ENVIRONMENTAL IMPACT ASSESSMENT REPORT
VOLUME 1 – NON-TECHNICAL SUMMARY

STRATEGIC HOUSING DEVELOPMENT (SHD) AT FORMER CENTRAL MENTAL HOSPITAL, DUNDRUM, DUBLIN 14

PREPARED FOR:

LAND DEVELOPMENT AGENCY
Second Floor
Ashford House
18-23 Tara Street
Dublin 2
D02 VX67

PREPARED BY:

TOM PHILLIPS + ASSOCIATES
80 Harcourt Street
Dublin 2
D02 F449

MARCH 2022

Contents

1.0 INTRODUCTION

1.1 Outline Details

This Environmental Impact Assessment Report (EIAR) relates to a Strategic Housing Development (SHD) application by the Land Development Agency (referred to as the Applicant throughout) for the redevelopment of the lands at the Central Mental Hospital, Dundrum Road, Dublin 14.

This EIAR provides an assessment of the environmental impact and associated mitigation measures arising as a result of the proposed development. It has been prepared in accordance with the requirements of the Planning and Development Act 2000 (as amended), the Planning and Development Regulations 2001 (as amended) and the relevant guidance documents.

The SHD application site measures c.9.6 ha and is located on Dundrum Road, Dublin 14 and forms part of the wider Central Mental Hospital lands which measure 11.39 ha in total. The proposed SHD comprises 977 no. residential units, consisting of apartment blocks, duplexes and houses. The proposal includes 3,889 sq m of non-residential uses, including the change of use and renovation of the existing Gate Lodge building to provide a café.

The redevelopment of the application site is supported by a comprehensive Masterplan which, in addition to the proposed SHD scheme, provides for the adaptive re-use of the main hospital building, associated open space and further residential development to the rear of hospital (approximately 71 no. additional units). The Applicant intends to submit a separate future planning application to Dún Laoghaire Rathdown County Council under Section 34 of the *Planning and Development Act 2000*, in respect of the aforementioned adaptive re-use. This application submission and EIAR relate primarily to the SHD proposal with consideration given to the future Section 34 proposal from a cumulative impact assessment.

1.2 EIA Process

EIA requirements are governed by Directive 2014/52/EU, which amends the previous EIA Directive (Directive 2011/92/EU). The primary objective of the EIA Directive is to ensure that projects that are likely to have significant effects on the environment are subjected to an assessment of their likely impacts.

EIA forms part of the planning consent process and is carried out by the Competent Authority. An EIAR is prepared by / on behalf of a Developer in respect of a project seeking planning consent. The EIAR thus becomes an integral informing element in the Competent Authority's EIA. The 2014 Directive has introduced strict new requirements in respect of the competency of experts responsible for the preparation of the EIAR (see Appendix 1.1 below for details on the experts involved in the preparation of this document).

The EIA process may be summarised as follows:

- Screening – Is EIA Required?
- Scoping – If EIA is Required, what aspects of the Environment should be considered?
- Preparation of EIAR
- EIAR informs EIA (as part of the consent process)

1.3 The Need for EIA

The proposed development has been screened for EIA in accordance with the *European Union (Planning and Development) (Environmental Impact Assessment) Regulations 2018*), in accordance with the EIA Directive.

Section 172(1) of the Acts sets out the requirement for EIA. Mandatory EIA is required for Projects listed in Part 1 of Schedule 5 of the *Planning and Development Regulations 2001-2020* ("*the Regulations*"), referred to as Annex I Projects, in accordance with the EIA Directive.

The Project is not listed within Part 1 of Schedule 5 of the Regulations and therefore mandatory EIA is not required in this instance.

With respect to Part 2 of Schedule 5 (Annex II Projects), the Project has been assessed against the following relevant criteria:

Class 10 – Infrastructure Projects

Subsection 10(b)(i):

> "*Construction of more than 500 dwelling units*"

This Project comprises a strategic housing development including 977 no. residential units and c. 3,889 sq m of other (non-residential) uses. The Project exceeds this threshold and therefore an EIA is required in the context of this Class of the Regulations.

Part 2 Class 10 – Infrastructure Projects

Subsection 10(b)(iv):

> "*Urban development which would involve an area greater than 2 hectares in the case of a business district, 10 hectares in the case of other parts of a built-up area and 20 hectares elsewhere*"
>
> *(In this paragraph, "business district" means a district within a city or town in which the predominant land use is retail or commercial use.)*"

The SHD Project relates to a site of c.9.6 hectares and is located within an area which comes within the definition of "*other parts of a built-up area*". The Project therefore does not exceed the threshold of 10 hectares, with respect to site area of the proposed development, however it is noted that the overall Central Mental Lands (to which the Masterplan relates) are 11.39ha in area. Regardless, an EIAR is already triggered in respect of 10(b)(i).

1.4 Purpose of the Environmental Impact Assessment Report

As noted, the 2014 Directive has redefined EIA as a process, whereby an EIAR is a key informing element. An EIAR's purpose is to predict and assess likely significant effects (direct and

indirect) on the environment arising from the proposed development. It is used during the consent process to inform EIA.

As per Article 5(1) of the amended Directive, an EIAR should provide the following information:

- Description of Project
- Description of Baseline Scenario
- Description of Likely Significant Effects
- Description of Avoidance / Mitigation Measures
- Description of Reasonable Alternatives (and rationale for chosen option)
- A Non-Technical Summary

Annex IV of the Directive sets out a more detailed outline of the information required in an EIAR. The subject EIAR has been prepared in full accordance with these stated requirements of Annex IV.

The preparation of the *Environmental Impact Assessment Report* has been co-ordinated by Tom Phillips + Associates, Town Planning Consultants, in association with other members of the Project Team as identified in Appendix 1.1.

1.5 Scoping of the Environmental Impact Assessment

An informal EIA scoping exercise was undertaken by TPA in June 2021, with respect to the proposed development. The purpose of the EIA scoping exercise was to inform consultees of the proposed development, having regard to the extent of information to be contained within the EIAR for the project.

The scope of the EIAR has been prepared in consultation with the respective specialists within the EIA team. The Report set out a detailed justification relating to the environmental aspects to be considered in detail in the EIAR for the proposed development on the basis of the potential for significant effects.

The non-statutory scoping exercise was documented within the *Environmental Impact Assessment Scoping Report (and Summary of Possible Effects)* that accompanied the pre-application submission to An Bord Pleanála and copied to Dún Laoghaire-Rathdown County Council.

1.6 EIAR Format

In addition to the 2014 Directive, the subject EIAR has been informed by:

- *Draft Guidelines On The Information To Be Contained In Environmental Impact Assessment Reports* (EPA, August 2017);
- *Advice Notes for Preparing Environmental Impact Statements,* Draft, (EPA September 2015);
- *Environmental Impact Assessment of Projects: Guidance on Screening* (European Commission, 2017);

- *Environmental Impact Assessment of Projects: Guidance on Scoping* (European Commission, 2017);
- Environmental Impact Assessment of Projects: Guidance on the preparation of the Environmental Impact Assessment Report (European Commission, 2017);
- Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment, (August 2018);

1.6.1 Baseline Environment

This section provides a description of the current state of the environment related to the subject site.

1.6.2 Likely Potential Effects of the Proposed Development

This section allows for a description of the direct and indirect impacts that the proposed development is likely to have on aspects of the environment affected. This is done with reference to both the Baseline Environment sections and the Description of the Proposed Project chapter, while also referring to the magnitude, duration, consequences (including use of natural resources) and significance of any impact.

1.6.3 Mitigation Measures

This section provides a description of the measures envisaged to prevent, reduce and (where possible) offset any significant adverse effects on the environment that are practicable or reasonable, having regard to the potential impacts.

1.6.4 Monitoring

This section outlines monitoring measures (for both construction and operational stages), where appropriate, in cases where significant adverse impacts have been identified.

1.6.5 Consideration of Alternatives

This part of the EIAR describes the reasonable alternatives considered and provides a rationale for the chosen option, having regard to environmental factors listed at Article 3(1) of the EIA Directive.

1.6.6 Interactions

This section provides an overview of the inter-relationship between each of the different environmental aspects assessed, as identified by each of the specialists within their respective chapters.

1.6.7 Cumulative Impacts

This chapter has regard to the potential cumulative impact upon the environment arising from the proposed project, in combination with other developments (committed or planned projects) in the surrounding area. The other projects assessed in combination with the proposed development are outlined in Chapter 17 of this NTS.

1.7 EIAR Project Team and Guarantee of Competency and Independence

The Environmental Impact Assessment Report was completed by a project team led by Tom Phillips + Associates, who also prepared a number of the chapters.

In accordance with EIA Directive 2014/52/EU, we confirm that the experts involved in the preparation of this EIAR are fully qualified and competent in their respective fields. Each has extensive proven expertise in the relevant field concerned, thus ensuring that the information provided herein is complete and of high quality. The individual members of the team and their respective inputs and competency are detailed in Appendix 1.

2.0 DESCRIPTION OF THE PROPOSED PROJECT

2.1 Introduction

This Chapter, in accordance with Article 5(1)(a) of the EIA Directive, provides: *"…information on the site, design, size and other relevant features of the project".*

The assessment provided in the following Chapters, undertaken by the various specialists, is underpinned by the description of the project as set out below.

2.2 Background to the Site

2.2.1 Site History

There have been no previous planning applications within the subject site of the proposed development. All existing structures on the site were built prior to the establishment of the planning system or built under special powers associated with the current use of the site.

Prior to any development on the site, the grounds were used as farmland.

The original 'Central Criminal Lunatic Asylum' building was completed in 1850, with further building works in 1863. The enclosed environs of the asylum featured multiple airing courts, lean-to shelters and privies, being divided between male and female quarters by a single wall. Adjacent facilities to the main building included an infirmary, kitchen and laundry. A central yard was located inside the entrance, enclosed by the surrounding buildings.

The gate lodge (gate house) was built in 1853, echoing the style of the main hospital building. The protestant chapel was completed in 1866. An unspecified portion of the boundary wall was rebuilt in 1868.

Prior to 1871, a gazebo was erected, referred to as the 'bandstand', and was later relocated within the site, but has since been removed from the site. It was also in the years prior to 1871 that the final and current configuration of the boundary wall was established, now including a portion of land to the south of the site which had previously been farmland.

A Roman Catholic chapel was built in 1901, which caused a change to the entrance drive. A group of buildings were established to the west half of the now former kitchen garden after World War II, alongside other smaller structures located elsewhere on the site. The east half of the former kitchen garden was later redeveloped into a car park.

While most historic buildings remain in situ, losses include the mortuary and a small building to the south.

Many new additions to the site and its facilities were completed throughout the late 20th century, including a large HSE facility to the south of the main building in the late 1980s/ early 1990s.

2.2.2 Current Site Use

The site is currently in use as a secure mental health facility/ hospital; much of the site comprises landscaped open space used in association with the hospital. The surrounding lands are predominantly in residential use with the land to the south of the site a designated open space used as a sports pitch.

The site is currently being used by the HSE as the Central Mental Hospital for Ireland, though the site is due to be vacated in 2022, with a scheduled move to a new facility in Portrane. This move is written into law under the Central Mental Hospital (Relocation) Act 2020, with the current facility being described by the HSE as *"no longer fit to provide the best patient care experience".*

The site is currently being used by the HSE as the Central Mental Hospital for Ireland, though the site is due to be vacated in 2022, with a scheduled move to a new facility in Portrane. This move is written into law under the Central Mental Hospital (Relocation) Act 2020, with the current facility being described by the HSE as *"no longer fit to provide the best patient care experience".*

2.2.3 Site Location and Surrounding Area

The site is located at the Central Mental Hospital lands in Dundrum, Dublin 14. The entire site is 11.3 ha and currently still occupied by the HSE and will be vacated in 2022. The SHD lands are 9.6 ha.

The site is bound by a 4 – 5 m perimeter wall and is accessed via an entrance off Dundrum Road. The overall site comprises a number of existing buildings including the main Hospital building, the Chapel and a number of associated buildings and small temporary structures. The site also consists of a number of landscape features such as a walled garden, an orchard and mature trees.

In terms of statutory designations, both the Hospital building and the Chapel appear on the National Inventory of Architectural Heritage (NIAH):

- Hospital (Reg. No. 60220001) – Rated as 'National' importance;
- Chapel (Reg. No. 60220002) – Rated as 'Regional' importance.

Furthermore, the *Draft Dún Laoghaire Rathdown County Development Plan 2022-2028*, which was issued for display in January 2021, listed a number of structures at the site as 'proposed Protected Structures'. The 'Asylum', 'Catholic Chapel' and 'Hospital Building' were also included in the Record of Protected Structures:

- Asylum (RPS No. 2072);
- Catholic Chapel (RPS No. 2071); and
- Hospital Building (RPS No. 2073)

None of the aforementioned buildings are located within the red line associated with the SHD project with the exception of a small amount of ancillary-built form associated with the Hospital Building which is included for demolition.

In terms of surrounding existing context, Dundrum Road and the Luas Green Line is located to the west of the site, each providing a strong north-south connection. The site is bound by residential properties and gardens at Mulvey Park to the north, at Friarsland Road to the east, at Larchfield Road to the south and south east and at Annaville Grove, Annaville Park and Annaville Terrace to the west. The surrounding residential properties are generally one or two storeys in scale with a four storey apartment block located close to the site boundary near Annaville Grove. In addition to the residential properties referred to above, part of the sites southernmost boundary abuts Rosemount Green, a DLRCC public open space and football pitch.

The site is well served by existing public transport infrastructure; the nearest Luas Green line stop is located approximately 450m west of the site at Windy Arbour. Dublin Bus network infrastructure includes stops at Dundrum Road (R117), Goatstown Road (R825), Churchtown Road and Taney Road (both R112).

The wider environs of the site are predominantly characterised by low scale residential. However, there are a number of commercial uses within close proximity.

This includes Dundrum Town Centre (and Shopping Centre), approx. 1.6 km to the south of the application site entrance. From the site, Dundrum Town Centre is reachable in 20 minutes by foot, 6 minutes by bike and 7 minutes by bus.

Dundrum Business Park is located approximately 200m to the north of the site which comprises a number of office blocks and associated car parking.

Dublin City Centre is located approximately 7.2 km from the application site and accessible by both Luas (27 minutes) and bus (22 minutes).

There are a number of schools in close proximity, namely, Our Lady's National School, Jesus and Mary College, Our Lady's Grove and Our Lady's Grove Primary School. University College Dublin (UCD) is located within c. 1 km (as the crow flies) to the northeast of the application site.

In terms of retail provision, as noted above, the proposed development site is located c. 1km north of Dundrum Town Centre, which is identified as a 'Level 2 – Major Town Centre' within the Retail Hierarchy for the Greater Dublin Area (GDA) set out in the *Dún Laoghaire-Rathdown County Development Plan 2016-2022.*

2.2.4 Site Specific Flood Risk Assessment (SSFRA)

The flood risk assessment has been carried out in accordance with the OPW publication *"The Planning System and Flood Risk Assessment Guidelines for Planning Authorities".* The developed site is shown not to be at a significant risk from flooding and to not create a significant risk to adjoining areas or downstream.

- River Slang: The site lies outside the predicted 1 in 1000 year flood extent of flooding on this river.

- Surface Water Drainage:

- The system is designed for a 100yr storm + 20% climate change without flooding.

- The surface water drainage from the site to the surface water sewer network will discharge at rates no greater than the existing greenfield runoff rates thereby not increasing the risk of flooding to adjoining areas or downstream from the site.

- Overland flow routes in the event of a significant & unlikely blockage of the surface water drainage system have been considered. Overland flows are contained within the site in a controlled manner without risk to the residential buildings on site.

- Standard mitigation measures will apply on site. House and apartment floor levels are set 150mm above the surrounding ground level to minimise flood risk. All basements on site will be waterproofed. The top of basement car park entrance ramps will be set 100mm above the surrounding ground levels to avoid backflow of surface water down the ramps.

The site features a gradual slope downwards from the southwest corner towards the northeast corner, and from the western portion of the site downwards to the Dundrum Road entrance. The site also features 2 no. natural catchment areas.

2.2.5 Existing Site Access

The site is currently accessed via the vehicular entrance off Dundrum Road. The site is currently served by a single access point only.

2.3 The Need for the Proposed Project

The proposed project, a large-scale residential development, is supported by planning policy at all tiers. The project delivers a significant number of new homes as required to meet housing objectives outlined throughout the relevant policy documents. The relevant national, regional and local planning policy is outlined in in Chapter 3 (Planning and Development Context) and further in the supporting planning documentation.

Furthermore, the Applicant (the LDA) is making a significant positive contribution towards enabling an affordable housing sector in Ireland. As part of this, the LDA is working towards providing new homes and making them available to individuals and families through the schemes provided by the enactment of the *Affordable Housing Bill 2020.*

Within the remit of the LDA to deliver significant housing growth, it is the LDA's vision to transform the Central Mental Hospital site in Dundrum into a leading example of sustainable living which delivers a mix of tenures where people of all ages can live, whilst retaining and celebrating the site's historic assets and providing an outstanding destination for leisure with distinctive and diverse public spaces. Further to this, the LDA is focused on realising compact growth which promotes modal shift towards healthy, active and sustainable mobility.

Further detail surrounding the function of the LDA is contained within Section 14 of the *Land Development Agency Act 2021.*

2.4 Overview of Construction Phase and Construction Works

For full construction related details, refer to the *Construction Environmental Management Plan* (CEMP) prepared by Barrett Mahony Consulting Engineers. A summary is provided below.

2.4.1 Construction Phase

The project will be constructed and handed over in a number of phased building clusters. The exact number of phases and the make-up of each will be subject to market conditions and commercial considerations at the time. It is currently envisaged that there will be five phased clusters as shown in Figure 5.1 below and that the construction of the phases will partially overlap and run concurrently. Subject to planning permission and commercial considerations the construction is expected to run from late 2022 to late 2028, six years and 2 months approximately.

Completion of the first residential units is anticipated in mid-2024. These dates are only an estimate, the exact start date and completions dates may be delayed due to any planning appeals and will also depend on the length of the tendering process.

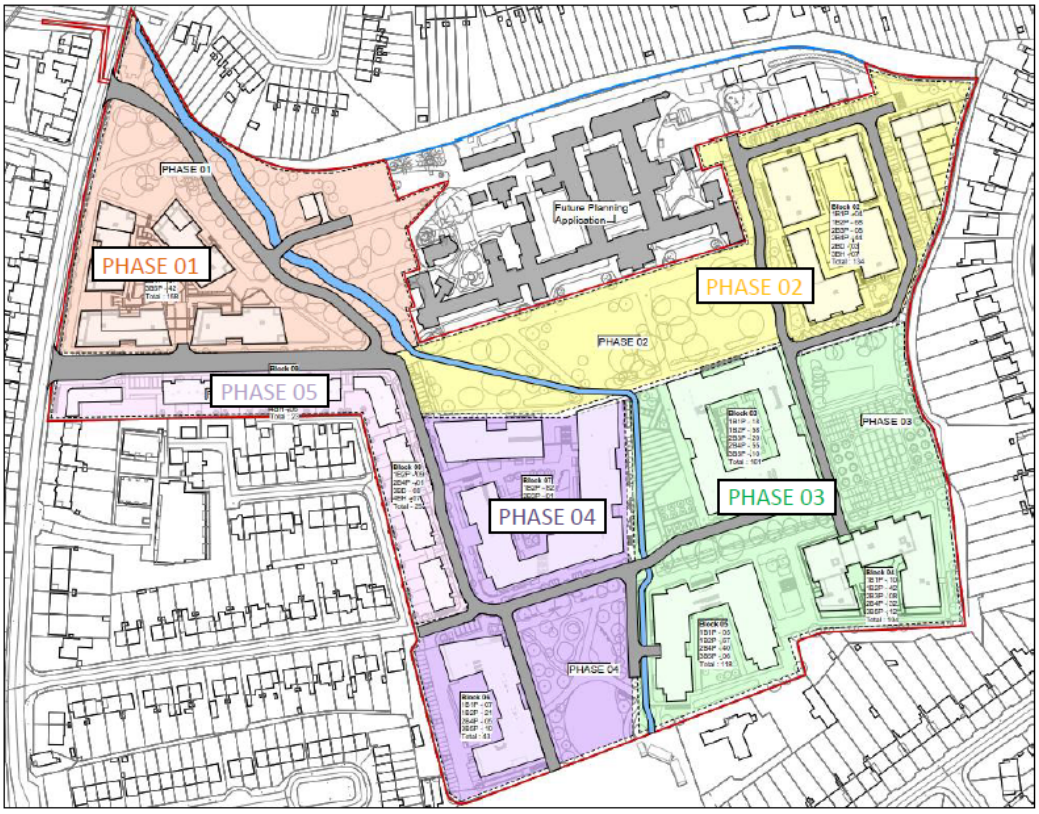


Figure 5.1: Illustrative Plan showing proposed construction phasing.

2.4.2 Proposed Construction Works

The proposed development will be divided into a number of phases as set out in the preceding section. Works in each phase will consist of the following:

Enabling Works:

- Secure site and set up contractor welfare facilities and site accommodation.
- Locate and terminate existing live services.
- Install tree protection and remove trees that are earmarked to be felled.
- Asbestos surveys to be carried out to existing buildings.
- Removal of Structures listed for demolition.
- Excavate and remove material to the required formation. This will require a site strip and removal from the site of material or temporary stock piling.
- Maintain the existing entrance and incorporate new haul roads and hardstanding as required.
- Make good and install any finished boundary treatments that can be installed at this stage.

Main Construction Works:

- Foundations: Excavate foundations down to boulder clay for the houses and duplexes.
- Bored piled foundations will be required for the apartment blocks.
- Basement/half-basement: In-situ reinforced concrete (RC) walls and slabs. External waterproofing membrane.
- Houses: Typically masonry and timber construction.
- Duplex units: Typically masonry, precast slab dividing floor & upper level timber floor/roof construction.
- Retail, creche and community spaces: In-situ RC frame with beam and slab floors. Glazing and cladding. These spaces are generally incorporated into the new apartment buildings. The community hall will be constructed in structural steel.
- Residential Apartments: RC frame with flat slab floors, typically supported off RC blade columns. In-situ RC stair/lift cores. Precast concrete or brick cladding typically with glazing.
- Glazing & cladding to all buildings.
- Architectural finishes, non-loadbearing walls, ceilings, sanitary ware, ironmongery etc. associated with the above.
- Mechanical & Electrical services and lift installations associated with the above.
- External landscaping & green roof finishes.
- Buried drainage, water supply and other buried services associated with the development.

2.4.3 Construction Working Hours

Unless required otherwise by Dún Laoghaire-Rathdown County Council, it is proposed that standard construction working hours should apply, i.e.: 8am to 7pm Monday to Friday and 8am to 2pm on Saturdays.

If there is any occasion where work may be carried out outside normal daytime working hours, Dún Laoghaire-Rathdown County City Council, local residents and businesses in the area which are likely to be affected by the proposed works will be notified in advance.

The Project Supervisor Construction Stage (PSCS) will liaise with the Client to agree specific arrangements for activities outside of normal working hours that will minimise the risk and

disruption to residents and members of the public. All reasonable precautions will be taken for the operation of plant and equipment to avoid nuisance and excess noise impact on the surrounding residents.

2.4.4 Site Access and Egress

It is proposed that construction traffic access to the site will be primarily off a new second access road off Dundrum Road, circa 150m from the existing entrance. It is proposed that this new entrance will be the main access to the construction site throughout the works, while the upgraded existing entrance will be available for the public and residents of the development.

Controlled access points to the site, in the form of gates or doors/turnstiles, will be kept locked at any time that these areas are not monitored (e.g. outside working hours).

During working hours, a gateman will control traffic movements and deliveries at any active site access to ensure safe access and egress to & from site onto the public roads. All personnel working on site must have a valid Safe Pass card and be inducted by the Main Contractor with regard to site specific information.

2.4.7 Construction Traffic

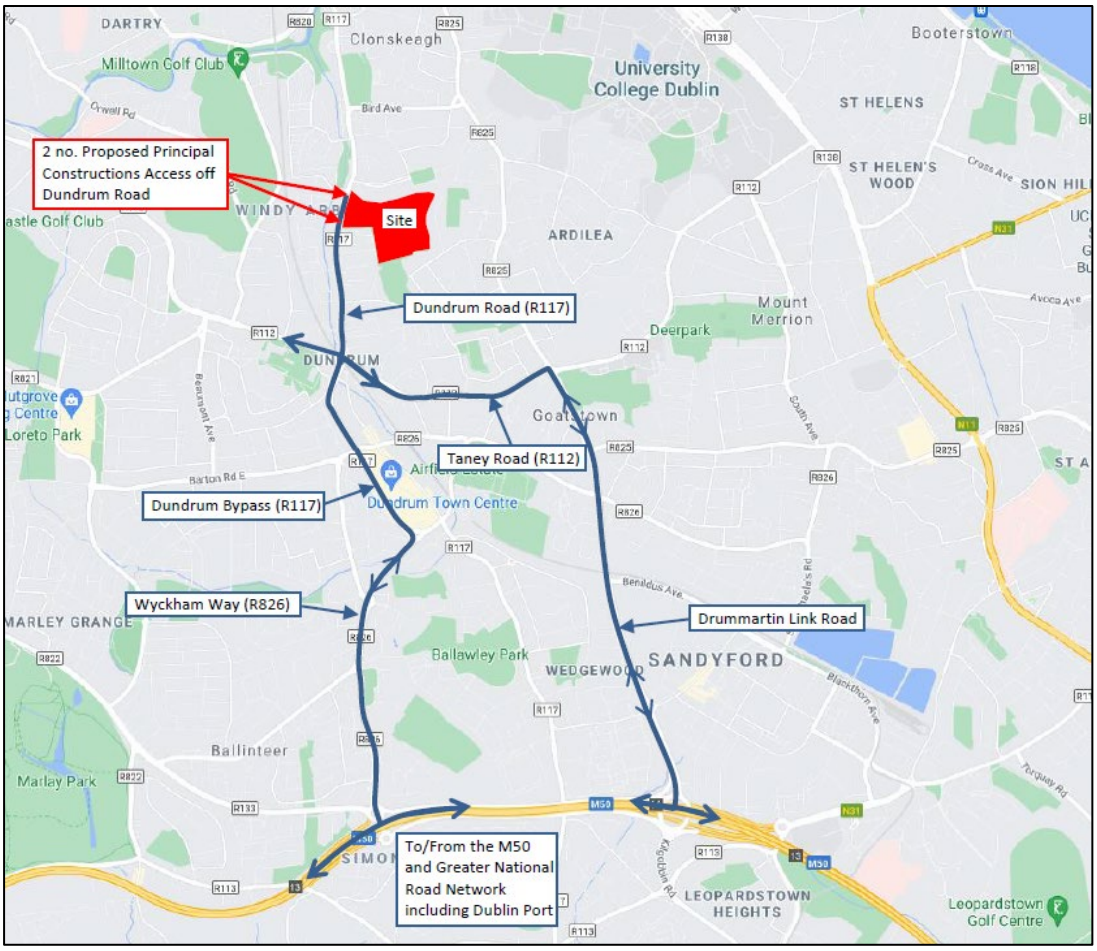
The works associated with the new development will result in additional traffic on the neighbouring road network, with vehicle movements associated with the removal of excavated material, demolition waste, construction waste, and the delivery of new materials, concrete trucks etc.

It is proposed that construction traffic access to the site will be primarily off a new second access road off Dundrum Road, circa 150m from the existing entrance as shown in Figure 8.1. It is proposed that this new entrance will be the main access to the construction site throughout the works, while the upgraded existing entrance will be available for the public and residents of the new development.

Unloading bays will be provided for deliveries to the site within the hoarded perimeter of the site for each phase. They are required to be accessible by tower crane and fork lifts. Appropriately demarcated storage zones will be used to separate and segregate materials.

All deliveries to site will be scheduled to ensure their timely arrival and to avoid the need for storing large quantities of materials on site. Deliveries will be scheduled outside of peak traffic hours to avoid disturbance to pedestrian and vehicular traffic in vicinity of the site. The storage area is to be located on site. The vehicular site security barrier in each phase of the development will be located at a sufficient distance back from the site entrance to allow construction traffic to build up inside of the site in the event of a high concentration of deliveries at once, for example, during a concrete pour. No construction or delivery vehicle are to be left outside of the site while waiting to gain access to the site. There is no available space on Dundrum Road or roads within the development for construction traffic to queue.

The construction traffic access routes are shown on Figure 5.2 below.



2.4.8 Health and Safety

The site will be made secure during each phase by implementing the following measures:

- Operate a site induction process for all site staff.
- Ensure all site staff shall have current 'safe pass' cards.
- Install adequate site hoarding to the site boundary.
- Maintain site security staff at all times.
- Separate pedestrian access from construction at the main site entrance off the Dundrum Road and provide a safe walkway for pedestrians along the main access road in to the site.
- Ensure restricted access is maintained to the works.

2.4.9 Construction Waste

Construction waste arising from the proposed development will be handled in line with the *Construction and Demolition Resource Waste Management Plan* prepared by AWN and enclosed as Appendix 18.1 of this EIAR.

2.5 Description of the Operational Phase of the Proposed Project

In summary, the proposed development is a strategic housing development comprising 977 no. new homes, 3,889 sq m of non-residential floorspace and approximately 3.05 ha of public open space. The table below provides the key development statistics.

Development Statistic	Proposed Development
Site Area	9.6 ha
Net (Residential) Site Area (excluding public open space and Gatelodge*)	6.54 ha
No. of Residential Units	977 (957 no. apartments and 20 no. houses)
Non-Residential Floorspace	3,889 sq m
Gross Residential Density	102 units per hectare
Net Residential Density	150 units per hectare
Plot Ratio	1.11
Site Coverage	32% (including basements)
Height	2 – 6 storeys (with part-basement)
Car Parking	547 no. spaces (489 no. residential spaces and 58 no. non-residential and visitor) 70 no. Motorbike Spaces

2.5.1 Demolition

The development will consist of the demolition of existing structures (3,736 sq m), including:

- Single storey former swimming pool / sports hall and admissions unit (2,750 sq m);
- Two storey redbrick building (305 sq m);
- Single storey ancillary and temporary structures including portacabins (677 sq m);
- Removal of existing internal sub-divisions/ fencing, including removal of security fence at Dundrum Road entrance;
- Demolition of section of porch and glazed screens at Gate Lodge building (4 sq m);
- Removal of walls adjacent to Main Hospital Building;
- Alterations and removal of section of wall to Walled Garden.

2.5.2 Residential Development

The proposed development will deliver 977 no. residential units arranged in 9 no. blocks (Blocks 02-10) ranging between 2 and 6 storeys in height with part-basement.

The proposed housing mix is as follows:

	Apartments	Duplexes	Houses	Total	
Studio	53			**53 (5.4%)**	
1 bed	423			**423 (43.3%)**	
2 bed (3 person)	37			**357 (36.5%)**	
2 bed	317	3			
3 bed	110	14	7	**131 (13.4%)**	**144 (14.7%)**
4 bed			13	**13 (1.3%)**	
	940	**17**	**20**	**977**	

The proposed residential units will be arranged as follows:

Block 02

Block 02 is located within the north-eastern part of the site, adjacent to the Main Hospital Building and consists of a new apartment block with a central podium space. The podium space comprises a landscaped communal courtyard with parking below. The height of Block 02 ranges between 2 and 6 storeys in height, with a half basement. The building has a gross floor area of 13,640 sq m and comprises 134 no. residential units, including:

- 134 no. apartments (4 no. studio units, 68 no. 1 bed units, 8 no. 2 bed 3 person units and 44 no. 2 bed 4 person units);
- 3 no. duplex apartments (3 no. 2 bed units); and
- 7 no. houses (7 no. 3 bed units)

The proposed medical floorspace (245 sq m) is located within Block 02.

Block 03

Block 03 is located towards the centre of the site, to the west of the Walled Garden. The building ranges between 4 and 6 storeys in height with half-basement (resulting in 7 storeys of stacked apartments in one location) and is arranged around a central podium which provides a landscaped communal courtyard with car parking below.

The building has a gross floor area of 16,881 sq m and comprises 161 no. residential units, including:

- 161 no. apartments (18 no. studio units, 68 no. 1 bed units, 20 no. 2 bed 3 person units, 55 no. 2 bed 4 person units and 10 no. 3 bed units)

Proposed retail units and a restaurant unit are located at the ground floor of Block 03.

Block 04

Block 04 is located in the far south eastern corner of the site and is to the south of the Walled Garden. It is arranged around a central podium comprising a communal landscaped courtyard and car parking below and ranges between 4 and 6 storeys in height.

The building has a gross floor area of 11,689 sq m and comprises 104 no. apartments, including:

- 104 no. apartments (10 no. studio units, 58 no. 1 bed units, 8 no. 2 bed 3 person units, 32 no. 2 bed 4 person units and 12 no. 3 bed units).

Block 05

Block 05 is located in the centre of the southern part of the site and is arranged around a central podium comprising a communal landscaped courtyard above car parking. It ranges between 4 and 6 storeys in height.

The building has a gross floor area of 11,489 sq m and comprises 118 no. residential units, including:

- 118 no. apartments (5 no. studio units, 67 no. 1 bed units, 40 no. 2 bed 4 person units and 6 no. 3 bed units)

Block 06

Block 06 is located in the south western corner of the site and ranges between 2 and 4 storeys in height. The building comprises two landscaped roof gardens which are accessed from the residential cores. At ground and first floor level, the building includes community facilities consisting of a multipurpose hall, community rooms and sports changing facilities (1,684 sq m).

The building has a gross floor area of 5,960 sq m and comprises 43 no. residential units, including:

- 43 no. apartments (7 no. studio units, 21 no. 1 bed units, 5 no. 2 bed 4 persons and 3 bed units).

Block 07

Block 07 is located in the centre part of the site, adjacent to the proposed plaza. The building ranges between 4 and 6 storeys in height and is arranged around a central podium comprising a landscaped communal courtyard and car parking below.

The building has a gross floor area of 23,596 sq m and comprises 211 no. residential units, including:

- 211 no. apartments (82 no. 1 bed units, 1 no. 2 bed 3 person units, 101 no. 2 bed 4 person units and 27 no. 3 bed units)

The building also comprises retail floorspace (810 sq m) at ground floor level, arranged in 4 no. units.

Block 08

Block 08 is located along the western site boundary, adjacent to Annaville Park. The building heights range between 2 and 3 storeys and comprises a mix of unit type. External residential amenity is provided by way of private rear gardens, in addition to balconies and terraces, depending on unit type.

Block 08 has a gross residential area of 2,756 sq m and comprises 25 no. residential units, including:

- 10 no. apartments (9 no. 1 bed units and 1 no. 2 bed 4 person units)
- 8 no. duplex units (8 no. 3 bed units)
- 7 no. houses (7 no. 4 bed units)

Block 09

Block 09 is located in the north western corner of the site, adjacent to the boundary with Annaville Grove and comprises primarily 3 storey housing with some apartments and duplex units close to the proposed new Dundrum Road entrance. External residential amenity is provided by way of private rear gardens, in addition to balconies and terraces, depending on unit type.

Block 09 has a gross residential area of 2,612 sq m and comprises 23 no. residential units, including:

- 11 no. apartments (6 no. 1 bed units, 2 no. 2 bed 4 person units and 3 no. 3 bed units)
- 6 no. duplex units (6 no. 3 bed units)
- 6 no. houses (6 no. 3 bed units)

Block 10

Block 10 is located on the western side of the site, adjacent to the boundary with Dundrum Road. The buildings are arranged around a central podium comprising a communal landscaped courtyard and car parking below and range between 4 and 6 storeys in height with a half-basement resulting in 7 storeys of stacked apartments in one location.

Block 10 has a gross floor area of 17,241 sq m and comprises 158 no. residential units, including:

- 158 no. apartments (9 no. studio unit, 70 no. 1 bed units, 37 no. 2 bed units and 42 no. 3 bed units)

The building also comprises a childcare facility (463 sq m) with external amenity space at ground floor level.

2.5.3 Non-Residential Development

The proposed development will deliver a varied non-residential provision which will be integrated into the proposed residential blocks (mainly at ground floor level) and within the existing Gatelodge.

The proposed non-residential uses include a childcare facility (463 sq m), a medical centre (245 sq m), 7 no. retail/ café units (1,419 sq m) and a community facility (1,684 sq m). The new community centre facility includes a multi-purpose hall changing rooms and meetings rooms.

The proposed non-residential uses will serve both the residents of the proposed development and be accessible to the existing community.

2.5.4 Landscape Strategy and Design

The landscape architecture proposal aims to create a diverse planting scheme that contributes to the overall biodiversity within the development and the wider area. Plant species have been selected with direct reference to the 'All-Ireland Pollinator Plan 2015-2020' and the approach aims to align with the specific policies and objectives as set out in both the *Dún Laoghaire-Rathdown Development Plan 2016-2022* and Draft Development Plan 2022-2028.

The overall planting approach is focused on creating a rich and biodiverse planting footprint in the context of a significant re-development of the site. The removal of existing hedgerows and grassland is offset by the addition of pollinator friendly wildflower meadows, tree planting and mixed native woodland along the Eco Corridor and in the community park south of the site. All retained tree and hedgerow protection measures will be in accordance with the mitigation recommendations prescribed in the ecologists and arborist report.
A variety of open space and softworks currently exists on the site. These elements function as part of the overall green framework of the site, providing a hierarchy of space that is not only visual aesthetic but provides opportunities for rest and recreation.

Proposed Tree Planting Species

The general planting strategy throughout the scheme is for significant structure tree planting with 2 metre clear stems to provide a leafy canopy layer, softening the proposed buildings and a base layer of low shrub/ groundcover and hedge planting to create low level seasonal interest and colour softening the hard surfaced areas and car parking. Eye level between the two planting types is kept clear to maintain sight lines throughout the scheme.

Native and naturalised tree species are to be planted within the public open space to increase opportunities for native wildlife. These will ultimately be large scale trees to designate a parkland character.

Street tree planting will consist of species with fastigiate or neat forms suitable to the scale of the streetscape and those which will thrive in a streetscape environment. Street tree planting is located to avoid impacts with street lighting. Street trees will be planted into a minimum of

7cu.m. topsoil, with the use of urban tree soils, root barriers to protect water utilities and topsoil loaded rootcells to increase rooting areas outside the main tree pit area as necessary.

Courtyard/Podium trees have been chosen for seasonal diversity and small form. They will be planted in raised beds in the podium developments. Private garden dwellings have a fruit tree planting in the gardens to enhance overall biodiversity and habitat creation on site.

Proposed Overall Planting Species

Native/adaptive climbers have been proposed through the scheme along the existing boundary wall. Species are chosen for robustness, seasonality, and biodiversity. Habitats will be formed along this boundary edge to the development public realm providing both visual and ecological rewards.

Low level shrub and groundcover planting will be in single species blocks taken from an overall palette of species throughout the scheme with flowers and fruits attractive to wildlife such as bees and butterflies. Species will be of maximum 1m height at maturity to maintain clear sight lines.

The principal objective of the landscape proposals is to provide a high quality public realm, which is accessible, safe and distinctive. Planting and landscape works will be carried out in accordance with BS4428. Trees will be advanced/semi-mature rootballed stock, in accordance with BS 8545.

Low level, low maintenance shrub planting will be used in planting beds containerised with a minimum size of 2 litre pots, Climbers will have 1 litre pots, all with a 75mm well composted fine bark mulch.

Hard Landscaping

The hardworks palette has been chosen to enhance the hard surfaces and network of plaza's, roads and paths which link and connect the development. For the historic landscape/ amenity trails, a self bound gravel in buff colour is proposed. This surface will form the main surface on the central park, offering an opportunity for walking and recreation. Hard paving will be provided to accent areas/ focal points. Further to this, roadside pathways will consist of brushed concrete. These paths will run alongside the road network and offer routes for pedestrians and cyclists. Macadam surface will incorporate buff textured aggregate to compliments path surfaces. Blister paving will be provided at crossing to ensure legibility for the visually impaired.

Key Open Spaces

The proposal includes 3.41 ha of open space, 3.05 ha of which is classified as publicly accessible open space. The key open spaces include:

The proposed landscape strategy provides a number of key open spaces across the site, including:

- Central Parkland
- Entrance Plaza

- Central Square
- Community Park
- Walled Garden
- Elm Park Eco-Corridor
- Podiums

Figure 5.3: Extract from Aecom's Landscape Architecture and Public Realm Design Report showing the key aspects of the landscape strategy.

Play Strategy

The proposed landscape strategy includes a number of play spaces, including formal and informal play spaces. There are two designated playgrounds, one to the north of the site adjacent to the cycle track and the other in the community park south of site, in addition to informal 'natural play' opportunities throughout the site. Local play opportunities occur in the semi-private podium spaces.

Environment Strategy

In terms of habitat creation, the differing SuDs components contribute to habitat creation throughout the development. For example, water bodies and ponds will be vital habitats for frogs, toads, newts and a variety of insects including dragonflies. Further to this, the public open spaces through the development have native meadow planting as per the All Ireland National Pollinator Plan together with species rich grasslands that provide habitats and food for insects and bees. Other habitats that will created through the proposed open space include:

- Open bonded brickwork within detailing of infrastructure buildings allowing for bat roosting;
- Bird and Mammalian nest boxes throughout the open public space;
- Log piles simulate fallen trees, and are valuable for mosses, lichens and fungi, as well as many insects through the wetlands and extensive greenroofs; and
- Crushed aggregate pathways along secondary pathways allows water to permeate naturally through the soil, without the need for drainage channels and associated infrastructure.

SuDs Components

The proposed SuDs strategy includes:

- Green roofs
- Permeable paving
- Bioretention systems
- Existing drains/ swales
- Raingardens
- Integrated wetlands
- Tree planting

Refer to the *Landscape Architecture and Public Realm Design Report* prepared by Aecom for full details in relation to landscaping proposals.

2.5.5 Public Open Space

The proposed development provides a significant quantum of high-quality open space which will be accessible to the public (3.05 ha). The proposed public open space provision equates to c. 32% of the total SHD site area. The space has been designed inclusively to serve the existing community as well as the residents of the proposed residential development. The removal of the southern section of the existing perimeter wall will result in a continuation of public open space between the proposed development and the existing Rosemount Green.

The proposed public open space incorporates a number of landscape features, such as the walled garden, mature trees and courtyard and open green space that contribute to the setting of the Main Hospital Building.

2.5.6 New Vehicular, Cyclist and Pedestrian Connections

In order to integrate the proposed development into the surrounding area, ensure permeability and improved connectivity between the application site and surrounding streets and achieve a positive interface with the surrounding public realm, the proposed development includes the removal of a number of sections of existing perimeter wall. It is noteworthy that the boundary wall remains intact at the various boundaries with neighboring residential development. The proposed wall removal and resultant new connections are detailed below:

- A section of perimeter wall adjacent to Rosemount Green (south) will be removed to provide an interface with Rosemount Green. This will provide cyclist and pedestrian connection between the site and Rosemount Green.

- A new opening in the wall is proposed adjacent to Annaville Park, at the western boundary, to provide a cyclist and pedestrian connection.

- Partial wall removal is proposed adjacent to Dundrum Road, this will provide a second vehicular access onto Dundrum Road which will also facilitate cyclist and pedestrian access.

- To the north of the existing Dundrum Road entrance, further partial wall removal is proposed to enhance permeability and visibility.

2.5.7 Car Parking and Cycle Parking

The proposed development provides car parking for both the residential and non-residential components of the scheme, totaling in 547 no. spaces, comprising:

- 402 no. residential spaces
- 62 no. additional residential spaces for visitors (15% of total residential parking)
- 12 no. car club spaces
- 15 no. travel club spaces
- 58 no. non-residential spaces

The parking proposal also includes 70 no. motorcycle spaces.

In terms of cycle parking, the total residential cycle parking provision will be 1,670 no. long stay spaces and 516 no. short stay spaces (a total of 2,186 no. spaces).

2.5.8 Site Utilities

Foul Network Design

The proposed foul drainage network comprises of a series of 150mm, 225mm and 300mm diameter pipes, designed for a minimum velocity of 0.75m/s (self-cleansing) and maximum velocity of 3.0m/s. A pipe friction coefficient of 1.5mm has been assumed.

Each residential block is serviced by 225mm diameter (SN8 uPVC) branch connections in accordance with the Irish Water Code of Practice for Wastewater Infrastructure. It is noted the proposed foul outfall pipe is 300mm diameter pipe at 1:100 minimum fall which has a capacity of approximately 100 l/s and is deemed adequate for the peak foul flows anticipated.

Water Supply

The proposed development will be connected to the new Ø250mm public watermain in the Dundrum Road.

The proposed watermain system through the site will vary between 250mm diameter, 200

diameter, 150mm diameter and 100mm diameter.

Natural Gas

The site is served by a 250mm main entering Northwest on the site per diagram below. The pipe at 25mBar low-pressure gas network entering Northwest and extends to the Central Mental Hospital. See map that follows. There is an existing pressure reducing station within the site and the existing gas lines feed the hospital and swimming pool building.

The proposed development includes a district heating system to supply the apartment blocks (primarily fuelled by air source heat pumps) and individual air source heat pumps for the townhouses.

The new development will primarily require electrical driven heat pumps and air source heat pumps, so the gas load is anticipated to be limited to commercial facilities and possibly back up gas boilers for the DH system. The new gas load is forecasted to be in the order of 4.5-5MW and following discussions with BGE is not anticipated to be a concern. If the load proves challenging at a later date in design development, there is a larger 315mm gas pipe available.

Electricity

The existing site consists of 2 ESBN supplies fed from 2 separate substations located on Larchfield Road and opposite St. Columbanus Road. Connection 1 is rated at 10KV/20KV/400V/230V and consists of an overhead line terminating at the end of Larchfield Road South of the site.

Connection 1 is tapped from the overhead line and is installed underground and terminates South of the site.

Connection 2 extends from the substation opposite St. Columbanus Road and terminates within the Central Mental Hospital grounds North of the main building. Connection 2 is rated at 10KV/20KV/400V/230V.

The proposed development will require a new HV infrastructure that will feed multiple substations around the site. The substation requirement has been assessed and allowed for within the architectural layouts. The final design details to be clarified by the ESB post planning.

ESBN conducted a capacity study and released their findings in April 2021. To facilitate the development, ESBN confirmed that a new High Voltage supply is required. ESBN will install a 1Km new HV ring entering from the Southeast and connecting to the new substations via a HV ring circuit.

The new substation will require unobstructed 24/7 access for the ESB in line with their guidelines. A formalised application process to the ESB will be required post planning once the planning process is concluded.

Telecommunications

The Central Mental Hospital is currently fed from the EIR network. The EIR network enters the site from the Dundrum Road.

Virgin Media, although entering the site currently, is also currently available in the area with ample coverage around the site. A Virgin Media network extends around the perimeter wall adjacent to Dundrum Road.

The proposed development will consist of approximately 9 Comms rooms – to be finalised during detailed internal design. Each apartment block and commercial unit will have individual comms rooms to facilitate telecommunications. The proposed development will consist of separate underground networks connecting to all new apartment blocks and commercial premises.

3.0 CONSIDERATION OF ALTERNATIVES

3.1 Introduction

The consideration of alternatives is necessary to evaluate the likely environmental consequences of a range of development strategies for the site within the constraints imposed by environmental and planning conditions.

3.2 Legislative Context

Article 5 (1) of the 2014 Directive requires the consideration of reasonable alternatives which are relevant to the project and take into account the effects of the project on the environment. It states under Article 5 (1) that;

> *"Where an environmental impact assessment is required, the developer shall prepare and submit an environmental impact assessment report. The information to be provided by the developer shall include at least…"*
>
> *"…a description of the reasonable alternatives studied by the developer, which are relevant to the project and its specific characteristics, and an indication of the main reasons for the option chosen, taking into account the effects of the project on the environment."*

Schedule 6 of the *Planning and Development Regulations, 2001* (as amended) sets out the information which is to be contained in an EIAR and Part 1 (d) of Schedule 6 states that the following shall be included:

> *"A description of the reasonable alternatives studied by the person or persons who prepared the EIAR, which are relevant to the proposed development and its specific characteristics, and an indication of the main reasons for the option chosen, taking into account the effects of the proposed development on the environment."*

In accordance with draft EPA Guidelines, different types of alternatives may be considered at several key stages during the process. As environmental issues emerge during the preparation of the EIAR, alternative designs may need to be considered early on in the process or alternative mitigation options may need to be considered towards the end of the process.

The EPA Guidelines (Draft) states:

> *"The objective is for the developer to present a representative range of the practicable alternatives considered. The alternatives should be described with 'an indication of the main reasons for selecting the chosen option'. It is generally sufficient to provide a broad description of each main alternative and the key issues associated with each, showing how environmental considerations were taken into account is deciding on the selected option. A detailed assessment (or 'mini-EIA') of each alternative is not required."*

The consideration and examination of alternatives is set out below.

3.3 Alternatives Examined

3.3.1 *'Do-Nothing'* Alternative

A 'do-nothing scenario' has been considered in respect of the site. It was found to represent an unsustainable and inefficient use of strategically important lands for the delivery of residential development, as reflected by the land zoning objective and Core Strategy contained within the *Dún Laoghaire-Rathdown County Development Plan 2016-2022*.

From an environmental perspective, the do-nothing alternative has been considered in respect of each environmental factor throughout this EIAR. In population and human health terms, if the development was not built, negative impacts would likely arise in respect of the non-provision of housing, the associated local services and community and public open space provision. In the do-nothing scenario, it is also expected that negative impact would arise in respect of the Central Mental Hospital buildings and grounds on the basis that they would likely become disused following the scheduled move of the facility to Portrane.

Further to this, the do-nothing scenario is likely to be neutral in environmental terms, in respect of land, soils, geology and hydrogeology, noise and vibration, townscape and visual impact assessment, archaeology and cultural heritage, waste, built services and roads and traffic.

In relation to biodiversity, if the site was to remain undeveloped, it is expected that the biodiversity value would increase as a result of neglect or a reduction in maintenance of the site.

However, as a result of the zoning of the lands and the specific reference to the strategic importance of the site from a residential capacity perspective contained within the Development Plan, together with consideration of the proximity of the lands and accessibility to Dublin City and significant employment locations, the 'do-nothing scenario' was discounted.

3.3.2 Alternative Locations

The Central Mental Hospital lands are state owned and deemed no longer required for institutional use. The subject lands have been identified at a national level for redevelopment to contribute to the fulfilment of the LDA's remit, as a state-sponsored commercial body, to optimise state lands to deliver compact urban development and affordable housing.

The proposed location for this strategic housing development is therefore identified at a national level and interconnected with the legislated remit of the LDA (as per the *Affordable Housing Bill 2020* and *Land Development Agency Act 2021.)*

The planning policy provisions at all tiers support the redevelopment of the subject lands in line with the above objective, having regard to the land zoning objective, the location of the lands in an existing built up area and the scale of the lands which provides capacity for a significant number of new homes. Furthermore, we note the identification of the site as a

Strategic Regeneration Site in the Draft *Dún Laoghaire Rathdown County Development Plan 2022-2028.*

As such, from a planning perspective, the site is considered appropriate for a development of the proposed nature and will deliver housing on state lands, in line with an identified national priority.

In addition to the above planning considerations, the following environmental considerations were undertaken in respect of the subject lands in relation to their suitability for a higher density residential development. The key considerations are noted and discussed below.

- Proximity to public transport and pedestrian and cyclist infrastructure;
- Proximity of surrounding local road network to regional and national roadwork (for construction traffic access);
- Availability of social infrastructure and services;
- Built up/ urban surrounding landscape (townscape);
- Availability of utilities, water, electrical and gas infrastructure;
- Proximity to existing population.

Having regard to the considerations outlined above, the subject site was considered to be a suitable location for the proposed development for the following reasons:

- The connectivity of the subject site with the regional and national road network, public transport provision and existing social infrastructure was considered to have the potential to contribute to reduced transport emissions and associated noise and air quality impacts that could arise from a residential development.

- The availability of utilities, water, electrical and gas infrastructure provides opportunity to connect into existing services and infrastructure (subject to capacity), avoiding significant and further reaching construction activities associated with the introduction of new piped infrastructure etc. It is considered that this has the potential to reduce impact upon the land, soils and local biodiversity.

- The location of the lands in an existing urban built up area and in close proximity to a Major Town Centre (Dundrum Town Centre) is considered to provide potential for positive impacts surrounding the population, including employment opportunities at the construction and operation stage. It is also considered that the site is well located to provide benefits to the existing local population in relation to local facilities and amenities, public open space and community uses. It is also considered that the existing social infrastructure, including open space, educational institutions, retail and leisure provision in the surrounding area has the potential to support the proposed population.

- In landscape and visual terms, whilst the site is identified as having notable heritage and natural assets, the characteristics of the existing surrounding context (urban/ built up) is considered to have the potential to absorb further development.

In summary, having regard to the environmental considerations above, the proposed location is considered to be appropriate for a development of the proposed scale and nature.

3.3.3 Alternative Design and Layout

An extensive Masterplanning process was undertaken to establish the optimal redevelopment for the lands. The supporting *Masterplan Report*, enclosed with this planning application, sets out how the proposed scheme has responded to a range of site constraints and opportunities. It also outlines how the design process has considered feedback at key stages from consultation and engagement to balance the issues and opportunities in order to establish design principles that ensure that the potential for the redevelopment of the lands is optimised.

The Mastreplanning process resulted in a number of emerging concept options for the redevelopment of the lands which were then analysed from a strengths and weaknesses perspective to ensure that the optimal option was developed into a detailed scheme. A capacity study was undertaken in respect of each concept with indicative building heights and an approximate number of units arising from each option. Further detail of the concept options was not developed until the chosen concept option (No. 3) was further developed into the pre-application scheme.

3.3.3.1 Alternative Design 1 – Masterplan Concept Option 1

The site layout for Option 1 was designed to maximise the landscape and ecology features on the site and connect into the existing open space to the south. It seeks to retain the heritage buildings at the site (including the Main Hospital Building, Farm Buildings, Infirmary and the Chapel) and introduces a significant quantum of new built form, in the form of apartment blocks, to the site. The site layout retains a significant amount of open space and creates a neighbourhood centre at the middle of the site.

This option also introduces a number of new pedestrian and cyclist connections to the west and south of the site. The proposal includes the introduction of a new vehicular access point to the south of the existing vehicle access point on Dundrum Road which connects to a new vehicle access across Rosemount Green to the south. In this option, the existing vehicular access point is no longer used as an access point, rather a pedestrian and cycle access.

From a capacity perspective, Option 1 was expected to deliver approximately 1000 no. units at building heights ranging between 2 and 6 storeys.

Figure 4.1: Extract from the *Masterplan Report* (2022) showing Masterplan Concept 1

As part of the Masterplanning process, a strengths and weaknesses exercise was undertaken in respect of each option. Each option was also considered from an environmental perspective, as outlined below.

Masterplan Stage - Concept Option 1	
Strengths	**Weaknesses**
Increased permeability with Dundrum Road through introduction of second access and part removal of perimeter wall.	Private courtyard spaces
Retention of natural open space / heritage buildings	Fragmented open space provision
New central greenspace	Lacks diversity in plot sizes and/or uses
Largely car-free pedestrian and cycle ways	More built footprint
Human scale of development to minimise impact on visual amenities	Lack of dual aspect units
Second vehicular access point to the south	Pedestrian route has potential result in loss of mature trees
	Lack of permeability through site, potential to result in rat run (traffic issues)
	Potential for daylight, sunlight and overshadowing impact on receiving environment due to proximity of blocks to boundary.

	Potential for impact at Rosemount Green arising from access road.

Many of the strengths and weaknesses listed above were considered in the context of the factors listed at Article 3(1) of the EIA Directive. This includes landscape and visual impact and architectural and cultural heritage considerations in respect of the decision to retain the open space character of the lands and the heritage buildings. The introduction of pedestrian and cycle ways and connection into the surrounding area was considered in respect of population and human health, including considerations relating to reduced transport emissions and associated noise and air impacts. The potential for the loss of mature trees was considered in the context of biodiversity related impacts. Importantly, the lack of vehicular permeability within the site was considered in relation to potential impact from roads and traffic perspective.

Option 1 was ultimately ruled out due to the potential internal traffic issues arising from the site layout and resultant movement strategy. The potential loss of mature trees arising from the siting of the pedestrian route also gave rise to concerns surrounding potential biodiversity impacts.

3.3.3.2 Alternative Design 2 – Masterplan Concept Option 2

The site layout for Option 2 was heritage-led and designed to enhance the setting of the heritage assets (i.e. the Main Hospital Building, Chapel, Infirmary). As part of this, the proposal seeks to retain the heritage buildings at the site and maximise their visibility from across the wider site, including views from the south. Like Option 1, the proposal introduces a significant quantum of new built form, in the form of apartment blocks, to the site. The site layout retains a significant amount of open space and creates two key neighbourhood centres.

This option also introduces a number of new pedestrian and cyclist connections to the west and south of the site. The proposal includes the utilisation of the existing vehicular access point on Dundrum Road which connects to a new vehicle access across Rosemount Green to the south.

From a capacity perspective, Option 1 was expected to deliver approximately 950 no. units at building heights ranging between 2 and 6 storeys.

Figure 4.2: Extract from the *Masterplan Report* (2022) showing Masterplan Concept 2

Masterplan Stage - Concept Option 2	
Strengths	**Weaknesses**
Retention of heritage buildings and good south to north visibility of main hospital building	Lacks clear distinction between public and communal open space
Strong desire lines/public realm	Lack of vehicular permeability within site, potential to result in rat run (traffic issues)
Two neighbourhood centres/ civic spaces/ hubs	Lesser quantum of open space
Varied typologies creating distinct architecture	Higher ratio of built footprint
Increased permeability with Dundrum Road through introduction of second access point and removal of perimeter wall.	Potential for daylight, sunlight and overshadowing impact on receiving environment due to proximity of blocks to boundary
Second vehicular access point to the south	Challenging to meet dual aspect unit requirement
	Potential for wind at key location within site
	Undefined civic space
	Pedestrian route has potential result in loss of mature trees

	Closer proximity of taller built form to key heritage buildings.
	Potential for impact at Rosemount Green arising from access road.

Many of the strengths and weaknesses listed above were considered in the context of the factors listed at Article 3(1) of the EIA Directive. Like Option 1, the introduction of pedestrian and cycle ways and connection into the surrounding area was considered in respect of population and human health, including considerations relating to reduced transport emissions and associated noise and air impacts. However, due to the nature of the internal road network, the lack of vehicular permeability within the site was considered to result in potential impact from roads and traffic perspective.

In terms of architectural and cultural heritage considerations, the provision of views of the Main Hospital Building from the south of the site was considered to present a potential positive in this regard. Nevertheless, this was considered in the context of the proximity of the proposed built form (at an increased height when compared to Option 1) to the heritage buildings which was highlighted as having potential for significant adverse impact. The siting of the buildings was further considered in relation to wind/ microclimate considerations and identified has having potential to give rise to adverse impacts in this regard.

Furthermore, landscape and visual impact and architectural and cultural heritage considerations arose in respect of the decision to retain the open space character of the lands and the heritage buildings. As per Option 1, the potential for the loss of mature trees was considered in the context of biodiversity related impacts and gave rise to concerns surrounding potential biodiversity impacts.

Ultimately, due to the potential for impact arising from the closer interface between the proposed built form and the Main Hospital Building, the loss of mature trees and the potential traffic impacts arising from the lack of vehicular permeability within the interna road network, Option 2 was discounted.

3.3.3.3 Alternative Design 3 – Concept Option 3

The site layout for Option 3 was largely influenced by an objective to promote the community, for example, through strengthening the relationship between the new and existing community. The site layout and design strategy was therefore focused at creating public spaces appropriate for a range of users, activities and social interaction which would also foster a positive relationship with the existing open space to the south (Rosemount Green). The siting of the buildings to the south of the site was designed to create opportunities for the further provision of community facilities i.e. a community centre, multi-use hall etc.

This option also introduces a number of new pedestrian and cyclist connections to the west and south of the site. The proposal includes the utilisation of the existing vehicular access point on Dundrum Road which connects to a new vehicle access across Rosemount Green to the south. The internal road proposal keeps vehicular traffic to the periphery of the site, with home zones and shared spaces which prioritise the pedestrian.

From a capacity perspective, Option 3 was expected to deliver approximately 1000 no. units at building heights ranging between 2 and 6 storeys.

Figure 4.3: Extract from the *Masterplan Report* (2022) showing Masterplan Concept 3

Masterplan Stage - Concept Option 3	
Strengths	**Weaknesses**
Provides opportunities for the delivery of Community facilities, including a multi-use games area, close to existing public open space.	Potential for Impact at Rosemount Green arising from access road
High density urban core	Access road across the site has potential to result in rat run (traffic issues)
Responds to view corridor axis	Lack of permeability onto Dundrum Road due to retention of perimeter of wall
Responds to requirement for dual aspect units	
Greater provision of public open space	
Site layout results in continuous green link between Dundrum Road and Rosemount Green which enhances green infrastructure	
Alteration to building placement at northwest corner of site result in retention of Category A trees	

Smaller residential development adjacent to Annaville – benefit from daylight and sunlight perspective and overshadowing	
Maintains vista at the front of the main hospital building.	

Many of the strengths and weaknesses listed above were considered in the context of the factors listed at Article 3(1) of the EIA Directive. The introduction of pedestrian and cycle ways and connection into the surrounding area was considered in respect of population and human health, including considerations relating to reduced transport emissions and associated noise and air impacts. Further in respect of population related considerations, the introduction of public open space, together with the proposal of community facilities was considered as a potential significant positive benefit to the surrounding area.

In terms of architectural and cultural heritage considerations, the protection of the immediate setting to the front of the Main Hospital Building was considered to present a potential positive in this regard. Nevertheless, this was considered in the context of the proximity of the proposed built form to the heritage buildings which was highlighted as having potential for significant adverse impact.

Furthermore, landscape and visual impact and architectural and cultural heritage considerations arose in respect of the decision to retain the open space character of the lands and the heritage buildings. As per Option 1 and 2, the potential for the loss of mature trees was considered in the context of biodiversity related impacts and gave rise to concerns surrounding potential biodiversity impacts.

Noting the environmental and planning considerations set out above, Option 3 was deemed to be the preferred option and was further developed into the pre-application scheme. Refer to the following discussion surrounding Option 3.1 and the Pre-Application Scheme below.

3.3.3.4 Alternative Design 4 – Concept Option 3.1

Progressing from the optioneering stage, Option 3 was selected as the preferred basis for further design development and refinement.

This option was considered to combine all of the best attributes of each of the foregoing options as appropriate to the scale and urban grain of the area, creating a significant number of homes and community facilities along with associated public spaces and social infrastructure to support a new community.

Also, as the site's interface with Annaville had been identified as an area where masterplan concept design Option 3 had certain shortcomings, this was identified as an area requiring further design analysis and exploration of design options.

Further analysis of Option 3 was carried out, together with ongoing consultation with DLRCC and the local residents, which led to Option 3.1. The material changes involved increases to the height of the buildings to further optimise the redevelopment of the lands, including heights of up to 11 storeys towards the centre of the lands, the removal of the vehicular access over Rosemount Green and the provision of a new entrance at Dundrum Road to the south of

the existing entrance. This creates a greater sense of space and visual connection at Dundrum Road. Pedestrian and cyclist connection is proposed from the existing path at Rosemount Green through the site and to Mulvey Park via a new opening under Option 3.1.

Figure 4.4: Extract from the *Masterplan Report* (2022) showing Masterplan Concept 3.1

Masterplan Option 3.1 forms the basis of the pre-application scheme discussed in greater depth below. The relevant environmental considerations pursuant to Article 3(1) of the EIA Directive are also discussed below in relation to the detailed scheme. An extract of the resultant Masterplan site layout is provided below.

Figure 4.5: Extract from the Pre-Application Masterplan Document, showing the illustrative Masterplan site plan for the wider lands.

3.3.3.5 Alternative Design 5 – The Pre-Application Scheme

This SHD scheme was submitted to An Bord Pleanála for pre-application consultation and included design development since Masterplanning stage, including the development of landscaping and engineering proposals. The site boundary incorporated the majority of the Masterplan lands, excluding the Main Hospital Building (see Figure 4.6 below for pre-application stage site location plan and red line boundary. The key development statistics are set out below:

Key Statistic	Pre-Application Scheme
SHD Site Area	10.9 ha
Gross Floor Area (GFA)	c.131,547 sq m
Demolition	c.6,915 sq m
No. of Residential Units	1,259 no. units
Non-Residential Floorspace	4,450 sq m
Gross Residential Density	115 units p/h (based on site area of 10.9 ha)
Net Residential Density	177 units p/h (based on net site area of 7.1ha)

Site Coverage	32.6%
Plot Ratio	1.2:1
Building Height	2 – 11 storeys
Public Open Space	c. 38,312 sq m (34% of site area)
Car Parking Spaces	540 no. spaces (390 no. residential spaces (0.3 spaces per unit) and 150 no. non-residential and visitor)

Table 4.1: Key development statistics for the Pre-Application SHD Scheme.

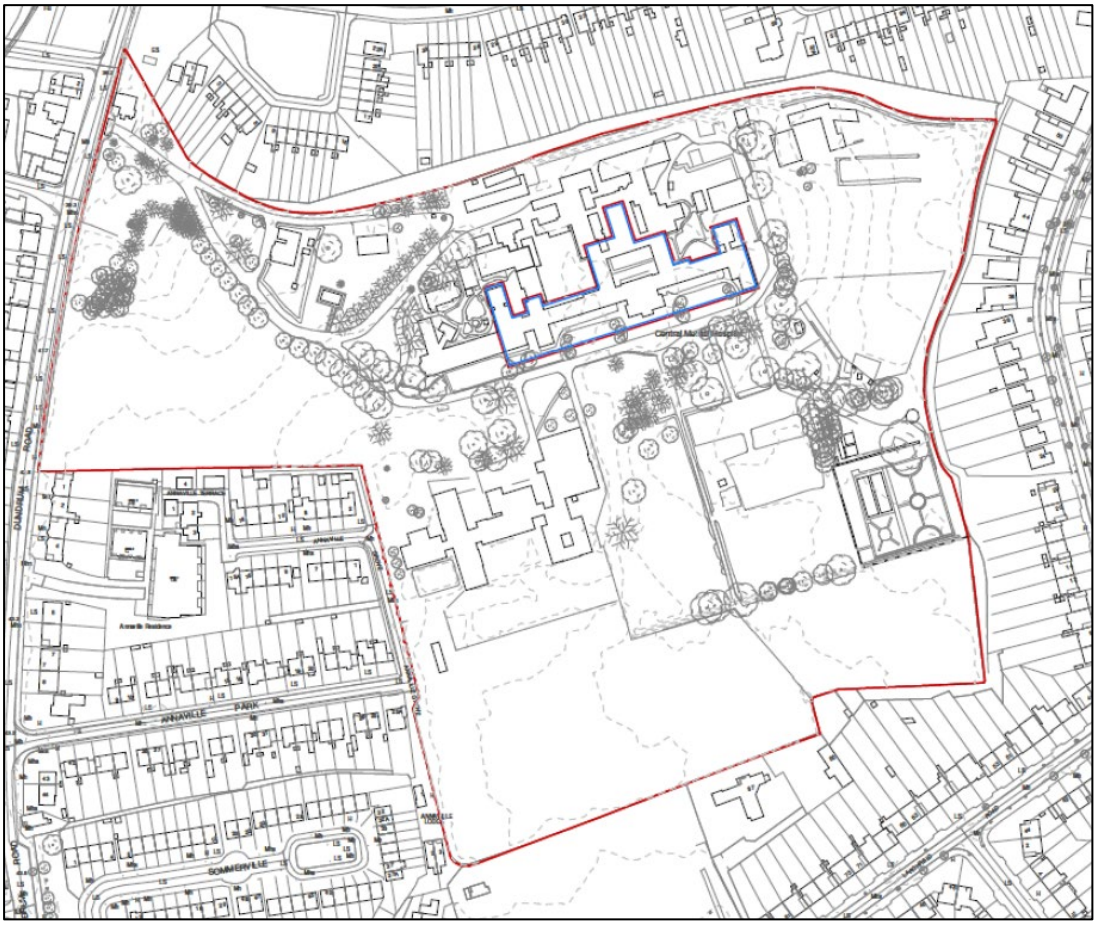


Figure 4.6: Extract from Reddy A+U's Site Location Plan for the Pre-Application SHD Scheme.

This iteration of the SHD scheme is underpinned by the Masterplan proposal outlined in Section 3.4.4.3 and was further developed to introduce residential development to the rear of the main hospital and include the adaptive reuse of the Chapel, Infirmary and workshop buildings. The Main Hospital Building was excluded from the red line as part of the development strategy which proposed the adaptive re-use of the Main Hospital Building as an Enterprise Centre as the subject of a separate planning application to An Bord Pleanála.

The building height strategy included heights ranging between 2 and 11 storeys, with the building elements of increased height located at the centre of the scheme.

Figure 4.7: Extract from Reddy A+U's Pre-Application Architectural Design Report showing the SHD Site Plan.

This scheme was the subject of detailed discussion and feedback from An Bord Pleanála and Dún Laoghaire Rathdown County Council. A number of points were raised in respect of the acceptability of the scheme in relation to the following items (not exhaustive) –

- Development strategy
- Movement strategy
- Interface between the proposed new built form and heritage buildings
- Impact on residential amenity (i.e. overlooking)
- Reduced car parking provision

From an environmental perspective, this scheme was the subject of detailed considerations including the introduction of a significant quantum of new development to an existing residential area, including new homes, commercial uses and public open space. Ultimately, the scheme was amended (which resulted in the proposed project) to address the planning related concerns raised by An Bord Pleanála and Dún Laoghaire Rathdown County Council. However, our environmental considerations in respect of the environment factors set out in Article 3(1) of the EIA Directive are provided below.

Population and Human Health: It was considered that the development would introduce a significant quantum of new development to an existing residential area, including new homes, commercial uses and public open space. We therefore identified the potential for the proposed development to impact positively upon, inter alia, population, employment and amenity. From a human health perspective, we considered the interactions between human

health with air quality and noise impacts and noted the potential for temporary significant adverse impacts.

Biodiversity: This development would result in the demolition of a number of existing buildings, the disruption and alteration of the existing and established landscape, as well as significant changes to the nature of the use of the site. Ecological survey work was undertaken to inform assessments in relation to potential impact upon habitats and flora, mammals, bats and wintering birds. In terms of potential impacts, with mitigation measures in place, the ecology impacts were expected to be minor negative, albeit long term in duration.

Furthermore, having regard to Article 6(3) of the EU Habitats Directive, due to the identification of a direct pathway between the application site and the Natura 2000 site in Dublin Bay, an Appropriate Assessment Screening and Natura Impact Statement (NIS) was submitted at the pre-application stage. The NIS concluded:

"Following the implementation of the mitigation measures outlined, the construction and presence of this development would not be deemed to have a significant impact. No significant impacts are likely on Natura 2000 sites, alone in combination with other plans and projects based on the implementation of mitigation measures."

Land, Soils, Geology and Hydrogeology: This development would be inclusive of both demolition and the construction of a number of new buildings and hard landscaping works. We therefore identified the potential for impacts in this regard, mainly arising from the excavation required during the construction process. Other areas of potential impact were considered to arise from the stripping of topsoil, construction traffic, accidental spills and leaks/ contamination and any interactions with human health in this regard.

Hydrology (Surface Water): We identified the potential for the development to impact upon the environment in terms of hydrology, during the construction and operational phase, given the locational characteristics of the site from a hydrological perspective. In this regard, we noted that the site lies within the Liffey and Dublin Bay catchment and the Dodder River sub-catchment. It was further noted that there is an open drainage ditch within the site boundary which discharges into Dublin Bay. The main considerations in this regard relate to the potential impacts arising from surface water run-off during social excavation.

Air Quality and Climatic Factors: We considered the potential for air quality impacts arising from the construction stage. The greatest potential for air quality impacts was considered to arise from dust emissions and their impact upon nearby sensitive receptors. In terms of the operational phase, potential impact arising from traffic movements associated with the development was also considered.

Noise and Vibration: We considered the potential for noise and vibration impacts arising from the construction of this scheme upon nearby sensitive receptors, mainly neighbouring residential properties. From an operational perspective, potential impacts were identified in respect of changes to noise levels arising from additional traffic associated with the development. We also considered the potential for noise impact arising from any outdoor seating associated with the non-residential uses within the scheme.

Townscape and Visual Impact Assessment: Given the increased height of the development when compared to the existing low-rise context, it was expected that the increased height at the site (up to 11 storeys) had the potential to impact upon the surrounding townscape which may alter its character. From a visual impact perspective, the potential for the development to change views to/ across the site was considered in the context of potential impact upon visual amenities. The existing insular and largely undeveloped lands were considered to be relatively sensitive to change, also having regard to the historic/ cultural heritage dimensions of the landscape within the site boundary.

Archaeology: From an archaeological perspective, the construction of this development would involve extensive disturbance of ground and therefore would have the potential to impact upon any archaeological remains or features present at the site. The archaeological desk-based study identified the potential for archaeological features in areas where this development proposed new built form.

Architectural Heritage: From an architectural perspective, the application site presents heritage value in both the existing buildings and the landscape, potential impact in this regard has therefore been considered. The development seeks the demolition of a number of buildings and ancillary built form associated with the Main Hospital Building, the construction of new built form within the setting of identified heritage buildings, the renovation and refurbishment of heritage buildings and significant changes to the landscape.

Microclimate/ Wind: We considered wind and microclimate impacts on the basis that the development, arranged in a number of blocks/ buildings at a height of 2-11 storeys, would result in significant changes to the landscape and therefore has the potential to change the microclimate and pedestrian comfort levels.

Roads and Traffic: Due to the scale of this development, the construction phase was considered to have the potential to generate a notable number of additional traffic movements. Furthermore, the development was inclusive of car parking at a ratio of 0.3 spaces per unit and was therefore considered in the context of potential impact arising from additional traffic movements within the area. It also includes cycle parking, and a number of new access points for vehicles, cyclists and pedestrians. The operational phase of the proposed development therefore has potential to change (and therefore impact) the nature of the surrounding area from a traffic and transport perspective.

Waste: This development, both at construction and operation stage, would produce waste. We therefore considered identified the potential for impacts in this regard, together with the necessity for the appropriate management of waste at both stages.

Built Services: Due to the nature of the development, we have considered the potential for the development to impact upon existing site services/ utilities, from both a construction and operation phase perspective. The site is serviced as existing, but it is noted that the operational development will result in an increased demand upon services such as the public watermain system. From an Irish Water perspective, the capacity of existing infrastructure to serve the development was considered in consultation with Irish Water themselves.

3.3.3.6 Alternative Design 6 – The Proposed Project

The proposed project constitutes the final alternative, and preferred, option. The design has been progressed via an iterative process with design amendments arising from consultation with An Bord Pleanála and Dún Laoghaire Rathdown County Council during the pre-application process. The current scheme takes account of both planning and environmental considerations arising throughout the design process. This planning application submission, which includes this EIAR, provides a full assessment of the proposed project from a planning and environmental perspective.

3.3.4 Alternative Process

The development strategy surrounding the delivery of the full Masterplan proposal has been considered in detail and is documented in Section 1.2 of the *Planning Report*. The decision to pursue the Strategic Housing Development (SHD) provisions in respect of the proposed project is considered to represent the optimal solution in the context of the various project specific constraints and the remit of the LDA as a state agency. We further highlight that the legislative provisions in respect of SHD were enacted to facilitate the fast-track delivery of housing in line with national objectives surrounding housing need. The SHD process is therefore considered entirely appropriate for the proposed project.

Given the residential nature of the scheme, it is not envisaged that there are any alternative processes that could have been followed in respect of the assessment of environmental impact.

It is therefore concluded that the consideration of an alternative process is not considered relevant to this EIAR.

4.0 POPULATION AND HUMAN HEALTH

4.1 Introduction

This chapter has been prepared by AWN consulting Ltd assesses and evaluates the likely impacts of the Proposed Development on population and human health.

4.2 Methodology

This chapter evaluates the effects, if any, which the development has had or will have on Population and Human Heath as defined in Draft Guidelines on the Information to be Contained in Environmental Impact Assessment Reports (EPA, 2017), Draft Advice Notes for Preparing Environmental Impact Statements (EPA, 2015), and European Commission (EC), Environmental Impact Assessment of Projects: Guidance on the preparation of the Environmental Impact Assessment Report (EU, 2017) this chapter has considered the "existence, activities and health of people" with respect to "topics which are manifested in the environment such as employment and housing areas, amenities, extended infrastructure or resource utilisation and associated emissions"

The assessment of significance is a professional appraisal based on the sensitivity of the receptor and the magnitude of effect.

4.3 Baseline Environment

The proposed development site is located in County Dublin, and in the electoral district of Clonskeagh-Windy Arbour (ED 5031).

The latest census data shows that the population of Clonskeagh-Windy Arbour ED, the area surrounding the development site, increased in size by 8.5% between the years 2011 and 2016 compared with an increase of 3.8% nationally. The general increase in growth rate of surrounding areas, when compared to the state figures and Dún Laoghaire-Rathdown suggests the increasing economic role of the areas surrounding the Proposed Development site.

The subject lands are comprised of zoned *'A' – to protect and/or improve residential amenity* land which adjoins the Dundrum Road (R117) and is currently in use as the Central Mental Hospital for the state, providing forensic mental health and associated facilities for patients. The Central Mental Hospital is scheduled to be moved to a newly constructed 170-bed complex in Portrane. The site is located c. 1km north of Dundrum Village (as the crow flies) and within c. 450m of the LUAS Green Line station at Windy Arbour to the west by road. The primary area of landscape amenity in the immediate vicinity of the Proposed Development site is Dartry Park (1km to the north), which is a recreational park with various open areas located along the river Dodder.

4.3.1 Construction Phase

During the construction phase of the proposed project, it is unlikely that there will be any significant impact upon social patterns in the surrounding area. Construction will have an

indirect positive effect on support industries such as builder suppliers, construction material manufacture, maintenance contracts, equipment supply, landscaping and other local services.

The main potential negative impacts on human beings associated with the proposed development will be in relation to air quality, noise and vibration, visual effects and traffic during the construction stage. These are temporary effects. Noise and vibration in particular has the potential to have a significant impact in the absence of mitigation measures due to the proximity of the construction to nearby residential properties.

In terms of air (dust) during the construction phase impacts on noise-sensitive locations are not expected to exceed the significance thresholds that have been set based on the existing environment and appropriate mitigation during construction (refer to Chapter 11 Section 11.5). The mitigation measures that will be put in place at the proposed development will ensure that the impact of the proposed development complies with all ambient air quality legislative limits and therefore the predicted impact is short-term, negative and imperceptible with respect to the construction phase and long-term, neutral and imperceptible with respect to the operational phase in terms of human health impacts.

4.3.2 Operational Phase

The proposed development will introduce 977 no. residential units to the site, along with 6 no. retail units, a restaurant, a café, a medical unit and a new community centre facility. Once operational the Proposed Development will have slightly significant and positive impact upon the availability and quality of local amenities. The proposed community Park will provide an important gateway and connection into Rosemount green. This park will be integrated with Rosemount Green, and seen as a natural extension of the green, encouraging greater use of both spaces by residents, the local community, and visitors.

The long-term impact on air quality, vibration, visual effects and traffic during operation is assessed as imperceptible/not significant, i.e. in line with emerging trends for a residential development area. The outdoor play area in the crèche and the building services plant are a potential noise source. In the absence of mitigation measures, it can be determined that on facades within the proposed development the impact on human health in relation to noise generated from children playing outdoors can be negative, local, long-term and not significant. While measures for the building services plant will included at the detailed design stage to ensure noise emissions are within adopted limit values.

Once operational, the proposed project will not result in any significant impact on human health and safety for existing, neighbouring populations or the future residents of the proposed development. The impact of the proposed development on air quality and climate is predicted to be imperceptible with respect to the operational phase in the long term. Therefore, no site-specific mitigation measures are required.

The nature of the proposed development, together with the sensitivity of the receiving environment and the existing land use and land use zoning, is such that landscape and visual impacts are considered to be imperceptible and neutral. The predicted impact on local amenities and tourism with respect to human health will be positive, slight, and long-term.

Overall, the proposed development would be in keeping with the existing land use and associated objectives outlined in the Dún Laoghaire Rathdown County Development Plan.

4.4 Residual Impacts (post-mitigation)

The implementation of mitigation measures outlined in the EIAR chapter will ensure that the predicted impacts on the population and human health do not occur during the construction and operational phases and that the worst-case residual impacts will be **short term-imperceptible-neutral** and **long term-imperceptible-neural**, respectively. The proposed development will result in several positive impacts, some of which are significant. These include but not limited to a significant positive economic impact during both the construction and operational phases of the proposed development, along with positive impacts on the land use and settlement patterns, employment, landscape and visual impact, and social patterns.

5.0 BIODIVERSITY

5.1 Introduction

This section of the EIAR was carried out by Altemar Ltd. It assesses the biodiversity value of the proposed development area and the potential impacts of the development on the ecology of the surrounding area within the potential Zone of Influence (ZOI). It also outlines the standard construction, operational, and monitoring measures that are proposed to minimise potential impacts and to improve the biodiversity potential of the proposed development site.

5.2 Methodology

A pre-survey data search was carried out. This included examining records and data from the National Parks and Wildlife Service, National Biological Data Centre, the Environmental Protection Agency, in addition to aerial, 6 inch maps and historic satellite imagery. A detailed desktop review and field surveys were carried out, initially in April 2020 and continued through 2021 and into 2022. All terrestrial ecological elements were carried out by Bryan Deegan MCIEEM.

The Wintering Bird Assessment 2020/2021 was carried out by MKO. This wintering bird assessment report was prepared by Kathryn Sheridan (M.Sc.), an Ornithologist with MKO, Patrick Manley (B.Sc.), a Project Ornithologist with MKO and Project Director, Dervla O'Dowd (B.Sc. Env.). The field surveys were undertaken in the 2020/2021 winter season by Donnacha Woods and Kathryn Sheridan, both of whom are competent experts in bird surveying. The Wintering Bird Assessment in 2021/2022 was carried out by Flynn Furney. The 2021/2022 survey work was carried out by Eric Dempsey.

5.3 Baseline Environment

Proximity to Designated Conservation Sites and Habitats or Species of Conservation Interest

There are a number of conservation sites located in close proximity to the proposed development site, namely, South Dublin Bay SAC (2.8 km), South Dublin Bay and River Tolka Estuary SPA (2.8 km), South Dublin Bay pNHA (2.8 km), and Sandymount Strand/Tolka Estuary Ramsar site (2.9 km). There is a direct hydrological pathway to these conservation sites via the proposed surface water drainage strategy and the existing drain that runs through the site. Out of an abundance of caution, it is considered that this direct hydrological pathway has the potential to significantly effect the conservational objectives of the above sites in addition to North Dublin Bay (SAC & pNHA) and North Bull Island (SPA & Ramsar site).

Evaluation of Species and Habitats on-site

The site is relatively poor in biodiversity value. Much of the site is highly maintained with a strong management regime. No rare or protected habitats were noted. However, the treelines and mature trees within the scattered trees and parkland habitats would be deemed to be of local biodiversity importance primarily as a result of being a foraging and roosting habitat for both birds and bats.

5.4 Potential Impacts of the Proposed Project

5.4.1 Construction Phase

The proposed construction of a residential development could potentially impact on the existing ecology of the site and the surrounding area. These potential construction impacts would include impacts that may arise during the site clearance, re-profiling of the site and the building phases of the proposed development. There is an intact biodiversity corridor/pathway from the proposed development site to the Dublin Bay Designated sites via the drain on site and the Elm Park stream and via the surface water drainage to the River Slang. As a result, there is the potential for downstream impacts on designated conservation sites and aquatic ecology via surface water runoff.

The impact of the development during construction phase will also be a loss of habitats and species in the vicinity of the treelines, scattered trees and parkland, the onsite drain and grassland. It would be expected that the avian fauna associated with these habitats would also be displaced. No flora or habitats of conservation importance were noted during the surveys. During the site visits no bird species of conservation importance as listed on Annex I of the EU Birds Directive were recorded. The most significant impact to birds will be during the construction phase with the permanent removal of any grassland, trees and to a lesser extent the levelling of the land to accommodate the houses.

No signs of protected species of mammals were observed on site. There are no records of protected mammals on site. The site is isolated with limited access and surrounded by a wall on all sides. A pre construction inspection is required.

In relation to bats, the site is brightly lit with security lighting and construction lighting could reduce foraging on site. Trees on site have the potential for bat roosting and a bat roost was noted within one tree. The removal of large trees on site will result in the loss of at least one bat roost in addition to reducing the sites foraging potential. However, in proximity to the existing buildings on site lighting will be reduced from current levels of floodlighting and it would be expected that bats would continue to forage on site particularly in the darker open space areas." The removal of single bat roost within a tree would be a Negative; Slight; permanent, localised, not significant impact. However, mitigation is required.

5.4.2 Operational Phase

In relation to designated conservation sites, during operation of the development foul water will be discharged to online mains services. Runoff from the development and roads will have to comply County Council and SUDS requirements and will be attenuated and discharged at greenfield rates to the public surface water network. No significant impacts on biodiversity as a result in changes in hydrology or hydrogeology are foreseen. The waterflow will be maintained in the drain on site and no significant loss in water or deterioration in water quality is foreseen. As a result, no negative impact on conservation sites is foreseen.

In relation to bats, loss of foraging sites and commuting habitat may temporarily displace certain species. Artificial light creates a barrier to bats so lighting of treelines should be avoided where possible. Low impact lighting has been chosen in the vicinity of the retained treeline (See 1 lux lighting contour on lighting plan.). The proposed lighting plan should not

significantly impact the bat species that will utilise the retained treelines. Mitigation is required in the form of a post construction light spill assessment

Petrochemical runoff from the site and road could potentially negatively directly or indirectly impact the aquatic ecology. Runoff from the development and roads will have to comply with County Council requirements and will require petrochemical interception and will be attenuated and discharged at greenfield rates to the public surface water network. The drainage connections and the installations in relation to petrochemical interception should be inspected by the project ecologist. New ponds and water features are proposed that would encourage frogs within the area.

With regards to birds, during the operational phase of the development there will be an increase in disturbance including noise and light that could potentially impact on birds on site. As the landscaping elements improve with maturity it would be expected that the biodiversity value of the site to birds and flora would also increase. Landscape, light spill and habitat management will be important to overall impact of the operational phase. Ecological supervision of the elements of the accompanying Habitat management Plan are required.

No protected terrestrial mammal species were noted on site. Impacts may be considered as neutral on species of conservation importance in the immediate locality as no terrestrial mammals of conservation importance were noted on site.

5.5 Residual Impacts (post-mitigation)

Based on the implementation of the mitigation measures outlined in Chapter 8 and, in particular, the Hydrology Chapter of the EIAR, no designated sites will be impacted by the proposed development. The successful implementation of the CEMP and additional measures outlined in the EIAR will be essential to the successful mitigation/offsetting of the loss of biodiversity on site.

6.0 LAND, SOILS, GEOLOGY AND HYDROGEOLOGY

6.1 Introduction

This chapter of the EIAR assesses the impacts of the proposed Strategic Housing Development (SHD) at the lands at the Central Mental Hospital, Dundrum Road, Dundrum, Dublin 14. This chapter of the EIAR should be read in conjunction with the architectural and engineering drawings submitted as part of this planning application. This chapter has been prepared by Barrett Mahony Consulting Engineers.

6.2 Methodology

The assessment of the potential impact of the proposed development on the water bodies was carried out according to the methodology specified by the EPA and the specific criteria set out in the Guidelines on Information to be Contained in an Environmental Impact Statement (EPA 2002 and 2017 (Draft)), the EIA Directive, Advice Notes on Current Practice (in preparation of Environmental Impact Statements) (EPA 2003), Environmental Impact Assessment (EIA), Guidance for Consent Authorities Regarding Sub-Threshold Development (DoEHLG 2003), Development Management Guidelines (DoEHLG, 2007) and Guidelines for Planning Authorities and An Bord Pleanála on Carrying out Environmental Impact Assessments August 2018.

The following sources of information were used in the completion of this assessment:

- Site Visit
- Geotechnical Site Investigation Report
- Civil Engineering Drawings Prepared by Barrett Mahony Consulting Engineers
- Geological Survey of Ireland (GSI) online maps and databases
- Eastern CFRAMS Flood Mapping from OPW
- EPA online maps and databases
- Topographical Survey
- Teagasc soil and sub-soil data.

6.3 Baseline Environment

6.3.1 Existing Site

The subject site is c9.6 ha and is currently occupied by the Central Mental Hospital. There are other ancillary buildings on the site which are proposed to be demolished as part of the works, these include a swimming pool/sports hall, 2-storey red-brick building and temporary structures including portacabins.

The site is bounded on all sides by a boundary wall. The main point of access to the site will be via the Dundrum Road (R117) to the west. There is a general slope down from the high point of the southern side (+45.21m) to the northern end of the site (+39.31m). Please refer to figure 9.2 which is a summarised topographical survey.

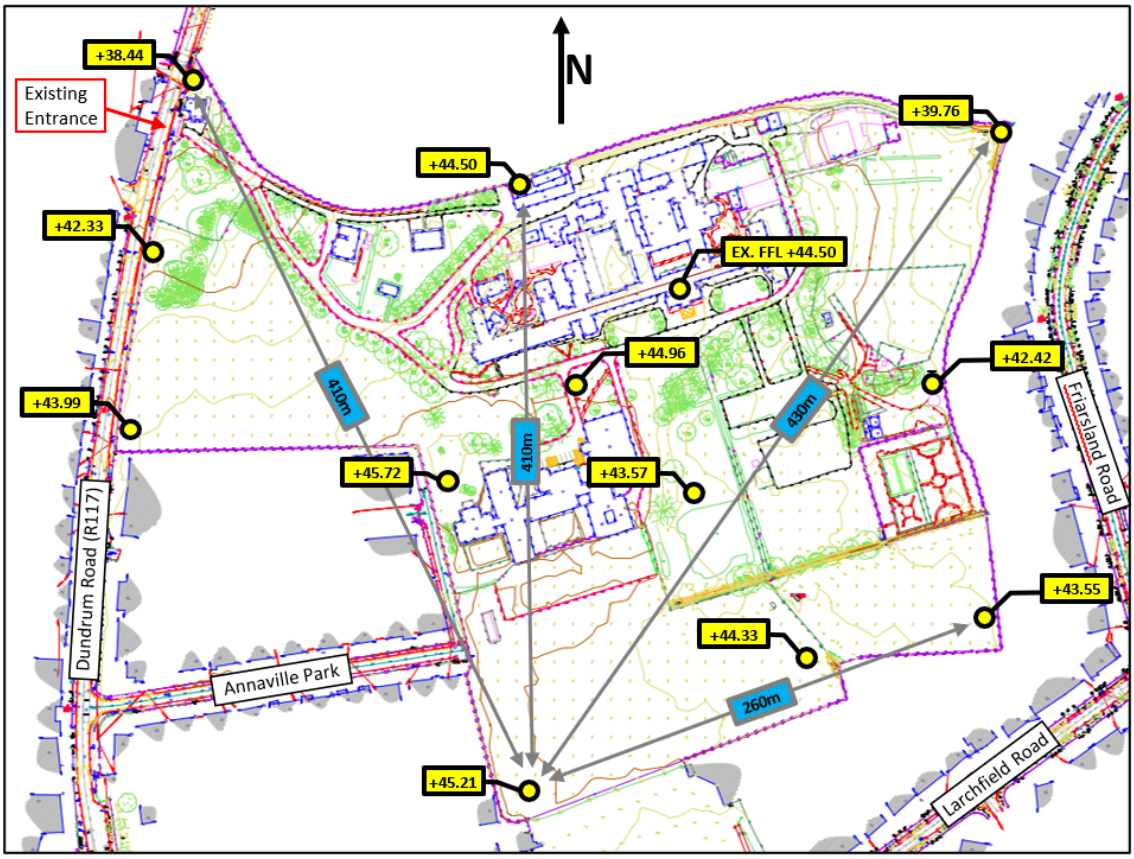


Figure 9.2 – Summary of the Existing Site Topography Superimposed on Topographical Survey Drawing (Ordnance Datum Levels).

6.3.2 Site Investigation Works

A site investigation was carried out in November 2021 by Site Investigations Ltd, which is included in Appendix 9.1 of this chapter. The site investigation consisted of cable percussive boreholes, trial pits, soakaway tests, foundations pits, slit trenches and California Bearing Ratio (CBR) tests. All fieldworks were carried out in accordance with BS 5930:2015, Engineers Ireland GI Specification and Related Document 2nd Edition 2016 and Eurocode 7: Geotechnical Design. Below is a breakdown of the works carried out:

- 16 no. Cable Percussive Boreholes
- 35 no. Trial Pits
- 4 no. Soakaway Tests
- 7 no. Foundation Inspection Pits
- 3 no. Slit Trenches
- 6 no. CBR Tests

There was a total of 16no. boreholes which were put down in a minimum diameter of 200mm through soils and rock strata to their completion depths by a combination of methods, including light percussion boring using a Dando 150 rig.

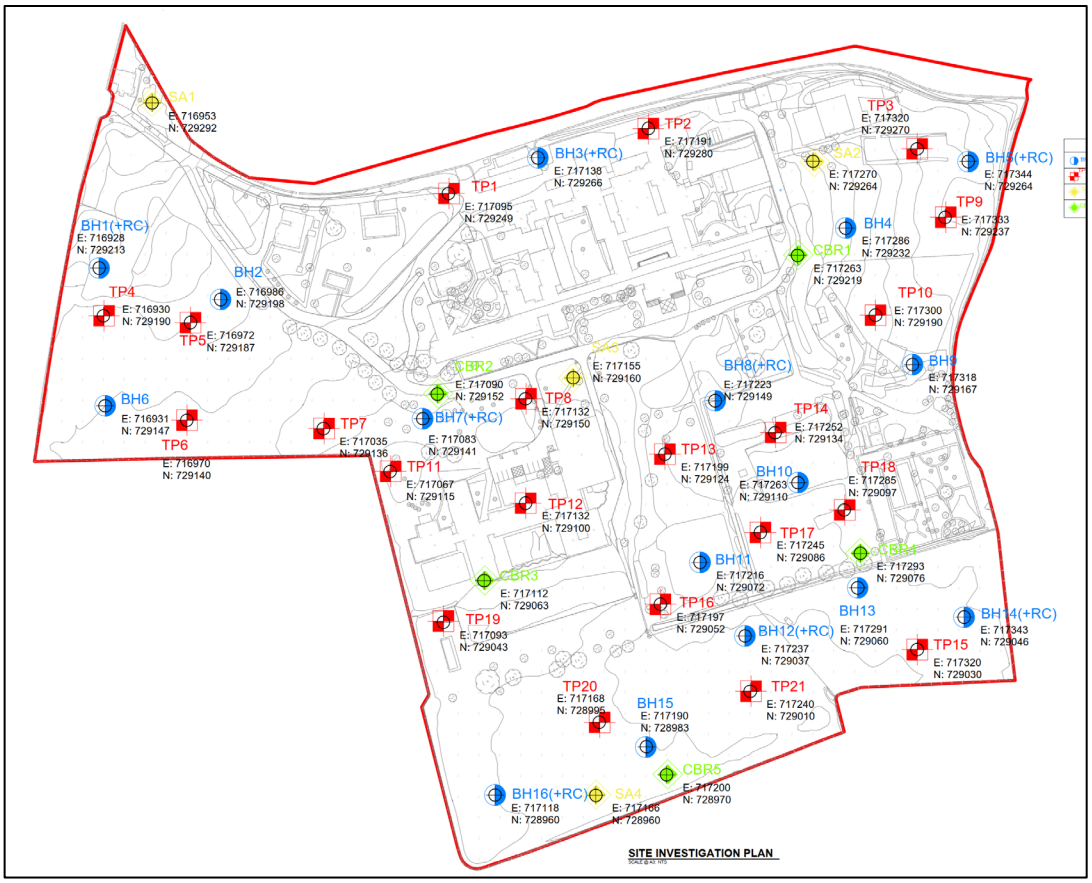


Figure 9.3 – Site Investigation Works Plan

6.3.3 Bedrock Geology

The bedrock geology of this area is Carboniferous Limestone of the Lucan Formation. The bedrock is identified as a combination of dark limestone and shale, refer to figure 9.4 below. Bedrock was located approximately 8.5m below ground level, per the site investigation report.

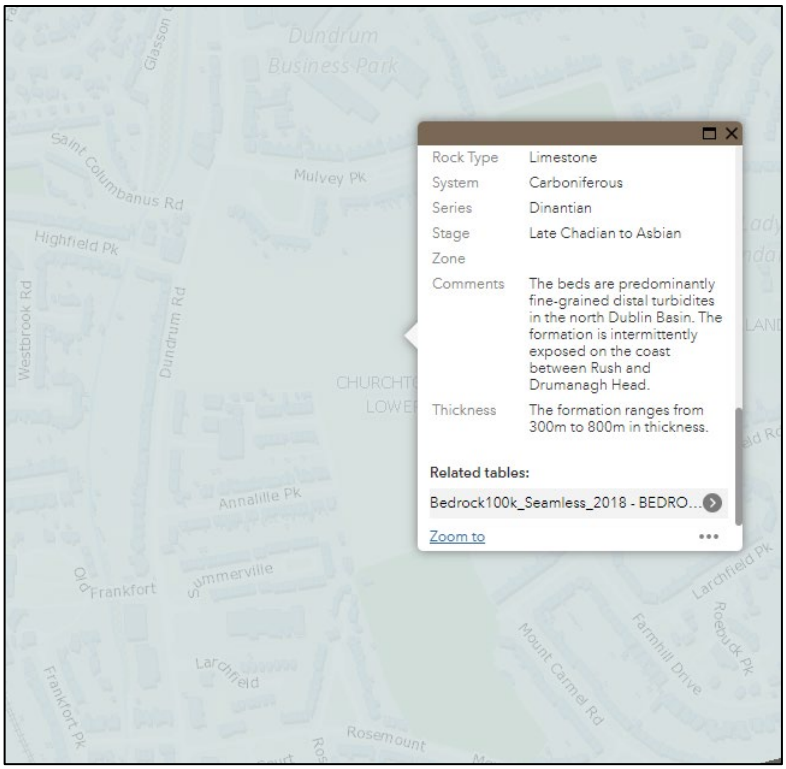


Figure 9.4 – Bedrock Mapping of Site by GSI *(https://gis.epa.ie/EPAMaps/, n.d.)*

6.3.5 Soils

The GSI soils map indicates the predominant soil type in the development area to be still derived from limestones. An extract from the GSI soils map relevant to the site is detailed in figure 9.5 below.

Teagasc soil maps classify soils beneath most of the site as Urban, refer to figure 9.6.

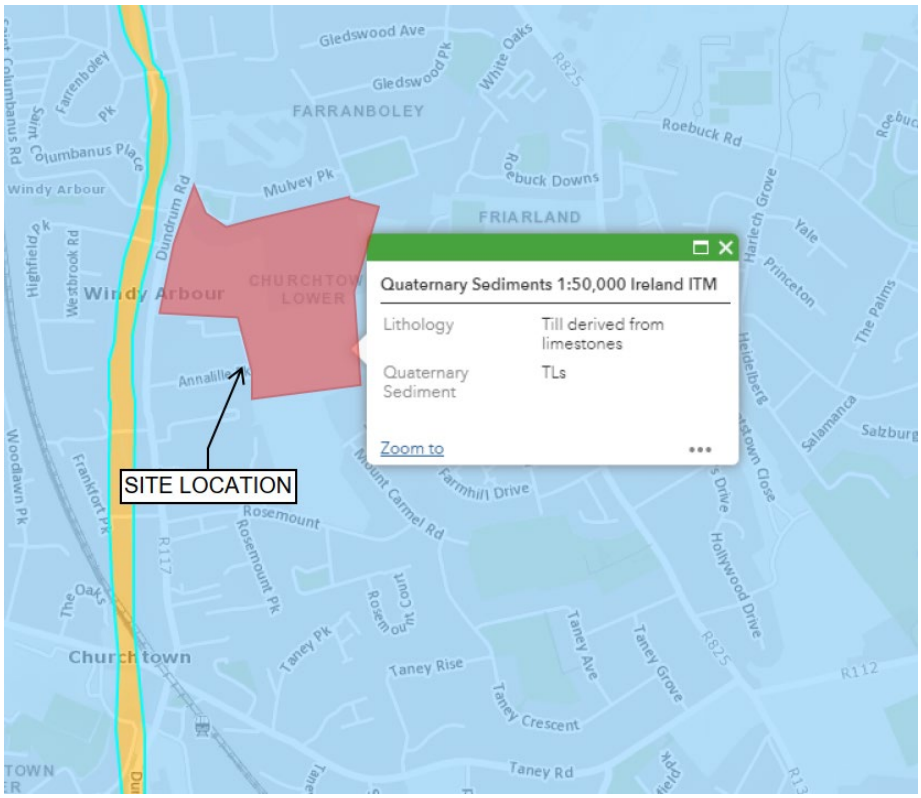


Figure 9.5 – Extract from GSI Quaternary Mapping – Till Derived from Limestones (GSI, n.d.)

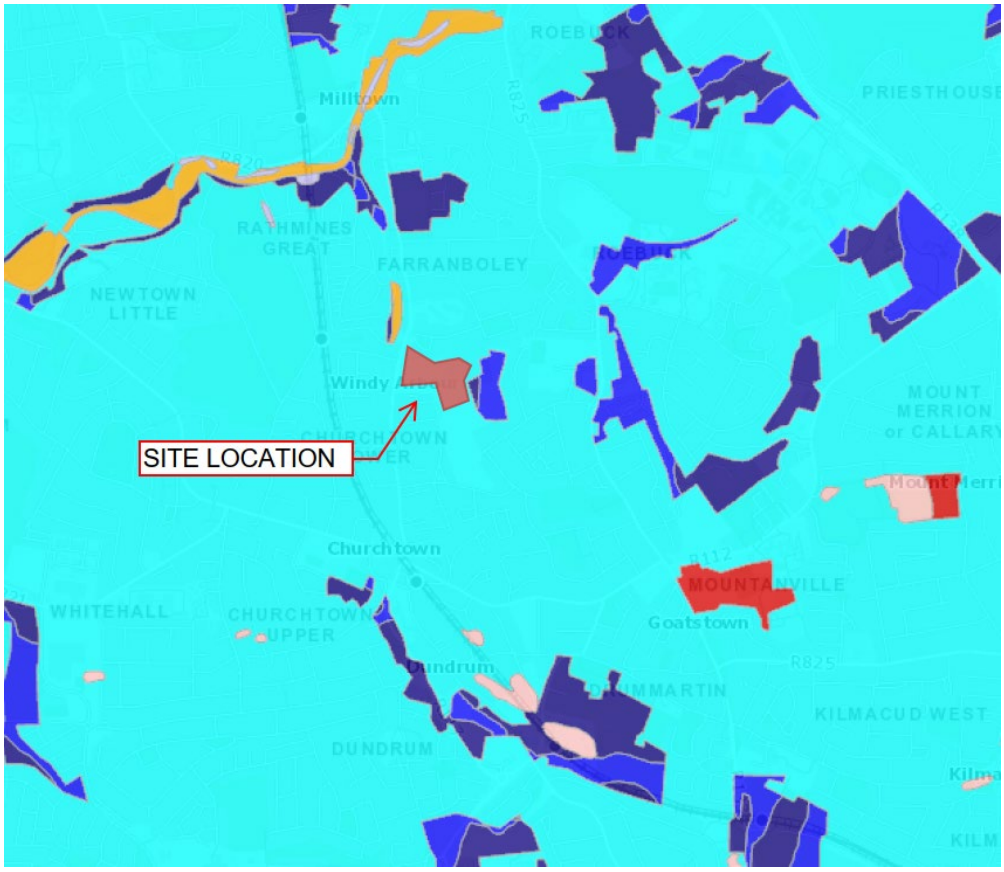


Figure 9.6 – Extract from Teagasc Soil Map (Teagasc, n.d.) (blue = urban soil types)

6.4 Potential Impacts of the Proposed Project

6.4.1 Construction Phase

6.4.1.1 Direct

The predicted direct impacts of the proposed development on the land and soils of the surrounding environment are assessed in this section for the construction phase.

Houses in the development will have shallow strip foundations. Apartment Buildings will be supported on piled foundations, which will extend until they reach the bedrock, approximately 8.5m below ground level. They will be driven approximately 500mm into the rock. The piled foundations will have limited impact on the bedrock below, due to the capacity of the limestone to support the proposed foundations. There is potential for new hydrological pathways to be developed with the introduction of holes within the bedrock, however this is highly unlikely due to the type of bedrock and the knowledge that the area is a "locally important aquifer". A locally important aquifer is an aquifer with a limited and relatively poorly connected network of fractures, fissures and joints, giving low permeability which tends to decrease further with depth. This is corroborated with the infiltration results from the site investigation.

It is anticipated that the general development site works, and excavation proposals will not impact the underlying bedrock geology during the construction phase. The maximum excavation depth for lift pits in basements is anticipated to extend to a depth of 4.5m below ground level. The impacts on the underlying bedrock geology arising from the construction phase will be minimal, with maximum excavation depths terminating c.4.0m above encountered bedrock levels.

The initial development of the site will involve extensive stripping of the topsoil and existing hardstanding (approximately the upper 300mm of soil). Excavation of subsoil layers is required to facilitate site development works, in particular the construction of foul and surface water sewers and underground surface water storage structures (attenuation). Bulk excavation is also required for several basements in the development. Reusable excavated soils and rock will be retained on-site for backfilling or drainage purposes to reduce the total volume of imported & exported material. Non-reusable surplus subsoil caused by excavations for foundations, roads and drainage should be stockpiled and taken off-site to a licensed landfill facility.

The associated construction earthworks and the removal of the topsoil and site hardstanding will expose subsoil layers to the effects of weathering. This will result in the erosion of soil, particularly in times of adverse weather conditions. Final buildings, roads and landscaping will eliminate these impacts. It is anticipated that the impact on soils arising from the construction phase will be negative, temporary and not significant.

The bulk earthworks are associated with the site strip, basement excavation, provision for foundations and service trenches. The estimated earthworks quantities are set out in table 9.2 below. The material excavated in the site strip is expected to be either made ground or Brown Boulder clay. Brown Boulder clay leading to Black Boulder clay is expected to be encountered during bulk excavation for the basement. Rock is not expected to be present

within the excavated depth. The likely impact from the works will be moderate, permanent and negative.

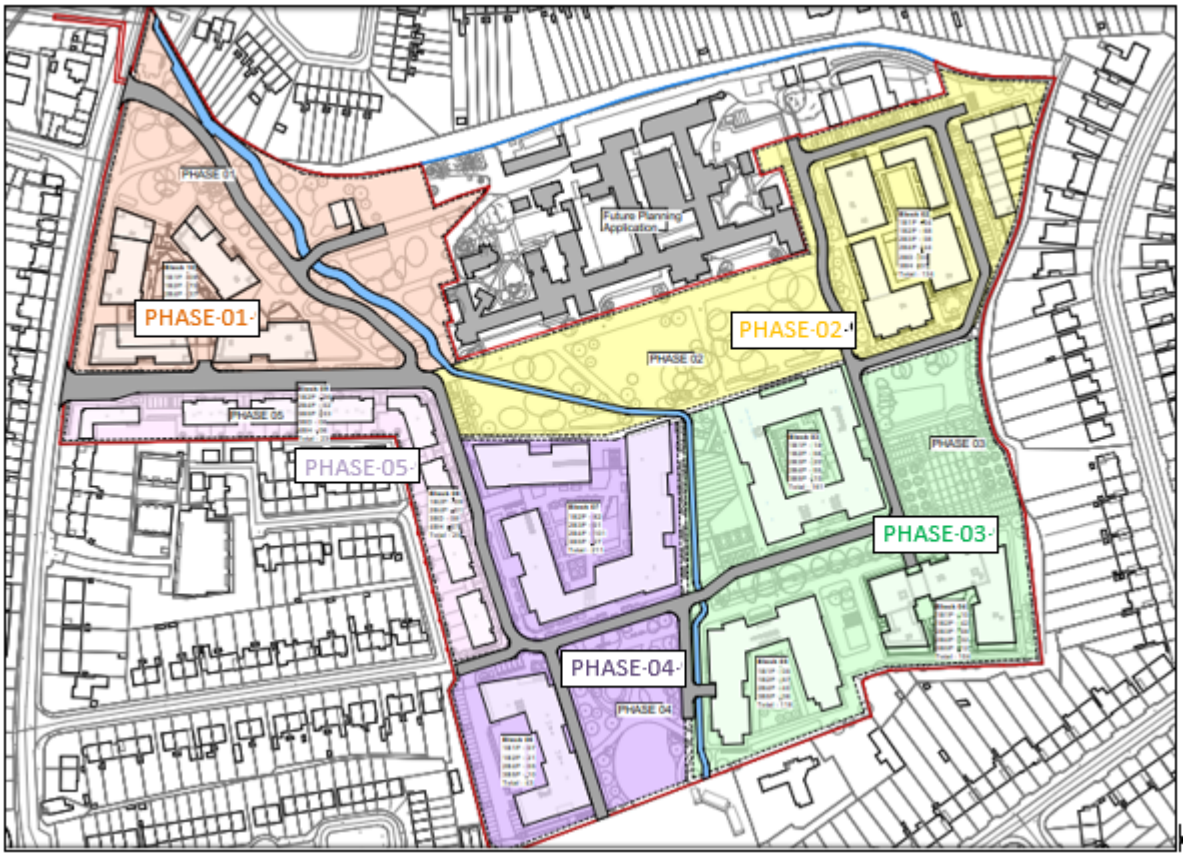


Figure 9.11 – Plan View of the Development Showing the Block Layout and Outline Phasing.

6.4.1.2 Indirect

There are areas of the site covered in hardstanding and it will be necessary to remove surplus and potentially hazardous materials (soil contaminated with fuel from tanks/vehicles) from the site via trucks. As part of the construction process, there will also be increased traffic to the site to facilitate the delivery of the required materials. Large volumes of stone will be required for construction of the roads, foundations and services and large quantities of concrete, bricks, steel, tar etc. will also be required for the construction works on-site.

The regular movement of heavy machinery and plant to and from the site would also result in an increased risk to the integrity of the surrounding road network, as well as facilitating the unwelcome transfer of mud and dust to surrounding access routes in the absence of mitigation.

6.4.1.3 Worst Case Scenario

There is a potential risk of localised contamination of the land and soils due to the accidental release of diesel fuel or similar hazardous materials during the construction phase, through the failure of secondary containment or a material handling accident on the site, resulting in a negative, moderate, permanent impact on the land and soils. Appropriate remediation

measures would be required depending on the nature and extent of any contamination caused under such a scenario. Potential remediation measures may include the excavation and treatment of contaminated soil and in-situ remediation techniques.

Small amounts of asbestos may be encountered as part of the demolition of existing infrastructure on site. Asbestos survey to be prepared in advance of any works being undertaken on site. In the unlikely event that asbestos is encountered DLRCC are to be notified immediately, and a specialist contractor is to be commissioned to remove and dispose of any asbestos safely.

6.4.2 Operational Phase

6.4.2.1 Direct

Buildings, roads and landscaping for the development will negate the initial negative impact from the construction phase and will protect the exposed soils from ongoing weathering and erosion. The affects to the land & soils from the operational phase of the project will be neutral, imperceptible, and permanent.

6.4.2.2 Indirect

No indirect impacts on the land and soils are predicted for the operational phase.

6.4.2.3 Worst Case Scenario

On completion of the construction phase, it is not envisaged that there would be a further direct impact on the soil or geological structure. The day-to-day activities of the completed development would be unlikely to have any direct impact on the land and soils in the surrounding environment.

6.6 Residual Impacts

6.6.1 Construction Phase

The residual impacts are the final or intended effects which occur after the proposed mitigation measures have been implemented. The residual impacts from the construction phase of the development on the land and soils in the surrounding environment will be negative, temporary, and not significant.

6.6.2 Operational Phase

The residual impacts on the surrounding land and soils environment due to the operational phase works will be neutral, imperceptible, and permanent.

7.0 HYDROLOGY – SURFACE WATER

7.1 Introduction

This chapter of the EIA Report assesses and evaluates the potential impacts of the development on the hydrological aspects of the site and surrounding area.

7.2 Methodology

This chapter evaluates the effects, if any, which the development has had or will have on Hydrology as defined in the Environmental Protection Agency (EPA) 'Draft Guidelines on the Information to be contained in Environmental Impact Assessment Reports' (EPA, 2017). In addition, the document entitled 'Guidelines on Procedures for Assessment and Treatment of Geology, Hydrology and Hydrogeology for National Road Schemes' by the National Roads Authority (NRA, 2009) is referenced where the methodology for assessment of impact is appropriate.

7.3 Baseline Environment

The Slang River runs from south of Dundrum Village northwards down to the River Dodder and passes c. 70 m west of the western site boundary on the Dundrum Road. There is no direct hydrological connection between the site and the Slang River. However, there is an indirect connection to the River Slang through surface water drainage on the existing site.

With regard to the local drainage, drainage ditch runs through the site and northwards along the eastern boundary. The existing buildings on site discharging to a combined drainage system on site. This system discharges to the 300mm diameter combined sewer in the Dundrum Road, connecting at the current site entrance.

A 525mm diameter surface water sewer enters the south side of the site from Rosemount Green. This connects into an open drainage ditch which runs west to east across the site along the southern edge of the walled garden and discharges through a grated opening in the boundary wall where it continues as a drainage ditch running northwards just along and outside of the east boundary wall. This ditch joins to the Elm Park Stream in Goatstown c. 220m from the subject proposed development site. The Elm Park Stream is culverted for part of its course and discharges through UCD before emerging in Elm Park Golf Course, from where the watercourse finally discharges to Dublin Bay coastal waterbody just south at Merrion Gates c. 2.8 Km to the northeast of the subject site. The existing surface water sewer mentioned above would have replaced the old Mulvey Park stream which used to drain the area from Taney hill, south of the site, prior to urbanisation. Therefore, there is a hydrological connection between the drainage ditches on site to the Elm Park Stream.

The foul drainage from the existing buildings on site drains to a combined drainage system on site which discharges to the 300mm diameter combined sewer on the Dundrum Road. The combined sewer drains in a northerly direction towards the Dodder River and eventually discharges into Ringsend WWTP.

The Slang River in this area is associated with the WFD surface waterbody Dodder_050. The most recent published status of this waterbody is 'Moderate' and its environmental risk is

qualified by the WFD as 'At Risk of not achieving good status'. The Elm Park Stream does not have an assigned status and risk currently.

The developed site is shown not to be at a significant risk from flooding and to not create a significant risk to adjoining areas or downstream.

The importance of the hydrological features at this site is rated as 'Low Importance'. based on the assessment that the attribute has a low quality significance or value on a local scale.

7.4 Potential Impacts of the Proposed Project

7.4.1 Construction Phase

The potential impacts of construction and environmental control measures proposed have been identified as follows:

- Increased Sediments Loading in Run-off
- Potential Contamination of Local Water Courses

7.4.2 Operational Phase

The potential impacts of construction and environmental control measures proposed have been identified as follows:

- Effects on Local Recharge due to Increase in Hardstanding Area
- Effects on Water Quality in Dublin Bay

The increase in hardstanding area will have a minor effect on local recharge to ground. There are no discharges to any open water courses included in the design. The projected surface water network has been designed to provide sufficient capacity to contain and convey all surface water runoff associated with the 1 in 100 year event to the attenuation basins without any overland flooding. Discharge flow is restricted to the greenfield equivalent runoff for the catchment areas.

7.5 Residual Impacts (post-mitigation)

The implementation of mitigation measures outlined in the EIAR chapter will ensure that the predicted impacts on the hydrological environment do not occur during the construction and operational phases and that the residual impact will be **short term-imperceptible-neutral** and **long term-imperceptible-neural**, respectively. Following the TII criteria for rating the magnitude and significance of impacts on the geological and hydrogeological related attributes, the magnitude of impact is considered **negligible**.

The cumulative impact is considered to be **short-term**, **neutral** and **imperceptible** during the construction phase and **short-term**, **neutral** and **imperceptible** during the operational phase.

8.0 AIR QUALITY AND CLIMATE

8.1 Introduction

This document assesses the likely impact on air quality and climate associated with the proposed development located on the lands of the Central Mental Hospital, Dublin 14.

8.2 Methodology

The construction phase assessment focused on identifying the existing baseline levels of PM_{10} and $PM_{2.5}$ in the region of the proposed development by an assessment of EPA monitoring data. Thereafter, the impact of the construction phase of the development on air quality was determined by a qualitative assessment of the nature and scale of dust generating construction activities associated with the proposed development.

The operational phase air quality assessment has been carried out following assessment procedures outlined in Transport Infrastructure Ireland's guidance document 'Guidelines for the Treatment of Air Quality During the Planning and Construction of National Road Schemes' (2011). This approach is considered best practice in the absence of Irish guidance and can be applied to any development that causes a change in traffic.

8.3 Baseline Environment

In terms of the existing air quality environment, data available from similar environments indicates that levels of nitrogen dioxide (NO_2), particulate matter less than 10 microns and particulate matter less than 2.5 microns (PM_{10}/$PM_{2.5}$) are, generally, well within the National and European Union (EU) ambient air quality standards.

The existing climate baseline can be determined by reference to data from the EPA on Ireland's total greenhouse gas (GHG) emissions and compliance with European Union's Effort Sharing Decision "EU 2020 Strategy" (Decision 406/2009/EC). The EPA estimate that Ireland had total GHG emissions of 57.70 Mt CO_2eq in 2020 with 44.38 MtCO_2eq of emissions associated with the ESD sectors for which compliance with the EU targets must be met. This is 6.73 Mt CO_2eq higher than Ireland's annual target for emissions in 2020. Emissions are predicted to continue to exceed the targets in future years.

8.4 Potential Impacts of the Proposed Project

8.4.1 Construction Phase

Impacts to air quality and climate can occur during both the construction and operational phases of the proposed development. With regard to the construction stage the greatest potential for air quality impacts is from fugitive dust emissions impacting nearby sensitive receptors. Impacts to climate can occur as a result of vehicle and machinery emissions. In terms of the operational stage air quality and climate impacts will predominantly occur as a result of the change in traffic flows on the local roads associated with the proposed development.

Any potential dust impacts can be mitigated through the use of best practice and minimisation measures which are outlined in Chapter 11. Therefore, dust impacts will be short-term and imperceptible at all nearby sensitive receptors. It is not predicted that significant impacts to climate will occur during the construction stage. Construction stage impacts to climate are predicted to be short-term, neutral and imperceptible.

8.4.2 Operational Phase

The local air quality modelling assessment of operational phase traffic concluded that levels of traffic-derived air pollutants resulting from the development will not exceed the ambient air quality standards either with or without the proposed development in place. Using the assessment criteria outlined in Transport Infrastructure Ireland's guidance document 'Guidelines for the Treatment of Air Quality During the Planning and Construction of National Road Schemes' (2011) the impact of the development in terms of NO_2 is long-term, localised, negative and imperceptible.

The proposed development is not predicted to significantly impact climate during the operational stage. Increases in traffic derived levels of CO_2 have been assessed against Ireland's EU GHG targets. Changes in CO_2 emissions are significantly below the EU targets and therefore the climatic impact in the operational stage is considered long-term, negative and imperceptible. In addition, the proposed development has been designed to minimise the impact to climate where possible during operation.

8.5 Residual Impacts (post-mitigation)

The best practice dust mitigation measures that will be put in place during construction of the proposed development will ensure that the impact of the development complies with all EU ambient air quality legislative limit values which are based on the protection of human health. Therefore, the impact of construction of the proposed development is likely to be short-term, localised, negative and imperceptible with respect to human health. Operational phase predicted concentrations of pollutants are predicted to be significantly below the EU standards, the impact to human health is predicted to be imperceptible, negative and long term.

No significant impacts to either air quality or climate are predicted during the construction or operational phases of the proposed development.

9.0 NOISE AND VIBRATION

9.1 Introduction

Chapter 12 of the EIAR provides information on the assessment of noise and vibration impacts on the surrounding environment during the construction and operational phases of the proposed residential SHD development on lands at the Central Mental Hospital, Dundrum Road, Dundrum, Dublin 14.

9.2 Methodology

When considering the potential impacts, the key sources will relate to the short-term phase of construction and the long-term impacts associated with the development as a whole once operational.

The Central Mental Hospital site is underpinned by a Masterplan which will also be assessed, for the purposes of cumulative impact assessment i.e. the proposed SHD residential development and the S34 application within the Central Mental Hospital site.

9.3 Baseline Environment

The existing and future noise and vibration environments across the development site and in the vicinity of the nearest existing NSLs are dictated by transportation sources in the study area including the R117 Dundrum Road and local road within the vicinity of the proposed development. Existing noise levels have been found to be typical of a suburban area.

9.4 Potential Impacts of the Proposed Project

9.4.1 Construction Phase

The demolition and construction phase will involve intrusive works and high noise activities, utilities and structural works, substructure and lower noise activities. The assessment has determined that there is the potential for some temporary significant noise impacts at the closest receptor locations when intrusive works are undertaken within close proximity, 30m to 50m, and within 10m to 20m from all other works.

However, these occurrences will only be temporary, and the vast majority of the construction works will take place at distances from the receptors where no significant impacts are predicted and the construction criterion will be complied with. Construction vibration impacts are neutral, not significant and short-term.

The use of best practice noise control measures, hours of operation, scheduling of works within appropriate time periods, strict construction noise limits and noise monitoring during this phase will ensure impacts are controlled to within the adopted criteria. Similarly, vibration impacts during the construction phase will be well controlled through the use of low impact equipment and adherence to strict limit values which will be subject to monitoring at the nearest sensitive buildings.

9.4.2 Operational Phase

During the operational phase, the predicted change in noise levels associated with additional traffic in the surrounding area required to facilitate the development is predicted to be of no significant impact along the existing road network. In the context of the existing noise environment, the overall contribution is considered to be of neutral, not significant and long-term impact to nearby residential locations.

Proprietary noise and vibration control measures will be employed as part of the detailed design in order to ensure that noise emissions from building services plant do not exceed the adopted criterion at any nearby NSLs. In addition, noise emissions should be broadband in nature and should not contain any tonal or impulsive elements.

Any change in noise levels associated with other potential sources of noise in the vicinity of the Proposed Development is expected to be not significant

In addition the potential for inward noise effect on the proposed development has been assessed. The assessment was carried out with reference to the guidance contained in Professional Practice Guidance on Planning & Noise (ProPG), BS 8233:2014 *Guidance on Sound Insulation and Noise Reduction for Buildings* (BSI); and the local and national Noise Action Plans relevant to the area. Due to the noise environment from the R117 Dundrum Road Block 10 western facing facades are expected to require enhanced sound insulation specifications for glazing to achieve suitable internal noise levels. It has been found that all the inhabitants will have access to a quiet external area that is screened by the development itself from road traffic noise.

9.5 Residual Impacts (post-mitigation)

During periods when initial construction works are occurring at distances of up to 50m and other construction works at a distance of up to 20m from the nearest noise sensitive locations to the site boundary, there is potential for temporary, negative, moderate to significant noise impacts to occur. For the remainder of construction periods, construction noise impacts will be short-term, negative, slight to moderate. Vibration impacts during the construction phase will be neutral, short-term and imperceptible.

Cumulative noise levels associated with the construction phases have been considered and cumulative impacts are likely at the nearest receptor should all sites progress construction works simultaneously. Once cumulative construction impacts are considered and managed during the construction phase potential cumulative impacts on nearby sensitive receptors are expected to be negative, significant and short-term.

During the operational phase the predicted change in noise levels associated with additional traffic is expected to be neutral, not significant and long-term along the existing road network. The impact from building services and plant is predicted to be negative, not significant and long term.

During the operational phase any cumulative impacts will be due to an increase in road traffic noise. However, given the insignificant levels of noise increase as a result of the traffic associated with this proposed development, it is not expected that cumulative traffic noise will increase by any significant margin as a result of this proposed development.

10.0 LANDSCAPE AND VISUAL

10.1 Introduction

The Townscape and Visual chapter report describes the townscape/visual context of the proposed development and assesses the likely impacts of the scheme on the receiving environment, in terms of both townscape character and visual amenity. Townscape Impact Assessment relates to changes in the physical environment brought about by a proposed development, which may alter its composition and character. Visual Impact Assessment relates to changes in views experienced by people resident in different places and/or engaged in particular activities, which influences their sensitivity to such changes.

10.2 Methodology

Production of this Townscape and Visual Impact Assessment involved desk studies and fieldwork to establish the nature of the receiving environment and determine relevant planning policies in, particularly, the Dun Laoghaire Rathdown County Development Plan. The assessment of the significance of both townscape and visual impacts of the proposed development is determined by weighing the sensitivity of the townscape / visual receptor against the magnitude (scale and nature) of the impact. The 'quality' of the effect is also assessed in terms of whether the potential townscape / visual changes are deemed positive, neutral or negative relative to the existing baseline scenario.

This methodology is prescribed in the Institute of Environmental Management and Assessment (IEMA) and landscape Institute (UK) 'Guidelines for Landscape and Visual Impact Assessment' (GLVIA-2013), which is used as the basis for all such assessment in the UK and Ireland.

10.3 Baseline Environment

The Central Mental Hospital site itself comprises of the Main Hospital Building within the north-central portion of the land holding. This stone clad, three storey over basement, gothic-style facility has multiple wings and semi-enclosed internal circulation areas. Within the surrounding grounds is an array of lower and more modern structures along with associated car parking and vehicular circulation areas. Open areas consist of both formal gardens and parkland containing grass lawns and mature specimen trees. Around the entire perimeter of the site is an imposing c. 5m high stone wall.

Adjoining the site in almost all directions are mid-low density residential housing estates where the rear yards of dwellings are backed by the stone perimeter wall of the CMH site. The only exception is a portion of the southern boundary, which adjoins the northern end of a recreational open space accessed from Mount Carmel Avenue and a portion of the western Boundary wall, which fronts the Dundrum Road. Other key features of note within the wider study area include Dundrum Town Centre and the LUAS light rail line with its distinctive suspension bridge, which both lie to the south.

10.4 Potential Impacts of the Proposed Project

10.4.1 Construction Phase

Townscape and visual effects at construction stage will involve the movement of heavy vehicles to and from the site as well as tower cranes within the site. There will also be a gradual emergence of partially completed apartment buildings. Due to the intensity and rapidly evolving nature of the former, construction stage effects are deemed to be Moderate and Negative. It should be noted, however, that the substantial retention of the site perimeter wall will screen much of the ground-based activity and material stockpiling within the site from view.

10.4.2 Operational Phase

In terms of Townscape impacts, the operation phase of the proposed development represents a marked and comprehensive change to the land use of the site, the scale and nature of development within the site and its perception within its receiving environment. The completely insular CMH site, which currently serves as something of a perceptual void in the landscape fabric of Dundrum, will be transformed into a modern, outwardly bold, high density residential precinct. In the wider urban context, there is a strong functional and thematic relationship between the proposed development and the nearby Dundrum Town Centre.

The design of the development intends to strike a balance between the surrounding lower intensity residential neighbourhoods by terracing up in scale away from the site boundaries and retaining perimeter tree cover where possible. There are also direct open space connections to Rosemount Green to the south and the Dundrum Road to the northwest with sections of the imposing perimeter stone wall removed to facilitate this. It is considered that these design objectives are successful in integrating this development within its townscape setting particularly in a relative sense against the existing baseline of a 'perceptual void'. Consequently, the operational phase townscape impact is deemed to be Moderate / Positive.

In terms of visual impacts, seventeen representative viewpoints were used for the assessment from a range of viewing distances, angles and receptor contexts around the site. Most of these are within 1km of the site as early stage visibility mapping indicated that visibility of the proposed development reduces rapidly with increased viewing distance due to intervening screening from surrounding built development and vegetation. The majority of viewpoint assessments were in the lower range of visual impact magnitude due to limited visibility of the taller / closer elements of the proposed development rising just above intervening vegetation and buildings. In such cases there is not a strong sense of visual/ contextual legibility and the quality of the effects is generally considered to be Negative. By contrast, where the proposed development is more readily visible within its surrounding context and the design objectives are clearly presented, the magnitude of impact is deemed to be in the higher range, but the quality of effect is deemed to be Neutral or Positive.

10.5 Residual Impacts (post-mitigation)

In the case of this Townscape and Visual Impact Assessment, there are no specific mitigation measures proposed as the main siting, design and landscaping measures are all deemed appropriate and are integral to the design of the development as already assessed.

11.0 CULTURAL HERITAGE AND ARCHAEOLOGY

11.1 Introduction

This study assesses the impact, if any, on the archaeological and cultural heritage resource of a proposed development at the Central Mental Hospital, Dundrum Road, Dublin.

11.2 Methodology

The archaeology and cultural heritage assessment was undertaken in four phases. These included a desktop assessment, field inspection, a geophysical survey and a programme of archaeological test excavations. Results from the four phases of assessment were collated and the impacts of the proposed development on the archaeological and cultural heritage resource were defined in line with the EPA 2017 Draft Guidelines.

11.3 Baseline Environment

The proposed development area is located at the Central Mental Hospital campus, directly east of Dundrum Road, County Dublin. There are no recorded monuments located within the site, with the closest being the site of an ecclesiastical enclosure located c. 540m to the southwest (DU022-016001).

An archaeological geophysical survey was carried out across the proposed development area in April 2021 (Leigh 2021; Licence No. 21R0015). The survey successfully identified traces of a possible rectilinear enclosure measuring c. 12m x 9m, which was also identified in satellite imagery. An area of possible rubble material, which may represent a former building was also identified during the survey. Linear features which correspond to field boundaries shown on historic mapping, as well as an additional field boundary not shown on historic mapping were also noted within the proposed development area.

Archaeological test excavations were carried out at the site in October 2021 under licence no. 21E0610 (Piera 2021). The trenches targeted geophysical anomalies and open green space to fully investigate the archaeological potential of the site. The test excavations revealed 5 areas of archaeological significance, which have been designated as Archaeological Areas AA1-AA5. These comprise two small enclosures dating to the post-medieval era (AA1-2), a kiln (AA3), an isolated pit (AA4) and a cluster of hearths with postholes (AA5).

Full detail on the history of the Central Lunatic Asylum is given in Chapter 15 of the EIAR. It is acknowledged that the original asylum structures and its associated designed landscape are on cultural heritage value, especially from a social history perspective. Specific assets include the main hospital building, perimeter wall, gate lodge, chapel, airing yards (20th century), hay barn and pig yards, farmyard buildings, walled garden including two covered entrances and the historic landscape. Whilst the overall cultural heritage of the site is considered in this chapter, the potential impacts on the architectural heritage is detailed in Chapter 15 and not repeated here.

11.4 Potential Impacts of the Proposed Project

11.4.1 Construction Phase

There will be a direct negative profound impact on the identified archaeological features in AA1-AA5. This will be caused by ground disturbances associated with the proposed development, which will truncate or remove the identified archaeological remains.

There may be a direct negative impact on previously unrecorded archaeological features or deposits that have the potential to survive beneath the current ground level and outside the footprint of the excavated test trenches. Impacts may range from moderate to profound negative dependant on the nature, extent and significance of any such identified remains. This will be caused by ground disturbances associated with the proposed development.

The Central Mental Asylum, as a complex of historic structures of social history significance (with some modern additions/alterations) within a designed landscape, will be affected by the construction of the proposed development due to alterations to some of the existing structures and construction within what was a private designed setting. The impact on the existing campus, from a cultural heritage perspective is considered to be direct, negative and significant.

11.4.2 Operational Phase

There are no predicted impacts to any archaeological assets during the operation of the proposed development. This is due to the fact that any recorded monuments within the study area are located over 500m from the proposed development and will not visually be affected by the operation of the development. In addition, the operation of the development will not affect any of the surrounding former demesne landscapes due to the fact that they have been fully developed and have lost their designed landscape character.

The operation of the proposed development will have a direct impact on the campus of the Central Mental Asylum, given its change of use, the additional of modern development and change from a private complex, to one that is publicly accessible. Given that the architectural heritage of the site will be accessible to the public, this does mitigate the impact, which is considered to be moderately negative.

11.5 Residual Impacts (post-mitigation)

Following the implementation of the above mitigation measures, there would be no residual impacts on the archaeological resource as the remains will be fully preserved by record.

Following the implementation of the mitigation measures laid out in Chapter 15, in relation to the architectural heritage resource, there would be a remaining moderate negative residual impact on the cultural heritage of the original asylum complex. This is offset by the fact that the site and its heritage, at operation, will be publicly accessible.

12.0 ARCHITECTURAL HERITAGE

12.1 Introduction

This chapter of the Environmental Impact Assessment Report has been prepared by Alastair Coey Architects, a RIAI Grade 1 accredited Conservation Practice. The chapter examines the likely impacts, both direct and indirect, on protected structures and other heritage assets. This assessment extends to both built-heritage within the site and in the wider area.

12.2 Methodology

Heritage assets affected or likely to be affected by the development have been identified and characterised. The characterisation has taken into consideration four principal areas which define overall heritage value; a) Evidential value present as a physical record of past human activity; b) Historical value that illustrates the connection of past people or events to the present; c) Aesthetic value that provide sensory and intellectual stimulation; and d) Communal value that contributes to a collective experience or memory.

Heritage assets have been assessed in terms of their sensitivity to change, and the degree to which the proposed development will impose change on the assets, directly or indirectly. The understanding of the sensitivity to change and the degree of change probable allows a quantitate and qualitative determination of the likely impact on the heritage assets. Impacts are determined to be Positive, Neutral or Negative, and the degree of impact is established, ranging from Very Significant to Negligible.

Where negative impacts are noted as a possibility, mitigation measures to reduce the severity of the impact or eliminate it are identified. These mitigation measures include i) Control over the height of proposed structures in proximity to Heritage Assets, ii) The retention and enhancement of historic landscape, iii) a sensitive approach to interventions in historic fabric, and iv) enhancing public access to heritage assets.

12.3 Baseline Environment

The Central Mental Hospital site, with some interventions and additions, largely retains the Country House Demesne model that was adopted at its inception. The pioneering approach to the treatment of the criminally insane that the CMH represented is directly evidenced by the composition of the site and the structures present. Those which have been identified as being of specific importance, and susceptible to change by the Development, are:

- The Main Hospital Building including its adjoined ancillary structures such as the dining-hall and infirmary/church.
- The Perimeter Wall which surrounds the site.
- The Gate Lodge.
- The Chapel.
- The ‘Airing Yards’ (patient exercise areas)
- The Farmstead Buildings including ancillary structures.
- The Walled Garden.

- The Historic Landscape.

12.4 Potential Impacts of the Proposed Project

12.4.1 Principal Potential Impacts

The principal potential impacts to Heritage Assets from the developments are:

- Impacts to the setting and context of the Main Hospital Building that arise from the siting of new residential buildings in proximity to it and within its curtilage. The Main Hospital Building, as planned and as it currently exists, is the dominant building on the site, and sits in the context of a park-land demesne. The proposed apartment blocks in close proximity to the Main Hospital Building impact this dominance, particularly in respect of their height. Their presence additionally changes the parkland character of their setting to be one more urban in character, impacting the aesthetic value of the existing building and its evidential role as a hospital set specifically in a landscape ascribed therapeutic value.

- Loss of historic fabric to the perimeter wall arising from the creation of new vehicular and pedestrian openings. A defining characteristic of the Perimeter Wall is its continuity. With the exception of the main vehicular entrance and some sporadic, and blanked-off, doorways it is unbroken over its c.1660m length. This complete enclosure makes a strong evidential contribution to the character of the site as being a parkland demesne. Punctures in the wall, as proposed for new pedestrian and cycle access, do not alter this character in any substantial sense, nor do the proposed sections of height-reduction. The complete removal of sections to create the necessary vehicular access routes does however alter the localised character of the perimeter wall.

- Impacts to the setting and context of the chapel, farmstead and walled garden. As with the Main Hospital Building these structures exist in a planned park-land setting. The insertion of new-build apartment blocks in that shared setting impacts the original and planned setting for those elements.

- Loss of Historic Landscape due to development. Although there have been changes to land-usage since the formal landscape was set out (creation of car-parking areas, late 20C built reception centre, the almost full abandonment of its productive agricultural and market-garden capacity) the Historic Landscape still reflects to a greater extent its original role as a therapeutic and productive resource. Development of housing on this land impacts this evidential value.

12.5 Residual Impacts (post-mitigation)

Impacts to the setting and context of heritage assets may be mitigated as noted in section 15.2. By the nature of the Heritage Assets, these mitigation measures are aimed principally at reducing the severity of the impact. With mitigation measures applied:

- The siting and massing of new-build elements will ensure that the dominance of the Main Hospital Building is not compromised, and the relationship it enjoys with the historic landscape in its immediate curtilage is retained and enhanced.

- Openings in the perimeter wall will be limited to those necessitated by the change of use of the site, and new openings will be sensitively and appropriately detailed. The perimeter wall will continue to be a defining feature of the site.

- The most significant elements of the Historic Landscape, that being the walled garden and the landscaping to the immediate south of the Main Hospital Building, will be retained and enhanced. Impacts to these will be reduced to the change in setting/context and the loss of extent.

13.0 MICROCLIMATE – WIND

13.1 Introduction

A wind microclimate study has been carried out to consider the possible wind patterns formed under both mean and peak wind conditions typically occurring on the site area, accounting for a scenario where the proposed development is inserted in the existing environment (*potential impact*) and, for a scenario where the proposed development is analysed together with the existing environment and any permitted development (not constructed yet) that can be influenced by the wind patterns generated by the proposed one (*cumulative impact*).

The potential receptors include those areas, in the surrounding of the development, which can be exposed to potential risks generated by the elevated wind speed or building massing wind effects. In particular:

- Amenity areas (pedestrian level), areas likely to be utilised for leisure purposes and as such should be comfortable surroundings.
- Pedestrian routes and seating areas – to determine if locations are comfortable for leisure activities.
- Entrance to the buildings – to determine if there is potential for pressure related issues for entrances or lobbies.
- Landscaped areas – where there are sheltered areas.
- Impact to existing or adjoining developments – where the proposed buildings will cause discomfort conditions through proximity related issues.

The acceptance criteria which define the acceptable wind velocities in relation to the perception of comfort level experienced while carrying out a specific pedestrian activity is known as the "*Lawson Criteria for Pedestrian Comfort and Distress*". Lawson Comfort and Distress Map have been produced to identify where a specific pedestrian activity can be carried out comfortably during most of the time.

The assessment has been simulating the applicable wind conditions Computational Fluid Dynamics (CFD). The scope of the numerical study is to simulate the wind around the development this to predicting under which wind speeds pedestrians will be exposed and what level of comfort pedestrian will experience when carrying out a specific activity (i.e. walking, strolling, sitting).

13.2 Methodology

The method for the study of wind microclimate combines the use of Computational Fluid Dynamics (CFD) to predict wind velocities and wind flow patterns, with the use of wind data from suitable meteorological station and the recommended comfort and safety standards (Lawson Criteria). The effect of the geometry, height and massing of the proposed development and existing surroundings including topography, ground roughness and

landscaping of the site, on local wind speed and direction is considered as well as the pedestrian activity to be expected (sitting, standing, strolling and fast walking).

The results of the assessment are presented in the form of contours map of the Lawson criteria at pedestrian level.

"Lawson Comfort and Distress Criteria " has been adopted for wind microclimate studies as a means of assessing the long term suitability of urban areas for walking or sitting, accounting for both microclimatic wind effects (i.e. site location and prevailing winds) and microclimatic air movement associated with wind forces influenced by the localised built environment forms and landscaping effects.

- Topography of the site with buildings (proposed and adjacent existing/permitted developments massing, depending on the scenario assessed "*baseline, proposed or cumulative*") have been modelled using CFD OpenFOAM Software.

- Suitable wind conditions have been determined based on historic wind data. Criteria and selected wind scenarios included means and peaks wind conditions that need to be assessed in relation to the Lawson Criteria.

- Computational Fluid Dynamics (CFD) has been used to simulate the local wind environment for the required scenarios ('baseline, proposed, cumulative").

- The impact of the proposed development massing on the local wind environment has been determined (showing the wind flows obtained at pedestrian level).

- Potential receptors (pedestrian areas) have been assessed through review of external amenity/public areas (generating the Lawson Comfort and Distress Map).

- Potential mitigation strategies for any building related discomfort conditions (where necessary) have been explored and their effect introduced in the CFD model produced.

The significance of on-site measurement locations are defined by comparing the wind comfort/safety levels with the intended pedestrian activity at each location, using the table provided by the Lawson Comfort and Distress Criteria.

The significance of off-site measurement locations are defined by comparing the wind comfort/safety levels with the intended pedestrian activity at each location, prior and after the introduction of the proposed development.

13.3 Baseline Environment

The wind microclimate of the baseline environment is defined by the wind patterns that develop on the existing site under the baseline wind conditions.

There is not designated public area in the existing context, therefore the application of the Lawson Criteria was not necessary as potential receptors will use the area, for the different designated scope, when the proposed development will be constructed. However, the map

of Comfort and Distress was produced as a mean of understanding the wind patterns of the site generated by the local wind climate.

For assessing the wind microclimate for the proposed development, the study has considered the site exposed to all the wind directions which exceed the 5% of frequency, as required for the Lawson Criteria and some additional high-speed winds, which are occurring less often (below 5% of the times) but that can cause distress conditions because of their speed.

13.4 Potential Impacts of the Proposed Project

13.4.1 Construction Phase

As construction of the Central Mental Hospital, Dundrum Road Development progresses, the wind conditions at the site would gradually adjust to those of the completed development. During the construction phase, wind conditions will be in line with the baseline wind microclimate and the effect on potential receptors (pedestrians) can be considered negligible. Furthermore, the areas more sensitive for receptors (Park, Public Plaza) are potentially not going to be used until construction will be finalised.

13.4.2 Operational Phase

The assessment of the proposed scenario has shown that no area is unsafe and no conditions of distress are created by the proposed development. All the roads proposed can be used for their intended scope (walking). The proposed Parks and the Public Plaza can be used for long-term sitting/short term-sitting. The wind microclimate of the proposed development is comfortable and usable for pedestrians. As result of the proposed development construction, the wind on the surrounding urban context is also mitigates when compared with the same baseline situation, in this sense the proposed development has a beneficial effect on the surrounding wind microclimate.

13.5 Residual Impacts (post-mitigation)

Wind cannot be eliminated or totally mitigated as it depends on weather conditions which could vary. The data of the historical wind conditions collected and reported in the previous sections, show that the wind speeds likely to occur on the site are below critical values and that pleasant and comfortable microclimate can be maintained for most of the time and under the most frequent wind scenarios.

Gusts and storms can still occur however, and they can create unpleasant and sometimes unsafe conditions. The pedestrian activities concerning the Lawson Comfort and Distress Criteria are not in general carried out during those weather conditions.

Having considered the above, no further changes to the development design and further increasing of the landscaping is suggested, as safety and pedestrian comfort is maintained in accordance with Lawson Comfort and Distress Criteria.

14.0 MATERIAL ASSETS - ROADS AND TRAFFIC

14.1 Introduction

The Traffic and Transport chapter of the Environmental Impact Assessment Report (EIAR) has been prepared by ILTP Consulting (ILTP) and assesses any likely and significant impacts associated with traffic due to the proposed development. Mitigation measures are proposed where negative effects are identified.

14.2 Methodology

ILTP coordinated traffic count surveys undertaken in November 2021 in order to collate the full set of traffic data considered necessary to support the planning application for the proposed development.

ILTP conducted an assessment of available information on projected traffic trends, including the Transport Strategy for the Greater Dublin Area, the current Dun Laoghaire Rathdown Development Plan 2016 – 2022 and Smarter Travel a Sustainable Transport Future.

ILTP estimated the level of traffic that would be generated by the proposed development and added these figures to the base flows. A Picady analysis was also undertaken to assess the capacity of the upgraded northern access and proposed southern access onto Dundrum Road (R117). Picady and LinSig Traffic Signal Junction modelling software was also utilised to assess the capacity of the adjacent junctions with the proposed development in place.

From these results a conclusion could be drawn as to the impact that the development will have on the overall traffic flows. Once details were available ILTP then assessed what impact the development had on the road network.

A study of public transport provisions in the area was also carried out to determine the likely usage of public transport services by residents, staff and customers to the new development.

As part of the Traffic & Transport Assessment (TTA) undertaken, ILTP prepared a Mobility Management Plan for the proposed development, with the specific objectives of reducing in overall terms both the number of trips generated by the development and ensuring that greater numbers use the extensive public transport services in the immediate area.

ILTP also assessed the construction stage traffic impacts of the proposed development on the wider road network.

In terms of projecting future year traffic scenarios beyond the 2021 Base Year, the assumed Opening Year of the proposed development was taken to be 2024, with the Design Year taken as 2039.

14.3 Baseline Environment

The site of the proposed development is in Dundrum, Dublin 14. The planning application site is approximately 9.6 Ha in area and located approximately 5km from Dublin City Centre. The

area is largely residential with established schools, community and social facilities in the vicinity.

The proposed Dundrum Central Mental Hospital site is located in a well-established residential area and close to schools, University College Dublin, major retail facilities including Dundrum Town Centre, and local amenities. It is also within a short walk of the Luas Green Line and a variety of Bus services.

14.4 Potential Impacts of the Proposed Project

14.4.1 Construction Phase

Construction of the Proposed Development will have slight short-term negative impacts on the adjoining road network with construction traffic on Dundrum Road (R117) in the vicinity of the proposed access and on the assigned dedicated haul route.

Additional construction personnel car / light vehicle movements which will have an insignificant short-term adverse effect on the local road network during the construction works.

14.4.2 Operational Phase

The likely effect of the Proposed Development at operational stage will be additional traffic which may have a slight long-term adverse effect on the adjoining road network.

14.5 Residual Impacts (post-mitigation)

The implementation of mitigation measures during the construction and operational phases will ensure that the Proposed Development will not give rise to any likely significant long-term traffic impacts.

15.0 MATERIAL ASSETS – WASTE MANAGEMENT

15.1 Introduction

This Chapter of the EIA Report comprises an assessment and evaluation of the likely impact of the proposed Development on the waste generated from the development as well as identifying proposed mitigation measures to minimise any associated impacts.

15.2 Methodology

The assessment of the impacts of the proposed Development, arising from the consumption of resources and the generation of waste materials, was carried out taking into account the methodology specified in relevant guidance documents, along with an extensive document review to assist in identifying current and future requirements for waste management; including national and regional waste policy, waste strategies, management plans, legislative requirements and relevant reports.

15.3 Baseline Environment

15.3.1 Characteristics of the Proposed Development

A full description of the proposed Development can be found in Chapter 5 (Description of the Proposed Development). The characteristics of the proposed Development that are relevant in terms of waste management are summarised below.

15.3.1.1 Construction & Demolition Phase

There will be waste materials generated from the demolition and refurbishment of some of the existing buildings and hardstanding areas on site, as well as from the further excavation of the building foundations.

During the construction phase, waste will be produced from surplus materials such as broken or off-cuts of timber, plasterboard, concrete, tiles, bricks, etc. Waste from packaging (cardboard, plastic, timber) and oversupply of materials may also be generated. As well as this waste will also be generated from construction phase workers e.g. organic / food waste, dry mixed recyclables (waste paper, newspaper, plastic bottles, packaging, aluminium cans, tins and Tetra Pak cartons), mixed non-recyclables and, potentially, sewage sludge from temporary welfare facilities provided on-site during the Construction phase. Waste printer / toner cartridges, waste electrical and electronic equipment (WEEE) and waste batteries may also be generated in small volumes from site offices.

There will be soil and stone excavated to facilitate site preparation for the construction of building and road foundations. The volume of material has been estimated by the project engineer (Barrett Mahony) to be c. 56,677m^3. It is envisaged that all of the excavated material apart from 7,199m^3 (which will be reused as fill) will be required to be removed off site. Material moved offsite will be taken for offsite reuse, recovery and/or disposal.
Further detail on the waste materials likely to be generated during the excavation and construction works are presented in the project-specific C&D RWMP (Appendix 18.2). The

C&D RWMP provides an estimate of the main waste types likely to be generated during the Demolition and Construction phase of the proposed development.

18.3.1.3 Operational Phase

An Operational Waste Management Plan has been prepared which provides a strategy for segregation (at source), storage and collection of wastes generated within the development during the operational phase including dry mixed recyclables, organic waste, mixed non-recyclable waste and glass as well as providing a strategy for management of waste batteries, WEEE, printer/toner cartridges, chemicals, textiles, waste cooking oil, furniture and abandoned bicycles (Appendix 18.2). The Plan complies with all legal requirements, waste policies and best practice guidelines and demonstrates that the required storage areas have been incorporated into the design of the development.

The OWMP seeks to ensure the development contributes to the targets outlined in the EMR Waste Management Plan 2015 – 2021, Waste Action Plan for a Circular Economy – Waste Management Policy in Ireland and the DLRCC waste Bye-laws.

15.4 Potential Impacts of the Proposed Project

This section details the potential waste effects associated with the proposed Development.

15.4.1 Construction Phase

The potential impacts of construction and environmental control measures proposed have been identified as follows:

- Incorrect waste storage - vermin, litter and pollution
- Unauthorised waste contractors and facilities - illegal dumping and pollution
- Incorrect classification of excavated material - pollution of water and soil environments

15.4.2 Operational Phase

The potential impacts of operational and environmental control measures proposed have been identified as follows:

- Insufficient waste management and insufficient storage capacity.
- Increased landfill dependency and unnecessary use of landfills, litter, pollution and vermin.
- Unauthorised waste contractors and facilities - illegal dumping and pollution.

15.5 Residual Impacts (post-mitigation)

15.5.1 Construction Phase

A carefully planned approach to waste management as set out in Section 18.5 and adherence to the C&D RWMP (which include mitigation) during the construction phase will ensure that the predicted effect on the environment will be short-term, imperceptible and neutral.

15.5.2 Operational Phase

During the operational phase, a structured approach to waste management as set out in Section 18.5 and adherence to the OWMP (which include mitigation) will promote resource efficiency and waste minimisation. Provided the mitigation measures are implemented and a high rate of reuse, recycling and recovery is achieved, the predicted effect of the operational phase on the environment will be long-term, imperceptible and neutral.

15.5.2 Conclusion

Assuming the full and proper implementation of the mitigation measures set out herein and in the C&D RWMP (Appendix 18.1) and the OWMP (Appendix 18.2), no likely significant negative effects are predicted to occur as a result of the construction or operational of the proposed Development.

16.0 MATERIAL ASSETS – BUILT SERVICES

16.1 Introduction

This chapter of the EIAR assesses the impacts of the proposed Strategic Housing Development (SHD) at the lands at the Central Mental Hospital, Dundrum Road, Dundrum, Dublin 14, on the Material Assets – Built Services, namely the Foul Drainage, Potable Water Supply, Electricity, Gas network and telecommunications on the environment and the surrounding area. This chapter of the EIAR should be read in conjunction with the architectural and engineering drawings submitted as part of this planning application. This chapter has been prepared by Barrett Mahony Consulting Engineers.

16.2 Methodology

The assessment of the potential impact of the proposed development on the water bodies was carried out according to the methodology specified by the EPA and the specific criteria set out in the Guidelines on Information to be Contained in an Environmental Impact Statement (EPA 2002 and 2017 (Draft)), EIA Directive, Advice Notes on Current Practice (in preparation of Environmental Impact Statements) (EPA 2003), Environmental Impact Assessment (EIA), Guidance for Consent Authorities Regarding Sub-Threshold Development (DoEHLG 2003), Development Management Guidelines (DoEHLG, 2007) and Guidelines for Planning Authorities and An Bord Pleanála on Carrying out Environmental Impact Assessments August 2018.

The following sources of information were used in the completion of this assessment:

- Site Visits
- Site Investigation Report
- Civil Engineering Drawings Prepared by Barrett Mahony Consulting Engineers
- Geological Survey of Ireland (GSI) online maps and databases
- ECFRAMS Flood Mapping from OPW
- EPA online maps and databases
- Topographical Survey
- Local authority record drawings
- ESB record drawings
- BGE record drawings
- EIR record drawings
- Virgin Media record drawings

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

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

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

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

EDC contacted each electrical, comms and gas utility provider in order to determine the existing infrastructure in the area in and around the site.

16.3 Baseline Environment

16.3.1 General

The subject site is c9.6 ha and is currently occupied by the Central Mental Hospital. There are other ancillary buildings on the site which are proposed to be demolished as part of the works, these include a swimming pool/sports hall, 2-storey red-brick building and temporary structures including portacabins.

The site is bounded on all sides by a boundary wall. The main point of access to the site will be via the Dundrum Road (R117) to the west. There is a general slope down from the high point of the southern side (+45.21m) to the northern end of the site (+39.31m).

16.3.2 Foul Water Drainage

The foul drainage from the existing buildings on site drains to a combined drainage system on site which discharges to the Ø300mm combined buried sewer on the Dundrum Road. The combined sewer drains in a northerly direction towards the Dodder Valley Sewer System.

16.3.3 Potable Water Supply

There is an existing 9-inch buried public watermain in Dundrum Road. The existing buildings on site are serviced from this main. This watermain is to be upgraded to a ø250mm HDPE pipe, to Irish Water requirements, to cater for the development.

16.3.4 Natural Gas

The site is served by a 250mm main entering Northwest on the site per diagram below. The pipe at 25mBar low-pressure gas network entering Northwest and extends to the Central Mental Hospital. See map that follows. There is an existing pressure reducing station within the site and the existing gas lines feed the hospital and swimming pool building.

16.3.4 Electricity

The existing site consists of 2 ESBN supplies fed from 2 separate substations located on Larchfield Road and opposite St. Columbanus Road. Connection 1 is rated at

10KV/20KV/400V/230V and consists of an overhead line terminating at the end of Larchfield Road South of the site.

Connection 1 is tapped from the overhead line and is installed underground and terminates South of the site.

Connection 2 extends from the substation opposite St. Columbanus Road and terminates within the Central Mental Hospital grounds North of the main building. Connection 2 is rated at 10KV/20KV/400V/230V.

16.3.4 Telecommunications

The Central Mental Hospital is currently fed from the EIR network. The EIR network enters the site from the Dundrum Road.

Virgin Media, although entering the site currently, is also currently available in the area with ample coverage around the site. A Virgin Media network extends around the perimeter wall adjacent to Dundrum Road. Refer to drawing that follows.

16.4 Characteristics of the Proposed Development

16.4.1 Gas

To inform the proposed MEP utility requirements of the scheme some fundamental design principles were formed for the scheme. For example, a district heating system to supply the apartment blocks (primarily fuelled by air source heat pumps) and individual air source heat pumps for the townhouses. This then limits the requirement for natural gas to just restaurants, back up boilers and similar commercial type uses.

The new development will primarily require electrical driven heat pumps and air source heat pumps, so the gas load is anticipated to be limited to commercial facilities and possibly back up gas boilers for the DH system. The new gas load is forecasted to be in the order of 4.5-5MW and following discussions with BGE is not anticipated to be a concern. If the load proves challenging at a later date in design development, there is a larger 315mm gas pipe available. The gas infrastructure in generally good in this area.

16.4.2 Electricity

The new development will require a new HV infrastructure that will feed multiple substations around the site. The substation requirement has been assessed and allowed for within the architectural layouts. The final design details to be clarified by the ESB post planning.

ESBN conducted a capacity study and released their findings in April 2021. To facilitate the development, ESBN confirmed that a new High Voltage supply is required. ESBN will install a 1Km new HV ring entering from the Southeast and connecting to the new substations via a HV ring circuit.

The new substation will require unobstructed 24/7 access for the ESB in line with their guidelines. A formalised application process to the ESB will be required post planning once the planning process is concluded.

16.4.3 Telecommunications

The new development will consist of approximately 9 Comms rooms – to be finalised during detailed internal design. Each apartment block and commercial unit will have individual comms rooms to facilitate telecommunications. The new development will consist of separate underground networks connecting to all new apartment blocks and commercial premises.

It is important to note that two alternative suppliers are available to the end tenants/users for broadband and telecoms services. This infrastructure will ensure that the LDA can provide current and next generation broadband to each home.

16.4.4 Foul Water Drainage

The proposed foul drainage system will be designed to take discharges from the new residential units. There is a small amount of commercial/retail space on site. Drainage from any kitchen/canteen facilities will discharge through a grease separator designed in accordance with IS EN 1825 Part 1 and Part 2 and to Irish Water requirements. The foul system will connect to the Irish Water network at the existing 300mm combined sewer in the Dundrum Road surface.

It is calculated that the proposed development will have a total hydraulic loading of 451m^3 per day of foul effluent generated during the operational phase of the development. This equates to an average flow of 5.17 litres/second (over a 24-hour period) and a peak flow of 16.06 litres/second.

A Pre-connection Enquiry application was submitted to Irish Water to confirm capacity in the receiving network and a Confirmation of Feasibility letter was obtained on the 23rd of September 2021. The letter included site specific comments. A controlled and limited foul drainage outflow from the site has been requested to limit the impact on the Irish Water receiving system. This has been addressed by the provision of a controlled flow wastewater pumping station on site. Refer to BM drawings nr C1220 and C1221, and refer to the Civil Engineering Infrastructure Report for further details. A Statement of Design Acceptance was issued by Irish Water for the development on the 3rd of March 2022.

16.4.5 Water Supply

The proposed development will be connected to the new Ø250mm public watermain in the Dundrum Road upgraded by Irish Water to accommodate this development as per the Irish Water Confirmation of Feasibility Letter.

The proposed watermain system through the site will vary between 250mm diameter, 200 diameter, 150mm diameter and 100mm diameter – as shown on Barrett Mahony drawing C1040.

The peak flow demand during the operational phase of the development will be 28.62 litres/second, equivalent to an average daily demand of 410m^3. The installation of low flow fittings for the development will reduce the demand on the existing water supply network.

A Pre-connection Enquiry application was submitted to Irish Water to confirm capacity in the network and a Confirmation of Feasibility Letter was obtained. Refer to the Civil Engineering Infrastructure Report for further details. A Statement of Design Acceptance was issued by Irish Water for the development on the 3rd of March 2022.

16.5 Potential Impacts of the Proposed Project

16.5.1 Construction Phase

16.5.1.1 Direct

Accidental spills of harmful substances such as petrol/diesel or oil during the delivery and storage of harmful substances or by leakages from construction machinery. Potential for building materials or silts to be washed into the surface water system, causing blockages and pollution.

During the connection of new mains to existing mains on site there is a small risk that contamination of the existing supply may occur. The potential impact on the local public water supply network would be short term and significant.

As part of the confirmation of feasibility, upgrade works are required. These works are outside the site extents and will be carried out independently by Irish Water.

Natural Gas Supply

The requirement for Gas will not impact the site as the gas usage is anticipated to be low. The impact is likely to be not significant.

Electrical Supply

ESBN conducted a capacity study and released their findings in April 2021. To facilitate the development, ESBN confirmed that a new High Voltage supply is required. ESBN will install a 1Km new HV ring entering from the Southeast and connecting to the new substations via a HV ring circuit.

The impact is likely to be neutral, imperceptible, and temporary.

Telecommunications

EIR/Virgin Duct networks can be extended along roadways to service the development. The impact is likely to be neutral, imperceptible and temporary.

16.5.1.2 Indirect

There is not anticipated to be any indirect affects to the built assets during the construction phase.

16.5.1.3 Worst Case Scenario

The worst-case scenario is that flooding occurs on-site and in the surrounding area due to this development. On-site measures are to be provided during construction as outlined in this chapter and the water chapter, to ensure such flooding does not occur.

16.5.2 Operational Phase

16.5.2.1 Direct

Given the proposed residential usage, there is very little risk of accidental spillages resulting in water quality issues during the operational stage.

The development will result in an increase in the wastewater discharged from the site to the public sewer system. The foul outflow from the site will be directed to the municipal treatment plant at Ringsend. Upgrade works are needed as the plant is not currently meeting its requirements under the Urban Wastewater Treatment Directive and increased outflow from development such as the proposed development will increase loading on the Ringsend WWTP. However, planning permission has recently been granted, under Bord Order ABP-301798-18 for an expansion to the WWTP at Ringsend which will increase network capacity by 50%. Irish Water have also confirmed feasibility for connection of the proposed development to the existing public sewer system subject to controlled flow provisions on the new development. Therefore, any impact from the increased wastewater flows on the existing drainage network will be temporary and not significant.

There exists a minor risk associated with the possibility of leakage from damaged foul sewers and drains within the development site. Any foul water leakage could result in minor contamination of groundwater in the area. The current foul water drainage system that is on site will need to be replaced. Placing a new system on site reduces the overall risk of leakage from damaged sewers.

Basement and undercroft car parking areas on site will discharge to the foul system via a petrol interceptor to prevent pollution from accidental oil spills.

The new development will lead to an increase in the water supply demand on the public water supply network. Irish Water has confirmed that there is capacity in the system to take additional demand. An upgrade to the existing public watermain on the Dundrum Road has been requested by Irish Water to facilitate the connection from the site. There is very little likelihood or accidental damage occurring to the water supply system during the operational phase of the development.

Natural Gas Supply

As there is very small requirement for Gas this will not impact the site. The impact is negligible and will be less than or similar to existing usage.

Electrical Supply

The impact of the proposed SHD development on the electricity supply is likely to be an increase in demand on the existing supply.

We have engaged with the ESB and they have advised that there will be capacity following a HT upgrade to facilitate the project.

The potential impact of the proposed SHD development on the electricity network is likely to be neutral.

Telecommunications

EIR & Virgin Duct networks are to be extended along roadway to service the SHD. The potential impact of the proposed development on the EIR/Virgin networks is likely to be neutral.

16.5.2.3 Worst Case Scenario

The worst-case scenario would be a failure of one of the systems on the site, which may cause flooding or pollutants to enter the surrounding environment and cause negative effects. There is very little risk of this occurring during the operational stage.

16.5 Residual Impacts (post-mitigation)

Implementation of the mitigation measures and adherence to the Construction and Environmental Management Plan prepared for the project will ensure that any potential residual impacts will be short term and negligible.

17.0 INTERACTIONS

17.1 Introduction

This Chapter of the EIAR has been prepared by Tom Phillips + Associates and deals with likely interactions between effects predicted as a result of the proposed development.

In addition to the requirement under the *Planning and Development Regulations 2001 (as amended)* to describe the likely significant effects of the proposed development on particular aspects of the environment, it is also required to consider the interaction between impacts on different environmental factors. As such, these are assessed below.

The interaction of effects within the Proposed Development in respect of each of the environmental factors, listed in Article 3(1) of the EIA Directive, has been identified and addressed in the respective chapters in this EIAR. This chapter presents an overview of these interactions of impacts, from the Proposed Development, between the various environmental factors.

This Chapter outlines the areas where potential interactions may arise as a result of the proposed development.

The potential cumulative impact of the proposed development with committed or planned development projects in the surrounding area is also recognised as an interaction between potential environmental impacts. Cumulative impact has been addressed in detail in Chapter 21 of the EIAR and Chapter 18 of this NTS.

17.2 Description of Potential Interactions

All aspects of the environment are likely to interact to some extent and to various degrees of complexity. The likely significant interactions between factors arising from the proposed development are set out in the matrix provided as Table 20.1 below.

Table 17.1: summary of interactions between effects predicted as a result of the proposed development.

Interactions Between Environmental Factors												
	Population & Human Health	Biodiversity	Land, Soils, Geology and Hydrogeology	Hydrology	Air Quality/ Climate	Noise & Vibration	Landscape & Visual	Architectural Heritage	Cultural Heritage and Archaeology	Roads and Traffic	Waste	Built Services
Population & Human Health					✓	✓						✓
Biodiversity				✓	✓			✓		✓	✓	
Land, Soils, Geology and Hydrogeology				✓					✓	✓		✓
Hydrology								✓				✓
Air Quality/ Climate										✓		
Noise & Vibration										✓		
Landscape & Visual								✓				
Architectural Heritage									✓			
Cultural Heritage and Archaeology												
Roads and Traffic												
Waste												
Built Services												

17.2.1 Interactions between *Population and Human Health* and *Land, Soils, Hydrology and Hydrogeology*

As set out in Chapter 7 and 9, there is the potential for public health issues to arise due to the contamination of the land and soils due to the construction works. If the proposed mitigation measures are applied during the construction process, then the danger to public health will be negative, imperceptible and short term.

17.2.2 Interactions between *Population and Human Health* and *Air Quality and Climate*

As set out in Chapter 7 and 11, there is potential for interaction between population, human health and air quality on the basis that an adverse impact due to air quality in either the construction or operational phase has the potential to cause health and dust nuisance issues. The mitigation measures that will be put in place at the proposed development will ensure that the impact of the proposed development complies with all ambient air quality legislative limits and therefore the predicted impact is short-term and imperceptible with respect to human health in the construction stage and long term and imperceptible with respect to human health in the operational phase.

17.2.3 Interactions between *Population and Human Health* and *Noise and Vibration*

As set out in Chapter 7 and 12, there is potential for population, human health and noise arising from noise/ vibration emissions during the construction phase. Whilst the potential for negative, significant and short-term impact at the closest receptors arises in respect of noise, with the proposed mitigation measures in place, it is not expected that any residual impact to human health will arise. It is further considered that with the proposed mitigation measures and design recommendations in place, there will also be no residual impact upon human health in respect to noise.

17.2.4 Interactions between *Population and Human Health* and *Landscape and Visual*

As set out in Chapters 7 and 13, there are potential interactions between population and human health and landscape and visual on the basis of the potential effects arising from visual effects upon surrounding existing dwellings and their occupants. However, as Chapter 13 confirms, even where the proposed development is more readily visible in its surrounding context, the magnitude of impact is deemed to be in the higher range, but the quality of effect is deemed to be neutral or positive. The impact upon population and human health is therefore not considered to be significant.

17.2.5 Interactions *between Population and Human Health* and *Material Assets (Roads and Traffic)*

As set out in Chapters 7 and 17, there are potential interactions between population and human health and material assets (roads and traffic) arising from increased traffic volumes at construction and operational phase and the associated impacts surrounding air quality and noise. However, as outlined within the respective chapters, with the proposed mitigation in place, the resultant potential impact is not considered to be significant.

17.2.6 Interactions between *Population and Human Health* and *Material Assets* (*Waste Management)*

As set out in Chapter 7 and 18, there are potential impacts on human beings are in relation to incorrect management of waste during construction and / or operation, which could result in littering and presence of vermin – with associated potential for negative impacts on human health and residential amenity. A carefully planned approach to waste management and adherence to the project specific C&D RWMP and OWMP (Appendices 18.1 and 18.2, respectively), will ensure appropriate management of waste and avoid any negative impacts on the local population. The effects should be long-term, imperceptible and neutral.

17.2.7 Interactions *between Population and Human Health* and *Material Assets (Built Services)*

As identified by Chapter 7 and Chapter 19, there is the potential for the built services to interact with population and human health on the basis that there is the potential for public health issues to arise due to the contamination of the surrounding water service networks due to the construction works. There is a potential for disruption to services due to accidents on site during the construction process. If the proposed mitigation measures are applied during the construction process, then the danger to public health will be negative, imperceptible and short term.

17.2.8 Interactions between *Biodiversity* and *Land, Soils, Geology and Hydrogeology*

As set out in Chapter 8 and 9, there is a potential interaction between biodiversity and land, soils, geology and hydrogeology during the construction phase where excavation and re-profiling works are proposed. This is identified as having the potential to give rise to local biodiversity impacts resulting from the loss of some vegetation on site, but this is but this is not expected to impact significantly on surrounding areas Following the implementation of mitigation measures outlined in Chapter 8 and Chapter 9, the predicted effects on biodiversity are short to long term, imperceptible, and neutral**.** The biodiversity of the subject site is likely to improve following the completion of landscaping works.

17.2.9 Interactions between *Biodiversity* and *Hydrology*

As set out in Chapters 8 and 10, there are potential interactions between biodiversity and hydrology. This is identified on the basis that during the construction and operational phases of development, there is the potential for downstream impacts on the on-site drainage ditches, proximate watercourses, and designated conservation sites via contaminated surface water runoff. Following the implementation of mitigation measures outlined in Chapter 8 and Chapter 10, the predicted effects on biodiversity are short term, imperceptible, and neutral.

17.2.10 Interactions between *Biodiversity* and *Air Quality and Climate*

As set out in Chapter 8 and 11, there is potential for interactions between biodiversity and air quality and climate. This has been identified on the basis that during the construction phase of development, given the nature and scale of the proposed works, there is the potential for dust and materials to enter the existing surface water sewer, drainage ditches, and proximate watercourses during site clearance and re-profiling works with the potential for downstream impacts on biodiversity and designated conservation sites. Following the implementation of mitigation measures outlined in Chapter 8 and Chapter 11, the predicted effects on biodiversity are short term, imperceptible, and neutral.

17.2.11 Interactions between *Biodiversity* and *Noise and Vibration*

As set out in Chapter 8 and 12, there is potential for interactions between biodiversity and noise and vibration on the basis that during the operation phase of development there will be an increase in disturbance including noise and vibration that could potentially impact on birds on site. Following the implementation of mitigation measures outlined in Chapter 8 and

Chapter 12, the predicted effects are short term, slight imperceptible, and neutral outside the proposed development site.

17.2.12 Interactions between *Biodiversity* and *Material Assets (Waste)*

As set out in Chapter 8, there is potential for interaction between biodiversity and material assets (waste) on the basis that there is the potential for impacts on local biodiversity and the potential for downstream impacts on proximate watercourses and designated sites via the storage and transportation of waste and pollution from the subject site during the construction phase of development. Following the implementation of mitigation measures designed to reduce the amount of waste produced, manage the wastes generated responsibly and handle the waste in such a manner as to minimise the effects on the environment as outlined in Chapter 8 and Chapter 18, the predicted effects on biodiversity are short long term, imperceptible, and neutral.

Chapter 18 deals with this particular interaction in Section at 18.4.1.

17.2.13 Interactions between *Biodiversity* and *Material Assets (Built Services)*

As set out in Chapter 8 and 9, there is potential for interaction between biodiversity and material assets (built services). This is identified on the basis that during the construction phase of development, there is the potential for impacts on local biodiversity and downstream impacts on proximate watercourses and designated sites via excavation and installation works during the proposed implementation of infrastructure throughout the site. During the operational phase of development, there is a direct hydrological pathway to designated conservation sites located within Dublin Bay via surface water drainage. There is an indirect hydrological pathway to designated conservation sites located within Dublin Bay via the proposed outfall of foul wastewater drainage to Ringsend WwTP. Following the implementation of mitigation measures outlined in Chapter 8 and Chapter 18, the predicted effects on biodiversity are short and long term, imperceptible, and neutral.

17.2.14 Interactions between *Land, Soils, Geology and Hydrogeology* and *Hydrology*

As set out in Chapter 9, there are potential interactions between land, soils, geology and hydrogeology and surface water, with some surface water conveyed and stored in SuDS features such as soakaways and discharging to the ground where possible, replicating the existing greenfield site drainage as closely as possible. The likely impact will be permanent, slight and neutral.

Chapter 10 also notes that, during the construction phase, there is an inter-relationship between soils, geology and hydrogeology and surface water due to the potential increasing of sediments loading in run-off as a result of the excavation required to facilitate site levelling and construction of the new foundations. Adherence to the mitigation measures in Chapter 9 and 10 and the requirements of the CEMP, will ensure the effect is long-term, imperceptible and neutral.

17.2.15 Interactions between *Land, Soils, Geology and Hydrogeology* and *Material Assets (Roads and Traffic)*

As set out in Chapter 9, there are potential interactions between lands and soils and material assets (roads and traffic) on the basis that throughout the construction stage of the project, there will be an increase in traffic on the roads due to deliveries to and from the site, site personnel and construction works. This impact will be negative, temporary and significant. There will be an increase in traffic in the general vicinity of the site during the operational stage, this will be negative, permanent and slight.

17.2.16 Interactions between *Land, Soils, Geology and Hydrogeology* and *Material Assets (Waste)*

As set out in Chapter 9 and 18, during the construction phase, excavated soil, stone, clay and made ground (c. 56,677 m3) will be generated from the excavations required to facilitate site levelling and construction of the new foundations. It is estimated that c. 49,478 m3 of excavated material will need to be removed off-site. However, it is envisaged that c. 7,199 m3 material will be reused on-site as fill. Where material has to be taken off-site, it will be taken for reuse or recovery, where practical, with disposal as a last resort. Adherence to the mitigation measures in Chapter 9 & 18 and the requirements of the C&D RWMP (Appendix 18.1), will ensure the effect is long-term, imperceptible and neutral.

17.2.17 Interactions between *Land, Soils, Geology and Hydrogeology* and *Material Assets (Built Services)*

As set out in Chapters 9 and 19, there are potential interactions between lands and soils and material assets (built services) on the basis that during the installation process of the necessary built services, excavations will be required. These excavations will be limited in their depth and therefore any impact they have on the land, soils, geology, and hydrogeology will be negative, imperceptible, and temporary.

There are also interactions between land, soils, geology and hydrogeology and material assets, with the construction of basements and drainage/utilities impacting the quantity of soil and subsoil as these materials will be removed to facilitate construction. The likely impact will be moderate, permanent and negative.

17.2.18 Interactions between *Air Quality and Climate* and *Roads and Traffic*

Chapter 11 identifies potential interactions between air quality and climate and roads and traffic, noting that interactions between air quality and traffic can be significant. With increased traffic movements and reduced engine efficiency, i.e. due to congestion, the emissions of vehicles increase. The impacts of the proposed development on air quality are assessed by reviewing the change in annual average daily traffic on the surrounding road network and the proposed scheme. In this assessment, the impact of the interactions between traffic and air quality are considered to be imperceptible.

17.2.19 Interactions between *Air Quality and Climate* and *Land, Soils, Geology and Hydrogeology*

Chapter 9 and 11 identify potential interactions between air quality and climate and land and soils on the basis that construction phase activities such as land clearing, excavations, stockpiling of materials etc. have the potential for interactions between air quality and land and soils in the form of dust emissions. With the appropriate mitigation measures to prevent fugitive dust emissions, it is predicted that there will be no significant interactions between air quality and land and soils.

17.2.20 Interactions between *Noise and Vibration* and *Roads and Traffic*

Chapter 12 and 17 note potential interactions between noise and vibration and road and traffic on the basis that the noise impacts have been fully considered in respect of traffic flow projections associated with the development.

17.2.21 Interactions between *Architectural Heritage* and *Landscape (Townscape) and Visual*

Chapters 13 and 14 identify a potential interaction between architectural heritage landscape (townscape) and visual on the basis that the development of the historic landscape significantly changes the character of the development site, including views into and out of the site.

17.3.22 Interactions between *Cultural Heritage and Archaeology and Land, Soils, Geology and Hydrogeology*

Chapter 9 identifies a potential interaction between archaeology and land and soils on the basis that there is potential for direct impacts on archaeological features as a result of construction activities including ground excavation.

17.3.23 Interactions between *Microclimate - Wind* and *Landscape (Townscape) and Visual*

Chapter 16 notes an interaction between microclimate wind and landscape on the basis that the landscaping proposals are incorporated into the wind modelling.

17.3.24 Interactions between *Material Assets (Roads and Traffic)* and *Material Assets (Waste Management)*

As identified by Chapter 18, waste has the potential to interact with roads and traffic on the basis that local traffic and transportation will be impacted by the additional vehicle movements generated by removal of waste from the Site during the construction and operational phases of the proposed Development. The increase in vehicle movements as a result of waste generated during the construction phase will be temporary in duration. There will be an increase in vehicle movements in the area as a result of waste collections during the operational phase but these movement will be imperceptible in the context of the overall traffic and transportation increase. Traffic-related impacts during the construction and operational phases are addressed in Chapter 17 (Material Assets - Roads and Traffic). Provided the mitigation measures detailed in Chapter 17 & 18 and the requirements of the OWMP (included as Appendix 19.2) are adhered to, the predicted effects are short to long-term, imperceptible and neutral.

17.2.25 Interactions between *Archaeology and Cultural Heritage* and *Architectural Heritage*

Due to the nature of Chapters 14 and 15, there are potential interactions between *Archaeology and Cultural Heritage* and *Architectural Heritage* on the basis that heritage considerations form the basis of both chapters. It is however concluded in Chapter 14 that following the implementation of the mitigation measures laid out in Chapter 15, in relation to the architectural heritage resource, there would be a remaining moderate negative residual impact on the cultural heritage of the original asylum complex. This is offset by the fact that the site and its heritage, at operation, will be publicly accessible.

18.0 CUMULATIVE IMPACTS

18.1 Introduction

This Chapter has regard to the potential cumulative impact upon the environment arising from the proposed project, in combination with other developments (committed or planned projects) in the surrounding area. This Chapter should be read in conjunction with Section 3.7.1 and 3.7.2.

The accepted meaning of "cumulative impacts" is as set out in the Guidance on the Preparation of the EIA Report (Directive 2011/92/EU as amended by 2014/52/EU) as:

> "*changes to the environment that are caused by activities/projects in combination with other activities/projects.*"

This very broad interpretation has been further defined in the Irish context in the EPA's 2017 Guidelines on the Information to be Contained in Environmental Impact Assessment Report to mean:

> "*the addition of many minor or significant effects including effects of other projects, to create larger, more significant effects*".

The EPA guidance goes on to provide that while a single activity may itself result in a minor impact, it may, when combined with other impacts (minor or significant), result in a cumulative impact that is collectively significant.

Having regard to the built-up urban environment within which the subject lands are located, there is a significant amount of new development either under construction, permitted or proposed. In recognition of this, and the potential for cumulative impacts upon the environment, an extensive exercise has been undertaken to identify projects within the surrounding area that have the potential to give rise to cumulative impact, when considered in combination with the proposed development. The methodology surrounding the identification of relevant projects is set out below.

As noted throughout this EIAR, the future Section 34 planning application that will deliver the second component of the site wide Masterplan has been considered as a planned project for the purposes of cumulative impact assessment. Given the close relationship between this future project and the proposed SHD project, and the level of information known about this project by the Applicant Team, it is considered in greater detail.

18.2 Planned and Committed Projects

A number of development projects in the surrounding area have been identified as relevant to the assessment of environmental impacts associated with the proposed project, from a cumulative perspective. The methodology surrounding the selection of the below projects is detailed in Chapter 21 of the EIAR. Figure 18.1 shows the identified projects on a map.

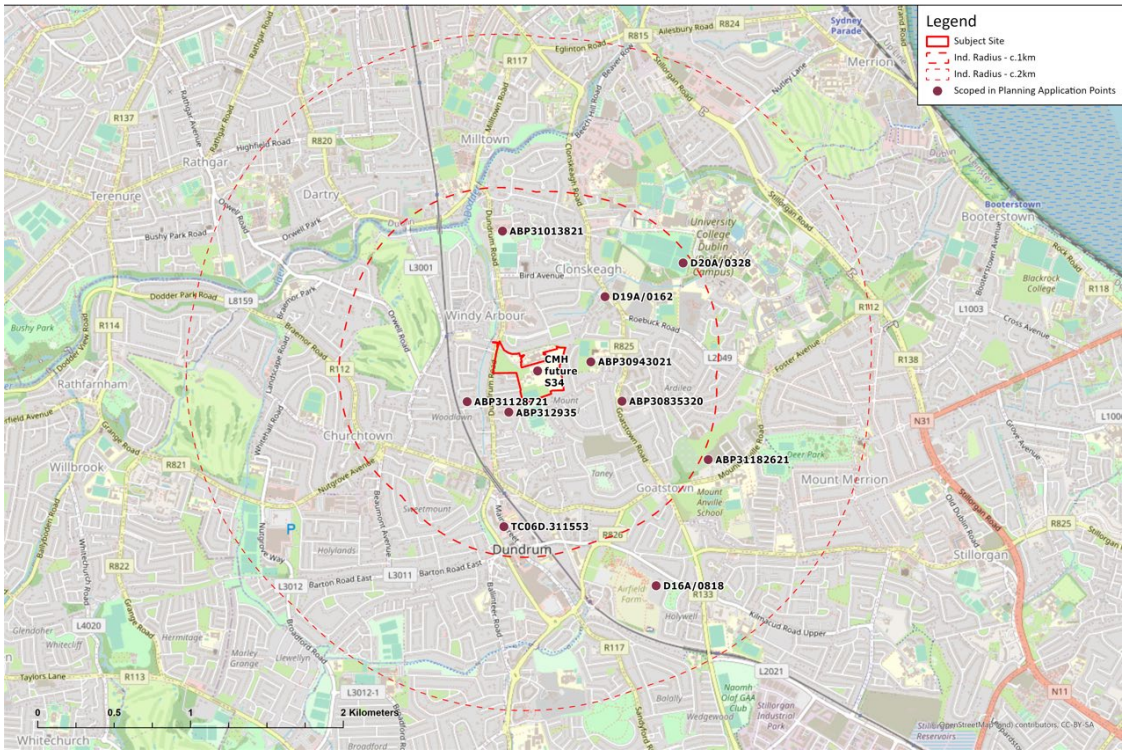


Figure 18.1: Map showing surrounding development selected for the purposes of cumulative impact assessment.

18.2.1 Committed (Permitted/ Under Construction) Projects

The below projects have been granted planning permission by Dún Laoghaire-Rathdown County Council (DLRCC) or An Bord Pleanála (ABP).

Table 18.1: Surrounding development permitted projects identified as relevant to the assessment of the proposed project.

DLRCC/ ABP Reg. Ref.	Address	Decision Date	Overview of Development
D16A/0818	Site of approximately 1.23 hectares at Greenacres, Kilmacud Road Upper, Dublin 14	11th Sept 2017	- Demolition c. 425 sq m - 120 no. apartments - 120 car parking spaces - 144 bicycle spaces
ABP310138-21	Mount Saint Mary's and Saint Joseph's, Dundrum Road, Dundrum, Dublin 14	25th Aug 2021	- SHD - Demolition 2,913.8 sq m - 231 no. residential units - After school childcare facility 161 sq m - Café 83 sq m

			- 118 no, car parking spaces - 462 no. cycle spaces - 4 no. motorcycle spaces
D19A/0162	Former Shell Garage, Roebuck Road, Clonskeagh, Dublin 14	8th August 2019	- Demolition - 43 no. residential units - 47 no. car parking spaces - 92 no. cycle parking spaces
ABP308353-20	The car sales premises currently known as Vector Motors (formerly known as Victor Motors), Goatstown Road, Dublin 14, D14FD23	3rd Feb 2021	- SHD (Student accommodation) - 960 sq m demolition - 239 no. bed spaces - 6 no car parking spaces
D20A/0328	University College Dublin, Belfield, Dublin 4	21st Jan 2021	- Extension to the existing car park to provide 239 no. additional car parking spaces, resulting in a total permanent surface car park comprising 300 no. car-parking spaces (61 no. existing spaces plus 239 no. new additional spaces). - The proposed development also seeks a modification of the Athletics Track development permitted under Dun Laoghaire Rathdown County Council Reg. Ref. D19A/0001, to omit 185 no. permitted

			temporary car parking spaces, resulting in a total of 70 no. temporary car parking spaces being delivered as part of the permitted Athletics track development.
ABP309430-21	2.12 ha at Our Lady's Grove, Goatstown Road, Dublin 14	3rd June 2021	- SHD - Student Accommodation - 698 no. bed spaces - 9 no. car parking - 4 no. motorcycle - 860 no. cycle parking
ABP311287-21	c.0.9ha at No. 97A Highfield Park (D14P710), and No. 1 Frankfort Castle (D14 HY03), No. 2 Frankfort Castle (D14DE72) and Frankfort Lodge (D14C9P2), Old Frankfort, Dublin 14	20th Dec 2021	- SHD - 115 no. residential units - 80 sq m creche

18.2.2 Planned Projects

The below projects are planned projects that are at various stages of the planning process. They key distinction from the projects listed above is that they do not have planning permission at the time of writing.

Table 18.2: Surrounding development planned projects identified as relevant to the assessment of the proposed project.

DLRCC/ ABP Reg. Ref.	Address	Lodgement Date/ Status	Overview of Development
ABP311826-21	Lands at Knockrabo, Mount Anville Road,, Goatstown, Dublin 14	Planning permission granted by ABP on 11th March 2022. (Was a 'Planned' Project at	- SHD (Amendment to permitted Phase 2) - 227 no. units (134 no. additional units from permitted SHD)

		the time of writing)	- 178 no. car parking spaces - 519 no. bicycle spaces
ABP312935-22	Sommerville House, Dundrum Road, Dublin 14.	Lodged on 7th March 2022 as a SHD with ABP. Decision due 27th June 2022	- SHD - 111 No. units - 39 no car parking spaces - 164 no. bicycle spaces
TC06D.311553	Old Dundrum Shopping Centre and Other Properties, Main Street, Dundrum, Dublin 14	Lodged as a SHD Pre-Application Consultation Request with ABP. ABP feedback provided on 14th Jan 2022.	- SHD (Consultation) - 884 no. apartments - Creche
N/A	Lands at Central Mental Hospital, Dundrum Road, Dundrum, Dublin 14	Pre-application engagement commenced with DLRCC. Planning application due to be lodged with DLRCC when the SHD (the proposed project) has been decided.	- 3,540 sq m demolition - 71 no. residential units - 5,566 sq m non-residential floorspace - 60 no. car parking spaces

18.2.3 Details of Future Planning Application at the Subject Lands

This section provides further detail in relation to the future planning application which will be submitted by the Applicant to Dún Laoghaire-Rathdown County Council under Section 34 of the *Planning and Development Act 2000* (as amended) once the proposed SHD project has

been decided. This proposal relates to the Central Mental Hospital lands and reflects the second component of the delivery of the site-wide Masterplan for the lands which is described in detail in Chapter 5 of this EIAR (the first component being this SHD 'the proposed project').

The proposed development strategy in respect of the delivery of the site-wide Masterplan is covered in depth in both the enclosed *Planning Report* and *Response to ABP Opinion*, prepared by Tom Phillips + Associates. The compatible, yet standalone, nature of the two relevant planning proposals is detailed within these reports.

For context and for the purposes of cumulative assessment, an overview of the Section 34 proposal is set out below, including an extract from the draft Site Plan for the Section 34 application showing the red line boundary and site layout.

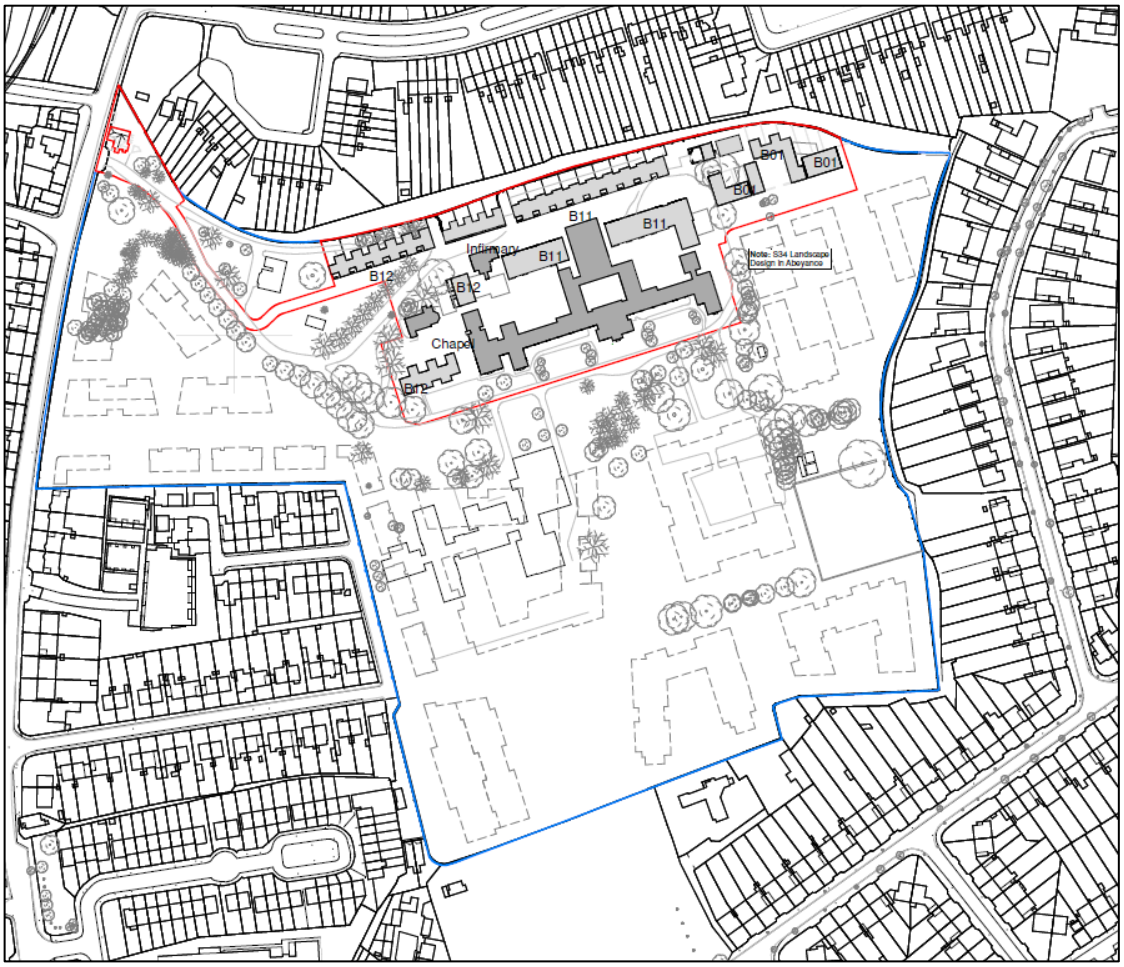


Figure 18.2: Extract from the draft Site Plan prepared by Reddy A+U for the Section 34 proposal at the Central Mental Hospital lands.

At the time of writing, it is envisaged that the future Section 34 proposal will comprise 71 no. residential units and 5,536 sq m of non-residential floorspace:

- 3,101 sq m of demolition, including:
  - Outbuildings and ancillary structures to rear of Main Hospital Building;
  - Eastern wing of Main Hospital Building (later addition to building);
  - Chimney structure;

- Structures adjacent to farm buildings.

- Change of use and adaptation of the following existing buildings:
  - Main Hospital (5,266 sq m) – Enterprise Centre
  - Chapel (107 sq m) – Community Use
  - Infirmary (158 sq m) – Community/ Enterprise Use
  - Coach House (35 sq m) – Storage
  - Farm Buildings (246 sq m) – Residential
  - Workshops (151 sq m) – Residential

- New residential buildings:
  - Block 01 (1,111 sq m (incl. farm buildings) – 12 no. residential units
  - Block 11 (3,528 sq m) – 36 no. residential units
  - Block 12 (2,133 sq m) (incl. workshops) – 20 no. residential units

- 62 no. car parking spaces.

An extract from the draft Schedule of Accommodation, prepared by Reddy A+U, for the Section 34 proposal is provided below.

	Apartments					Duplex Apartments		Houses			
Block	Studio	1-Bed	2-Bed (3P)	2-Bed	3-Bed	2-Bed (D)	3-Bed (D)	House (3-Bed)	House (4-Bed)	Total	Application
Block 01	1	1		3				7		12	S34
Block 11		18	7	4	1				9	39	S34
Block 12		2		3			5	4	6	20	S34
Total	1	21	7	10	1		5	11	15	71	
%	1%	30%	10%	14%	1%		7%	15%	21%		

Figure 18.3: Extract from draft Schedule of Accommodation for the future Section 34 proposal, prepared by Reddy A+U.

It should be noted that the Applicant intends to continue pre-application engagement with Dún Laoghaire-Rathdown County Council in respect of the Section 34 proposal before the scheme is fully finalised. This is due to the outstanding survey work that that is required to be undertaken in respect of the internals of the existing buildings to better inform proposals and assessments of potential impact (which has been delayed due to restricted access to the buildings arising from a delayed vacation of the HSE and service users). Furthermore, given that the submission of this application will follow the determination of the proposed SHD project, it is possible, should planning permission be granted, that the Section 34 proposal will require amendment to respond to any planning conditions imposed in respect of the SHD scheme.

18.3 Potential Cumulative Impact

Each Chapter which addresses a specific environmental factor provides a detailed cumulative impact assessment in respect of the committed and planned projects identified in Chapter 3 (Sections 3.7.1, 3.7.2 and 3.7.3), including the future Section 34 application in respect of the

wider Masterplan lands. The aforementioned chapters should be referred to for full details of the assessment; this chapter provides a summary of the cumulative impact assessment.

Table 18.2: Summary of the conclusions of the Cumulative impact assessment undertaken in respect of each environmental aspect.

Chapter/ Environmental Factor	Potential Cumulative Impact
Population and Human Health	Chapter 7 has undertaken a cumulative impact assessment of the proposed development in combination with the projects outlined in Sections 3.7.1, 3.7.2 and 3.7.3 of this EIAR and concludes that other than the potential (short term and temporary) significant cumulative impacts arising from construction noise upon human health (addressed in detail in Chapters 7 and 12), no further significant adverse cumulative effects would arise.
Biodiversity	Chapter 8 has undertaken a cumulative impact assessment of the proposed development in combination with the projects outlined in Sections 3.7.1, 3.7.2 and 3.7.3 of this EIAR and concludes that there would be no significant adverse cumulative effects arising.
Land, Soils, Geology and Hydrogeology	Chapter 9 has undertaken a cumulative impact assessment of the proposed development in combination with the projects outlined in Sections 3.7.1, 3.7.2 and 3.7.3 of this EIAR and concludes that there would be no significant adverse cumulative effects arising.
Hydrology	Chapter 10 has undertaken a cumulative impact assessment of the proposed development in combination with the projects outlined in Sections 3.7.1, 3.7.2 and 3.7.3 of this EIAR, and concludes that there would be no significant adverse cumulative effects arising.
Air Quality and Climate	Chapter 11 has undertaken a cumulative impact assessment of the proposed development in combination with the projects outlined in Sections 3.7.1, 3.7.2 and 3.7.3 of this EIAR, and concludes that there would be no significant adverse cumulative effects arising.
Noise and Vibration	Chapter 12 has undertaken a cumulative impact assessment of the proposed development in combination with the projects outlined in Sections 3.7.1, 3.7.2 and 3.7.3 of this EIAR, and concludes that there would be no significant adverse cumulative effects arising from the operational phase of the project. In respect of the construction phase, the assessment concludes that there is potential for cumulative construction noise impacts to arise which are expected to be negative, moderate to significant and short-term.
Landscape (Townscape) and Visual	Chapter 13 has undertaken a cumulative impact assessment of the proposed development in combination with the projects outlined in Sections 3.7.1, 3.7.2 and 3.7.3

	of this EIAR, and concludes that there would be no significant adverse cumulative effects arising.
Cultural Heritage and Archaeology	Chapter 14 has undertaken a cumulative impact assessment of the proposed development in combination with the projects outlined in Sections 3.7.1, 3.7.2 and 3.7.3 of this EIAR, and concludes that there would be no significant adverse cumulative effects arising.
Architectural Heritage	Chapter 14 has undertaken a cumulative impact assessment of the proposed development in combination with the projects outlined in Sections 3.7.1, 3.7.2 and 3.7.3 of this EIAR, and concludes that there would be no significant adverse cumulative effects arising.
Microclimate - Wind	Chapter 16 has undertaken a cumulative impact assessment of the proposed development in combination with the projects outlined in Sections 3.7.1, 3.7.2 and 3.7.3 of this EIAR, and concludes that there would be no significant adverse cumulative effects arising.
Material Assets (Roads and Traffic)	Chapter 17 has undertaken a cumulative impact assessment of the proposed development in combination with the projects outlined in Sections 3.7.1, 3.7.2 and 3.7.3 of this EIAR. The estimated traffic arising from the development incorporates a number of committed and planned projects deemed to have potential cumulative interactions with the development. In this regard, Chapter 17 concludes that *"the likely effect of the proposed development during the operational phase will be additional traffic which will have a significant long-term impact in the immediate vicinity of the proposed development on Dundrum Road and a moderate long-term adverse effect on the adjoining section of Dundrum Road and a slight traffic impact on the wider road network."*
Material Assets (Waste Management)	Chapter 18 has undertaken a cumulative impact assessment of the proposed development in combination with the projects outlined in Sections 3.7.1, 3.7.2 and 3.7.3 of this EIAR, and concludes that there would be no significant adverse cumulative effects arising.
Material Assets (Built Services)	Chapter 19 has undertaken a cumulative impact assessment of the proposed development in combination with the projects outlined in Sections 3.7.1, 3.7.2 and 3.7.3 of this EIAR, and concludes that there would be no significant adverse cumulative effects arising.

19.0 ENVIRONMENTAL COMMITMENTS/ MITIGATION MEASURES

19.1 Summary

This Chapter provides a consolidated list of all of the environmental commitments/ mitigation measures that have been recommended by the various specialists throughout the Chapters of this EIAR.

The mitigation and monitoring measures have been recommended on that basis that they are considered necessary to protect the environment during both the construction and operational phases of the proposed project. A summary table is provided as an Appendix to Chapter 22 of Volume 2.

APPENDIX 1

Details in respect of the competence of the various experts

Table 1.3: EIAR Project Team and Environmental Specialists

Name	Role	Company	Qualification/ Experience
Lizzie Donnelly	EIAR Project Manager, Co-ordinator and Planner	Tom Phillips + Associates	**BA(hons) Geography; MA (Planning, Policy and Practice)** • Associate Planner • Corporate Member of the Irish Planning Institute (IPI) and Chartered Member of the Royal Town Planning Institute (RTPI) • Over 7 years' experience in Planning and EIA.
Dr Stephen Smyth/ Dr Edward Porter/ Sarah Robertson/ Liam Bruen	Population and Human Health Assessment.	AWN	**Dr. Stephen Smyth – BAI, Ph.D.** • Associate responsible for management of AWN's Acoustics department • 14 + years' experience assessing Health Impacts relating to Noise. • Member of Engineers Ireland and the Institute of Acoustics. **Dr. Edward Porter – BSc, Ph.D.** • Director responsible for the Air Quality and Climate team at AWN. • 20 + years' experience assessing health impacts relating to air quality and climate • Full Member of the Institute of Environmental Sciences (MIEnvSc), a Full Member of the Institute of Air Quality Managements (MIAQM) and is a Chartered Chemist (C Chem MRSC). • He is lead author of the EPA publication "Air Dispersion Modelling from Industrial Installations Guidance Note (AG4)" and has peered reviewed the

			NRA Air Quality Guidelines (NRA, 2006). **Sarah Robertson – BA. (Hons), MSc. and a Diploma in Environmental Engineering** • Senior environmental consultant responsible for IED licence applications, EIAR management and specialist inputs to chapters including Human Health and Population. • 10 + Years working in the field of EIAR management and Impact assessment. **Liam Bruen – BSc** • Environmental Consultant responsible for EIAR development within AWN's Water department. • 1 + years' preparation of EIAR documents.
Bryan Deegan	Biodiversity Assessment	Altemar	**M.Sc. Environmental Science;** **BSc (Hons.) in Applied Marine Biology** **National Diploma in Applied Aquatic Science;** **National Certificate in Science** • (MCIEEM) Member of Chartered Institute of Ecology and Environmental Management • Over 27 years' experience as an Environmental Team Leader working on Irish aquatic and terrestrial development projects.
John Considine / Paul Stephenson/ Ryan Mulvaney	Land, Soils, Geology and Hydrogeology Assessment	Barrett Mahony Consulting Engineers	**John Considine - BE, MIStructE, MIEI, CEng, FConsEIM** • Director Barrett Mahony Consulting Engineers • Fellow of the Association of Consulting Engineers of Ireland • Chartered Engineer

			• 33 years of civil and structural engineering experience in the UK and Ireland • 10 years' experience in the preparation of EIAR documents. **Paul Stephenson - BE, MIEI, CEng** • Chartered Engineer • 12 years of civil engineering experience, specialising in geotechnics in the UK and Ireland • 3 years' experience in the preparation of EIAR documents. **Ryan Mulvaney - BSc, MEng, MIEI,** • 5 years of Civil and structural engineering experience • 3 years' experience in the preparation of EIAR documents.
Teri Hayes / Marcelo Allende	Hydrogeology Assessment	AWN Consulting	**Teri Hayes - BSc, MSc, PGeol, EurGeol** • Over 25 years of experience in water resource management and impact assessment; • Former President of the Irish Group of the Association of Hydrogeologists (IAH); • Competent person recognised by the EPA in relation to contaminated land assessment (IGI Register of competent persons). **Marcelo Allende (BSc, BEng)** • Over 15 years of experience in environmental consultancy and water resources studies; • Member of the International Association of Hydrogeologists (Irish Group);

			• Member of Engineers Ireland (MIEI).
Niamh Nolan	Air Quality and Climate Assessment	AWN Consulting	**BSocSci (Hons) Social Policy and Geography** • Air Quality Consultant. • Associate member of Institute of Air Quality Management (IAQM) and the Institution of Environmental Science (IES). • 2 years' experience
Aoife Kelly	Noise and Vibration Assessment	AWN Consulting	**BSc (Hons), PgDip, PhD** • Senior Acoustic Consultant • Member of Institute of Acoustics (MIOA) • 8 years of experience
Richard Barker	Landscape and Visual Assessment	Macroworks	**MLA, PG Dip (Forestry), BA (Environmental)** • Principal Landscape Architect • Corporate member ILI • Over 18 years experience in LVIA
Grace Corbett	Cultural Heritage, Archaeology Assessment	IAC	**BA in Archaeology and Classics, MA in Landscape Archaeology** • Senior Archaeological and Cultural Heritage Consultant with IAC Ltd. • Member of the Institute of Archaeologists of Ireland and the Chartered Institute for Archaeologists; • Over 17 years' experience working in the commercial archaeological sector, both in Ireland and the U.K.
Alastair Coey	Architectural Heritage	ACA	**BSC(Hons) and Dip Arch, Architecture, MUBC - Master of Urban and Building Conservation** • Member of the Royal Institute of British Architects: 4727683 • Registered with the Architects Registration Board: 046256J • Member of the Royal Institute of the Architects of Ireland: 98087 • Grade One Conservation Architect

			• Member of the Institute of Historic Buildings Conservation: 0828 • 30+ years experience as a specialist Conservation Architect
Dr Cristina Paduano/ Dr Patrick Okolo/ Dr Aran Safdari	Microclimate - wind	B-Fluid	**Dr Cristina Paduano - PhD in Mechanical Engineering from Trinity College Dublin, with M.Eng and B.Eng in Aerospace Engineering.** - Chartered Engineer - Member of Engineers Ireland. - Expert in computational fluid dynamics applications for urban environment and the construction industry - Over 18 years of experience. **Dr Patrick Okolo - PhD in Aeroacoustics from Trinity College Dublin, a M.Sc. and B.Sc. in Mechanical Engineering.** - Chartered Engineer - Member of Engineers Ireland. - Expert in computational fluid dynamics applications for the urban environment and in wind tunnel measurements for the aerospace industry. - Over 10 years of experience. **Dr Aran Safdari - PhD in Mechanical Engineering from Pusan National University, a M.Sc. and B.Sc. in Mechanical Engineering.** - Expert in airflow modelling, heat and mass transfer and multi-phase flow simulations. - Over 8 years experience.
Christy O'Sullivan	Traffic and Transport Assessment	ILTP	**Christy O'Sullivan** • a Chartered Engineer (CEng)

			• a Fellow of the Institution of Highways and Transportation (FIEI). • Over 30 years' experience in Traffic and Transportation. **Ben Waite – BA (Hons.) in Geography and an MSc. (Hons) in Geographic Information Science.** • Senior Transport Analyst; • Over 12 year's experience in traffic and transport design, analysis and planning.
Chonaill Bradley	Waste Management	AWN Consulting	**BScEnv AssocMCIWM** • Principal Environmental Consultant • Associate Member of the Chartered Institute of Waste Management • Over 7 years' experience in EIA, Environmental reporting and Waste Management
John Considine / Richard O'Farrell	Site Services Assessment	Barrett Mahony Consulting Engineers and EDC	**John Considine - BE, MIStructE, MIEI, CEng, FConsEIM** • Director Barrett Mahony Consulting Engineers • Fellow of the Association of Consulting Engineers of Ireland • Chartered Engineer • 33 years of civil and structural engineering experience in the UK and Ireland • 10 years' experience in the preparation of EIAR documents. **Paul Stephenson - BE, MIEI, CEng** • Chartered Engineer • 12 years of civil engineering experience, specialising in geotechnics in the UK and Ireland • 3 years' experience in the preparation of EIAR documents.

			Ryan Mulvaney - BSc, MEng, MIEI, • 5 years of Civil and structural engineering experience • 3 years' experience in the preparation of EIAR documents.