implementation, shall be submitted to and agreed in writing with the planning authorities.

Reason: In the interest of the amenities of the surrounding area.

11. a) The development shall comply with the requirements of the Planning Authorities with respect to surface water management.
- b) The existing surface water pipeline traversing the RBSF site shall be realigned and a wayleave provided in accordance with the requirements of the Planning Authority (Fingal County Council).

Reason: In the interest of providing best practice for surface water management and to provide for future maintenance of the realigned pipe at the RBSF site.

12. Prior to commencement of the development, the design details for the regional biosolids facility shall be submitted to and agreed in writing with the planning authority for the prevention of environmental pollution in the event of a fire occurrence. Such detail shall also include an assessment of the risk of environmental pollution due to fire water and any mitigation measures which may be necessary

Reason: In the interest of protection of the environment and amenities of

the area.

13. All works to be undertaken within and adjacent to designated European sites within Dublin Bay shall be undertaken in accordance with the requirements of a suitably qualified ecologist appointed following consultation with the National Parks and Wildlife Service.

Reason: In the interest of protection of designated European sites and qualifying interests, having regard to the sites conservation objectives.

14. The developer shall pay to the planning authority (Fingal County Council) a financial contribution as a special contribution under section 48(2) (c) of the Planning and Development Act 2000, as amended, in respect of the upgrade and signalisation of the R135 and the N2 North Bound Slip priority junction. The amount of the contribution shall be agreed between the planning authority and the developer or, in default of such agreement, the matter shall be referred to An Bord Pleanála for determination. The contribution shall be paid prior to commencement of development or in such phased payments as the planning authority may facilitate. The application of indexation required by this condition shall be agreed between the planning authority and the developer or, in default of such agreement, the matter shall be referred to An Bord Pleanála to determine.

Reason: It is considered reasonable that the developer should contribute towards the specific exceptional costs which are incurred by the planning authority which are not covered in the Development Contribution Scheme and which would benefit the proposed development.

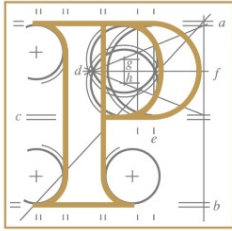
Patricia Calleary

Senior Planning Inspector

12th February 2019

APPENDIX B

Board Order – ABP-301798-18



An
Bord
Pleanála

Board Order ABP-301798-18

Planning and Development Acts, 2000 to 2018

Planning Authorities: Dublin City Council and Fingal County Council

Application for permission under section 37E of the Planning and Development Act 2000, as amended, in accordance with plans and particulars, including an environmental impact assessment report and Natura Impact Statement, lodged with An Bord Pleanála on the 6th day of June, 2018 by Irish Water care of Stephen Little and Associates of 26/27 Pembroke, Dublin.

Proposed Development: 10-year permission for development comprising revisions and alterations to the existing and permitted development at the Ringsend Wastewater Treatment Plant and for a new Regional Biosolids Storage Facility, being two components of an integrated wastewater treatment facility. The proposed development comprises revisions and alterations to the 2012 Approval (case reference number 29N.YA0010). The proposed revisions and alterations will continue to facilitate the expansion of the existing wastewater treatment plant (Ringsend Wastewater Treatment Plant) to its permitted capacity of 2.4 million population equivalent within the confines of its current site. However, this will now be achieved primarily through the introduction of aerobic granular sludge (AGS) technology at the Ringsend Wastewater Treatment Plant. The introduction of this technology will facilitate the omission of the nine-kilometre Long Sea Outfall Tunnel and the continued use of the existing outfall.

Component 1 – Ringsend Wastewater Treatment Plant, Pigeon House Road, Dublin 4

Permission is sought for development comprising revisions and alterations to the 2012 Approval on an overall site. The proposed development consists of:

- Reconfiguration and retrofitting of the existing Sequential Batch Reactor (SBR) Tanks, up to 24 number in total, to facilitate the use of a new AGS technology.
- Associated works, including the provision of:
 - A Sludge Pasteurisation Building (approximately circa 31.5 metres x circa 14.5 metres x circa 8.5 metres high).
 - A Phosphorous Recovery Building (approximately circa 38.5 metres x circa 15.5 metres x circa 20 metres high).
- Ancillary site development works (pipework and electrical works), plant (new and adjustments to existing) and landscape works (including boundary treatments) to accommodate the above development, including:
 - The use on a permanent basis of a vehicular entrance off Pigeon House Road and associated landscaping and internal road along the eastern boundary of the site, previously granted a temporary permission under case reference number 29N.YM0002.
 - A new underground electrical connection to an existing underground ESB cable, along the southern boundary of the site (at the south-west corner only) and at the edge of, and extending to within, the South Dublin Bay and River Tolka Estuary Special Protection Area.
 - Bypass culvert, ultraviolet (UV) lamps, internal road reconfigurations and additional car parking.
 - The continued use of two number temporary construction compounds (C1 and C2) for the 10-year duration of the permission sought. These compounds were previously permitted under case reference number 29N.YM0004 for a period of three years. Proposals for the temporary construction compound C1 include a pedestrian connection to the south-west corner of Ringsend Wastewater Treatment Plant. Temporary construction compound C1 is partially located within the Poolbeg West Strategic Development Zone as defined by Statutory

Instrument No. 279 of 2016. A Protected Structure (Pigeon House Fort) (RPS No. 6794) is partially located within temporary construction compound C2.

- The omission of the permitted nine-kilometre Long Sea Outfall (in tunnel) for the purposes of discharging into the Dublin Bay area from an onshore inlet shaft approximately 350 metres east of the existing Ringsend Wastewater Treatment Plant (including any associated construction works) which in turn provides for the continued use of the existing outfall to the River Liffey serving the Ringsend Wastewater Treatment Plant.
- The omission of two number temporary construction compounds located to the west of the Ringsend Wastewater Treatment Plant and also the omission of one temporary construction compound on Pigeon House Road to serve the Long Sea Outfall (in tunnel); all of which were previously permitted under case reference number 29N.YA0010.

The overall application site area of the development proposed at the Ringsend Wastewater Treatment Plant is approximately 17.9 hectares and includes a Protected Structure (RPS No. 6794). The overall existing Ringsend Wastewater Treatment Plant is 14.7 hectares and is divided into two sites by Pigeon House Road; 11.2 hectares to the south of the road where the Ringsend Wastewater Treatment Plant is located, with a further 3.5 hectares located to the north of the road. The two number temporary construction compounds which are the subject of this application amount to approximately 3.79 hectares, part of which is located within the 14.7 hectare site of the Ringsend Wastewater Treatment Plant. Part of the application site is within the Poolbeg West Strategic Development Zone as defined by Statutory Instrument No. 279 of 2016. The Ringsend agglomeration, including the wastewater treatment plant, has an existing discharge authorisation licence in accordance with the requirements of the Waste Water Discharge (Authorisation) Regulations 2007, as amended. A licence review will be carried out in accordance with the requirements of the licence review process.

Component 2 – Proposed Development of a Regional Biosolids Storage Facility at Newtown, North Road (R135), Dublin 11

Permission is also sought for development of a Regional Biosolids Storage Facility at a separate 11-hectare site comprising:

- Demolition of existing single storey structures on site comprising of a security kiosk (approximately 22 square metres gross floor area), the weighbridge kiosk (approximately 19 square metres gross floor area), an ESB sub-station (approximately 16 square metres gross floor area) and an administration building (approximately 85 square metres gross floor area), together with the partial removal of existing internal roads and partial removal/diversion of existing drainage infrastructure as appropriate to accommodate the development.
- Provision of two number biosolids storage buildings, each approximately 50 metres wide, 105 metres long and 15 metres in height, including solar panels on the roof of one building. These buildings have a combined capacity to store up to 48,000 cubic metres of biosolids waste at any one time.
- Provision of four number odour control units, each with 18.2 metre-high discharge flues.
- Mechanical and electrical control building (approximately 35 square metres gross floor area, four metres high).
- Provision of a single storey site administration building for office, welfare facilities and meeting rooms (approximately 130 square metres gross floor area) and associated staff car parking.
- Use of the existing vehicular access off the R135, including provision of new 2.7 metre-high entrance gates to serve the Regional Biosolids Storage Facility.
- All ancillary landscape and site development works, including:
 - Provision of two number new weighbridge facilities (one number weighbridge on entry and exit of the Regional Biosolids Storage Facility).
 - Provision of new ESB sub-station (approximately 40 square metres gross floor area).

- Landscaping and boundary treatments, including new 2.7-metre-high boundary to North Road/R135.
- Provision of fire protection holding tank (approximately 6.7 metres high).
- Provision of a Heavy Goods Vehicle (HGV) cleaning and set-down area.
- Formation of a new footpath and landscaped verge to R135 along site frontage.
- Provision of drainage, water, external lighting and other utilities.
- Diversion of 450 millimetres surface water pipe.
- One number signage structure, 5.2 metres in height erected on posts accommodating two number signage zones: 2.4 metres x 1.7 metres and 2.4 metres x 1.2 metres, located at the site entrance.

All at the Ringsend Wastewater Treatment Plant, Pigeon House Road, Dublin and Newtown, North Road (R135), Dublin.

Decision

Grant permission under section 37G of the Planning and Development Act 2000, as amended, for the above proposed development in accordance with the said plans and particulars based on the reasons and considerations under and subject to the conditions set out below.

Determine under section 37H(2)(c) the sum to be paid by the applicant in respect of costs associated with the application as set out in the Schedule of Costs below.

Matters Considered

In making its decision, the Board had regard to those matters to which, by virtue of the Planning and Development Acts and Regulations made thereunder, it was required to have regard. Such matters included any submissions and observations received by it in accordance with statutory provisions.

Reasons and Considerations

In coming to its decision, the Board had regard to a range of matters, including the following:

European legislation, including of particular relevance:

- The EIA Directive 2011/92/EU amended by Directive 2014/52/EU (EIA Directive),
- The European Union Water Framework Directive 2000/60/EC,
- The European Union Urban Waste Water Treatment Directive 91/271/EEC,
- The European Union Bathing Water Directive 2006/7/EC,
- The Groundwater Directive (2006/118/EC),
- The Sewage Sludge Directive (86/278/EEC), and
- The Nitrates Directive (91/676/EEC).

National legislation, including of particular relevance:

- The European Communities Environmental Objectives (Surface Waters) Regulations 2009, as amended,
- The European Communities (Water Policy) Regulations, 2003, as amended,

- The European Communities Environmental Objectives (Groundwater) Regulations 2010, as amended,
- The Urban Waste Water Treatment Regulations 2001, as amended,
- The Waste Water Discharge (Authorisation) Regulations 2007, as amended, and
- The Bathing Water Quality Regulations 2008, as amended.

National and regional planning and related policy, including:

- The National Planning Framework – Ireland 2040 including Strategic Outcome 9 and corresponding Investment Action contained in the National Development Plan, 2018-2027,
- The Water Services Strategic Plan where the upgrading of Ringsend Treatment Plant is recognised as a significant contribution in meeting its obligation under the Urban Wastewater Treatment Directive,
- The National Wastewater Sludge Management Plan 2016 – 2041,
- The River Basin Management Plan for Ireland 2018 – 2021,
- The Greater Dublin Strategic Drainage Study (2005) and the Greater Dublin Drainage Strategy: Overview & Future Strategy (2018),
- The Regional Planning Guidelines for the Greater Dublin Area 2010-2022,
- The Draft Regional Spatial and Economic Strategy (RSES), and
- The Eastern-Midlands Region Waste Management Plan 2015 – 2021.

Local planning context – Ringsend Wastewater Treatment Plant component:

- The provisions of the Dublin City Development Plan 2016-2022, including Policies SI1 and SI2 which support development of water and wastewater systems by Irish Water in which the upgrading of the Ringsend Wastewater Treatment Plant is specifically referenced; related Planning Objectives SIO1 and SIO2 together with stated policies and objectives in support of the proposed development in the context of proper planning and sustainable development. Regard was also had to the land use zoning objectives for the area.

Local planning context – Regional Biosolids Facility component:

- The provisions of the Fingal County Development Plan 2017-2023, including stated policies and objectives, particularly Objective WM15 which requires to work with Irish Water and other relevant stakeholders to ensure the provision of facilities for the safe and sustainable management of sludges (sewage, waterworks, agricultural, industrial and septic tank) and Local Objective 78, in support of the proposed development in the context of proper planning and sustainable development. Regard was also had to the land use zoning objectives for the area.

The following matters:

- the current performance of the existing wastewater treatment plant and the demonstrated need to improve discharge standards in order to increase capacity and meet water quality standards for bathing waters, coastal waters, transitional waters and designated sensitive waters in Dublin Bay in accordance with the requirements set out under the legislation and emissions limit values contained in the licence granted by the Environmental Protection Agency under licence number D00-34-01,

- the entirety of the documentation that accompanied the planning application and reports and submissions which were submitted by all parties, planning authorities, prescribed bodies and observers and the further submission made by the applicant during the course of the application,
- the established site context on the Poolbeg peninsula, spatially separated from residential development and the pattern of development in the area,
- the planning history of the site,
- the nature, scale and design of the proposed development, including, in particular, the proven AGS technology and the associated nitrogen and phosphorous removal in relation to the Ringsend Wastewater Treatment Plant component and the nature, scale, design and purpose of the Regional Biosolids Facility component,
- the range of proposed mitigation measures set out in the submitted Environmental Impact Assessment Report and Natura Impact Statement (incorporating Appropriate Assessment Screening), and
- the submissions made in relation to the application and the report and recommendation of the Inspector.

The Board considered that, subject to compliance with the conditions set out below, the proposed development would enable sustainable residential and economic growth through the delivery of increased wastewater treatment capacity, would improve the quality of effluent discharged to the receiving water environment, would assist Ireland in meeting obligations set down under EU Directives, national legislation and planning policy, and would be acceptable in terms of odour, noise, vibration and traffic. The proposed development would, therefore, be in accordance with the proper planning and sustainable development of the area.

Appropriate Assessment: Stage 1 Screening:

The Board agreed with and adopted the screening (Appropriate Assessment Stage one) and conclusions carried out in the Inspector's report that the South Dublin Bay and River Tolka Estuary Special Protection Area (site code: 004024), the South Dublin Bay Candidate Special Area of Conservation (site code: 000210), the North Bull Island Special Protection Area (site code: 004006), the North Dublin Bay Candidate Special Area of Conservation (site code: 000206), the Howth Head Coast Special Protection Area (site code: 004113), the Dalkey Islands Special Protection Area (site code: 004172) and the Rockabill to Dalkey Island Candidate Special Area of Conservation (site code: 003000) are the only European Sites in respect of which the proposed development has the potential to have a significant effect.

Appropriate Assessment: Stage 2:

The Board considered the Natura Impact Statement and associated documentation submitted with the application, the mitigation measures contained therein, the submissions and observations on file, and the Inspector's assessment. The Board completed an appropriate assessment of the implications of the proposed development as part of the overall proposed upgrade project for the aforementioned European Sites in view of the sites' Conservation Objectives. The Board considered that the information before it was adequate to allow the carrying out of an appropriate assessment. In completing the appropriate assessment, the Board considered, in particular, the following:

- (a) the likely direct and indirect impacts arising from the proposed development at the Ringsend Wastewater Treatment Plant and the Regional Biosolids Facility sites both individually, when taken together and in combination with other plans or projects,
- (b) the mitigation measures, which are included as part of the current proposal, and
- (c) the conservation objectives for the European Sites.

In completing the appropriate assessment, the Board accepted and adopted the appropriate assessment carried out in the Inspector's report in respect of the potential effects of the proposed development on the aforementioned European Sites, having regard to the sites' Conservation Objectives. In overall conclusion, the Board was satisfied that the proposed development, by itself or in combination with other plans or projects, would not adversely affect the integrity of the European Sites, in view of the sites' Conservation Objectives.

Environmental Impact Assessment:

The Board completed an environmental impact assessment of the proposed development and wider proposed upgrade project, taking into account:

- (a) The nature, scale, location and extent of the proposed development across the Ringsend Wastewater Treatment Plant and Regional Biosolids Facility components.
- (b) The Environmental Impact Assessment Report and associated documentation submitted with the application.
- (c) The reports and submissions received from the planning authorities, observers and prescribed bodies and the applicant's further submission in the course of the application.
- (d) The Inspector's report.

The Board agreed with the summary and examination set out in the Inspector's report, the information contained in the Environmental Impact Assessment Report and associated documentation submitted by the applicant and submissions made in the course of the application. The Board is satisfied that the Inspector's report sets out how these were addressed in the examination and recommendation and are incorporated into the Board's decision.

Reasoned Conclusions on the Significant Effects:

The Board considered that the Environmental Impact Assessment Report, supported by the documentation submitted by the applicant, provided information which is reasonable and sufficient to allow the Board to reach a reasoned conclusion on the significant effects of the proposed development on the environment, taking into account current knowledge and methods of assessment. The Board is satisfied that the information contained in the Environmental Impact Assessment Report is up to date and complies with the provisions of EU Directive 2014/52/EU amending Directive 2011/92/EU. The Board considered that the main significant direct and indirect effects of the proposed development on the environment are those arising from the impacts listed below. A Construction Environmental Management Plan (CEMP) is the overarching general mitigation embedded in the project design and delivery for the construction stage. In addition, plans relating to Waste Management, Invasive Species Management, Traffic Management, Odour Management, Monitoring Plans and Emergency Response Plans are also proposed. The remaining impacts, both positive and negative are:

- Benefits/positive impacts to **population and human health** arising as a result of the overall project upgrade due to providing increased treatment infrastructural capacity and improved level of treatment which would improve compliance with EU Directives and corresponding legislation and would be pivotal in supporting planned residential and economic growth in Dublin City and the region.
- Negative temporary impact on **population and human health** (recreational swimmers/water-based sporting activities) because of a deterioration in water quality during a nine-month period of decommissioning of aspects of the Wastewater Treatment Plant (during construction) and a corresponding temporary loss of recreational amenity which would be partially mitigated by carrying out the works in winter period when the recreational water-based activities are at seasonally low levels.

- Benefits/positive impacts on the environment (**soils, traffic, water quality, climate**) as a result of reduction in excavation and truck movements (estimated to be 70,000 HGV movements over an 18-month period) which would otherwise have been required to remove and transport rock and spoil during the construction phase of the undersea tunnel. During the operation phase, the proposal to omit the tunnel and associated diffuser point nine kilometres out to sea would also mean that there would be no deterioration of water quality at this location.
- Impacts arising on **land and soils** as a result of spread of invasive species (Japanese Knotweed) present on the Ringsend wastewater treatment site and which would be mitigated by the preparation and implementation of an Invasive Species Management Plan and method statement for the control of disturbance of soils containing Japanese Knotweed and the requirement that a suitably qualified ecologist would be engaged to oversee the implementation of the Invasive Species Management Plan and monitor the success of the mitigation measures post-construction.
- Risk of pollution of **receiving water environment** as a result of accidental spillages of chemicals, hydrocarbons or other contaminants entering the drainage system and discharging to the stream thereafter during the construction and operational phases. The impacts would be mitigated by measures within a Construction and Environmental Monitoring Plan (CEMP) and adherence to best practice construction measures and incorporation of appropriate drainage facilities. Measures set out in the CIRIA guidance document on 'control and management of water pollution from construction sites' would be implemented. The guidelines provided by Inland Fisheries Ireland (2016) on the protection of fisheries habitats during construction projects would also be adhered to.

- **Noise** impacts for the construction and operation phases which would be mitigated by the requirements to prepare and adhere to the Noise and Vibration Management Plans (NWMP) and comply with appropriate noise and vibration limits which are set out in the Environmental Impact Assessment Report in respect of the development of the Ringsend Wastewater Treatment Plant and the development of the Regional Biosolids Facility.
- **Odour impacts** for the operational phase which would be mitigated by the following:
 - Ringsend Wastewater Treatment Plant: Odour from the wastewater treatment plant (excluding storm tanks) would be required not to exceed 10 ouE/m³ as the 99.4th percentile of hourly averages at the boundary of the Ringsend Wastewater Treatment Plant site. The adopted odour annoyance criterion of 3 ouE/m³ as the 98th percentile of hourly averages would not be exceeded at any sensitive receptor location. The Odour Management Plan would be updated as necessary and implemented to ensure the above standard is achieved during construction and operation.
 - Regional Biosolids Facility: The adopted odour annoyance criterion of 3 ouE/m³ as the 98th percentile of hourly averages would not be exceeded at any sensitive receptor location.

The Board completed an environmental impact assessment in relation to the proposed development forming part of the overall proposed upgrade project and concluded that, subject to the implementation of the mitigation measures referred to above, including proposed monitoring as appropriate, and subject to compliance with the conditions set out below, the effects on the environment of the proposed development, by itself and in combination with other development in the vicinity, would be acceptable. In doing so, the Board adopted the report and conclusions set out in the Inspector's report.

Conclusion on Proper Planning and Sustainable Development:

The benefits of the proposed development are considered to be positive. Its delivery would assist Ireland in meeting obligations set down under EU Directives, national legislation and planning policy expressed through the hierarchy plans which regulate development at a national, regional and local level. The proposed development would enable sustainable residential and economic growth through the delivery of increased wastewater treatment capacity while protecting the environment through improving the quality of effluent discharged to the receiving water environment. It has been demonstrated in the application that the improvement envisaged in final effluent quality can be achieved at the existing Ringsend Wastewater Treatment Plant by the incorporation of scientifically proven aerobic granular sludge technology into the treatment process together with associated nitrogen and phosphorous removal. When compared to the previously permitted and proposed long sea outfall (in tunnel) option, the current proposal has significant advantages and would be less intrusive on the receiving environment. The Regional Biosolids Storage Facility would assist in meeting the aims of the Sewage Sludge Directive, regulating the use of sewage sludge in agriculture to prevent harmful effects. Environmental impact assessment and appropriate assessment have also been considered as set out in the sections above. It can, therefore, be concluded that the proposed development is in accordance with the proper planning and sustainable development of the area.

CONDITIONS

Ringsend Wastewater Treatment Plant and Regional Biosolids Facility:

1. The proposed development shall be carried out and completed in accordance with the plans and particulars lodged with the planning application and the information contained in the Environmental Impact Assessment Report and Natura Impact Statement, except as may otherwise be required in order to comply with the following conditions. Where such conditions require details to be agreed with the planning authority, the developer shall agree such details in writing with the planning authority prior to commencement of development or, in default of agreement, the matter shall be referred to An Bord Pleanála for determination, and the proposed development shall be carried out and completed in accordance with the agreed particulars.

Reason: In the interest of clarity and the proper planning and sustainable development of the area and to ensure the protection of the environment.

2. **Mitigation:**
 - (a) All mitigation and environmental commitments identified in the Environmental Impact Assessment Report (Table 17-1 of Volume 3 and 4) shall be implemented in full as part of the proposed development except as may otherwise be required to comply with the following conditions.

Monitoring:

- (b) All monitoring measures identified in the Environmental Impact Assessment Report (Table 17-2-of Volume 3 and 4) shall be carried out and the details of monitoring results shall be submitted to the Planning Authorities (Dublin City Council in respect of the Ringsend Wastewater Treatment Plant and Fingal County Council in respect of the Regional Biosolids Facility) except as may otherwise be required to comply with the following conditions.

Reason: In the interest of clarity and to protect the environment.

3. With the exception of the development hereby permitted, the proposed development at the Ringsend Wastewater Treatment Plant shall otherwise comply with the terms and conditions of permission granted under An Bord Pleanála case reference number 29N.YA0010, as amended by planning permission granted for alterations under An Bord Pleanála case reference numbers 29N.YM0002 and 29N.YM0004 and any further applications or alterations where permitted.

Reason: In the interest of clarity and the proper planning and sustainable development of the area.

4. The period during which the proposed development hereby permitted may be carried out shall be ten years from the date of this order.

Reason: Having regard to the nature and extent of the proposed development, the Board considered it appropriate to specify a period of validity of this permission in excess of five years.

5. A contract specific Construction and Environmental Management Plan (CEMP) and Waste Management Plan (WMP) shall be submitted to and agreed in writing with both planning authorities in respect of the proposed development at the Ringsend Wastewater Treatment Plant site and the Regional Biosolids Facility site. The CEMP and WMP shall detail and ensure Best Construction Practice and compliance with statutory obligations. As part of the CEMP, the submitted invasive species management plan shall be updated as necessary for the control or disturbance to soils containing Japanese Knotweed in accordance with Irish Water Information and Guidance Document on Japanese Knotweed. The plan shall include a method statement for the removal of invasive species identified as being present on site. The implementation of the invasive species management plan shall be overseen by a suitably qualified ecologist/botanist familiar with Japanese Knotweed.

Reason: To protect the environment during construction.

6.
 - (a) Prior to commencement of development, a Traffic Management Plan for the construction and operational phases shall be submitted to, and agreed in writing with, the planning authorities in respect of the development at the Ringsend Wastewater Treatment Plant site and the Regional Biosolids Facility site.
 - (b) The developer shall comply with the requirements of the planning authorities in respect of minimising traffic disruption on the local communities, cleaning and repair of any damage to the public road networks during the construction and operation phases.

Reason: To protect the public road network and in the interest of traffic safety.

7. The proposed development shall adhere to the Noise and Vibration Management Plans (NWMP) and comply with appropriate noise and vibration limits set out in the Environmental Impact Assessment Report in respect of the overall development at Ringsend Wastewater Treatment Plant and the development of the Regional Biosolids Facility. During the construction and demolition phases, the proposed development shall comply with British Standard 5228 Noise Control on Construction and open sites Part 1, code of practice for basic information and procedures for noise control.

Construction Noise at the nearest sensitive receptor shall comply with the following limits:

- 70 L_{Aeq} (1 hour) dB – Daytime (07:00 – 19:00) and Saturdays (07:00 – 13:00)
- 65 L_{Aeq} (1 hour) dB – Evening (19:00 – 23:00)
- 55 L_{Aeq} (1 hour) dB – Night time (23:00 – 07:00)

Mitigation for the operation phase shall include a number of items such as selection of 'low noise' equipment and plant, vibration isolation mounts and appropriate siting of fixed plant.

The developer shall require the appointed contractor to employ and implement best practice construction noise and vibration management techniques throughout the construction phase in order to further reduce the noise and vibration impact to nearby noise sensitive receptors.

During the operation phase, noise shall be minimised by the selection of 'low noise' plant and equipment and incorporation of appropriate attenuation.

Noise monitoring during construction and commissioning and/or operation shall be carried out in accordance with the requirements of the planning authorities.

Reason: In the interest of the amenities of the surrounding area.

8. **Ringsend Wastewater Treatment Plant:**

During operation, odour from the wastewater treatment plant (excluding storm tanks) shall not exceed 10 ouE/m³ as the 99.4th percentile of hourly averages at the boundary of the Ringsend Wastewater Treatment Plant site. The adopted odour annoyance criterion of 3 ouE/m³ as the 98th percentile of hourly averages shall not be exceeded at any sensitive receptor location. The Odour Management Plan shall be updated as necessary and implemented to ensure the above standard is achieved during construction and operation.

Regional Biosolids Facility:

The adopted odour annoyance criterion of 3 ouE/m³ as the 98th percentile of hourly averages shall not be exceeded at any sensitive receptor location.

Reason: In the interest of the amenities of the surrounding area.

9. The developer shall facilitate the preservation, recording and protection of archaeological materials or features that may exist within and proximate to the Ringsend Wastewater Treatment Plant site and the Regional Biosolids Facility site.

In this regard, the developer shall –

- (a) Notify the Department of Culture, Heritage and the Gaeltacht in writing at least four weeks prior to the commencement of any site operation (including hydrological and geotechnical investigations) relating to the proposed development.
- (b) Employ a suitably qualified archaeologist who shall monitor all site investigations and other excavation works.
- (c) Provide arrangements for the recording and for the removal of any archaeological material which the Department of Culture, Heritage and the Gaeltacht considers appropriate to remove.

In default of agreement on any of these requirements, the matter shall be referred to An Bord Pleanála for determination.

Reason: In order to conserve the archaeological heritage of the site and to secure the preservation and protection of any remains that may exist within the site.

10. (a) Prior to commencement of development, the developer shall submit a detailed landscaping plan for each of the development components at the Ringsend Wastewater Treatment Plant and the Regional Biosolids Facility sites. Details, including strengthening of boundary treatment, screening of compounds and general landscape details, including timescales, shall be submitted to, and agreed in writing with, the planning authorities and the landscaping shall be carried out in accordance with the agreed details thereafter.
- (b) Prior to commencement of development, a detailed decommissioning and site restoration plan in respect of the construction compounds, together with a timescale for its implementation, shall be submitted to and agreed in writing with the planning authorities.

Reason: In the interest of the amenities of the surrounding area.

11. (a) The proposed development shall comply with the requirements of the planning authorities with respect to surface water management.
- (b) The existing surface water pipeline traversing the Regional Biosolids Facility site shall be realigned and a wayleave provided in accordance with the requirements of the planning authority (Fingal County Council).

Reason: In the interest of providing best practice for surface water management and to provide for future maintenance of the realigned pipe at the Regional Biosolids Facility site.

12. Prior to commencement of development, the design details for the Regional Biosolids Facility shall be submitted to and agreed in writing with the planning authority (Fingal County Council) for the prevention of environmental pollution in the event of a fire occurrence. Such detail shall also include an assessment of the risk of environmental pollution due to fire water and any mitigation measures which may be necessary.

Reason: In the interest of the protection of the environment and the amenities of the area.

13. All works to be undertaken within and adjacent to designated European Sites within Dublin Bay shall be undertaken in accordance with the requirements of a suitably qualified ecologist appointed following consultation with the National Parks and Wildlife Service.

Reason: In the interest of the protection of designated European Sites and qualifying interests, having regard to the sites' Conservation Objectives.

14. The developer shall pay to the planning authority (Fingal County Council) a financial contribution as a special contribution under section 48(2)(c) of the Planning and Development Act 2000, as amended, in respect of the upgrade and signalisation of the R135 and the N2 North Bound Slip Priority Junction. The amount of the contribution shall be agreed between the planning authority and the developer or, in default of such agreement, the matter shall be referred to An Bord Pleanála for determination. The contribution shall be paid prior to commencement of development or in such phased payments as the planning authority may facilitate. The application of indexation required by this condition shall be agreed between the planning authority and the developer or, in default of such agreement, the matter shall be referred to An Bord Pleanála to determine.

Reason: It is considered reasonable that the developer should contribute towards the specific exceptional costs which are incurred by the planning authority which are not covered in the Development Contribution Scheme and which would benefit the proposed development.

APPENDIX 8.2

NATIONAL BIODIVERSITY DATA CENTRE RECORDS OF PROTECTED AND INVASIVE SPECIES

Appendix 8.2 - National Biodiversity Data Centre Records of Protected and Invasive Species

Species group	Species name	Date of last record	Designation
amphibian	Common Frog (<i>Rana temporaria</i>)	30/08/2018	Protected Species: EU Habitats Directive Protected Species: EU Habitats Directive >> Annex V Protected Species: Wildlife Acts
amphibian	Smooth Newt (<i>Lissotriton vulgaris</i>)	12/05/2018	Protected Species: Wildlife Acts
bird	Arctic Tern (<i>Sterna paradisaea</i>)	31/12/2011	Protected Species: Wildlife Acts Protected Species: EU Birds Directive Protected Species: EU Birds Directive >> Annex I Bird Species Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
bird	Barn Owl (<i>Tyto alba</i>)	31/12/2011	Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Red List
bird	Barn Swallow (<i>Hirundo rustica</i>)	13/08/2017	Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
bird	Barnacle Goose (<i>Branta leucopsis</i>)	15/02/2015	Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
bird	Bar-tailed Godwit (<i>Limosa lapponica</i>)	31/12/2011	Protected Species: Wildlife Acts Protected Species: EU Birds Directive Protected Species: EU Birds Directive >> Annex I Bird Species Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
bird	Black Guillemot (<i>Cephus grylle</i>)	05/06/2016	Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
bird	Black-headed Gull (<i>Larus ridibundus</i>)	08/12/2017	Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern

Species group	Species name	Date of last record	Designation
			Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Red List
bird	Black-legged Kittiwake (<i>Rissa tridactyla</i>)	10/03/2012	Protected Species: Wildlife Acts Threatened Species: OSPAR Convention Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
bird	Black-tailed Godwit (<i>Limosa limosa</i>)	10/03/2012	Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
bird	Brent Goose (<i>Branta bernicla</i>)	17/02/2017	Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
bird	Common Coot (<i>Fulica atra</i>)	27/10/2017	Protected Species: Wildlife Acts Protected Species: EU Birds Directive Protected Species: EU Birds Directive >> Annex II, Section I Bird Species Protected Species: EU Birds Directive >> Annex III, Section II Bird Species Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
bird	Common Eider (<i>Somateria mollissima</i>)	18/05/2015	Protected Species: Wildlife Acts Protected Species: EU Birds Directive Protected Species: EU Birds Directive >> Annex II, Section II Bird Species Protected Species: EU Birds Directive >> Annex III, Section II Bird Species Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
bird	Common Goldeneye (<i>Bucephala clangula</i>)	18/05/2015	Protected Species: Wildlife Acts Protected Species: EU Birds Directive Protected Species: EU Birds Directive >> Annex II, Section II Bird Species Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List

Species group	Species name	Date of last record	Designation
bird	Common Grasshopper Warbler (<i>Locustella naevia</i>)	20/08/2012	Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
bird	Common Greenshank (<i>Tringa nebularia</i>)	31/12/2011	Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
bird	Common Kestrel (<i>Falco tinnunculus</i>)	21/11/2016	Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
bird	Common Kingfisher (<i>Alcedo atthis</i>)	15/08/2017	Protected Species: Wildlife Acts Protected Species: EU Birds Directive Protected Species: EU Birds Directive >> Annex I Bird Species Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
bird	Common Linnet (<i>Carduelis cannabina</i>)	03/02/2017	Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
bird	Common Pheasant (<i>Phasianus colchicus</i>)	10/03/2016	Protected Species: Wildlife Acts Protected Species: EU Birds Directive Protected Species: EU Birds Directive >> Annex II, Section I Bird Species Protected Species: EU Birds Directive >> Annex III, Section I Bird Species
bird	Common Pochard (<i>Aythya ferina</i>)	31/12/2011	Protected Species: Wildlife Acts Protected Species: EU Birds Directive Protected Species: EU Birds Directive >> Annex II, Section I Bird Species Protected Species: EU Birds Directive >> Annex III, Section II Bird Species Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
bird	Common Redshank (<i>Tringa totanus</i>)	17/09/2017	Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation

Species group	Species name	Date of last record	Designation
			Concern >> Birds of Conservation Concern - Red List
bird	Common Sandpiper (<i>Actitis hypoleucos</i>)	31/12/2011	Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
bird	Common Shelduck (<i>Tadorna tadorna</i>)	31/12/2011	Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
bird	Common Snipe (<i>Gallinago gallinago</i>)	28/01/2017	Protected Species: Wildlife Acts Protected Species: EU Birds Directive Protected Species: EU Birds Directive >> Annex II, Section I Bird Species Protected Species: EU Birds Directive >> Annex III, Section III Bird Species Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
bird	Common Starling (<i>Sturnus vulgaris</i>)	10/12/2017	Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
bird	Common Swift (<i>Apus apus</i>)	16/06/2017	Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
bird	Common Tern (<i>Sterna hirundo</i>)	18/06/2017	Protected Species: Wildlife Acts Protected Species: EU Birds Directive Protected Species: EU Birds Directive >> Annex I Bird Species Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
bird	Common Wood Pigeon (<i>Columba palumbus</i>)	26/11/2017	Protected Species: Wildlife Acts Protected Species: EU Birds Directive Protected Species: EU Birds Directive >> Annex II, Section I Bird Species Protected Species: EU Birds Directive >> Annex III, Section I Bird Species

Species group	Species name	Date of last record	Designation
bird	Dunlin (<i>Calidris alpina</i>)	31/12/2011	Protected Species: Wildlife Acts Protected Species: EU Birds Directive Protected Species: EU Birds Directive >> Annex I Bird Species Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
bird	Eurasian Curlew (<i>Numenius arquata</i>)	04/12/2017	Protected Species: Wildlife Acts Protected Species: EU Birds Directive Protected Species: EU Birds Directive >> Annex II, Section II Bird Species Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Red List
bird	Eurasian Oystercatcher (<i>Haematopus ostralegus</i>)	17/09/2017	Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
bird	Eurasian Teal (<i>Anas crecca</i>)	26/02/2017	Protected Species: Wildlife Acts Protected Species: EU Birds Directive Protected Species: EU Birds Directive >> Annex II, Section I Bird Species Protected Species: EU Birds Directive >> Annex III, Section II Bird Species Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
bird	Eurasian Tree Sparrow (<i>Passer montanus</i>)	31/12/2011	Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
bird	Eurasian Wigeon (<i>Anas penelope</i>)	31/12/2011	Protected Species: Wildlife Acts Protected Species: EU Birds Directive Protected Species: EU Birds Directive >> Annex II, Section I Bird Species Protected Species: EU Birds Directive >> Annex III, Section II Bird Species Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
bird	Eurasian Woodcock (<i>Scolopax rusticola</i>)	31/12/2011	Protected Species: Wildlife Acts Protected Species: EU Birds Directive Protected Species: EU Birds Directive >> Annex II, Section I Bird Species Protected Species: EU Birds Directive

Species group	Species name	Date of last record	Designation
			>> Annex III, Section III Bird Species Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
bird	European Golden Plover (<i>Pluvialis apricaria</i>)	31/12/2011	Protected Species: Wildlife Acts Protected Species: EU Birds Directive Protected Species: EU Birds Directive >> Annex I Bird Species Protected Species: EU Birds Directive >> Annex II, Section II Bird Species Protected Species: EU Birds Directive >> Annex III, Section III Bird Species Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Red List
bird	Gadwall (<i>Anas strepera</i>)	31/12/2011	Protected Species: Wildlife Acts Protected Species: EU Birds Directive Protected Species: EU Birds Directive >> Annex II, Section I Bird Species Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
bird	Great Black-backed Gull (<i>Larus marinus</i>)	12/03/2016	Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
bird	European Golden Plover (<i>Pluvialis apricaria</i>)	31/12/2011	Protected Species: Wildlife Acts Protected Species: EU Birds Directive Protected Species: EU Birds Directive >> Annex I Bird Species Protected Species: EU Birds Directive >> Annex II, Section II Bird Species Protected Species: EU Birds Directive >> Annex III, Section III Bird Species Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Red List
bird	Great Cormorant (<i>Phalacrocorax carbo</i>)	03/12/2017	Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
bird	Great Crested Grebe (<i>Podiceps cristatus</i>)	31/12/2011	Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation

Species group	Species name	Date of last record	Designation
			Concern >> Birds of Conservation Concern - Amber List
bird	Great Northern Diver (<i>Gavia immer</i>)	31/12/2011	Protected Species: Wildlife Acts Protected Species: EU Birds Directive Protected Species: EU Birds Directive >> Annex I Bird Species
bird	Great Black-backed Gull (<i>Larus marinus</i>)	05/03/2014	Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
bird	Greater Scaup (<i>Aythya marila</i>)	27/10/2017	Protected Species: Wildlife Acts Protected Species: EU Birds Directive Protected Species: EU Birds Directive >> Annex II, Section II Bird Species Protected Species: EU Birds Directive >> Annex III, Section III Bird Species Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
bird	Grey Plover (<i>Pluvialis squatarola</i>)	31/12/2011	Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
bird	Hen Harrier (<i>Circus cyaneus</i>)	31/12/2011	Protected Species: Wildlife Acts Protected Species: EU Birds Directive Protected Species: EU Birds Directive >> Annex I Bird Species Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
bird	Herring Gull (<i>Larus argentatus</i>)	26/11/2017	Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Red List
bird	House Martin (<i>Delichon urbicum</i>)	31/08/2017	Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
bird	House Sparrow (<i>Passer domesticus</i>)	10/12/2017	Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation

Species group	Species name	Date of last record	Designation
			Concern >> Birds of Conservation Concern - Amber List
bird	Lesser Black-backed Gull (<i>Larus fuscus</i>)	24/07/2017	Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
bird	Little Egret (<i>Egretta garzetta</i>)	11/12/2017	Protected Species: Wildlife Acts Protected Species: EU Birds Directive Protected Species: EU Birds Directive >> Annex I Bird Species
bird	Lesser Black-backed Gull (<i>Larus fuscus</i>)	30/09/2016	Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
bird	Little Grebe (<i>Tachybaptus ruficollis</i>)	27/10/2017	Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
bird	Little Egret (<i>Egretta garzetta</i>)	23/03/2016	Protected Species: Wildlife Acts Protected Species: EU Birds Directive Protected Species: EU Birds Directive >> Annex I Bird Species
bird	Mallard (<i>Anas platyrhynchos</i>)	02/12/2017	Protected Species: Wildlife Acts Protected Species: EU Birds Directive Protected Species: EU Birds Directive >> Annex II, Section I Bird Species Protected Species: EU Birds Directive >> Annex III, Section I Bird Species
bird	Mediterranean Gull (<i>Larus melanocephalus</i>)	31/12/2011	Protected Species: Wildlife Acts Protected Species: EU Birds Directive Protected Species: EU Birds Directive >> Annex I Bird Species Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
bird	Mew Gull (<i>Larus canus</i>)	13/09/2014	Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
bird	Mute Swan (<i>Cygnus olor</i>)	06/12/2017	Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation

Species group	Species name	Date of last record	Designation
			Concern >> Birds of Conservation Concern - Amber List
bird	Northern Lapwing (<i>Vanellus vanellus</i>)	31/12/2011	Protected Species: Wildlife Acts Protected Species: EU Birds Directive Protected Species: EU Birds Directive >> Annex II, Section II Bird Species Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Red List
bird	Northern Shoveler (<i>Anas clypeata</i>)	31/12/2011	Protected Species: Wildlife Acts Protected Species: EU Birds Directive Protected Species: EU Birds Directive >> Annex II, Section I Bird Species Protected Species: EU Birds Directive >> Annex III, Section III Bird Species Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Red List
bird	Northern Wheatear (<i>Oenanthe oenanthe</i>)	18/05/2012	Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
bird	Peregrine Falcon (<i>Falco peregrinus</i>)	16/07/2016	Protected Species: Wildlife Acts Protected Species: EU Birds Directive Protected Species: EU Birds Directive >> Annex I Bird Species
bird	Red Grouse (<i>Lagopus lagopus</i>)	04/12/2016	Protected Species: Wildlife Acts Protected Species: EU Birds Directive Protected Species: EU Birds Directive >> Annex II, Section I Bird Species Protected Species: EU Birds Directive >> Annex III, Section I Bird Species Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Red List
bird	Red Kite (<i>Milvus milvus</i>)	06/08/2016	Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
bird	Red Knot (<i>Calidris canutus</i>)	31/12/2011	Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Red List

Species group	Species name	Date of last record	Designation
bird	Red-breasted Merganser (<i>Mergus serrator</i>)	31/12/2011	Protected Species: Wildlife Acts Protected Species: EU Birds Directive Protected Species: EU Birds Directive >> Annex II, Section II Bird Species
bird	Red-throated Diver (<i>Gavia stellata</i>)	31/12/2011	Protected Species: Wildlife Acts Protected Species: EU Birds Directive Protected Species: EU Birds Directive >> Annex I Bird Species Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
bird	Ringed Plover (<i>Charadrius hiaticula</i>)	31/12/2011	Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
bird	Rock Pigeon (<i>Columba livia</i>)	10/12/2017	Protected Species: Wildlife Acts Protected Species: EU Birds Directive Protected Species: EU Birds Directive >> Annex II, Section I Bird Species
bird	Sand Martin (<i>Riparia riparia</i>)	03/08/2016	Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
bird	Sky Lark (<i>Alauda arvensis</i>)	19/05/2012	Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
bird	Snowy Owl (<i>Bubo scandiaca</i>)	08/04/2016	Protected Species: Wildlife Acts Protected Species: EU Birds Directive Protected Species: EU Birds Directive >> Annex I Bird Species Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
bird	Spotted Flycatcher (<i>Muscicapa striata</i>)	31/12/2011	Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
bird	Stock Pigeon (<i>Columba oenas</i>)	31/12/2011	Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation

Species group	Species name	Date of last record	Designation
			Concern >> Birds of Conservation Concern - Amber List
bird	Tufted Duck (<i>Aythya fuligula</i>)	06/12/2017	Protected Species: Wildlife Acts Protected Species: EU Birds Directive Protected Species: EU Birds Directive >> Annex II, Section I Bird Species Protected Species: EU Birds Directive >> Annex III, Section II Bird Species Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
bird	Water Rail (<i>Rallus aquaticus</i>)	31/12/2011	Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
bird	Whinchat (<i>Saxicola rubetra</i>)	06/06/2016	Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
bird	Yellowhammer (<i>Emberiza citrinella</i>)	31/12/2011	Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Red List
bony fish (Actinopterygii)	Roach (<i>Rutilus rutilus</i>)	19/05/2012	Invasive Species: Invasive Species Invasive Species: Invasive Species >> Medium Impact Invasive Species Invasive Species: Invasive Species >> Regulation S.I. 477 (Ireland)
bony fish (Actinopterygii)	European Eel (<i>Anguilla anguilla</i>)	09/06/2008	Threatened Species: OSPAR Convention Threatened Species: Critically Endangered
flatworm (Turbellaria)	<i>Arthurdendyus triangulatus</i>	11/03/2017	Invasive Species: Invasive Species Invasive Species: Invasive Species >> High Impact Invasive Species
flatworm (Turbellaria)	<i>Australoplana sanguinea</i>	18/04/2013	Invasive Species: Invasive Species Invasive Species: Invasive Species >> Medium Impact Invasive Species
flowering plant	American Skunk-cabbage (<i>Lysichiton americanus</i>)	29/03/2019	Invasive Species: Invasive Species Invasive Species: Invasive Species >> Medium Impact Invasive Species Invasive Species: Invasive Species >> EU Regulation No. 1143/2014

Species group	Species name	Date of last record	Designation
			Invasive Species: Invasive Species >> Regulation S.I. 477 (Ireland)
flowering plant	Betony (<i>Stachys officinalis</i>)	18/05/2012	Threatened Species: Endangered
flowering plant	Black Currant (<i>Ribes nigrum</i>)	24/05/2015	Invasive Species: Invasive Species Invasive Species: Invasive Species >> Medium Impact Invasive Species
flowering plant	Blue Fleabane (<i>Erigeron acer</i>)	06/08/2017	Threatened Species: Endangered
flowering plant	Butterfly-bush (<i>Buddleja davidii</i>)	18/10/2018	Invasive Species: Invasive Species Invasive Species: Invasive Species >> Medium Impact Invasive Species
flowering plant	Canadian Fleabane (<i>Conyza canadensis</i>)	23/08/2018	Invasive Species: Invasive Species Invasive Species: Invasive Species >> Medium Impact Invasive Species
flowering plant	Canadian Waterweed (<i>Elodea canadensis</i>)	30/09/2016	Invasive Species: Invasive Species Invasive Species: Invasive Species >> High Impact Invasive Species Invasive Species: Invasive Species >> Regulation S.I. 477 (Ireland)
flowering plant	Cherry Laurel (<i>Prunus laurocerasus</i>)	04/01/2018	Invasive Species: Invasive Species Invasive Species: Invasive Species >> High Impact Invasive Species
flowering plant	Common Broomrape (<i>Orobanche minor</i>)	18/07/2018	Invasive Species: Invasive Species Invasive Species: Invasive Species >> Medium Impact Invasive Species
flowering plant	Evergreen Oak (<i>Quercus ilex</i>)	19/05/2012	Invasive Species: Invasive Species Invasive Species: Invasive Species >> Medium Impact Invasive Species
flowering plant	<i>Fallopia japonica x sachalinensis</i> = <i>F. x bohemica</i>	17/06/2015	Invasive Species: Invasive Species Invasive Species: Invasive Species >> High Impact Invasive Species Invasive Species: Invasive Species >> Regulation S.I. 477 (Ireland)
flowering plant	Giant Hogweed (<i>Heracleum mantegazzianum</i>)	07/07/2018	Invasive Species: Invasive Species Invasive Species: Invasive Species >> High Impact Invasive Species Invasive Species: Invasive Species >> Regulation S.I. 477 (Ireland)
flowering plant	Giant Knotweed (<i>Fallopia sachalinensis</i>)	03/08/2017	Invasive Species: Invasive Species Invasive Species: Invasive Species >> High Impact Invasive Species Invasive Species: Invasive Species >> Regulation S.I. 477 (Ireland)

Species group	Species name	Date of last record	Designation
flowering plant	Giant-rhubarb (<i>Gunnera tinctoria</i>)	12/07/2015	Invasive Species: Invasive Species Invasive Species: Invasive Species >> High Impact Invasive Species Invasive Species: Invasive Species >> Regulation S.I. 477 (Ireland)
flowering plant	Great Burnet (<i>Sanguisorba officinalis</i>)	30/09/2016	Threatened Species: Endangered
flowering plant	Parrot's-feather (<i>Myriophyllum aquaticum</i>)	26/06/2008	Invasive Species: Invasive Species Invasive Species: Invasive Species >> High Impact Invasive Species Invasive Species: Invasive Species >> EU Regulation No. 1143/2014 Invasive Species: Invasive Species >> Regulation S.I. 477 (Ireland)
flowering plant	Hairy Violet (<i>Viola hirta</i>)	18/05/2012	Threatened Species: Endangered
flowering plant	Himalayan Honeysuckle (<i>Leycesteria formosa</i>)	10/10/2018	Invasive Species: Invasive Species Invasive Species: Invasive Species >> Medium Impact Invasive Species
flowering plant	Himalayan Knotweed (<i>Persicaria wallichii</i>)	23/06/2012	Invasive Species: Invasive Species Invasive Species: Invasive Species >> Medium Impact Invasive Species Invasive Species: Invasive Species >> Regulation S.I. 477 (Ireland)
flowering plant	Indian Balsam (<i>Impatiens glandulifera</i>)	03/09/2018	Invasive Species: Invasive Species Invasive Species: Invasive Species >> High Impact Invasive Species Invasive Species: Invasive Species >> Regulation S.I. 477 (Ireland)
flowering plant	Japanese Knotweed (<i>Fallopia japonica</i>)	28/03/2019	Invasive Species: Invasive Species Invasive Species: Invasive Species >> High Impact Invasive Species Invasive Species: Invasive Species >> Regulation S.I. 477 (Ireland)
flowering plant	Japanese Rose (<i>Rosa rugosa</i>)	19/05/2018	Invasive Species: Invasive Species Invasive Species: Invasive Species >> Medium Impact Invasive Species
flowering plant	Narrow-leaved Ragwort (<i>Senecio inaequidens</i>)	13/08/2018	Invasive Species: Invasive Species Invasive Species: Invasive Species >> Medium Impact Invasive Species
flowering plant	Nuttall's Waterweed (<i>Elodea nuttallii</i>)	18/05/2012	Invasive Species: Invasive Species Invasive Species: Invasive Species >> High Impact Invasive Species Invasive Species: Invasive Species >> Regulation S.I. 477 (Ireland)

Species group	Species name	Date of last record	Designation
flowering plant	Round-leaved Crane's-bill (<i>Geranium rotundifolium</i>)	08/05/2018	Threatened Species: Endangered
flowering plant	Sea-buckthorn (<i>Hippophae rhamnoides</i>)	07/08/2017	Invasive Species: Invasive Species Invasive Species: Invasive Species >> Medium Impact Invasive Species Invasive Species: Invasive Species >> Regulation S.I. 477 (Ireland)
flowering plant	Spanish Bluebell (<i>Hyacinthoides hispanica</i>)	06/05/2018	Invasive Species: Invasive Species Invasive Species: Invasive Species >> Regulation S.I. 477 (Ireland)
flowering plant	Spring Vetch (<i>Vicia lathyroides</i>)	18/05/2012	Threatened Species: Vulnerable
flowering plant	Sycamore (<i>Acer pseudoplatanus</i>)	28/09/2018	Invasive Species: Invasive Species Invasive Species: Invasive Species >> Medium Impact Invasive Species
flowering plant	Three-cornered Garlic (<i>Allium triquetrum</i>)	16/05/2018	Invasive Species: Invasive Species Invasive Species: Invasive Species >> Medium Impact Invasive Species Invasive Species: Invasive Species >> Regulation S.I. 477 (Ireland)
flowering plant	Traveller's-joy (<i>Clematis vitalba</i>)	29/10/2017	Invasive Species: Invasive Species Invasive Species: Invasive Species >> Medium Impact Invasive Species
flowering plant	Wall Cotoneaster (<i>Cotoneaster horizontalis</i>)	31/03/2014	Invasive Species: Invasive Species Invasive Species: Invasive Species >> Medium Impact Invasive Species
flowering plant	Wild Parsnip (<i>Pastinaca sativa</i>)	17/07/2018	Invasive Species: Invasive Species Invasive Species: Invasive Species >> Medium Impact Invasive Species
flowering plant	Wood Bitter-vetch (<i>Vicia orobus</i>)	30/05/2017	Threatened Species: Endangered
insect - beetle (Coleoptera)	Harlequin Ladybird (<i>Harmonia axyridis</i>)	08/11/2018	Invasive Species: Invasive Species Invasive Species: Invasive Species >> High Impact Invasive Species Invasive Species: Invasive Species >> Regulation S.I. 477 (Ireland)
insect - butterfly	Gatekeeper (<i>Pyronia tithonus</i>)	16/07/2014	Threatened Species: Near threatened
insect - butterfly	Small Blue (<i>Cupido minimus</i>)	30/05/2013	Threatened Species: Endangered
insect - butterfly	Small Heath (<i>Coenonympha pamphilus</i>)	20/07/2015	Threatened Species: Near threatened

Species group	Species name	Date of last record	Designation
insect - butterfly	Wall (<i>Lasiommata megera</i>)	17/07/2016	Threatened Species: Endangered
insect - butterfly	Wood White (<i>Leptidea sinapis</i>)	11/05/2011	Threatened Species: Near threatened
insect - hymenopteran	<i>Andrena (Melandrena) nigroaenea</i>	21/04/2019	Threatened Species: Vulnerable
insect - hymenopteran	<i>Bombus (Bombus) cryptarum</i>	18/06/2018	Threatened Species: Data deficient
insect - hymenopteran	Gipsy Cuckoo Bee (<i>Bombus (Psithyrus) bohemicus</i>)	14/07/2013	Threatened Species: Near threatened
insect - hymenopteran	Gooden's Nomad Bee (<i>Nomada goodeniana</i>)	21/04/2019	Threatened Species: Endangered
insect - hymenopteran	<i>Nomada panzeri</i>	12/06/1932	Threatened Species: Near threatened
insect - hymenopteran	Large Red Tailed Bumble Bee (<i>Bombus (Melanobombus) lapidarius</i>)	21/07/2019	Threatened Species: Near threatened
insect - hymenopteran	<i>Megachile (Delomegachile) willughbiella</i>	04/06/2018	Threatened Species: Near threatened
insect - hymenopteran	Moss Carder-bee (<i>Bombus (Thoracombus) muscorum</i>)	10/08/2019	Threatened Species: Near threatened
marine mammal	Common Porpoise (<i>Phocoena phocoena</i>)	02/10/2013	Protected Species: EU Habitats Directive Protected Species: EU Habitats Directive >> Annex II Protected Species: EU Habitats Directive >> Annex IV Protected Species: Wildlife Acts Threatened Species: OSPAR Convention
marine mammal	Grey Seal (<i>Halichoerus grypus</i>)	15/09/2013	Protected Species: EU Habitats Directive Protected Species: EU Habitats Directive >> Annex II Protected Species: EU Habitats Directive >> Annex V Protected Species: Wildlife Acts
mollusc	Common Garden Snail (<i>Cornu aspersum</i>)	29/09/2016	Invasive Species: Invasive Species Invasive Species: Invasive Species >> Medium Impact Invasive Species

Species group	Species name	Date of last record	Designation
mollusc	English Chrysalis Snail (<i>Leiostyla (Leiostyla) anglica</i>)	18/05/2012	Threatened Species: Vulnerable
mollusc	Jenkins' Spire Snail (<i>Potamopyrgus antipodarum</i>)	30/09/2016	Invasive Species: Invasive Species Invasive Species: Invasive Species >> Medium Impact Invasive Species
mollusc	Lake Orb Mussel (<i>Musculium lacustre</i>)	18/05/2012	Threatened Species: Vulnerable
moss	Tufted Feather-moss (<i>Scleropodium cespitans</i>)	06/09/2012	Threatened Species: Near threatened
reptile	Red-eared Terrapin (<i>Trachemys scripta</i>)	15/04/2017	Invasive Species: Invasive Species Invasive Species: Invasive Species >> Medium Impact Invasive Species Invasive Species: Invasive Species >> EU Regulation No. 1143/2014
reptile	Common Lizard (<i>Zootoca vivipara</i>)	15/07/2012	Protected Species: Wildlife Acts
terrestrial mammal	American Mink (<i>Mustela vison</i>)	27/02/2016	Invasive Species: Invasive Species Invasive Species: Invasive Species >> High Impact Invasive Species Invasive Species: Invasive Species >> Regulation S.I. 477 (Ireland)
terrestrial mammal	Brown Long-eared Bat (<i>Plecotus auritus</i>)	25/07/2013	Protected Species: EU Habitats Directive Protected Species: EU Habitats Directive >> Annex IV Protected Species: Wildlife Acts
terrestrial mammal	Brown Rat (<i>Rattus norvegicus</i>)	24/08/2018	Invasive Species: Invasive Species Invasive Species: Invasive Species >> High Impact Invasive Species Invasive Species: Invasive Species >> Regulation S.I. 477 (Ireland)
terrestrial mammal	Daubenton's Bat (<i>Myotis daubentonii</i>)	11/08/2014	Protected Species: EU Habitats Directive Protected Species: EU Habitats Directive >> Annex IV Protected Species: Wildlife Acts
terrestrial mammal	Eastern Grey Squirrel (<i>Sciurus carolinensis</i>)	25/12/2018	Invasive Species: Invasive Species Invasive Species: Invasive Species >> High Impact Invasive Species Invasive Species: Invasive Species >> EU Regulation No. 1143/2014 Invasive Species: Invasive Species >> Regulation S.I. 477 (Ireland)
terrestrial mammal	Eurasian Badger (<i>Meles meles</i>)	09/10/2018	Protected Species: Wildlife Acts
terrestrial mammal	Eurasian Badger (<i>Meles meles</i>)	06/09/2018	Protected Species: Wildlife Acts

Species group	Species name	Date of last record	Designation
terrestrial mammal	Eurasian Pygmy Shrew (<i>Sorex minutus</i>)	12/07/2018	Protected Species: Wildlife Acts
terrestrial mammal	Eurasian Red Squirrel (<i>Sciurus vulgaris</i>)	01/12/2018	Protected Species: Wildlife Acts
terrestrial mammal	European Otter (<i>Lutra lutra</i>)	16/07/2018	Protected Species: EU Habitats Directive Protected Species: EU Habitats Directive >> Annex II Protected Species: EU Habitats Directive >> Annex IV Protected Species: Wildlife Acts
terrestrial mammal	European Rabbit (<i>Oryctolagus cuniculus</i>)	25/10/2018	Invasive Species: Invasive Species Invasive Species: Invasive Species >> Medium Impact Invasive Species
terrestrial mammal	Fallow Deer (<i>Dama dama</i>)	16/09/2018	Invasive Species: Invasive Species Invasive Species: Invasive Species >> High Impact Invasive Species Invasive Species: Invasive Species >> Regulation S.I. 477 (Ireland) Protected Species: Wildlife Acts
terrestrial mammal	Feral Ferret (<i>Mustela furo</i>)	12/08/2018	Invasive Species: Invasive Species Invasive Species: Invasive Species >> High Impact Invasive Species
terrestrial mammal	Greater White-toothed Shrew (<i>Crocidura russula</i>)	19/06/2017	Invasive Species: Invasive Species Invasive Species: Invasive Species >> Medium Impact Invasive Species
terrestrial mammal	House Mouse (<i>Mus musculus</i>)	25/07/2018	Invasive Species: Invasive Species Invasive Species: Invasive Species >> High Impact Invasive Species
terrestrial mammal	Lesser Noctule (<i>Nyctalus leisleri</i>)	28/05/2016	Protected Species: EU Habitats Directive Protected Species: EU Habitats Directive >> Annex IV Protected Species: Wildlife Acts
terrestrial mammal	Nathusius's Pipistrelle (<i>Pipistrellus nathusii</i>)	04/08/2012	Protected Species: EU Habitats Directive Protected Species: EU Habitats Directive >> Annex IV Protected Species: Wildlife Acts
terrestrial mammal	Natterer's Bat (<i>Myotis nattereri</i>)	30/09/2016	Protected Species: EU Habitats Directive Protected Species: EU Habitats Directive >> Annex IV Protected Species: Wildlife Acts
terrestrial mammal	Pine Marten (<i>Martes martes</i>)	03/12/2018	Protected Species: EU Habitats Directive Protected Species: EU Habitats Directive >> Annex V Protected Species: Wildlife Acts

Species group	Species name	Date of last record	Designation
terrestrial mammal	Pipistrelle (<i>Pipistrellus pipistrellus sensu lato</i>)	31/10/2014	Protected Species: EU Habitats Directive Protected Species: EU Habitats Directive >> Annex IV Protected Species: Wildlife Acts
terrestrial mammal	Red Deer (<i>Cervus elaphus</i>)	15/11/2016	Protected Species: Wildlife Acts
terrestrial mammal	Sika Deer (<i>Cervus nippon</i>)	13/10/2018	Invasive Species: Invasive Species Invasive Species: Invasive Species >> High Impact Invasive Species Invasive Species: Invasive Species >> Regulation S.I. 477 (Ireland) Protected Species: Wildlife Acts
terrestrial mammal	Soprano Pipistrelle (<i>Pipistrellus pygmaeus</i>)	30/09/2016	Protected Species: EU Habitats Directive Protected Species: EU Habitats Directive >> Annex IV Protected Species: Wildlife Acts
terrestrial mammal	West European Hedgehog (<i>Erinaceus europaeus</i>)	16/08/2018	Protected Species: Wildlife Acts

APPENDIX 8.3

BIRD SURVEY RESULTS

Appendix 8.3 –Bird Survey Results

Surveyor(s):	Malin Lundberg			Temp:	8°C
Project code:	2019S1542			Survey start:	13-03-2020, 12:50
Location:	Sandford			Survey end:	13:46
Weather:	Cloudy			Wind:	Light breeze
Species	Total count	Largest group	Behaviour	Location/Direction	
Herring Gull (<i>Larus argentatus</i>)	13	4	Flying	Over and around the site	
Chaffinch (<i>Fringilla coelebs</i>)	1		Calling	Treeline	
Great Tit (<i>Parus major</i>)	4		Calling / perched / Cleaning	Treeline, woodland	
Blue Tit (<i>Parus caeruleus</i>)	2		Calling / flying	Treeline, woodland	
Rook (<i>Corvus frugilegus</i>)	13	7	Flying	Over and around the site	
Hooded Crow (<i>Corvus cornix</i>)	3	2	Foraging / perched / flying	Grassland, woodland	
Magpie (<i>Pica pica</i>)	10	2	Foraging / perched / flying	Grassland, treeline	
Wren (<i>Troglodytes troglodytes</i>)	3		Calling / perched	Scrub, woodland	
Wood Pigeon (<i>Columba palumbus</i>)	16	4	Foraging / perched / flying	Woodland, grassland	
Blackbird (<i>Turdus merula</i>)	9	2	Foraging / calling / flying	Hedgerow, woodland	
Jackdaw (<i>Corvus monedula</i>)	18	13	Foraging / flying	Grassland	
Robin (<i>Erithacus rubecula</i>)	1		Perched	Woodland	

Surveyor(s):	Malin Lundberg			Temp:	8°C
Project code:	2019S1542			Survey start:	23-03-2020, 10:00
Location:	Sandford			Survey end:	12:50
Weather:	Cloudy			Wind:	No wind
Species	Total count	Largest group	Behaviour	Location/Direction	
Herring Gull (<i>Larus argentatus</i>)	15	4	Flying	Over and around the site, on rooftop of buildings	

Great Tit (<i>Parus major</i>)	9		Flying, calling, perched	Treeline, woodland
Blue Tit (<i>Parus caeruleus</i>)	5		Calling, flying, perched	Woodland
Rook (<i>Corvus frugilegus</i>)	4	2	Flying	Over and around the site
Hooded Crow (<i>Corvus cornix</i>)	6	2	Flying, foraging	Grassland, over and around the site
Magpie (<i>Pica pica</i>)	8		Calling, flying, foraging	Grassland, woodland, treeline
Wren (<i>Troglodytes troglodytes</i>)	7		Calling, flying	Scrub, woodland
Wood Pigeon (<i>Columba palumbus</i>)	13	4	Foraging / perched / flying	Woodland, grassland
Blackbird (<i>Turdus merula</i>)	4		Calling / flying	Treeline, woodland
Jackdaw (<i>Corvus monedula</i>)	18	11	Foraging / flying / perched	Grassland, building
Robin (<i>Erithacus rubecula</i>)	2		Perched / flying	Woodland, treeline
Ferral Pigeon (<i>Columba livia f. domestica</i>)	6	6	Perched	Rooftop north of site
Long-tailed Tit (<i>Aegithalus caudatus</i>)	2		Calling, perched	Woodland
Goldfinch (<i>Carduelis carduelis</i>)	4		Flying, perched, calling	Woodland
Greenfinch (<i>Carduelis chloris</i>)	1		Calling	Treeline

Surveyor(s):	Patricia Byrne, William Mulville	Temp:	8°C
Project code:	2019S1542	Survey start:	30-11-2020, 11:00
Location:	Sandford	Survey end:	14:00
Weather:	Light rain	Wind:	Breeze

Species	Total count	Largest group	Behaviour	Location/Direction
Herring Gull (<i>Larus argentatus</i>)	11	4	Flying, perched	Over and around the site, on rooftop of buildings
Great Tit (<i>Parus major</i>)	2		Flying, perched	Treeline, woodland
Rook (<i>Corvus frugilegus</i>)	5	2	Flying, perched	Over and around the site, on buildings
Hooded Crow (<i>Corvus cornix</i>)	3	1	Flying, foraging	Grassland, over and around the site
Magpie (<i>Pica pica</i>)	6	2	Calling, flying, foraging	Grassland, woodland
Wood Pigeon (<i>Columba palumbus</i>)	8	3	Perched / flying	Woodland, grassland

Curlew (<i>Numenius arquata</i>)	1		Flying	Flying over site
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Surveyor(s):	Malin Lundberg	Temp:	11°C
Project code:	2019S1542	Survey start:	17-12-2020, 11:46
Location:	Sandford	Survey end:	13:46
Weather:	Scattered clouds	Wind:	No wind

Species	Total count	Largest group	Behaviour	Location/Direction
Herring Gull (<i>Larus argentatus</i>)	5	1	Flying	Over and around the site, over rooftop of buildings
Great Tit (<i>Parus major</i>)	3	2	Calling	Treeline, woodland
Blue Tit (<i>Parus caeruleus</i>)	1		Calling	Treeline
Hooded Crow (<i>Corvus cornix</i>)	2		Flying, perching	Woodland, over and around the site
Magpie (<i>Pica pica</i>)	5	2	Perching, flying, foraging	Grassland, woodland
Wren (<i>Troglodytes troglodytes</i>)	1		Perching	Scrub
Wood Pigeon (<i>Columba palumbus</i>)	7	4	Foraging / flying	Woodland, grassland
Blackbird (<i>Turdus merula</i>)	1		Foraging	Scrub
Jackdaw (<i>Corvus monedula</i>)	14	8	Flying / perched	Grassland, building

Surveyor(s):	Malin Lundberg	Temp:	1-2°C
Project code:	2019S1542	Survey start:	07-01-2021, 11:00
Location:	Sandford	Survey end:	12:00
Weather:	Cloudy, some snow on ground	Wind:	No wind

Species	Total count	Largest group	Behaviour	Location/Direction
Herring Gull (<i>Larus argentatus</i>)	3	2	Flying, perching	Over and around the site, on containers in carpark
Great Tit (<i>Parus major</i>)	2		Perching	Woodland
Blue Tit (<i>Parus caeruleus</i>)	1		Calling	Woodland
Hooded Crow (<i>Corvus cornix</i>)	1		Perching	Woodland
Magpie (<i>Pica pica</i>)	4	2	Perching	Woodland
Wood Pigeon	3	3	Flying	Woodland

(<i>Columba palumbus</i>)				
Jackdaw (<i>Corvus monedula</i>)	7	4	Flying / perched	Grassland, building
Robin (<i>Erithacus rubecula</i>)	1		Calling	Scrub

Surveyor(s):	Patricia Byrne	Temp:	3°C
Project code:	2019S1542	Survey start:	07-01-2021, 15:00
Location:	Sandford	Survey end:	16:00
Weather:	Cloud, sun	Wind:	Light breeze

Species	Total count	Largest group	Behaviour	Location/Direction
Herring Gull (<i>Larus argentatus</i>)	27	3	Flying, perching	Over and around the site, buildings
Blue Tit (<i>Parus caeruleus</i>)	3	2	Flying	Treeline
Magpie (<i>Pica pica</i>)	2	1	Perching, flying	Woodland, treeline
Wood Pigeon (<i>Columba palumbus</i>)	31	11	Flying, perching	Woodland, grassland
Rook (<i>Corvus frugilegus</i>)	7	5	Flying, perching	Over grassland, buildings
Blackbird (<i>Turdus merula</i>)	1		Perched	Treeline

Surveyor(s):	Patricia Byrne	Temp:	6°C
Project code:	2019S1542	Survey start:	03-02-2021, 09:00
Location:	Sandford	Survey end:	10:01
Weather:	Sun/cloud	Wind:	Breeze

Species	Total count	Largest group	Behaviour	Location/Direction
Herring Gull (<i>Larus argentatus</i>)	10	2	Flying, perched	Over and around the site, on rooftop of buildings
Great Tit (<i>Parus major</i>)	2	2	Perched	Treeline
Rook (<i>Corvus frugilegus</i>)	6	4	Flying, perched	Grassland, treeline, buildings
Magpie (<i>Pica pica</i>)	3	2	Flying, perched	Woodland, flying east over site
Wren (<i>Troglodytes troglodytes</i>)	2	2	Calling	Woodland
Wood Pigeon (<i>Columba palumbus</i>)	4	2	Perched / flying	Woodland, grassland
Blackbird	2	2	Perched	Building

<i>(Turdus merula)</i>				
Robin (<i>Erithacus rubecula</i>)	1		Perched / flying	Scrub by building
Black-headed Gull (<i>Larus ridibundus</i>)	5	4	Flying	Over building

Surveyor(s):	Malin Lundberg	Temp:	8°C
Project code:	2019S1542	Survey start:	03-02-2021, 15:05
Location:	Sandford	Survey end:	16:00
Weather:	Light rain	Wind:	Breeze

Species	Total count	Largest group	Behaviour	Location/Direction
Herring Gull (<i>Larus argentatus</i>)	2		Flying	Across the site
Great Tit (<i>Parus major</i>)	3	2	Calling, perched	Treeline, woodland
Hooded Crow (<i>Corvus cornix</i>)	2	2	Perched	Woodland
Magpie (<i>Pica pica</i>)	2		Perched	Buildings
Wren (<i>Troglodytes troglodytes</i>)	1		Calling, flying	Scrub
Wood Pigeon (<i>Columba palumbus</i>)	6	2	Perched / flying	Woodland
Blackbird (<i>Turdus merula</i>)	4		Foraging	North of building
Jackdaw (<i>Corvus monedula</i>)	6	6	Perched	In tree west of Chapel
Robin (<i>Erithacus rubecula</i>)	1		Calling	Woodland
Goldfinch (<i>Carduelis carduelis</i>)	26	21	Foraging, calling	Woodland

Surveyor(s):	Malin Lundberg, Patricia Byrne, Mark Desmond	Temp:	5°C - 10°C
Project code:	2019S1542	Survey start:	15-04-2021, 6:15
Location:	Sandford	Survey end:	10:30
Weather:	Clear	Wind:	Gentle breeze

Transect eastern treeline.

Species	Total count	Largest group	Behaviour	Location/Direction
Blackbird (<i>Turdus Merula</i>)	3	2	Singing/Flying	Around treeline and into woods
Blue Tit	2	1	Singing, and flying	Treeline to woods

(<i>Cyanistes caeruleus</i>)				
Great Tit (<i>Parus major</i>)	1	1	Singing/ perched	Treeline
Hooded Crow (<i>Corvus cornix</i>)	2	1	Perched	Woodland
Wren (<i>Troglodytes troglodytes</i>)	2	2	Rivals singing	Woodland
Chaffinch (<i>Fringilla coelebs</i>)	2	1	Singing	Ornamental shrub and woodland
Goldcrest (<i>Regulus regulus</i>)	2	1	signing/ perched / flying	Treeline, other flying into woods
Coal tit (<i>Parus ater</i>)	1	1	Perched/singing	Near ornamental scrub of building
Wood Pigeon (<i>Columba palumbus</i>)	4	4	Perched	Woodland

Transect eastern section of woodland.

Species	Total count	Largest group	Behaviour	Location/Direction
Blackbird (<i>Turdus Merula</i>)	5	2	Singing/Flying/ Male and female together	Woodland
Blue Tit (<i>Cyanistes caeruleus</i>)	2	1	Singing, and flying	Woodland
Great Tit (<i>Parus major</i>)	2	1	Singing/ perched	woodland
Hooded Crow (<i>Corvus cornix</i>)	1	1	Perched	Woodland
Wren (<i>Troglodytes troglodytes</i>)	4	2	Rivals singing/ singing	Woodland
Collared dove (<i>Streptopelia decaocto</i>)	1	1	Singing and perched	High in tree centre of woods
Wood Pigeon (<i>Columba palumbus</i>)	8	4	Perched, flying	Woodland and out to east
Robin (<i>Erithacus rubecula</i>)	1	1	Singing, moving around.	All over woodland
Unknown Nests	2	1		Two locations high in trees

Transect north eastern section of woodland.				
Species	Total count	Largest group	Behaviour	Location/Direction
Blackbird (<i>Turdus Merula</i>)	4	2	Singing/Flying/alarming/ Pair flying	Woods next to road
Blue Tit (<i>Cyanistes caeruleus</i>)	1	1	Singing, and flying	Woodland
Great Tit (<i>Parus major</i>)	2	1	Singing/ perched	Woodland
Wren (<i>Troglodytes troglodytes</i>)	1	1	Singing/perched	Woodland
Song thrush (<i>Turdus philomelos</i>)	3	3	Singing/ alarm /flying,	Woodland, flying north east
Magpie (<i>Pica pica</i>)	1	1	Perched	Woodland (west of road)
Robin (<i>Erithacus rubecula</i>)	1	1	Perched/singing/flying	Woodland and flying east
Wood Pigeon (<i>Columba palumbus</i>)	4	2	Perched/Flying	Woodland and going east
Transect north western woodland.				
Species	Total count	Largest group	Behaviour	Location/Direction
Blackbird (<i>Turdus Merula</i>)	2	2	Singing/Flying/alarming/	Treeline
Blue Tit (<i>Cyanistes caeruleus</i>)	2	1	Singing, and flying	Woodland/Treeline
Great Tit (<i>Parus major</i>)	3	1	Singing/ perched	Woodland
Wren (<i>Troglodytes troglodytes</i>)	2	1	Rivals singing	Treeline
Hooded Crow (<i>Corvus cornix</i>)	1	1	Perched	Treeline
Song thrush (<i>Turdus philomelos</i>)	2	1	Singing and perched	Woodland
Eurasian Siskin (<i>Carduelis spinus</i>)	2	1	Singing and perched (possible rivals)	Either end of transect

Magpie (<i>Pica pica</i>)	3	3	Perched	Woodland (west of road)
Goldcrest (<i>Regulus regulus</i>)	2	1	signing/ perched / flying	Treeline, other flying into woods
Goldfinch (<i>Carduelis carduelis</i>)	1	1	Singing, perched then flying	Treeline and then into section E
Robin (<i>Erithacus rubecula</i>)	1	1	Perched/singing/flying	Woodland and flying east
Wood Pigeon (<i>Columba palumbus</i>)	8	8	Perched/Flying	Woodland

Transect centre treeline.

Species	Total count	Largest group	Behaviour	Location/Direction
Blackbird (<i>Turdus Merula</i>)	3	1	Alarming, singing and flying	Different areas of treeline and flying north, west, one stays.
Blue Tit (<i>Cyanistes caeruleus</i>)	2	1	Singing, and flying	Woodland/Treeline
Great Tit (<i>Parus major</i>)	4	3	Singing/ perched	Woodland
Hooded Crow (<i>Corvus cornix</i>)	1	1	Perched	Treeline
Goldcrest (<i>Regulus regulus</i>)	5	3	signing/ perched	Within trees
Goldfinch (<i>Carduelis carduelis</i>)	4	2	Singing, perched	In trees, and near ornamental shrub
Robin (<i>Erithacus rubecula</i>)	2	1	Singing and foraging	Around trees
Wood Pigeon (<i>Columba palumbus</i>)	4	2	Flying	Over site
Herring Gull (<i>Larus argentatus</i>)	8	4	Flying	Over site

Transect western treeline.

Species	Total count	Largest group	Behaviour	Location/Direction
Blackbird (<i>Turdus Merula</i>)	2	1	Singing, flying	Centre of treeline, flying east

Blue Tit (<i>Cyanistes caeruleus</i>)	4	4	Singing, foraging in a single tree	Treeline
Great Tit (<i>Parus major</i>)	2	1	Singing/ perched	Woodland
Hooded Crow (<i>Corvus cornix</i>)	1	1	Perched	Treeline
Starling (<i>Sturnus vulgaris</i>)	7	7	Flying onto site, perched and singing in tree	Treeline
Goldfinch (<i>Carduelis carduelis</i>)	3	3	Singing, perched	Treeline
Robin (<i>Erithacus rubecula</i>)	1	1	Single male singing	Near corner with transect D
Wood Pigeon (<i>Columba palumbus</i>)	5	3	Two flying, three perched and singing in tree	Treeline
Dunnock (<i>Prunella modularis</i>)	1	1	Singing and perched	Treeline
Jackdaw (<i>Coloews monedula</i>)	3	2	Perched	Trees near buildings
Chaffinch (<i>Fringilla coelebs</i>)	1	1	Singing	Bushes near building.

Buildings

Species	Total count	Largest group	Behaviour	Location/Direction
Hooded Crow (<i>Corvus cornix</i>)	1	1	Perched	Perched on roof
Jackdaw (<i>Coloews monedula</i>)	8	4	Perched, nesting	Chimney pots across the building.
Herring Gull (<i>Larus argentatus</i>)	2	2	Perched, finding nests	Chimney pots
Rock dove (<i>Columba livia</i>)	5	3	Perched on ledges	On ledges
Wood Pigeon (<i>Columba palumbus</i>)	2	2	Flying over site	Over site

Surveyor(s):	Malin Lundberg, Patricia Byrne, Mark Desmond	Temp:	10°C
Project code:	2019S1542	Survey start:	18-05-2021, 8:30
Location:	Sandford	Survey end:	11:45

Weather:	Clear and sunny	Wind:	Gentle breeze
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Vantage point: Jesuit Land south of site

Species	Total count	Time	Behaviour	Location/Direction
Herring Gull (<i>Larus argentatus</i>)	1	8:35	Flying	Over Building
		8:40	Landed on roof, flew away	Headed east
		8:50	Flew around building	Over building
		8:55	Landed and perched	Redbrick chimney pot
		9:00	Flew away	South east
		9:40 – 9:55	Landed on library roof, and then flew up to highest roof with red brick chimney, perched for 15 mins, flew east	Southern building, chimney pots, red brick tower and library roof.
Jackdaw (<i>Coloeus monedula</i>)	4-5	ongoing	Nesting	South west chimney pots
		9:55	Landed on chimney pots near gulls	south central building chimney pots
Rock dove (<i>Columba livia</i>)	2	8:45	Perched, nesting	Tower on east building
Wood Pigeon (<i>Columba palumbus</i>)	5	Ongoing	Flying	Flying over building
	2	9:20	Perched	East building top of drain pipe

Vantage point: East of Tabor house

Herring Gull (<i>Larus argentatus</i>)	1	10:10	Flying	Over Site
		10:25	Flying	Over Site
		10:45	Flying low	East over site
		11:10	Flying	Over Tabor house
		11:15	Flying	North East
		11:25	Flying	North over woodland
Jackdaw (<i>Coloeus monedula</i>)	1-2	10:10	Nesting and perched	South west chimney pots
	1	10:35	Entering in and out of chimney pots, nesting	Middle chimney pot, south west building.
	2	11:05	Pair nesting	Tabor house
Swift (<i>Apus apus</i>)	2	10:18	Flying	East over site
Wood Pigeon (<i>Columba palumbus</i>)	2	Ongoing	Flying	Flying over building
	2	10:10	Entering drain and stairwell over front door of tower building	Tower building

Vantage point: East of Tabor House

Herring Gull (<i>Larus argentatus</i>)	1	8:45	Flying	North Building
		9:40	Flying	North Building
		10:30	Flying, landing	North Building
	1	Ongoing	Nesting,	North Building, south eastern corner chimney pot

Jackdaw (<i>Coloeus monedula</i>)	4	Ongoing	Nesting and perched	North chimney pots
	1	9:20	Feeding	North eastern chimney pot of north building
Rock dove (<i>Columba livia</i>)	2	8:40-10:40	Perched, nesting	Low lying library roof
Vantage Point: West of Tabor House				
Jackdaw (<i>Coloeus monedula</i>)	3-4	ongoing	nesting, going into/leaving chimney, bringing food, perching	North eastern chimney pot of north building
	3-4	ongoing	nesting, perching, going into/leaving chimney	South eastern chimney pot of north building
	1	8:36	Interaction with Herring Gull next to chimney. Jackdaw flew off and Herring Gull followed	South eastern chimney pot of north building
Swift (<i>Apus apus</i>)	2	9:19	Flying	High above the site
Herring Gull (<i>Larus argentatus</i>)	1	8:36	Interaction with Jackdaw in chimney. Jackdaw flew off and Herring Gull followed	South eastern chimney pot of north building
	1-2	ongoing	Nesting	South eastern chimney pot of north building
Vantage point: Jesuit Land south of site				
Wood Pigeon (<i>Columba palumbus</i>)	2	10:07	Entering drain and stairwell over front door of tower building	Tower building
	1	10:24 – 10:30	Left from the drain, then came back and went into the drain	Tower building
Jackdaw (<i>Coloeus monedula</i>)	4	Ongoing	Nesting	South west chimney pots
Herring Gull (<i>Larus argentatus</i>)	1	10:12	landed on central chimney pot of southern building, flew off.	South central chimney pots
	1	10:50 – 11:14	landed on central chimney pot of southern building then perched on roof.	South central chimney pots

APPENDIX 8.4

INVASIVE ALIEN PLANT SPECIES:

SITE ASSESSMENT REPORT

Appendix 8.4

Invasive Alien Plant Species: Site Assessment Report (Invasive Plant Solutions, 2021)



invasiveplantsolutions

INVASIVE ALIEN PLANT SPECIES : SITE ASSESSMENT REPORT

MILLTOWN PARK DEVELOPMENT SITE, SANDFORD ROAD, DUBLIN 6

FOR

SANDFORD LIVING LIMITED

CONTENTS

EXECUTIVE SUMMARY	1
I.A.P.S. SITE ASSESSMENT REPORT	2
SECTION 1 : INTRODUCTION	2
SECTION 2 : LEGESLATIVE CONTEXT	2
SECTION 3 : CLIENT & SITE DETAILS	3
SECTION 4 : SITE LOCATION MAP & AERIAL SITE LAYOUT	4
SECTION 5 : I.A.P.S. OVERALL INFESTATION DETAILS	5
SECTION 6 : I.A.P.S. INDIVIDUAL INFESTATION DETAILS	6
SECTION 7 : I.A.P.S. ENVIRONMENTAL IMPACT & LOCAL SENSITIVITIES	6
SECTION 8 : SITE PHOTOGRAPHS – DECEMBER 2020 SURVEY	7
SECTION 9 : SITE PHOTOGRAPHS – APRIL 2021 I.A.P.S.	15
SECTION 10 : SITE PHOTOGRAPHS – APRIL 2021 FENCING & SIGNAGE	23
SECTION 11 : CONCLUSIONS & RECOMMENDATIONS	26
I.A.P.S. MANAGEMENT PLAN	27
SECTION 12 : KNOTWEEDS - PROCESS OF TREATMENT SELECTION***	27
SECTION 13 : KNOTWEEDS – MANAGEMENT PLAN***	28
SECTION 14 : THREE CORNERED GARLIC & SPANISH BLUEBELL. – MANAGEMENT & REMEDIATION PLAN	28
SECTION 15 : THREE CORNERED GARLIC & SPANISH BLUEBELL – TREATMENT PROGRAMME	28
SECTION 16 : I.A.P.S. – ADDITIONAL CONSTRUCTION STAGE MANAGEMENT MEASURES	29
*** These Sections do not apply to this IAPS Management Plan	
APPENDICES	30
APPENDIX 1: THREE CORNERED GARLIC I.D. SHEET	30
APPENDIX 2: SPANISH BLUEBELL I.D. SHEET	33
APPENDIX 3: SAMPLE SITE SIGNAGE	36
APPENDIX 4: SAMPLE SITE FENCING	39

DOCUMENT NAME	STATUS	REV	DATE	COMMENT	AUTHOR	CKD.
DC-04-20/SARMP/00	1 st . ISSUE	00	15/01/2021	ISSUED TO CLIENT FOR COMMENT	KYRAN COLGAN	K.C.
DC-04-20/SARMP/01	2 nd . ISSUE	01	09/02/2021	REVISED SITE BOUNDARY	KYRAN COLGAN	K.C.
DC-04-20/SARMP/02	3 rd . ISSUE	02	10/03/2021	SECTION 5 & BOUNDARY UPDATE	KYRAN COLGAN	K.C.
DC-04-20/SARMP/03	4 th . ISSUE	03	27/04/2021	UPDATE FOLLOWING 2 ND . SURVEY	KYRAN COLGAN	K.C.
DC-04-20/SARMP/04	5 th . ISSUE	04	30/07/2021	FINAL SITE BOUNDARY REVISIONS	KYRAN COLGAN	K.C.
DC-04-20/SARMP/05	6 th . ISSUE	05	12/08/2021	SECTION 15 UPDATED	KYRAN COLGAN	K.C.
DC-04-20/SARMP/06	7 th . ISSUE	06	20/08/2021	SEC. 16 ILLUSTRATION UPDATED	KYRAN COLGAN	K.C.
DC-04-20/SARMP/07	8 th . ISSUE	07	23/08/2021	UPDATE AFTER LEGAL REVIEW	KYRAN COLGAN	K.C.

MILLTOWN PARK DEVELOPMENT SITE								
PROJECT NO.	DC-04-20	GPS POSITION : ITM	X	716944	Y	731255	TIME	10.00am & 4.00pm
DATE OF ASSESSMENT	27/12/2020 & 08/04/2021	WEATHER	COLD & CLEAR. OVERCAST WITH SOME SUNNY BREAKS					

EXECUTIVE SUMMARY

In December 2020 Invasive Plant Solutions were retained by their client, Sandford Living Limited, to provide IAPS (invasive alien plant species) consultancy services in connection with their proposed residential development on lands comprising part of the Jesuit run Milltown Institute of Theology and Philosophy, located on Sandford Road, Dublin 6.

Our appointment came on foot of observations made in the Biodiversity chapter of the draft Environmental Impact Assessment Report for the lands, dated August 2020, prepared by JBA Consulting at that time. Their report identified the presence of several non-native plant species on the lands but did not find particular evidence of any Invasive Alien Plant Species listed in Part 1 of the Third Schedule of the *European Communities (Birds and Natural Habitats) Regulations 2011* (SI 477 of 2011, as amended).

However, in the interest of thoroughness, and to satisfy themselves to the greatest extent possible, the clients asked Invasive Plant Solutions to carry out further survey work, specifically focusing on the Third Schedule plants referenced above. The purpose of that work was to further validate the plants absence from the lands in question, and therefore to satisfy the relevant authorities that no specific management measures will be required for invasive alien plant species covered by the relevant legislation, codes of practice and guidance documents, including Dublin City Council's *Dublin City Invasive Alien Species Action Plan 2016 – 2020*.

A walk through survey of the site was carried out on 27 December 2020, and no evidence of Invasive Alien Plant Species was found on site at that time.

Notwithstanding this absence of IAPS on the lands, the initial issue of this report advised that ongoing monitoring of the site should be carried out, particularly to screen for early emerging IAPS, which wouldn't have been observable during the December 2020 survey.

A further follow up site survey was carried out between the 8th. and 9th. of April 2021. This survey detected the presence of spring emerging IAPS Three Cornered Garlic and Spanish/Hybrid Spanish Bluebell, mainly concentrated within the woodland fringe running along the western end of the northern boundary, with an additional stand in the eastern sector of the site.

On foot of these observations the client approved the immediate deployment of bio-security measures and the commencement of an active herbicide treatment regime, spanning across the months of April, May and June 2021. The purpose of these initial measures is to protect the plant stands from disturbance, by the erection and fencing and signage, and to mitigate the risk of seed dispersal and plant reproduction by the spot application of approved herbicide. The first stage of this process, consisting fencing, signage and the first herbicide treatment, was completed on 26 April 2021, with photographs included in Section 11 of this document. The 2021 treatment programme was completed on 03 June, and a follow up site assessment has been scheduled for September 2021. This management and treatment programme will be continued multi-annually, until either eradication has been fully achieved or future development proposals have been approved and scheduled, whichever is the sooner.

In the event of development being approved in the short term, this management plan recommends the deployment of an IAPS infested soil remediation programme, comprising the bio-secure off-site disposal of all IAPS infested soils, under NPWS licence, to an approved and licenced waste acceptance facility. This process will be based on up to date survey information, to validate the full extent of IAPS present, carried out over the intervening period and immediately in advance of the remediation process commencing. The management plan also recommends that the remediation process should be carried out independently of, and in advance of, the primary development works commencing. It should be executed by, or carried out under the direct management of, an IAPS specialist.

In its ongoing implementation, this management plan will ensure that initial bio-security measures are deployed at all IAPS locations, that a structured, multi annual, site monitoring and herbicide control programme will be employed across the duration planning consent process, and that, if then necessary, a full IAPS infested soil remediation process will be carried out and completed in advance of the commencement of any proposed development project.

I.A.P.S. SITE ASSESSMENT REPORT

SECTION 1 : INTRODUCTION

This Site Assessment Report has been prepared for the client / agency referenced in Section 3 below, and is for their sole and exclusive use. The report reflects the particular site circumstances and conditions, as they presented on the days of inspection. Depending on the time of year of the site assessment, and particularly in advance of, the annual IAPS growing season, the evidence of invasive plant species on site may be limited. In these circumstances follow up site inspections, later in the growing season, may be recommended. This will be included in our Conclusions and Recommendations, at Section 11 of the report.

By their nature, IAPS are aggressive interlopers to our native habitat, are capable of aggressive and rapid dominance, and if left untreated generally result in extensive habitat impairment. It is therefore reasonable to conclude that, where IAPS are identified, but control measures are not applied, these plant species will spread beyond their observed extents.

In addressing invasive alien plant species the precautionary principle should always be applied to their assessment, management and control. All recommended management and control measures should be carried out strictly in accordance with a Site Specific Treatment Plan, and follow “best practice” principles, as set out in technical reference documents such as the UK Environment Agency’s *The Knotweed Code of Practice*

Control measures should be implemented using a recognised professional service with expertise in this field of work, and take into account any and all sensitivities highlighted in this report. Particular care should be taken in circumstances where the invasive plant species are located within a designated site of ecological importance, such as an SAC, SPA or NHA, or are set within the context of known ecological sensitivities. Where the use of herbicides are proposed, these should be applied strictly in accordance with the manufacturers recommendations, by a registered Professional Pesticides User, and fully in compliance with the European Communities (Sustainable Use of Pesticides) Regulations, 2012, (S.I. 155 of 2012).

Under no circumstances should any IAPS be cut or dug out without the advice, direction and supervision of an invasive species specialist. Many plant species have extensive root / rhizome systems which spread beyond the footprint of the above ground plant, and some can regenerate themselves from very small fragments of root or stem. Some plants produce very substantial quantities of seeds, which remain viable for many years, while others produce a sap which causes severe skin damage.

The off-site removal of Japanese knotweed, its variants, soil infested with knotweed material, and other IAPS, is strictly controlled by legislation and requires a licence from the National Parks and Wildlife Service in advance of its removal, in accordance with the European Communities (Birds and Natural Habitats) Regulations 2011 (SI 477).

SECTION 2 : LEGISLATIVE CONTEXT

Japanese Knotweed, *Fallopia japonica*, and other invasive plant species, are listed as Invasive Alien Plant Species in Part 1 of the Third Schedule of the *European Communities (Birds and Natural Habitats) Regulations 2011* (SI 477 of 2011, as amended). In addition, soils and other material containing Knotweeds are classified in Part 3 of the Third Schedule as vector materials and are subject to the same strict legal controls. Failure to comply with the legal requirements set down can result in either civil or criminal prosecution, with very severe penalties accruing. A person who commits an offence under Regulations 49 & 50 is liable (a) on summary conviction, to a Class A fine or imprisonment for a term not exceeding six months, or both, or (b) on conviction on indictment, to a fine not exceeding €500,000.00, or imprisonment for a term not exceeding three years, or both. A person who knowingly incites, directs, procures, permits or assists another person to carry out an action that is an offence under these Regulations shall also be guilty of an offence. The relevant sections of the regulations are reproduced below.

- 49(2) *Save in accordance with a licence granted [by the Department of Arts, Heritage and the Gaeltacht], any person who plants, disperses, allows or causes to disperse, spreads or otherwise causes to grow in any place [a restricted non-native plant], shall be guilty of an offence.*
- 49(3) *... it shall be a defence to a charge of committing an offence under paragraph (1) or (2) to prove that the accused took all reasonable steps and exercised all due diligence to avoid committing the offence.*
- 50(1) *Save in accordance with a licence, a person shall be guilty of an offence if he or she [...] offers or exposes for sale, transportation, distribution, introduction or release—*
- (a) [any restricted non-native animal or plant species],
 - (b) anything from which an animal or plant referred to in subparagraph (a) can be reproduced or propagated, or
 - (c) a vector material listed in the Third Schedule, [which includes] soil or spoil taken from places infested with Japanese Knotweed...and its hybrids...

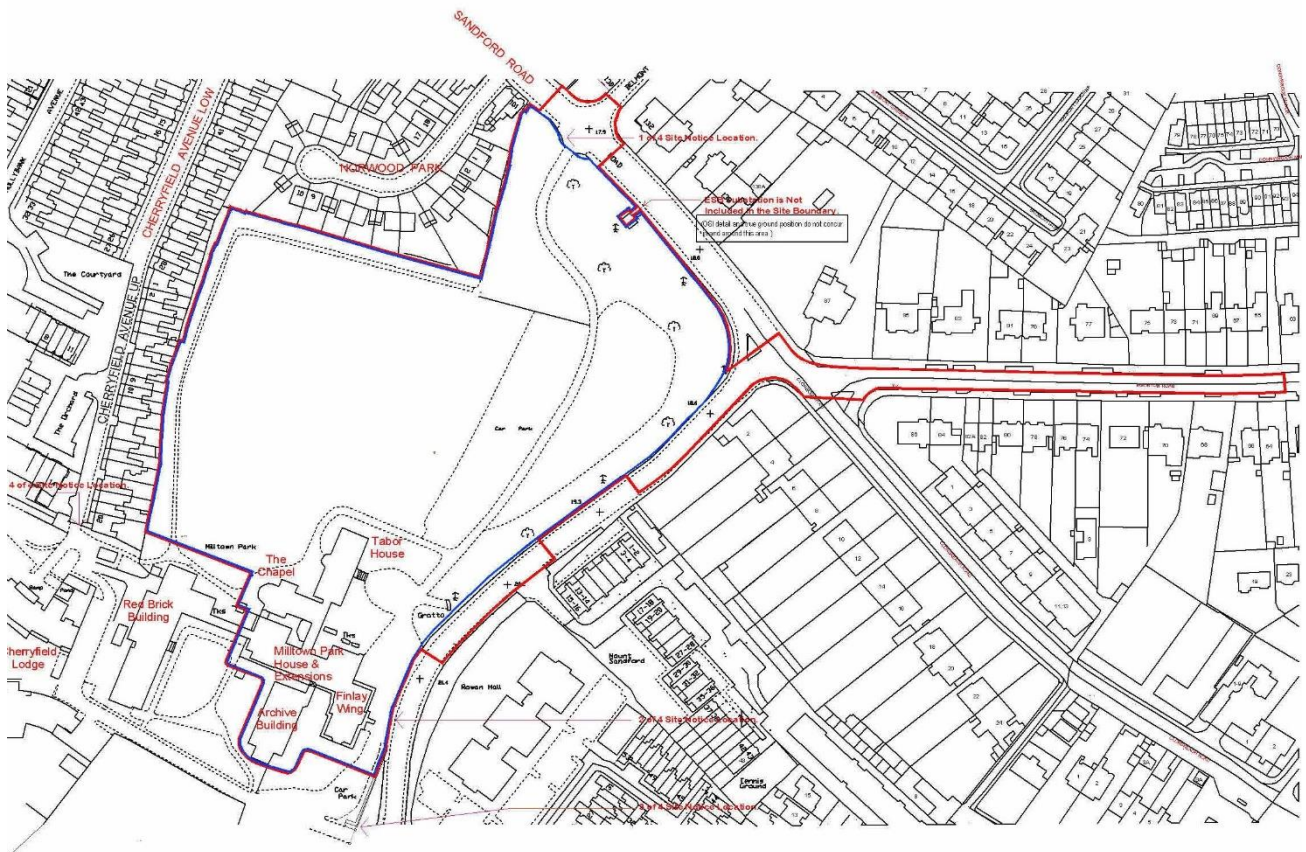
It is an offence under regulations 49(2) and 50(1) to spread, or cause to spread, Japanese Knotweed and other IAPS. An offence may only be avoided if the relevant party can prove that they took all reasonable steps to avoid causing an offence under the legislation. To comply with these regulations, therefore, this management plan relies solely on methodologies necessary to ensure strict compliance with the legislation.

SECTION 3 : CLIENT & SITE DETAILS

GENERAL DETAILS		
SITE ADDRESS	MILLTOWN PARK DEVELOPMENT SITE, SANDFORD ROAD, DUBLIN 6	
CLIENT DETAILS	SANDFORD LIVING LIMITED RIVERSIDE ONE SIR JOHN ROGERSON'S QUAY DUBLIN 2	OWNERSHIP PUBLIC PRIVATE X
		TEL / MOB 01 2963660 / 086 1915063
		EMAIL dbrennan@lafferty.ie
CONSULTANTS / AGENTS	PROJECT MANAGERS – LAFFERTY, DUNDRUM TOWN CENTRE, SANDYFORD ROAD, DUNDRUM, DUBLIN, D16 A4W6 ARCHITECTS – O'MAHONY PIKE, THE CHAPEL, MOUNT ST. ANNE'S, MILLTOWN, DUBLIN, D06 XN52 PLANNING CONSULTANTS – THORNTON O'CONNOR, 1 KILMACUD ROAD UPPER, DUNDRUM, D14 EA89 ENVIRONMENTAL CONSULTANTS – JBA CONSULTING, GROVE ISLAND, LIMERICK, V94 312N ECOLOGICAL CONSULTANTS – JBA CONSULTING, GROVE ISLAND, LIMERICK, V94 312N	
CURRENT SITE USAGE	AGRICULTURAL FORESTRY RESIDENTIAL COMMERCIAL INDUSTRIAL	
	PUBLIC SPACE GREENFIELD BROWNFIELD OTHER X INSTITUTIONAL	
SITE AREA	DEVELOPABLE SITE AREA = 4.26 Ha.	
STATE AGENCIES INVOLVED	CO. COUNCIL NPWS IFI IRISH WATER BORD NA MONA	
	ESB IRISH RAIL GNI OTHER	
SITE DESCRIPTION	<p>THE DEVELOPMENT SITE IS A LARGE PARCEL OF LAND WHICH FORMED A SIGNIFICANT PART OF THE JESUIT RUN MILLTOWN INSTITUTE OF THEOLOGY AND PHILOSOPHY (SEE LAND HOLDING MAP REPRODUCED BELOW). IT COMPRISES EXISTING INSTITUTIONAL BUILDINGS IN ITS SOUTHERN SECTOR, WITH ASSOCIATED HARD SURFACES, MATURE OPEN GRASSLAND AND WOODLAND FRINGES FORMING THE BALANCE OF THE HOLDING. THE SITE IS BOUNDED BY SANDFORD ROAD AND THE REAR OF RESIDENTIAL GARDENS ON NORWOOD PARK TO THE NORTH, BY MILLTOWN ROAD TO THE EAST, BY RETAINED JESUIT LAND AND BUILDINGS TO THE SOUTH AND BY THE REAR OF RESIDENTIAL GARDENS ON CHERRYFIELD AVENUE TO THE WEST</p> <p>BOUNDARIES ARE GENERALLY CLEARLY DELINEATED, AND ARE TYPICALLY DEMARCATED BY FENCING, MASONRY AND STONE WALLS, INDIGENOUS OR PLANTED HEDGES, OR A COMBINATION OF THESE ELEMENTS. HOWEVER THE SOUTHERN AND SOUTH WESTERN BOUNDARIES OF THE SITE BISECT OPEN GROUND AND ARE NOT DEFINITELY MARKED OUT</p>	

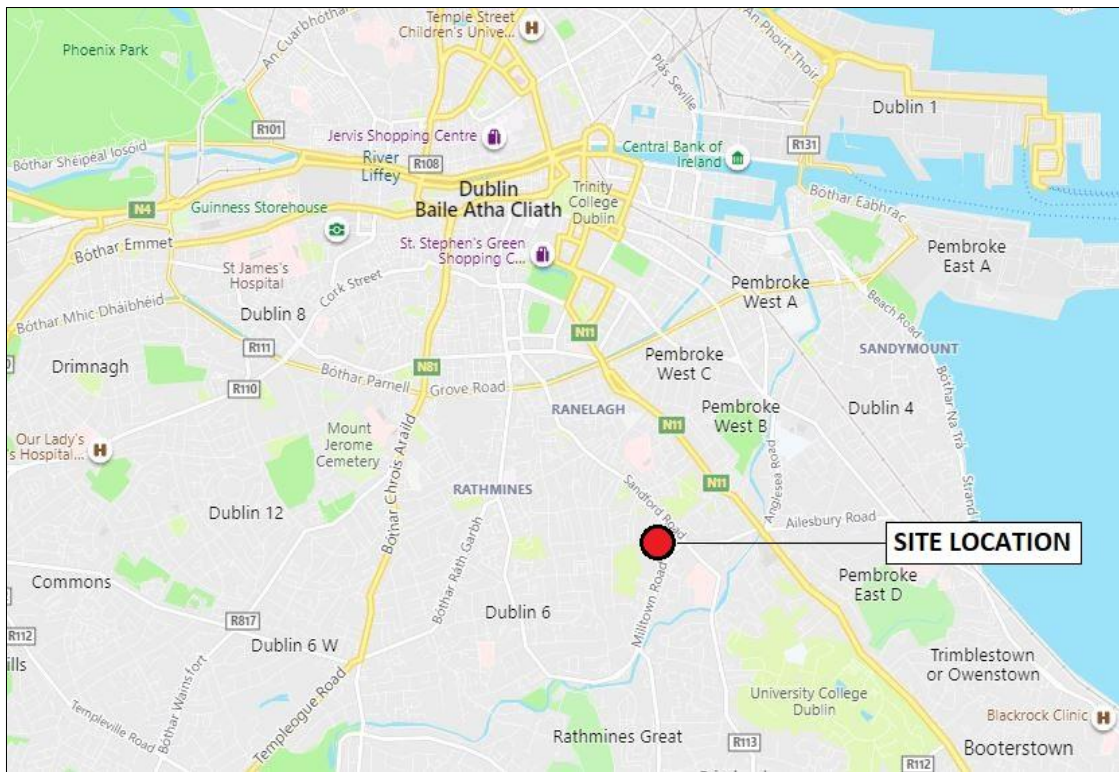
LAND HOLDING MAP

THE DEVELOPMENT BOUNDARY FOR THE PURPOSES OF A PROPOSED PLANNING APPLICATION IS OUTLINED IN RED WHILE THE LANDS WITHIN THE OWNERSHIP OF THE APPLICANT ARE OUTLINED IN BLUE



LAND HOLDING MAP REPRODUCED COURTESY OF O'MAHONY PIKE, ARCHITECTS

SECTION 4 : SITE LOCATION MAP & AERIAL SITE LAYOUT



SITE LOCATION MAP

SITE LOCATION MAP REPRODUCED COURTESY OF BING MAPS



AERIAL SITE LAYOUT

AERIAL SITE LAYOUT PLAN REPRODUCED COURTESY OF GOOGLE MAPS

SECTION 5 : I.A.P.S. OVERALL INFESTATION DETAILS

INVASIVE ALIEN SPECIES							
JAPANESE KNOTWEED	NO	GIANT KNOTWEED	NO	BOHEMIAN KNOTWEED	NO	HIMALAYAN KNOTWEED	NO
GUNNERA	NO	HIMALAYAN BALSAM	NO	GIANT HOGWEED	NO	RHODODENDRON	NO
AMERICAN SKUNK CABBAGE	NO	THREE CORNERED GARLIC	YES	SPANISH BLUEBELL	YES	HOTTENTOT FIG	NO

DESCRIPTION & EXTENT OF PRIMARY I.A.P.S. COLONISATIONS

THREE CORNERED GARLIC (TCG)

- TCG 1** - A LINEAR STAND OF THREE CORNERED GARLIC WITHIN THE WOODLAND FRINGE, WHICH RUNS ALONG THE NORTH WESTERN BOUNDARY OF THE PROPERTY. THE STAND IS LOCATED AT THE BASE OF THE FENCE ON THE BOUNDARY BETWEEN THE SUBJECT SITE AND THE REAR GARDEN OF NO. 6 NORWOOD PARK. PLANTS ARE HEALTHY AND STARTING TO COME INTO FLOWER
- TCG 2** - A CIRCULAR STAND OF THREE CORNERED GARLIC WITHIN THE WOODLAND FRINGE, WHICH RUNS ALONG THE NORTH WESTERN BOUNDARY OF THE PROPERTY. THE STAND IS LOCATED CLOSE TO THE BOUNDARY BETWEEN THE SUBJECT SITE AND THE REAR GARDENS OF NO'S. 4 & 5 NORWOOD PARK. PLANTS ARE HEALTHY AND STARTING TO COME INTO FLOWER
- TCG 3** - A SMALL SINGLE STAND OF THREE CORNERED GARLIC GROWING ON THE WESTERN FRINGE OF A STAND OF WINTER HELIOTROPE, ITSELF AROUND THE BASE OF A MATURE TREE, WEST OF THE MAIN DRIVEWAY. THE PLANT IS COMING INTO FLOWER
- TCG 4** - TWO SMALL SINGLE STANDS OF THREE CORNERED GARLIC GROWING IN THE GRASS MARGIN IMMEDIATELY BESIDE, AND TO THE NORTH OF, THE MAIN DRIVEWAY. THE PLANTS ARE COMING INTO FLOWER

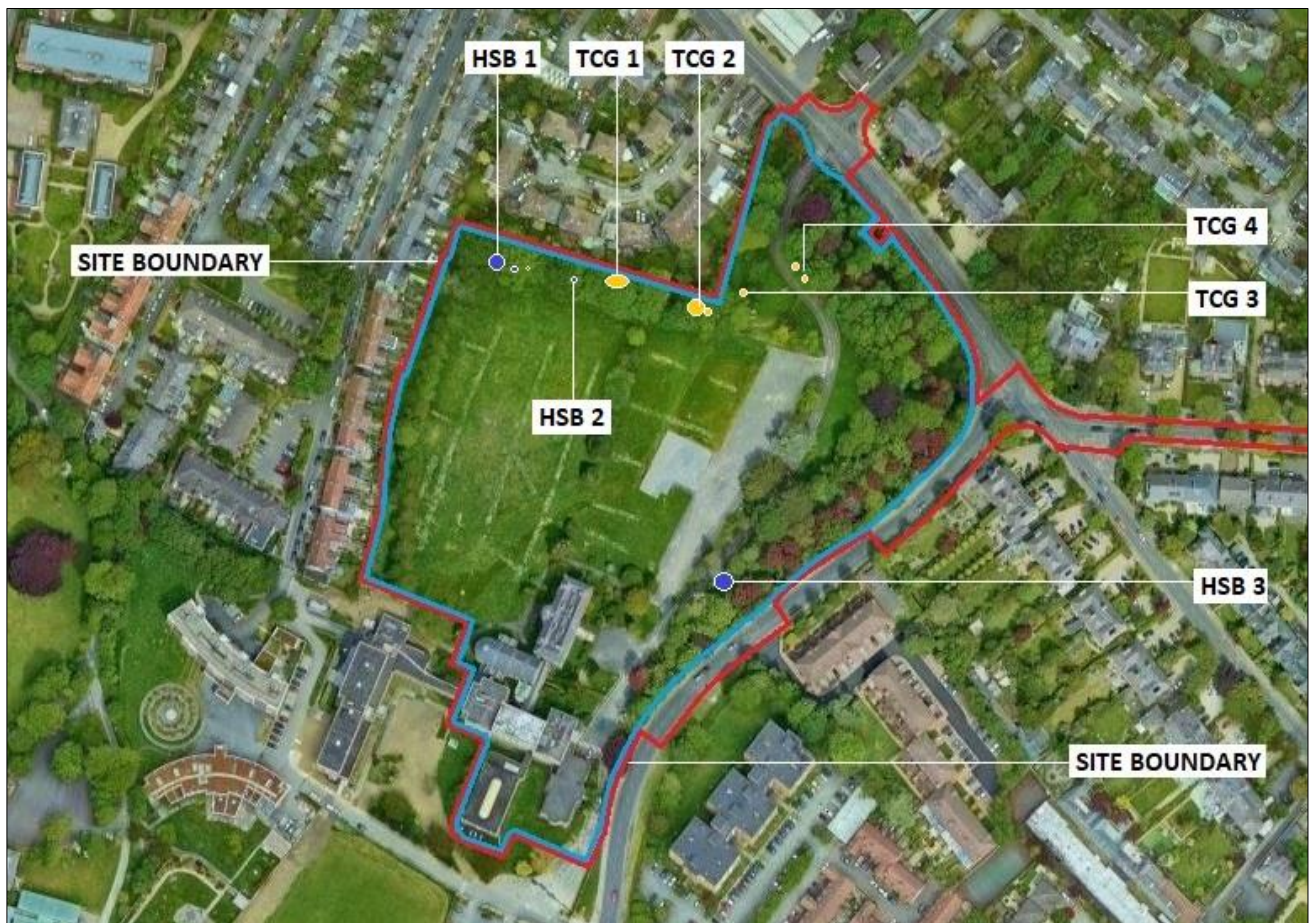
SPANISH BLUEBELL (HSB)

- HSB 1** - A SCATTERED STAND OF HYBRIDISED SPANISH BLUEBELL WITHIN THE WOODLAND FRINGE, WHICH RUNS ALONG THE NORTH WESTERN BOUNDARY OF THE PROPERTY. THE STAND IS MIXED WITHIN NATIVE VEGETATION, CLOSE TO THE BOUNDARY BETWEEN THE SUBJECT SITE AND THE REAR GARDENS OF NO'S. 9 & 10 NORWOOD PARK. PLANTS ARE HEALTHY AND PARTIALLY IN FLOWER
- HSB 2** - A SMALL SINGLE STAND OF HYBRIDISED SPANISH BLUEBELL WITHIN THE WOODLAND FRINGE ALONG THE NORTH WESTERN SITE BOUNDARY
- HSB 3** - A STAND OF HYBRIDISED SPANISH BLUEBELL ON THE EDGE OF THE WOODLAND FRINGE, CLOSE TO THE EASTERN BOUNDARY OF THE PROPERTY. THE STAND IS LOCATED AT THE JUNCTION BETWEEN THE MAIN DRIVEWAY TO THE WEST, AND THE BEGINNING OF A WOODLAND PATH TO THE EAST, BELOW A MATURE TREE, AND MIXED WITHIN NATIVE VEGETATION. THERE IS A SMALL SECONDARY STAND JUST NORTH OF THE MAIN STAND, ON THE EASTERN SIDE OF THE WOODLAND PATH

CONDITION OF INFESTATIONS

GROWTH STAGE	EMERGENT		REGROWTH		JUVENILE / SEMI MATURE		MATURE	X
CONDITION	HEALTHY	X	DISTRESSED		STUNTED		BONSAI	

DISTRIBUTION MAP – APRIL 2021



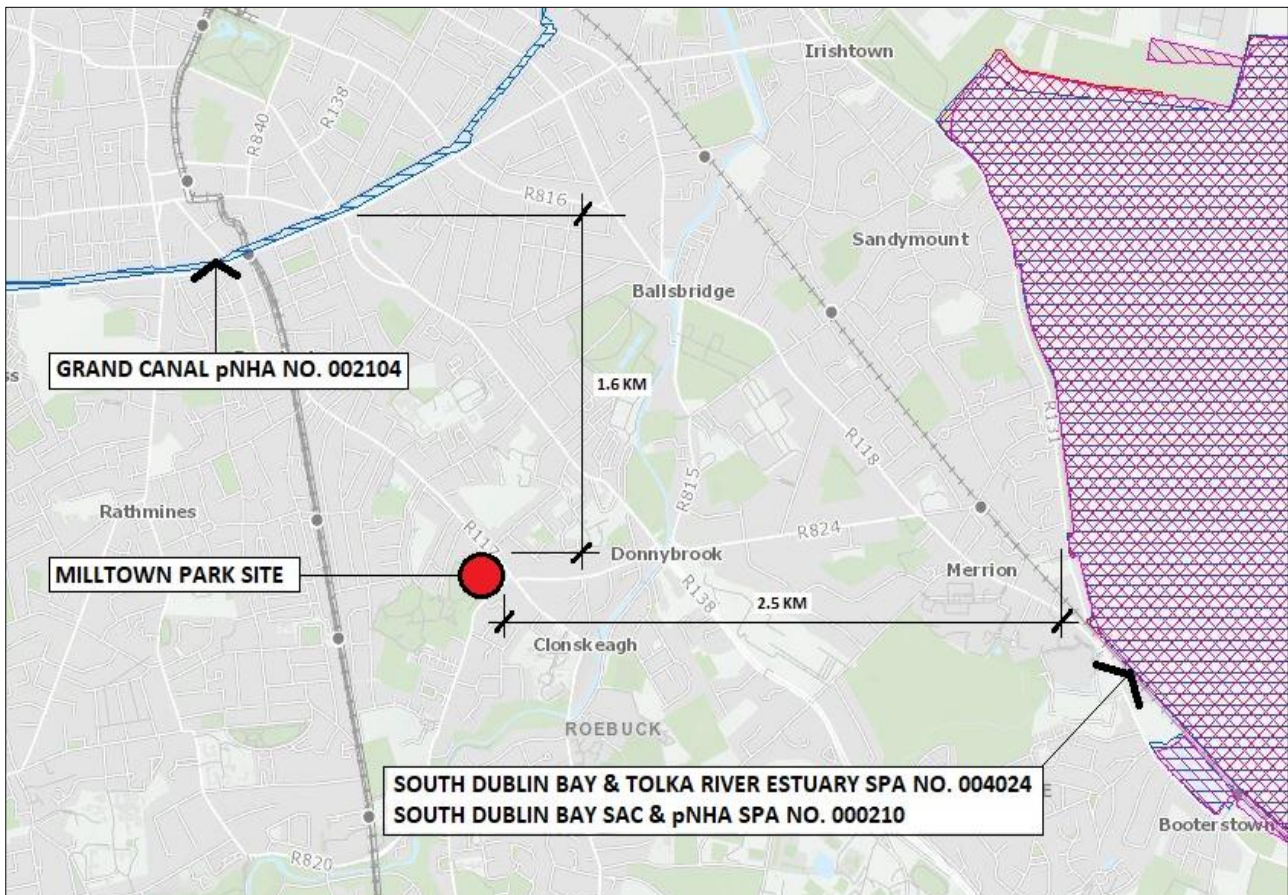
SECTION 6 : I.A.P.S. INDIVIDUAL INFESTATION DETAILS

INDIVIDUAL INFESTATIONS					
INFESTATION DETAILS	NO.	ITM - X	ITM - Y	SIZE (M X M)	COMMENTS
INFESTATION 1	TCG 1	716946	731305	10m x 1m	Linear stand located along the boundary line
INFESTATION 2	TCG 2	716981	731294	1 no. 3m x 8m	Circular stand near boundary, spreading east
INFESTATION 3	TCG 3	717000	731296	1 no. 0.5m dia.	Single stand under tree, beside winter heliotrope
INFESTATION 4	TCG 4	717020	731306	2 no. 0.5m dia.	2 small plants in driveway grass margin
INFESTATION 5	HSB 1	716902	731313	6 no. 0.75m dia.	Series of scattered stands in north western woodland
INFESTATION 6	HSB 2	716929	731300	1 no. 0.5m dia.	Single stand in woodland, south of path
INFESTATION 7	HSB 3	716984	731167	3m x 4m	Stand under tree at pedestrian path in eastern sector

SECTION 7 : I.A.P.S. - ENVIRONMENTAL IMPACT AND LOCAL SENSITIVITIES

ENVIRONMENTAL CONTEXT								
VISUAL IMPACT	MINIMAL	X	MODERATE	n/a	SIGNIFICANT	n/a	SEVERE	n/a
ENVIRONMENTAL IMPACT	LIMITED	X	MODERATE	n/a	SIGNIFICANT	n/a	SEVERE	n/a
TRANSLOCATION RISK	LOW	n/a	MEDIUM	X	HIGH	n/a	ACUTE	n/a
PROXIMITY TO WATER BODY	DISTANT	X	VICINITY	n/a	ADJOINING	n/a	WITHIN	n/a
NATURE OF WATER BODY	RIVER	X	SEA	n/a	LAKE	n/a	CANAL	n/a
DESIGNATED STATUS								
IS SITE IN A DESIGNATED AREA	SAC	NO	SPA	NO	NHA / pNHA	NO	NO.	
DESIGNATED AREA NEARBY	SAC	YES	SPA	YES	NHA / pNHA	YES	NO.	SEE BELOW

THE NEAREST DESIGNATED SITES ARE THE GRAND CANAL pNHA NO. 002104, WHICH IS APPROX. 1.6 KM TO THE NORTH OF THE MILLTOWN PARK SITE, AND THE SOUTH DUBLIN BAY & TOLKA RIVER ESTUARY SPA NO. 004024 / THE SOUTH DUBLIN BAY SAC & pNHA NO. 000210, WHICH ARE APPROX. 2.5 KM TO THE EAST OF THE SITE



RELATIONSHIP BETWEEN THE SITE & THE CLOSEST DESIGNATED SITES

SECTION 8 : SITE PHOTOGRAPHS – DECEMBER 2020 SURVEY

OVERVIEW OF SITE



OVERALL VIEW OF PROPERTY – SOUTH EASTERN SECTOR, LOOKING SOUTH



OVERALL VIEW OF PROPERTY – SOUTH WESTERN SECTOR, LOOKING SOUTH WEST

SECTION 8 : SITE PHOTOGRAPHS – DECEMBER 2020 SURVEY (CONTD.)

OVERVIEW OF SITE



OVERALL VIEW OF PROPERTY – NORTH EASTERN SECTOR, LOOKING NORTH



OVERALL VIEW OF PROPERTY – NORTH CENTRAL SECTOR, LOOKING NORTH WEST

SECTION 8 : SITE PHOTOGRAPHS – DECEMBER 2020 SURVEY (CONTD.)

OVERVIEW OF SITE



OVERALL VIEW OF PROPERTY – NORTH WESTERN SECTOR, LOOKING NORTH WEST



WESTERN SECTION OF SOUTHERN BOUNDARY – LOOKING WEST

SECTION 8 : SITE PHOTOGRAPHS – DECEMBER 2020 SURVEY (CONTD.)

OVERVIEW OF SITE



CENTRAL SECTION OF SOUTHERN BOUNDARY – LOOKING NORTH



EASTERN SECTION OF SOUTHERN BOUNDARY – LOOKING NORTH EAST

SECTION 8 : SITE PHOTOGRAPHS – DECEMBER 2020 SURVEY (CONTD.)

OVERVIEW OF SITE



SOUTHERN SECTION OF WESTERN BOUNDARY – LOOKING NORTH WEST



CENTRAL SECTION OF WESTERN BOUNDARY – LOOKING NORTH WEST

SECTION 8 : SITE PHOTOGRAPHS – DECEMBER 2020 SURVEY (CONTD.)

OVERVIEW OF SITE



WESTERN SECTION OF NORTHERN BOUNDARY – LOOKING NORTH



WESTERN SECTION OF NORTHERN BOUNDARY – LOOKING WEST

SECTION 8 : SITE PHOTOGRAPHS – DECEMBER 2020 SURVEY (CONTD.)

OVERVIEW OF SITE



CENTRAL SECTION OF NORTHERN BOUNDARY – LOOKING NORTH



EASTERN SECTION OF NORTHERN BOUNDARY – LOOKING EAST

SECTION 8 : SITE PHOTOGRAPHS – DECEMBER 2020 SURVEY (CONTD.)

OVERVIEW OF SITE



NORTHERN SECTION OF EASTERN BOUNDARY – LOOKING SOUTH EAST



SOUTHERN SECTION OF EASTERN BOUNDARY – LOOKING EAST

SECTION 9 : SITE PHOTOGRAPHS - APRIL 2021 I.A.P.S.

THREE CORNERED GARLIC – TCG 1



LINEAR STAND RUNNING ALONG BOUNDARY LINE – LOOKING NORTH EAST



LINEAR STAND RUNNING ALONG BOUNDARY LINE – LOOKING NORTH WEST

SECTION 9 : SITE PHOTOGRAPHS - APRIL 2021 I.A.P.S. (CONTD.)

THREE CORNERED GARLIC – TCG 2



MAIN BODY OF STAND NEAR NORTH WESTERN BOUNDARY LINE – LOOKING NORTH



SECONDARY GROWTH TO THE EAST OF MAIN STAND, COMING INTO FLOWER – LOOKING NORTH

SECTION 9 : SITE PHOTOGRAPHS - APRIL 2021 I.A.P.S. (CONTD.)

THREE CORNERED GARLIC – TCG 3



SINGLE STAND ON FRINGE OF WINTER HELIOTROPE – LOOKING SOUTH



CLOSE UP OF STAND ON FRINGE OF WINTER HELIOTROPE – LOOKING SOUTH

SECTION 9 : SITE PHOTOGRAPHS - APRIL 2021 I.A.P.S. (CONTD.)

THREE CORNERED GARLIC – TCG 4



TWO STANDS IN THE NORTH EASTERN DRIVEWAY GRASSED MARGIN – LOOKING SOUTH EAST



CLOSE UP OF NORTHERNMOST STAND – LOOKING NORTH EAST

SECTION 9 : SITE PHOTOGRAPHS - APRIL 2021 I.A.P.S. (CONTD.)

HYBRIDISED SPANISH BLUEBELL - HSB 1



OVERALL ZONE OF INFESTATION – LOOKING WEST



STANDS AROUND BASE OF TREE – LOOKING WEST

SECTION 9 : SITE PHOTOGRAPHS - APRIL 2021 I.A.P.S. (CONTD.)

HYBRIDISED SPANISH BLUEBELL - HSB 2



SINGLE STAND OF HYBRIDISED SPANISH BLUEBELL WITH WHITE FLOWERS – LOOKING NORTH



DETAIL OF WHITE FLOWERS OF HYBRIDISED SPANISH BLUEBELL

SECTION 9 : SITE PHOTOGRAPHS - APRIL 2021 I.A.P.S. (CONTD.)

HYBRIDISED SPANISH BLUEBELL - HSB 3



MAIN STAND, WITH SECONDARY STAND TO THE RIGHT AND BEYOND – LOOKING NORTH



CLOSER VIEW OF MAIN STAND – LOOKING NORTH

SECTION 9 : SITE PHOTOGRAPHS - APRIL 2021 I.A.P.S. (CONTD.)

HYBRIDISED SPANISH BLUEBELL – VARIATIONS IN FLOWERS



FLOWERS IN HSB 1 & 3 - BLUE



FLOWERS IN HSB 1 & 3 - PINK

SECTION 10 : SITE PHOTOGRAPHS - APRIL 2021 FENCING & SIGNAGE



HSB 1



TCG 2

SECTION 10 : SITE PHOTOGRAPHS - APRIL 2021 FENCING & SIGNAGE (CONTD.)



HSB 3



TCG 4

SECTION 10 : SITE PHOTOGRAPHS - APRIL 2021 FENCING & SIGNAGE (CONTD.)




TCG 3



TYPICAL SIGNAGE

SECTION 11 : SITE ASSESSMENT CONCLUSIONS & RECOMMENDATIONS

1. BASED ON THE OUTCOME OF THE TWO SITE SURVEYS, CARRIED OUT IN DECEMBER 2020 AND APRIL 2021, THIS REPORT CONFIRMS THE PRESENCE OF INVASIVE ALIEN PLANT SPECIES, NAMELY THREE CORNERED GARLIC AND SPANISH BLUEBELL.
2. GIVEN THE TIME OF YEAR, AND THE VARIOUS I.A.P.S. PLANT GROWTH CYCLES, IT IS POSSIBLE THAT OTHER I.A.P.S. PLANTS COULD PRESENT IN THE FUTURE. IN APPLYING THE "PRECAUTIONARY PRINCIPLE", REGULAR SITE MONITORING SHOULD BE MAINTAINED. FURTHER SITE INSPECTIONS SHOULD BE SCHEDULED DURING THE 2021 GROWING PERIOD, TO VALIDATE THE EMERGENT I.A.P.S., PARTICULARLY THREE CORNERED GARLIC AND SPANISH BLUEBELL. THIS REPORT AND MANAGEMENT PLAN SHOULD BE UPDATED TO TAKE ACCOUNT OF THE RESULTS OF THE 2021 INSPECTIONS
3. THIS REPORT AND MANAGEMENT PLAN, AND SUBSEQUENT UPDATES, SHOULD BE CIRCULATED TO ANY ADJOINING LAND OWNERS THAT MAY BE AFFECTED BY THE I.A.P.S. PRESENCE, AND TO THE RELEVANT PRESCRIBED AUTHORITIES, WHERE REQUIRED OR APPROPRIATE TO DO SO
4. ALL AREAS OF KNOWN INFESTATION SHOULD BE SECURELY FENCED OFF WITHOUT DELAY, INCLUDING A 5 – 7m BUFFER ZONE WHERE APPROPRIATE. FENCING SHOULD BE STURDY AND INCORPORATE WARNING / ADVISORY SIGNAGE. WHERE STANDS ARE SMALL, OR JUST INDIVIDUAL STEMS, OR HAVE BEEN PREVIOUSLY TREATED AND ARE DEAD STEMS, THEN ADVISORY SIGNAGE ON STURDY TIMBER POSTS MAY SUFFICE
5. NO GROUND MAINTENANCE, OPENING UP OR ANY OTHER GROUND DISTURBANCE SHOULD TAKE PLACE WITHIN THE FENCED AREAS, WITHOUT PRIOR CONSULTATION WITH, AND THE CLEAR DIRECTION OF, AN INVASIVE PLANT SPECIES SPECIALIST, AND THEN ONLY UNDER STRICT SUPERVISION AND BIO-SECURITY CONDITIONS
6. IF ACCESS TO THE INFESTED AREAS IS NECESSARY, AND PARTICULARLY IF ANY ESSENTIAL WORK HAS TO BE CARRIED OUT WITHIN THE FENCED LOCATIONS, THEN THIS MUST ONLY BE DONE FOLLOWING FORMAL APPROVAL IN ADVANCE, AND AFTER THE PREPARATION AND AGREEMENT OF A "TASK SPECIFIC" METHOD STATEMENT. NO VIABLE PLANT MATERIAL OR RHIZOME SHOULD BE DISTURBED IN, OR REMOVED FROM, THE ZONES OF INFESTATION
7. WHERE FUTURE DEVELOPMENT PROPOSALS COULD ENCROACH ONTO THE I.A.P.S. INFESTED AREAS, THEN A SITE SPECIFIC GROUND REMEDIATION PROGRAMME SHOULD BE DEVELOPED AND DEPLOYED, WHICH WOULD PROVIDE FOR THE REMOVAL OF ALL INFESTED SOILS, AND THEIR BIO-SECURE DISPOSAL. THIS PLAN SHOULD INCLUDE PROVISION FOR VERTICAL AND HORIZONTAL GROUND PROTECTION ALONG PROPERTY BOUNDARIES, WHERE APPROPRIATE, AND ANY OTHER RELEVANT MEASURES REQUIRED TO ENSURE STRICT BIO-SECURITY COMPLIANCE ACROSS THE SITE & WORKS.
8. ALL RELEVANT STAFF AND SITE VISITORS SHOULD BE BRIEFED ON THE IDENTIFICATION, RISKS AND DANGERS OF THE I.A.P.S. PRESENT, AND ON THE SPECIFIC MEASURES, RESTRICTIONS AND PROTOCOLS TO BE DEPLOYED ON THE SITE
9. THE ACCOMPANYING MANAGEMENT PLAN AND TREATMENT METHODOLOGY SHOULD BE SCREENED FOR POTENTIAL IMPACTS ON ECOLOGICAL RECEPTORS AND SENSITIVITIES, WHERE THEY EXIST, TO FULLY CONSIDER THE REQUIREMENTS OF S.I. 155 OF 2012 – THE EUROPEAN COMMUNITIES (SUSTAINABLE USE OF PESTICIDES) REGULATIONS
10. WHEN USING HERBICIDES AS PART OF THE MANAGEMENT PLAN AND REMEDIATION PROGRAMME, CONSIDERATION MUST BE GIVEN TO THE PROXIMITY OF ECOLOGICAL RECEPTORS AND DESIGNATED SITES. NON RESIDUAL, AQUATIC APPROVED, HERBICIDES SHOULD BE SPECIFIED FOR TREATMENT, WHERE HERBICIDE USE IS DEEMED SUITABLE
11. INVASIVE PLANT SPECIES, BY THEIR NATURE, ARE AGGRESSIVE AND CAN BE INTRODUCED ONTO PROPERTY INADVERTENTLY, VIA MANY DIFFERENT MEANS AND ROUTES. WE WOULD ENCOURAGE ALL PARTIES TO FAMILIARISE THEMSELVES WITH THE IDENTIFICATION OF THE PRIMARY INVASIVE ALIEN PLANT SPECIES PRESENT. SPECIALIST ADVICE SHOULD BE SOUGHT WHERE THERE IS DOUBT AS TO THE IDENTITY OF ANY PARTICULAR PLANTS ENCOUNTERED
12. IN LIGHT OF THE POTENTIAL FUTURE RE-DEVELOPMENT OF THE SITE IN THE SHORT TO MEDIUM TERM, THE MANAGEMENT PLAN SECTION OF THIS DOCUMENT ALSO INCLUDES A SHORT OVERVIEW OF ADDITIONAL MANAGEMENT MEASURES WHICH SHOULD BE DEPLOYED WHEN, AND IF, SITE DEVELOPMENT / CONSTRUCTION WORKS ARE SCHEDULED. THESE MEASURES ARE DESIGNED TO HELP MITIGATE THE RISK OF I.A.P.S. BEING INTRODUCED ONTO THE SITE FROM EXTERNAL SOURCES. AT THAT TIME OF PREPARATION FOR CONSTRUCTION COMMENCEMENT SUCH MEASURES SHOULD BE DEVELOPED AND EXPANDED UPON, AS NECESSARY, TO MEET THE PARTICULAR REQUIREMENTS OF THIS PROJECT



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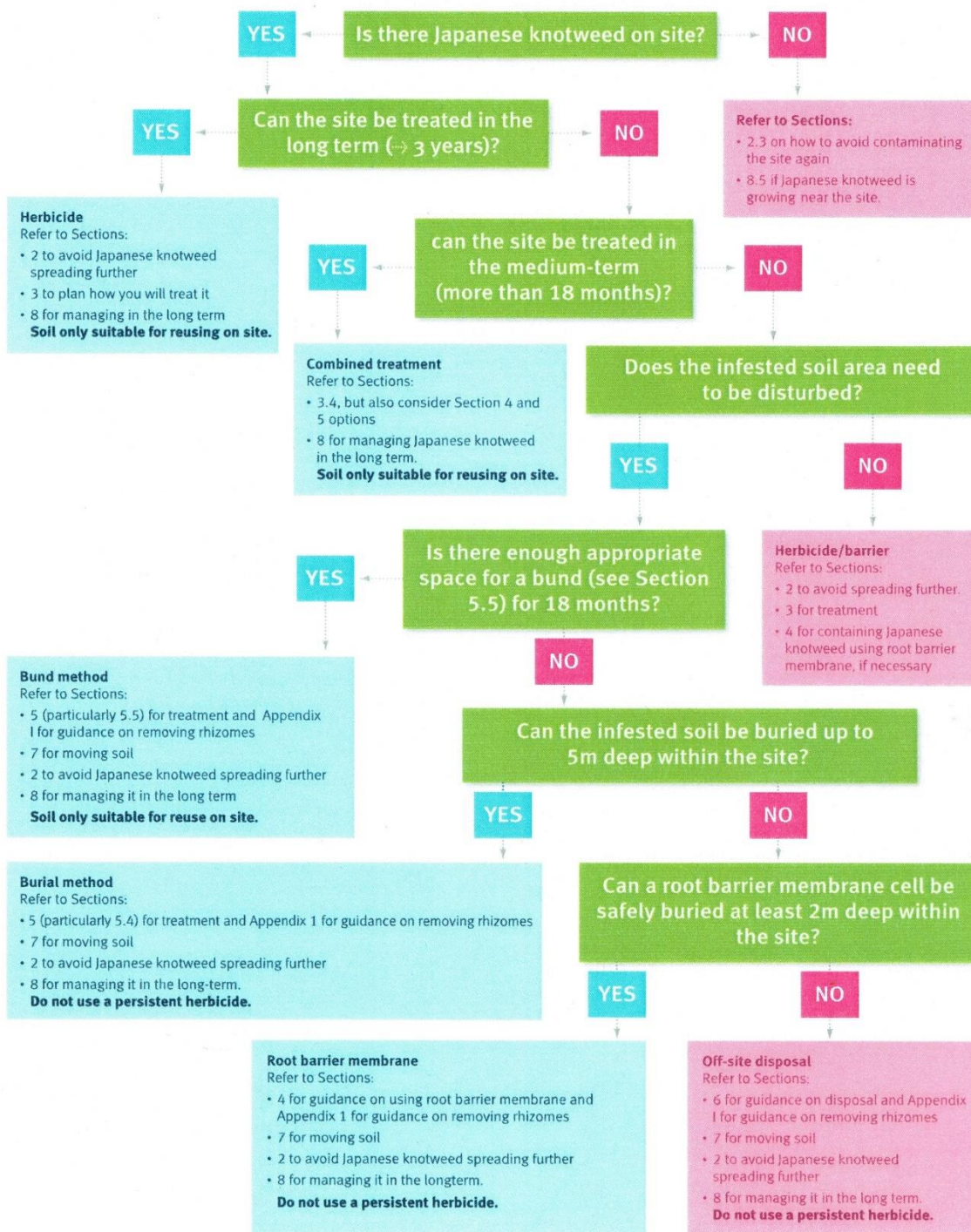
I.A.P.S. MANAGEMENT PLAN

SECTION 12 : KNOTWEEDS - PROCESS OF TREATMENT SELECTION

INVASIVE ALIEN SPECIES				
JAPANESE KNOTWEED	GIANT KNOTWEED	BOHEMIAN KNOTWEED	HIMALAYAN KNOTWEED	
SELECTION OF TREATMENT				

THE MATRIX BELOW HAS BEEN DEVELOPED BY THE U.K. ENVIRONMENT AGENCY, BASED ON BEST PRACTICE AND THE APPLICATION OF "THE PRECAUTIONARY PRINCIPLE". THIS PROCESS IS INTENDED TO ARRIVE AT THE OPTIMUM JAPANESE KNOTWEED MANAGEMENT SOLUTION, WHICH POSES THE LEAST BIO-SECURITY RISK, AND WHICH MANAGES THE PLANTS REMEDIATION PROCESS AS CLOSE AS PRACTICABLE TO IT'S EXISTING POSITION

Flowchart for treating Japanese knotweed



SECTION 13 : KNOTWEEDS - MANAGEMENT PLAN

TREATMENT PLAN			
METHODOLOGY	N/A – NO KNOTWEEDS IDENTIFIED ON THE LANDS		
MANAGEMENT ELEMENTS	INITIAL / MULTI-ANNUAL HERBICIDE CONTROL		ON-SITE BELOW GROUND SOIL CONTAINMENT CELL
	DEEP BURIAL – GREATER THAN 5m		EXCAVATE AND DISPOSE OFF-SITE
HERBICIDE TREATMENT	FOLIAR SPRAY		STEM INJECTION
	CUT AND STEM FILL		SPOT SPRAY / LEAF WIPE / SWAB
	ADDITIONAL DETAILS N/A - NO KNOTWEEDS IDENTIFIED ON THE LANDS		
HERBICIDE TYPE	APPROVED FOR USE WITH JAPANESE KNOTWEED		APPROVED FOR USE IN AQUATIC ENVIRONMENTS
BIO-SECURITY MEASURES	FENCE OFF INFESTATIONS AND FIT WARNING SIGNS		SET 5 – 7m SAFETY ZONE AROUND INFESTATIONS
ILLUSTRATIONS	N/A - NO KNOTWEEDS IDENTIFIED ON THE LANDS		

SECTION 14 : THREE CORNERED GARLIC & SPANISH BLUEBELL – MANAGEMENT & REMEDIATION PLAN

TREATMENT PLAN			
TREATMENT METHODOLOGY	<p>THE PREFERRED SOLUTION FOR MANAGING THREE CORNERED GARLIC & SPANISH BLUEBELL IS :</p> <ol style="list-style-type: none"> FENCE OFF THE IDENTIFIED THREE CORNERED GARLIC & SPANISH BLUEBELL LOCATIONS, USING SECURE FENCING AND APPROPRIATE ADVISORY/WARNING SIGNAGE – SEE APPENDIX 3 AND 4 FOR TYPICAL EXAMPLES CARRY OUT ON-GOING INSPECTIONS OF THE LANBDS ACROSS THE 2021 SPRING & SUMMER GROWING PERIODS, TO VALIDATE THE RESULTS OF THE CURRENT SITE SURVEY, AND TO SCREEN FOR THE INTRODUCTION ONTO THE SITE OF ADDITIONAL I.A.P.S. UPDATE THIS I.A.P.S. ASSESSMENT REPORT & MANAGEMENT PLAN, AS NECESSARY, FOLLOWING EACH FOLLOW UP SITE SURVEY INSTITUTE A MULTI-ANNUAL HERBICIDE TREATMENT PROGRAMME, COMMENCING IN SPRING 2021, CONSISTING OF THREE TREATMENT VISITS, ALL TO BE CARRIED OUT IN ADVANCE OF, AND DURING, THE FLOWERING PERIOD OF THE PLANTS FOR PART OR ALL OF ANY OF THE THREE CORNERED GARLIC & SPANISH BLUEBELL SITES THAT COULD BE DISTURBED BY ELEMENTS OF THE PROPOSED FUTURE DEVELOPMENT OF THE SITE, THEN WHEN THE DEVELOPMENT PROGRAMME BECOMES CLEAR, AND WHERE ERADICATION HAS NOT BEEN FULLY VALIDATED, A DETAILED CONSTRUCTION STAGE MANAGEMENT PLAN SHOULD BE PREPARED TO PHASE OUT THE HERBICIDE TREATMENT PROCESS, AND TO REPLACE IT WITH THE PHYSICAL REMEDIATION OF ANY REMAINING INFESTED SOILS. THE PRECISE DETAILS AND TIMING OF THIS PLAN SHOULD TO BE BASED ON UP TO DATE SITE SURVEY INFORMATION, AND THE DETERMINATION OF THE LEVEL AND EXTENT OF ERADICATION ACHIEVED, CONSIDERED IN CONJUNCTION WITH THE FINAL DETAILED PROJECT DESIGN AND THE DEFINITIVE CONSTRUCTION / DEVELOPMENT WORKS PROGRAMME. AT THIS MOMENT, THE BIO-SECURE OFF-SITE DISPOSAL OF ANY REMAINING INFESTED SOILS WOULD BE CONSIDERED TO BE THE MOST APPROPRIATE REMEDIATION SOLUTION 		
MANAGEMENT ELEMENTS	MULTI ANNUAL HERBICIDE CONTROL PROGRAMME	X	ON-SITE BELOW GROUND SOIL CONTAINMENT CELL
	DEEP BURIAL – GREATER THAN 5m		EXCAVATE AND DISPOSE OFF-SITE
	EXCAVATE AND TREAT IN ON-SITE TEMPORARY BUND		CERTIFIED ROOT BARRIER MEMBRANE SYSTEMS
HERBICIDE TREATMENT TECHNIQUE	FOLIAR SPRAY		STEM INJECTION
	CUT AND STEM FILL		SPOT SPRAY / LEAF WIPE / SWAB
	SPOT SPRAY TO CONSIST OF A TARGETED APPLICATION OF ROUNDUP BIACTIVE XL IN SOLUTION, AT A DILUTION RATE OF 1:40, OR ALTERNATIVE GLYPHOSATE BASED HERBICIDE, APPLIED BI-ANNUALLY IN ACCORDANCE WITH THE MANUFACTURERS INSTRUCTIONS. SPRAY TO BE APPLIED ONLY TO THE TARGET PLANT, PRIOR TO SETTING SEED, AND APPLIED USING A PROPRIETRY SPRAY UNIT FITTED WITH AN ANTI DRIFT SHIELD. SPRAY ONLY TO BE APPLIED UNDER SUITABLE PREVAILING WEATHER CONDITIONS AND APPLIED AT A RATE AND PRESSURE WHICH MINIMISES RUN OFF FROM THE PLANT LEAVES AND FLOWERS. THE SITE HANDLING AND MIXING OF HERBICIDE SHOULD BE AVOIDED TO THE GREATEST EXTENT POSSIBLE		
ADDITIONAL WORKS	CUT AND BAG PLANT MATERIAL		SHRED & DISPOSE OF VIABLE PLANT MATERIAL
HERBICIDE	APPROVED FOR 3 CORNERED GARLIC	X	APPROVED FOR USE IN AQUATIC ENVIRONMENTS
BIO-SECURITY MEASURES	FENCE OFF INFESTATIONS AND FIT WARNING SIGNS	X	SET SAFETY ZONE AROUND INFESTATIONS
	ADVISE AFFECTED PARTIES / NOTIFY NEIGHBOURS		BRIEF WORKERS AND VISITORS TO PROPERTY
	IF MORE THAN 1 PARTY, AGREE WORKS IN ADVANCE		MONITOR AND RECORD

SECTION 15 : PRELIMINARY MANAGEMENT PROGRAMME

PROGRAMME			
STAGE 1 SPRING/SUMMER 2021	<ul style="list-style-type: none"> DEPLOY BIOSECURITY MEASURES, COMPRISING SECURE FENCING AND ADVISORY / WARNING SIGNAGE CARRY OUT THREE SPOT SPRAYING TREATMENTS AT THREE CORNERED GARLIC & SPANISH BLUEBELL STANDS CARRY OUT FOLLOW UP SITE SURVEY, TO INSPECT FOR NEW, EMERGING AND SPREADING I.A.P.S. UPDATE ASSESSMENT REPORT AND MANAGEMENT PLAN, BASED ON THE OUTCOME OF THE SEPTEMBER SURVEY 		<p>COMPLETE 04/21</p> <p>COMPLETE 06/21</p> <p>PENDING 09/21</p>
STAGE 3 SUMMER 2021 ONWARDS	<ul style="list-style-type: none"> CONTINUE IMPLEMENTATION OF THE MULTI-ANNUAL HERBICIDE TREATMENT PROGRAMME, WITH MINIMUM BI-ANNUAL TREATMENT AND INSPECTION VISITS, SCHEDULED AS REQUIRED AND AS NECESSARY, UNTIL FULL ERADICATION HAS BEEN VALIDATED IF PLANNING PERMISSION IS GRANTED AND DEVELOPMENT OF THE SITE IS SCHEDULED, IN ADVANCE OF FULL ERADICATION BEING VALIDATED, PREPARE AND IMPLEMENT A CONSTRUCTION STAGE I.A.P.S. MANAGEMENT PLAN, TO REMEDIATE THE RESIDUAL INFESTED SOILS, IN ADVANCE OF THE COMMENCEMENT OF ENABLING WORKS AND CONSTRUCTION ACTIVITIES 		

SECTION 16 : I.A.P.S. – ADDITIONAL CONSTRUCTION STAGE I.A.P.S. MANAGEMENT MEASURES

<p>REMEDIATION PLAN</p>	<p>THERE IS AN EXISTING AND ONGOING RISK TO ALL PROPERTIES FROM THE INTRODUCTION OF INVASIVE ALIEN PLANT SPECIES ONTO THEIR LANDS FROM THE OUTSIDE. THE PRIMARY PATHS OF INTRODUCTION ARE VIA :</p> <ol style="list-style-type: none"> 1. PHYSICAL SPREAD OF I.A.P.S. PLANTS FROM ADJACENT / ADJOINING LANDS 2. AIRBORNE DISPERSAL OF SEEDS OR OTHER VIABLE I.A.P.S. MATERIAL 3. IMPORTED SOILS AND OTHER FILL/LANDSCAPING MATERIALS CONTAINING VIABLE SEED OR OTHER I.A.P.S. MATERIAL 4. SOIL ON MACHINERY AND VEHICLES CONTAMINATED WITH VIABLE SEEDS OR OTHER I.A.P.S. MATERIAL 5. TOOLS AND FOOTWEAR CONTAINING VIABLE SEED OR OTHER I.A.P.S. MATERIAL <p>CONSTRUCTION WORKS, BY THEIR VERY NATURE, POSE A HEIGHTENED RISK OF THE INTRODUCTION OF I.A.P.S. ONTO DEVELOPMENT SITES, PARTICULARLY VIA ITEMS 3. – 5. ABOVE. THEREFORE STRICT SITE MONITORING / MANAGEMENT PROCEDURES SHOULD BE DEPLOYED THROUGHOUT THE CONSTRUCTION STAGE OF THE SITE DEVELOPMENT PROGRAMME.</p> <p>FOR INFORMATION PURPOSES, THE SCHEMATIC OF THE MILLTOWN PARK DEVELOPMENT PROPOSAL IS INCLUDED BELOW</p>
<p>PRIMARY MANAGEMENT MEASURES</p>	<p>THE CONTRACTOR SHOULD PROVIDE A PROJECT SPECIFIC I.A.P.S. STANDARD OPERATING PROCEDURE DOCUMENT, IN ADVANCE OF WORK COMMENCEMENT. THE DOCUMENT SHOULD BE PREPARED BY AN I.A.P.S. SPECIALIST, AND SHOULD COVER THE BIO-SECURITY MEASURES TO BE TAKEN, INCLUDING THE MAINTENANCE OF RECORDS, TO SCREEN FOR THE INTRODUCTION OF I.A.P.S. AND TO ENABLE THEIR TRACING, IF SUCH AN INTRODUCTION OCCURS, INCLUDING :</p> <ul style="list-style-type: none"> • CONFIRMATION THAT ALL MACHINERY / VEHICLES ARE FREE OF I.A.P.S., PRIOR TO THEIR FIRST INTRODUCTION TO SITE • CERTIFICATION FROM THE SUPPLIERS THAT ALL BATCHES OF IMPORTED SOILS AND OTHER FILL/LANDSCAPING MATERIALS ARE FREE OF I.A.P.S. • A REGULAR SCHEDULE OF SITE INSPECTIONS ACROSS THE I.A.P.S. GROWING SEASONS, FOR THE FULL DURATION OF THE CONSTRUCTION WORKS PROGRAMME
<p>ILLUSTRATIONS</p>	 <p style="text-align: center;">PROPOSED SITE PLAN – DRAWING REPRODUCED COURTESY OF CAMEO & PARTNERS</p>

MILLTOWN PARK DEVELOPMENT SITE
SANDFORD ROAD
DUBLIN 6

APPENDIX 1
Three Cornered Garlic (Leek) I.D. Sheet

Non-Native Garlics

Species Description

Scientific names: *Allium* species

AKA: Gerllyg (Welsh)

Native to: Mediterranean, Caucasus and Iran

Habitat: Roadsides, hedge banks, riverbanks, field margins, rough and waste ground and in woodland

Garlics are perennial herbs with bulbs and grass-like leaves, usually smelling of garlic when fresh and crushed. The most widespread invasive garlics in the UK are Three-cornered Garlic *Allium triquetrum* and Few-flowered Garlic *Allium paradoxum*. Other invasive species include Rosy Garlic *Allium roseum* and Keeled Garlic *Allium carinatum*.

The seeds of Three-cornered Garlic are spread naturally by ants. It was established initially in Guernsey in 1849 and is now naturalised and increasingly abundant and widespread in milder areas of the UK, especially in the south and west, with scattered, sometimes short-lived, populations elsewhere.

Few-flowered Garlic spreads by means of bulbils (small bulbs produced above ground). It was first recorded in the wild near Edinburgh in 1863 and can be very invasive in disturbed habitats. It is increasingly abundant throughout its range, especially in southern Scotland and is most common in the east of Britain.

Rosy Garlic was first recorded in the wild in 1837 and is spreading, especially in south-west England. Keeled Garlic has been naturalised since at least 1806, but there is little evidence of a significant increase in range over the last 50 years.



Key ID Features



Three-cornered and few-flowered garlic

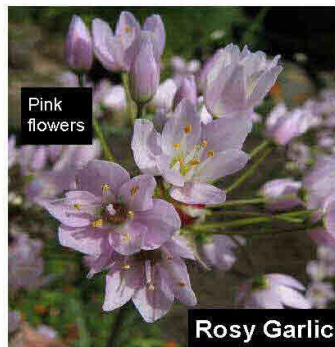


Stem cross section is strongly angled

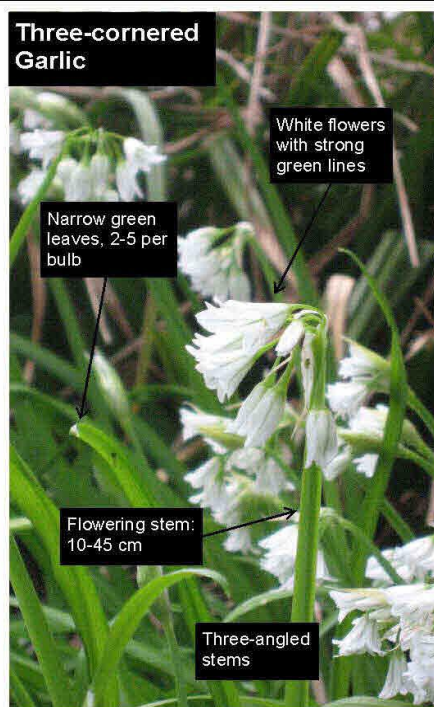
Rosy garlic



Stem cross section is round



Three-cornered Garlic



Identification throughout the year

Three-cornered garlic flowers April to June.

Few-flowered garlic flowers April to May.

Rosy garlic flowers May to June.

Keeled garlic flowers in August.

Leaves are not present over winter as these species die back in cold winters and come up from bulbs in the spring.

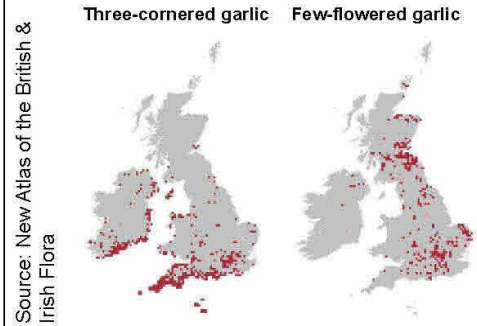
Distribution

Three-cornered garlic is widespread in milder areas, especially the south-west, and has increased in numbers and range.

Few-flowered garlic has a mainly eastern distribution and is increasing throughout its range.

Rosy garlic is scattered in the south and west and is spreading.

Keeled garlic is scattered throughout the lowlands but does not seem to be increasing.



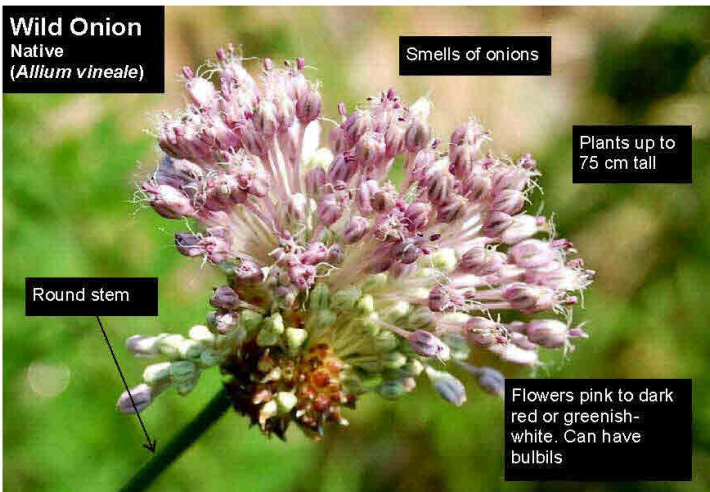
Similar Species

There are a number of native onion and garlic species in the UK with ramsons and wild onion being the most common. There are many species with leaves which are similar to the non-native garlics but the onion/garlic smell is distinctive.

Ramsons
Native
(*Allium ursinum*)



Wild Onion
Native
(*Allium vineale*)



References and further reading:

Preston *et al.* (2002) "New Atlas of the British & Irish Flora". Oxford University Press

Sell, P & Murrell, G (1996) "Flora of Great Britain and Ireland. Volume 5: *Butomaceae-Orchidaceae*". Cambridge University Press

Stace, C (1997) "New Flora of the British Isles". Cambridge University Press

Photos from: Becky Dewdney-York, Nhu Nguyen, William Vann, Max Wade

MILLTOWN PARK DEVELOPMENT SITE
SANDFORD ROAD
DUBLIN 6

APPENDIX 2
Spanish Bluebell I.D. Sheet

WIKIPEDIA

Hyacinthoides hispanica

Hyacinthoides hispanica (syn. *Endymion hispanicus* or *Scilla hispanica*), the **Spanish bluebell**, is a spring-flowering bulbous perennial native to the Iberian Peninsula. It is one of around 11 species in the genus *Hyacinthoides*, others including the common bluebell (*Hyacinthoides non-scripta*) in northwestern Europe, and the Italian bluebell (*Hyacinthoides italica*) further east in the Mediterranean region.^[1]

It is distinguished from the common bluebell by its paler and larger blue flowers, which are less pendulous and not all drooping to one side like the common bluebell; plus a more erect flower stem (raceme), broader leaves, blue anthers (where the common bluebell has creamy-white ones) and little or no scent compared to the strong fragrant scent of the northern species. Like *Hyacinthoides non-scripta*, both pink- and white-flowered forms occur.

The Spanish bluebell was introduced in the United Kingdom. Since then, it has hybridised frequently with the native common bluebell and the resulting hybrids are regarded as invasive. The resulting hybrid *Hyacinthoides × massartiana* and the Spanish bluebell both produce highly fertile seed but it is generally the hybrid that invades areas of the native common bluebell. This has caused the common bluebell to be viewed as a threatened species.

The Spanish bluebell is also cultivated as a garden plant, and several named cultivars exist with flowers in various shades of white, pink and blue.

References

1. *World Checklist of Selected Plant Families* (<http://apps.kew.org/wcsp/home.do>). The Board of Trustees of the Royal Botanic Gardens, Kew, retrieved 2011-07-05, search for "Hyacinthoides"

General

- The-Tree.org: Bluebell (<https://web.archive.org/web/20060427035443/http://www.the-tree.org.uk/EnchantedForest/WoodlandFlowers/bluebell.htm>) (includes key to identification of hybrids)
- Huxley, A. (1992). *New RHS Dictionary of Gardening* vol. 2: 604. Macmillan.

External links

-  Media related to *Hyacinthoides hispanica* at Wikimedia Commons

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Hyacinthoides hispanica



Scientific classification

Kingdom:	Plantae
Clade:	Angiosperms
Clade:	Monocots
Order:	Asparagales
Family:	Asparagaceae
Subfamily:	Scilloideae
Genus:	<i>Hyacinthoides</i>
Species:	<i>H. hispanica</i>

Binomial name

Hyacinthoides hispanica

(Mill.) Chouard ex Rothm.



Native bluebells (*Hyacinthoides non-scripta*)

- Distinctive 'droop' like the top of a shepherd's crook
- Sweet, cool perfume
- Narrow bell-shaped flowers with rolled back tips
- Creamy white pollen

If your bluebells have all of these characteristics then they're native bluebells.



Spanish bluebells (*Hyacinthoides hispanica*) and hybrids

- Upright stems
- No scent
- Conical bell-shaped flowers with open tips
- Blue pollen

If the bluebells you see have some or all of these characteristics then they're not a pure native bluebell.

MILLTOWN PARK DEVELOPMENT SITE
SANDFORD ROAD
DUBLIN 6

APPENDIX 3
Sample Site Signage – I.A.P.S.

INVASIVE PLANT SPECIES

DO NOT CUT DO NOT TOUCH



THREE CORNERED GARLIC



SPANISH BLUEBELL



GIANT RHUBARB

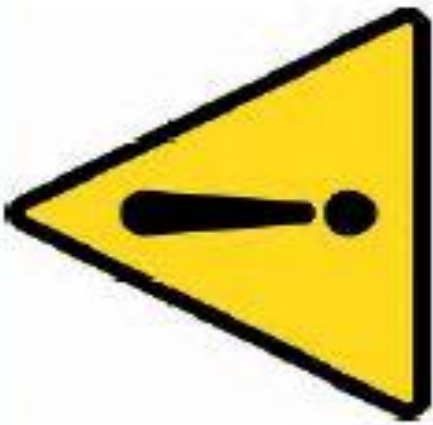


HIMALAYAN BALSAM

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www.knotweed.ie

Sureprint

SAMPLE SIGN 1



Restricted Access

The soil in this area
contains invasive plant material
and is being treated.

Do not enter unless authorised.

Do not remove soil from this
area without authorisation.

MILLTOWN PARK DEVELOPMENT SITE
SANDFORD ROAD
DUBLIN 6

APPENDIX 4
Sample Site Fencing



SAMPLE FENCING 1 – POST AND WOVEN MESH FENCING



SAMPLE FENCING 2 – HEAVY DUTY HERRAS FENCING

APPENDIX 9.1

VERIFIED VIEWS*

***See separate booklet prepared by 3D
Design Bureau**