

Non-Technical Summary: Environmental Impact Assessment Report

To accompany a planning application for

Office and Hotel Development

At

DCC PLAN NO: 4610/22
RECEIVED: 04/08/2022

Heuston South Quarter
St. John's Road West, Dublin 8

Submitted on Behalf of

HPREF HSQ Investments Ltd
32 Molesworth Street, Dublin 2

July 2022

TABLE OF CONTENTS

(I)	INTRODUCTION	2
(II)	SITE LOCATION AND CONTEXT	4
(III)	DESCRIPTION OF DEVELOPMENT	5
(IV)	CONSIDERATION OF ALTERNATIVES	10
(V)	POPULATION AND HUMAN HEALTH	11
(VI)	BIODIVERSITY	12
(VII)	LANDS, SOILS AND GEOLOGY	15
(VIII)	WATER	17
(IX)	AIR AND CLIMATE.....	19
(X)	NOISE AND VIBRATION	22
(XI)	MATERIAL ASSETS: TRAFFIC AND TRANSPORTATION	25
(XII)	MATERIAL ASSETS: WATER SUPPLY, DRAINAGE AND UTILITIES	30
(XIII)	CULTURAL HERITAGE: ARCHAEOLOGY	32
(XIV)	CULTURAL HERITAGE: ARCHITECTURAL HERITAGE	34
(XV)	LANDSCAPING AND VISUAL IMPACT ASSESSMENT.....	39
(XVI)	INTERACTIONS WITH THE FOREGOING	41
(XVII)	MITIGATION MEASURES.....	41

(I) INTRODUCTION

This document provides a non-technical summary of the Environmental Impact Assess Report (EIAR) submitted with a planning application for a commercial development, and associated site works and infrastructure provision on part of the larger Heuston South Quarter development site that is bound by St. John's Road West (to the north), Military Road (to the east), and the Royal Hospital Kilmainham (RHK) and its attended grounds to the west.

This document provides a summary in plain English and free of technical jargon, describing the likely environmental impacts and inter-relationships between environmental factors as a result of the proposed development. This summary reflects the findings of the main EIAR document that accompanies the planning application submitted to An Bord Pleanála.

Table 1. below lists the competent experts who have prepared each section.

The EIAR presents an evaluation of the likely significant environmental impacts and applicable mitigation and monitoring measures associated with the construction and operation of the proposed development. It is the document which HPREF HSQ Investments Limited is required to submit to the Planning Authority (Dublin City Council) to inform their Environmental Impact Assessment (EIA) of the Proposed Development. This EIAR has been completed to comply with and exceed the requirements of all relevant legislation and guidance.

The EIAR addresses all of the issues listed in Schedule 6 of the Planning and Development Regulations 2001 (SI No. 600 of 2001) (as amended) (the PDRs), having regard to the requirements of Article 5(1) and Annex IV of Directive 2011/92/EU as amended by Directive 2014/52/EU (the EIA Directive), and assesses the following;

- Population & Human Health
- Biodiversity, with particular attention to species and habitats protected under the Habitats Directive and the Birds Directive Soil, land, and Geology
- Water
- Air, Dust and Climatic Factors
- Noise and Vibration
- Material Asset: Traffic & Transport
- Material Asset: Water Supply, Drainage & Utilities
- Cultural Heritage: Archaeology Heritage
- Cultural Heritage: Architectural Heritage
- Landscape & Visual Impact Assessment
- The interaction between the factors mentioned above

Table 1. Competent Experts Responsible for the Preparation of this NTS.

Section Title	Author
(I) Introduction	Declan Brassil & Company Limited
(II) Site Location and Context	Mr. Declan Brassil
(III) Description of Development	Ms. Sinéad O'Connor

Section Title	Author
(IV) Consideration of Alternatives (XVI) Interactions with the foregoing (XVII) Mitigation Measures	
(V) Population and Human Health	Future Analytics Mr. Stephen M. Purcel
(VI) Biodiversity	Biosphere Environmental Services Dr. Brian Madden
(VII) Lands, Soils and Geology (VIII) Water (XI) Material Assets: Traffic And Transportation (XII) Material Assets: Water Supply, Drainage and Utilities	Cronin Sutton Consulting Engineers Mr Robert Fitzmaurice Mr. Gordon Finn Mr. Darren Mullins
(XII) Material Assets: Water Supply, Drainage and Utilities	IN2 Engineering Mr. James Redmond
(IX) Air and Climate (X) Noise and Vibration	TMS Environment Ltd. Dr. Imelda Shanahan
(XIII) Cultural Heritage and Archaeology	Archaeological Projects Ltd. Ms. Claire Walsh
(XIV) Cultural Heritage: Architectural Heritage	Mr. Rob Goodbody RMA Architects Mr Brendan Money
(XV) Landscape and Visual Impact Assessment	Doyle & O'Troithigh Mr. Daithi O'Troithigh Mr. Dave O'Sullivan

Construction and Operational Phase Overview

Construction of the proposed development is expected to take place over 36 to 48 months, commencing in Q4 2023. A detailed construction plan and schedule has been developed to ensure that the construction phasing allows for maximum efficiency while minimising the potential for environmental impact.

During the operational phase of the Proposed Development the scheme will accommodate a working population in the office and hotel, and a temporary resident population in the hotel. The scheme will be maintained and managed by a private management company to ensure the safety and security of the development and those working there and using the hotel facilities, and the wider HSQ development

Vulnerability to Risks of Major Accidents and/or Disaster

Annex IV of the Directive 2011/92/EU as amended by Directive 2014/52/EU refers to both a proposal's potential to cause accidents/disasters and to the vulnerability of the proposal to accidents/disasters. These risks can be from both man-made and natural disasters and there is a requirement to build resilience into projects and to invest in risk prevention. Principal risks that have been evaluated include; accidental spillages, ground instability, collapse of existing structures, landslides, flooding, major traffic accidents, and work-place construction accidents. None of these risks are considered to be significant.

(II) SITE LOCATION AND CONTEXT

The subject site of 0.62 hectares forms part of the larger Heuston South Quarter development site that is bound by St. John's Road West (to the north); Military Road (to the east and the Royal Hospital Kilmainham (RHK) and its attended grounds to the west.

The HSQ site is in close proximity to Heuston Rail Station, the LUAS Red Line service and the City Centre. HSQ adjoins and is immediately accessible to major national and international tourist and cultural attractions including the Royal Hospital Kilmainham, IMMA, the Guinness Brewery and Collin's Barracks.

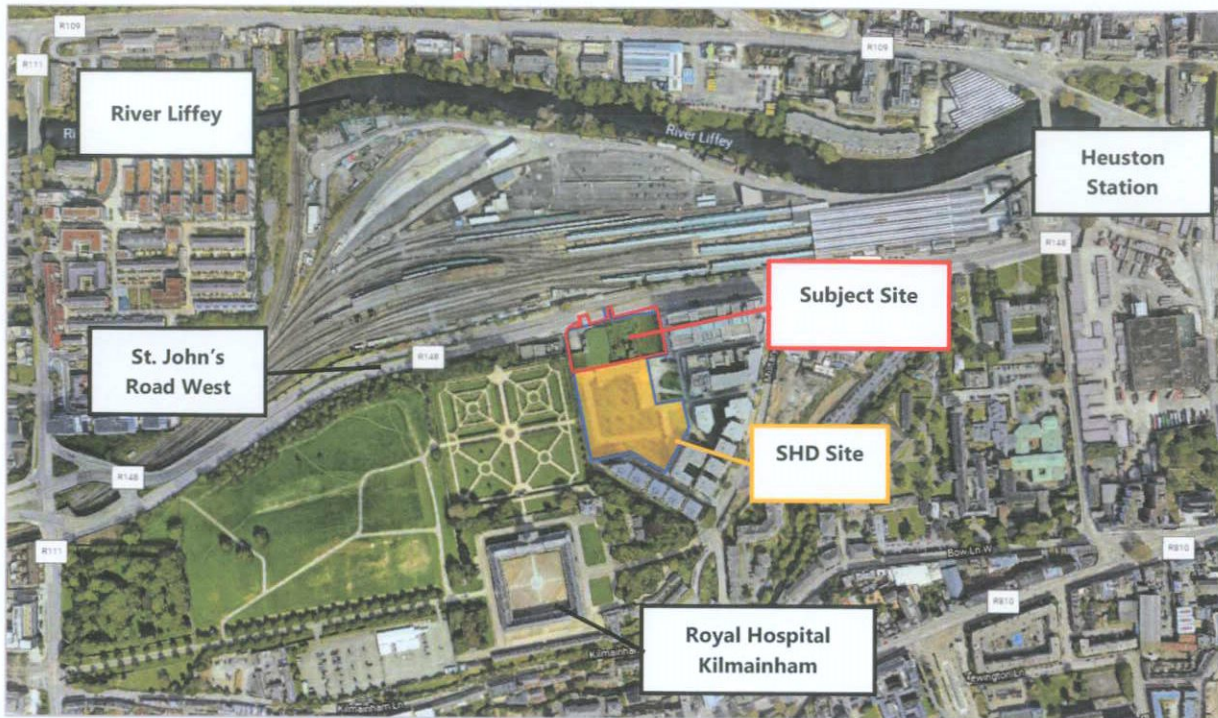
The character of the HSQ site is defined by the established cluster of mixed-use buildings in office use, residential use, cultural use and with retail at street level. The buildings are diverse in terms of built forms, façade treatments and material. The existing buildings address a network of open spaces areas, including urban hard landscaped areas and pedestrian routes and open space areas (local residential squares) and a Civic Plaza.

The planning history for the wider HSQ site dates back to September 2004 when the Parent Permission was granted under An Bord Pleanála Ref. PL29S.206528 (DCC Ref. 2656/03). After this grant of permission, a number of permissions for modifications of the parent permission and other planning permissions have been granted.

At present, the subject site is landscaped in accordance with Planning permission Reg. Ref. 2724/13, permitted by Dublin City Council on 19 November 2013. The works provide for an interim landscaping strategy and site resolution works to mitigate the visual impact of unfinished building works, to enhance the aesthetic of the site and its relationship with the Royal Hospital Kilmainham Gardens, and to make temporary spaces that function within the context of the scheme.

The subject site comprises part of an undeveloped area, which has been landscaped as an interim measure to mitigate the visual impact of unfinished building works and improve the aesthetics of the site pending its redevelopment. The subject site is situated immediately to the west of Nos. 1 and 2 HSQ (former Eir building) and adjoins the formal gardens of the Royal Hospital Kilmainham (RHK) to the west.

Adjoining the site to the south is an undeveloped site that is also controlled by the applicant. This site was the subject of a separate application to An Bord Pleanála, and on 21 March 2022 was granted planning permission for 359 no. Build to Rent apartments (ABP Ref. TA29S.311591).

Figure 1. Site Location in Context (source: google maps)

(III) DESCRIPTION OF DEVELOPMENT

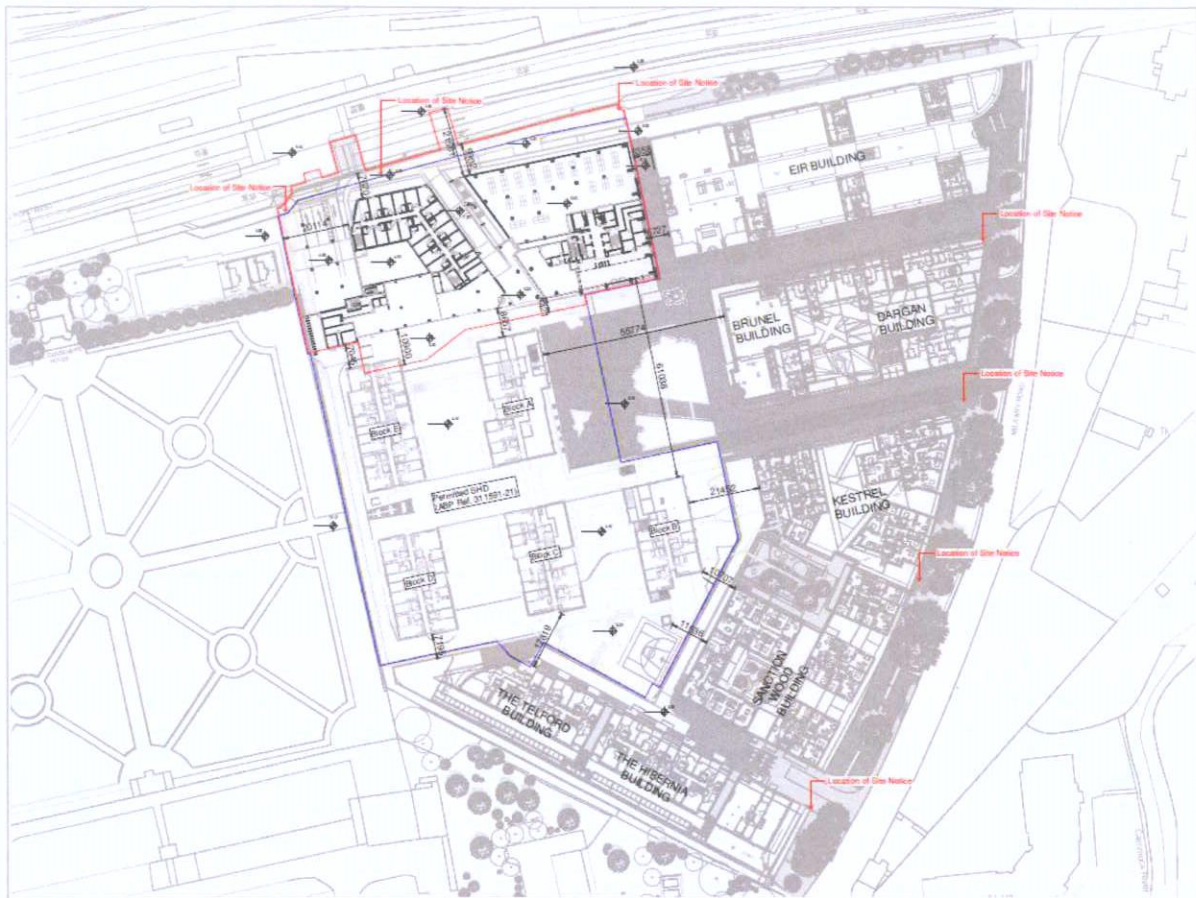
The proposed development will provide a mixed-use commercial development comprising of a hotel (238 no. bedrooms) and an office block providing a cumulative Gross Floor Area (GFA) of 32,602, inclusive of basement area. The proposed development consists of:

- Site clearance and localised demolitions to remove part of the podium and Basement Level -1 reinforced concrete slabs at the interface of the proposed hotel and office blocks, together with the incorporation of part of the existing basement level structure extending to approximately 4,228 sq.m (GFA).
- The proposed basement will be integrated within the existing basement levels serving the wider HSQ development and will be accessed from the existing vehicular ramped accesses/egresses onto/off St. John's Road West and Military Road to the north and east, respectively. The proposed basement area is split into two areas to provide a dedicated Hotel Basement area of approximately 2,132 sq.m (GFA) and an Office basement area of 2,096 sq.m (GFA).
- The construction of a 5-storey hotel (over lower ground and basement level). At basement level provision is made for 24 no. car parking spaces; 2 no. motorcycle spaces together with plant and storage rooms. A waste storage area with dedicated loading bay / staging area is provided along with dedicated set-down area for deliveries. A service bay for the dual purpose of waste storage collection and bus drop-off to serve the hotel is also provided at basement level with modifications to existing line markings to the basement parking area to accommodate the development. At Lower Ground floor level provision is made for 14 no. Bedrooms; Bar; Kitchen and Staff facilities and Changing Rooms / WCs plus ancillary Gym. This floor is arranged around an internal courtyard space. Provision is made at Podium level

for 19 no. Bedrooms; Dining Area and Foyer with entrance at the South-Eastern corner of the building onto the new laneway separating the hotel and office building. Provision is made at the south-western corner at podium level for an ESB sub-station / switch room and 15 no Sheffield type bicycle stands are provided for the hotel and the retail / café unit, providing storage space for 30 no. bicycles. A total of 205 no. bedrooms are provided at the upper levels (above podium level). The top floor of the hotel (4th floor) has a splayed setback to provide a west facing roof terrace. An ancillary hotel bar (118 sq.m) opens onto this roof terrace.

- The construction of a 12-storey (over lower ground and basement levels) office building to the east of the hotel building to provide 19,474 sq.m of office floorspace (GFA) from lower ground floor level and above. Provision is made at basement level for 30 no. car parking spaces; 2 motorcycle spaces and 120 no. bicycle storage spaces together with plant and storage rooms. Provision is made for a further 196 no. bicycle storage spaces at Lower Ground floor level plus changing rooms. At podium level 2 no. ESB sub-stations and switch rooms are proposed. The foyer and entrance are provided at the southern end of the building at Podium level along with a Retail/Café unit of 208 sq.m at the South-Western corner of the building. The building is setback at 4th floor level to provide a west facing roof terrace. Splayed setbacks to the southern and eastern elevations at the 11th floor level forms a roof terrace that wraps around the South-Eastern corner of the building. Plant is provided at rooftop level that is enclosed by curved louvred screens and PV panels.
- Works proposed along the St John's Road West frontage include the omission of the existing left-turn filter lane to the vehicular ramped access to the HSQ development and re-configuration of the pedestrian crossings at the existing junction together with the re-configuration of the existing pedestrian crossing over the westbound lanes of St. John's Road West leading to an existing pedestrian refuge island and re-alignment of the existing footpath along the site frontage onto St John's Road West to tie into the reconfigured junction arrangement.
- Drainage works proposed include the provision of 2 no. below basement surface water attenuation tanks with duty/stand-by arrangement pump sumps and associated valve chambers, and 2 no. below basement foul pump sumps with duty/stand-by arrangement and emergency storage and associated valve chambers. New foul drainage and stormwater drainage connections are proposed to existing foul and storm sewers in St. John's Road West with associated site works.
- Hard and soft landscaping works are proposed at lower ground level along St John's Road West and at podium level to provide for the extension and completion of the public plaza to the south of the proposed Office Block and the provision of two new pedestrian laneways connecting St John's Road West with the public plaza at podium level.

Figure 2 Proposed Site Layout



Design to Reduce Climate Impacts

The scheme has been designed to minimise the climate impacts of the scheme. Tables 2 to 6 list the design features of the scheme that are intended to reduce climate impacts through energy efficiency, reduction of waste and carbon emissions.

Table 2 Design measures to Reduce Energy Used for Lighting

Measure	Description	Benefit
Maximisation of natural daylighting	Hotel rooms are designed with large windows to maximise daylight.	More daylight into the rooms
Energy Efficient External Lighting	External lighting will comply with the latest standards and achieve: <ul style="list-style-type: none"> • Low-level lighting • Utilise low voltage LED lamps • Minimum upward light spill Each light fitting is to be controlled via an individual Photoelectric Control Unit (PECU). The operation of the lighting shall be on a dusk-dawn profile.	Lighting will be designed to achieve the required standards, provide a safe environment for pedestrians, cyclists, and vehicular traffic, provide surveillance and limit the impact on the artificial lighting on surrounding existing flora and fauna.

Table 2 Materials Chosen to Minimise Climate Impacts

Measure	Description	Benefit
Material selection.	Brick, Stone, Glass	Materials picked to be durable and to require less maintenance.
Green Roofs. Proposed	Sedum Roof	Allows for more insulation to roof, used to filter rain water
No Gas Fire Plant proposed	Heat Pumps provided in lieu of gas fired plant.	No local emissions of combustion gases. Improved local air quality

Table 4 Design Measures for Thermal Energy Efficiency

Measure	Description	Benefit
Nearly Zero Energy Building specifications (nZEB)	The development will achieve nZEB standards for energy consumption as defined within the Part L building regulations	Reduced energy consumption correlates with reduced carbon emissions
BER targets	A Building Energy Rating (BER) certificate will be provided for both the Hotel and Office buildings. This will provide detail of the energy performance of each building. This is calculated through energy use for space and hot water heating, ventilation, and lighting and occupancy. It is proposed to target A-ratings for each building.	A BER rating demonstrates a reduction in energy consumption and running costs
Highly insulated building fabric	Proposed U-Values will be in line with the requirements set out by the current & proposed Part L including Nearly Zero Energy Buildings targets. "Conservation of Fuel and Energy Buildings other than Dwellings".	Lower U-values will be achieved to reduce the amount of heat loss throughout the building fabric, lowering the consumption of energy and therefore carbon emissions.
Thermal bridging	Thermal bridging at junctions between construction elements and at other locations to be minimised in accordance Paragraphs 1.2.4.2 and 1.2.4.3 within the Technical Guidance Documents Part L. See Table 1 of Part L, Building Regulations (Appendix C).	Thermal bridging reduces the amount of heat loss throughout the building fabric, lowering the consumption of energy and therefore carbon emissions.
Airtightness	The building will achieve an airtightness result of 5m ³ /m ² @ 50Pa.	Improved airtightness will be achieved to reduce the amount of heat loss throughout the building fabric, and lower the consumption of energy and therefore carbon emissions

Heat Recovery Ventilation (MHRV)	All of the mechanical ventilation to the Hotel and Offices will be provided with a facility for heat recovery using either plate heat exchangers or thermal wheels. All Air Handling will be full fresh air with no re-circulation of extracted air.	Improved air quality and reduced energy and costs in providing alternative heating etc.
Air Source Heat Pumps	The heating, cooling and hot water production will all be provided by Air Source Heat Pumps.	Improved efficiency and lower energy consumption and associated carbon emissions.
Lighting	Shall be designed and specified in accordance with the BER requirements in each unit and in the landlord areas in accordance with Part L.	Lower consumption of energy and therefore lower carbon emissions.

Table 5 Design Measures to Reduce Waste During Operational Phase

Measure	Description	Benefit
Storage of Non-Recyclable Waste and Recyclable Household Waste	The inclusion of a centralised waste area 1) Grey, Brown and Green bin distinction reduce the risk of littering within the scheme and reduces potential waste charges. 2) Regular tendering for waste management collection	Reduces potential waste charges.
Composting and glass bins	Addition of organic waste bins to be provided	Helps to reduce waste charges and the amount of waste going to landfill.

Table 6 Design Measures to Reduce Emissions from Transportation

Measure	Description	Benefit
Access to Public Transport	The Heuston and James's stops on the Luas Red Line are within 10 minutes' walk, as is Heuston railway station. A bus stop on St. John's Road West, adjacent to the site, is served by 3no. Dublin Bus routes. A further 39no. bus routes serve stops within a 10-minute walk.	This demonstrates the excellent connectivity of the site to a range of transport modes serving the city and country.
Use of E-Car	8no. charging points for electric vehicles are proposed within the development's car parks.	This will allow development occupants to charge cars on site.
Bike Friendly Scheme	A total of 346no. bicycle parking spaces is provided in the scheme. 316no. of these spaces are provided for the office at carpark level (120no.) and at lower ground floor level (196no.), as secure bicycle parking. 30no. publicly accessible bicycle spaces are provided at podium level by way of	This benefits active and sustainable travel, and adds to the connectivity of the site.

	15no. Sheffield bicycle stands, for use by both the café unit and hotel.	
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(IV) CONSIDERATION OF ALTERNATIVES

This Chapter provides 'a description of the reasonable alternatives (for example in terms of project design, technology, location, size and scale) 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 selecting the chosen option, including a comparison of the environmental effects' as required by Schedule 6 of the Planning and Development Regulations, 2001-2022.

Alternative Development Locations

The proposed development provides for the delivery of commercial development, comprising an office and hotel building, on available, serviced and appropriately zoned lands within Dublin City Centre. The Heuston Gateway area is identified as a Strategic Development and Regeneration Area (SDRA 7) in the Dublin City Development Plan 2016-2022 (the Development Plan), focused on the nation's busiest public transportation interchange. The SDRA area will develop as a Western Cluster and a counterpart to the Docklands at the eastern end of the City.

The Development Plan was the subject of Strategic Environmental Assessment (SEA). The issue of alternatives is a critical function of the Strategic Environmental Assessment (SEA) process and is necessary to evaluate the likely environmental consequences of a range of alternative development strategies for the county within the constraints imposed by environmental conditions. The SEA for the Development Plan considered alternatives at an early stage of the process and through an iterative process the most appropriate scenario for the growth of the city was selected.

The subject site forms part of an unfinished development permitted under An Bord Pleanála Ref. PL29S.206528 (DCC Ref. 2656/03). Under DCC Reg. Ref. 2724/13 permission was granted for temporary landscaping works to improve the visual impact of the undeveloped areas of the site, including the current subject site.

It is considered that the use of this site for purposes of office and hotel use is preferable to the current under-utilised state of the subject site where much of the basement works have already been completed. Undertaking these works at another site would involve unnecessary use of building materials and the disposal to landfill of soils.

Based on the foregoing, it was not considered necessary to appraise any alternative locations for the proposed residential development.

Alternative Construction and Methods

The current indicative phasing suggests that the proposed development is to be constructed sequentially from east to west: the proposed office building to proceed first, followed by the hotel in the western part of the site. In terms of construction methods, the design team considered prefabrication of various elements of the building, precast and modular construction.

Alternative Layouts & Design

Six alternative design iterations were considered over the course of the design process as follows:

- **Granted Parent Permission (Masterplan Scheme) under DCC Reg. Ref. 2656/03, as**

Amended

- **Design Iteration 1:** Full Residential Scheme
- **Design Iteration 2:** Full Commercial Scheme
- **Design Iteration 3:** Mixed Use Scheme
- **Design Iteration 4:** Commercial Scheme (Hotel and Office)
- **Design Iteration 5:** Commercial Scheme (Hotel and Office)
- **Design Iteration 6:** Proposed Development

The alternatives considered have been based on the guidance in the Development Plan and relevant national policy, including the need to respect the setting of the RHK and the cone of vision that traverses the subject site from the west corner of the north range of the Royal Hospital Kilmainham (RHK) and the north-east corner of the Deputy Master's House, to the western side of the Magazine Fort and east edge of the main elevation of the Office of the Director of Public Prosecutions (former Royal Military Infirmary that is also known as the Gandon building). The interface between the RHK and its gardens informs the urban design, form, massing, height and design quality of the proposed development. Alternative massing / heights, materiality and rhythm were assessed by the Design Team to ensure the development respects the historic significance of this place

During the design process, the layout and design of the proposed development evolved in response to historical, architectural, and visual requirements and several iterations of the site layout and alternative designs were considered. Any difficulties from an architectural, landscape or environmental viewpoint were assessed and, where necessary, the design was amended to address the issues encountered.

(V) POPULATION AND HUMAN HEALTH

This chapter of the EIAR chapter examines any potential effects on Population and Human Health. The purpose of this assessment is to identify and assess the potential population, health and wellbeing effects of the proposed project and to deliver evidence-based recommendations that maximise health benefits and mitigate or remove potentially negative impacts associated with the Proposed Development.

Receiving Environment

For the purposes of assessing Population and Human Health demographics in the area, a study area with a radius of 1km is delineated around the site. The population characteristics show a larger proportion of young adult population, with an increasing number of 35–64-year-olds in the study area compared to Dublin Region. There is also a high percentage of 'other nationalities' in the study area, with only 71% 'Irish nationals' in comparison with 83% in the Dublin Region.

The household characteristics reveal that the study area has a lower percentage of 'married couple' households and households with children. The study area characteristics also show that the majority of its population are young adults with a tendency to live in single person or co-living households.

The education attainment in the study area reflects a higher number of people with Third-level qualifications, as well as a higher education level generally. Seven childcare facilities are identified in the study area which provide both 'all-day' and 'sessional' childcare.

The general human health in the study area shows disparate changes in general health status, with a general decline in health noted as the number of people in 'very good', 'good', and 'fair' health declined in the intercensal 2011 – 2016 period.

The economic activity and employment of the study area is presented by the principle economic status of the population which shows a steady decline in unemployment and higher employment rates compared to the Dublin Region.

The social infrastructure and amenities in the study area provide a wide range of options including retail, transport and visitor attractions etc. for the temporary increases in daytime populations generated by the proposed development.

Identification of Likely Significant Impacts

The specific direct and indirect impacts that the proposed development may have during both the construction and operational phases are analysed under the headings of Population and Human Health, Economic Activity and Employment, Landscape and Visual, Water, Noise, Air Quality and Climate, Local Attractions and Tourism Activities and Major Accidents Or Disasters.

There are no adverse, long-term permanent impacts on population and human health arising from the operational phase of the proposed development. The construction phase of the proposed development may give rise to some short-term impacts (less than 5 years) to the locality such as construction traffic and surface contaminants, dust, exhaust emissions, noise, and littering. However, these disturbances will be kept minimal through the implementation of mitigation measures and will not have any significant detrimental impacts on the area. Meanwhile, the study area will likely benefit from the long-term or permanent positive impacts brought by the proposed development.

Cumulative Impacts

The potential cumulative impacts are assessed for the combined development site containing both the permitted SHD (ABP Ref. TA29S.311591) and the proposed Hotel and Office Block development, as well as other notable developments in the area.

Overall, the cumulative impacts of the proposed development on population and human health are envisaged to be positive. The new working and visiting population will contribute to the economic viability of the area and will increase local spending power, and the development of a range of new services, facilities, and open spaces will add to the viability and vibrancy of the area also. The predominant mix of residential, office, retail and hotel development on site will add to the already established facilities in the HSQ and provide much needed residential capacity as well as employment, tourist accommodation and socialising space in the area.

(VI) BIODIVERSITY

This Chapter has been prepared to assess potential impacts that may arise from the proposed development on biodiversity within the receiving environment. This Chapter has been prepared by Dr Brian Madden (BA. Mod. Hons., Ph.D., MCIEEM) of Biosphere Environmental Services.

Receiving Environment

The application site has a total area of approximately 0.62ha. It is a previously excavated and part-built site, with a concrete structure over approximately two-thirds of site area and some ground that has re-

DCC PLAN NO: 4610/22
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vegetated to a grassy sward over the remainder. It adjoins an open, landscaped area to the south, which is part of the overall HSQ site. Existing residential and commercial developments occur immediately to the east. The OPW Kilmainham complex occurs to the west, with St. John's Road to the north.

The site does not support any natural or semi-natural habitat. Fauna species associated with the site are all species commonly found in urban environments. The site is not part of, and does not adjoin, any designated site for conservation.

There are no streams, open drains or natural habitats on site. Natural drainage of the site is towards the River Liffey, which is approximately 250 m to the north.

The site is considered to have an ecological rating of, at most, Local Importance (lower value).

Sites designated for conservation

The subject site is located approximately 8 km from the Dublin Bay system, with four European sites, as follows; North Dublin Bay SAC (code 00206); South Dublin Bay SAC (code 00210); South Dublin Bay & River Tolka Estuary SPA (code 04024); and North Bull Island SPA (code 04006).

It is located approximately 1 km north of the Royal Canal proposed Natural Heritage Area (code 002104) and approximately 3 km south of the Grand Canal proposed Natural Heritage Area (code 002013).

The Liffey Valley proposed Natural Heritage Area (code 00128) is located along the banks of the Liffey approximately 4.5 km west of the HSQ site.

Identification of Likely Significant Impacts

All of the habitats on site have been created in the last decade and have negligible ecological interest. The effect by the loss of the habitats as a result of development is considered to be not significant. During the construction phase the effect of the impact of the proposed development in respect of existing habitats is considered to be not significant. During the operational phase the effect of the impact of the proposed development in respect of existing habitats is considered to be not significant.

While some fauna species pass through the site, and some bird species may nest (see section 6.4.3.2), these are all common and widespread species and the effect by the loss of habitat for these species is considered to be not significant (subject to appropriate mitigation for nesting birds). During the construction phase the effect of the impact of the proposed development in respect of existing birds is rated considered to be not significant (subject to appropriate mitigation for nesting birds). During the operational phase the effect of the impact of the proposed development in respect of existing birds is considered to be not significant.

The site has very limited potential to support mammal species, including bats, and has no suitable habitats for amphibians or reptiles. The effect of the impact of the proposed development in respect of existing mammal species is considered to be not significant.

In the absence of mitigation, there is potential for contaminated water emanating from the HSQ development site to enter the River Liffey system and ultimately the aquatic and intertidal environment of Dublin Bay, during the construction and (to a lesser extent) operational phases of the proposed development. The significance of any subsequent effect on the qualifying interests/special conservation interests of the Natura 2000 sites would vary depending on the type of pollutant, as well as the magnitude and duration of the event. As the conservation objectives of the four identified Natura 2000 sites could potentially be affected adversely, measures are required to avoid or reduce harmful effects of the proposed project (i.e. mitigation measures).

The subject site does not have any linkages with the three identified proposed Natural Heritage Areas (see Section 6.4.4) identified within the hinterland of the site and hence the proposed project could not have any impacts on these pNHAs. During the construction phase the proposed development does not have potential to have impacts on any nationally important site. During the operational phase the proposed development does not have potential to have impacts on any nationally important site.

This assessment concluded that in the context of the overall HSQ development, the present mixed use commercial application will not contribute an in-combination effect on any European site. Overall, the cumulative impacts during the construction phase are considered to be not significant. Overall, the cumulative impacts during the operational phase are considered to be not significant.

Summary of Mitigation Measures

Table 7 Mitigation Measures for Biodiversity

Character of potential impact	
Construction Phase	
Disturbance of nesting birds	Remove trees and rank grass outside of the restricted nesting season (March-August)
Protection of water quality	Implementation of Outline Construction Management Plan including the following provisions: <ul style="list-style-type: none"> • Management of suspended solids in run-off • Control of concrete run-off • Management of accidental spills and leaks
Operational Phase	
Bird collision with glass	Implementation of a bird friendly glazing strategy
Disturbance to foraging bats from light	Use of directional lighting to prevent overspill to neighbouring Royal Hospital.
Protection of water quality	Surface water drainage design in accordance with principles of SuDS is to be implemented as proposed.

Residual Impacts

With mitigation measures implemented as recommended, it is considered that the proposed project will not have any significant adverse residual impacts in terms of ecology and biodiversity.

Monitoring

Mitigation as recommended will be monitored by the Environmental Officer working with the main Contractor. A written log of site inspections for environmental issues will be maintained during the entire construction phase and will be available for inspection by relevant third parties

(VII) LANDS, SOILS AND GEOLOGY

This section of the EIAR has been prepared by Cronin and Sutton Consulting and describes the existing Land, Soil & Geology aspects of the proposed development site. An assessment is made of the likely impact arising during the demolition, construction and operational phases of the development on these elements, as well as the cumulative impacts arising.

Receiving Environment

Prior to development of Heuston South Quarter from c2003, the site operated as a storage depot and yard for Eir (formerly Eircom). The subsequent commencement of the development works in 2003 involved the installation of a perimeter pile wall around the entire site. The secant pile wall was embedded into the boulder clays. Following the installation of the cut-off wall, the eastern portion of the development was constructed, with a double level basement and buildings ranging in height from seven to twelve stories.

The construction works ceased in 2008 as a result of the financial crisis. The subject site comprises part of the undeveloped area of the site that has been landscaped as an interim measure to improve the aesthetics of the site pending its complete redevelopment.

Summary of Mitigation Measures

Mitigation measures during the construction phase include the following:

- Sampling and testing soil samples to determine the appropriate waste facility for disposal.
- The material generated from the demolition shall be segregated and divided into material re-use, material re-cycling and waste material streams in accordance with current guidelines and best practice.
- Dust suppression measures will be implemented to minimise dust generation during extended dry periods.
- The existing perimeter secant pile wall extends to the relatively impervious clay layers, and this mitigates the risk of contaminated water from the development entering the local groundwater network.
- Monitoring regimes shall be established to ensure limits relating to noise, dust and vibrations are not exceeded.
- The disposal of groundwater shall be in accordance with the licensed requirements of Dublin City Council and will be on a short-term basis.

Table 8 Table of Mitigation Measures for Land Soil and Geology

Character of potential impact	Mitigation measure
Construction Phase	
Contaminated Soil	The excavated material will be monitored and assessed to determine the most suitable disposal outlet. Material will be categorised according to the Landfill Directive and will be sent to appropriately licensed facilities for treatment/disposal. This will entail carrying out soil analysis to determine the

	appropriate waste facility for disposal. Where applicable, material on site will be segregated and divided into material re-use, material re-cycling and waste material streams in accordance with current guidelines and best practice.
Demolition Material	The material generated from the demolition shall be segregated and divided into material re-use, material re-cycling and waste material streams in accordance with current guidelines and best practice.
Dust	Dust suppression measures will be implemented to minimise dust generation during extended dry periods. Dust monitoring will be conducted through the excavation period. The provision of vehicle wheel wash facilities at site exits and implementation of a road sweeping programme will reduce effect on surrounding road network. Vehicles delivering material with dust potential (soil, aggregates) will be enclosed or covered with tarpaulin at all times to restrict the escape of dust. In addition, water-based dust suppression systems (such as Dust Boss) shall also be used to greatly reduce the extent of dust and windborne particulates.
Noise and Vibration	During the demolition and excavating phase of the works monitoring will be ongoing for noise, vibration, gas & water levels as well as ground contamination as described in the section below on Monitoring. Noise monitoring shall be in accordance with Safety, Health and Welfare at Work (General Application) Regulations 2007, Part 5 Noise and Vibration. Vibration monitoring shall comply with BS 5228-1:2009+A1:2014 & BS 5228-2:2009+A1:2014. Gas and water levels shall be monitored via installed Piezometers on site.
Disposal of Ground Water	The disposal of groundwater shall be in accordance with the licensed requirements of Dublin City Council and will be on a short-term basis. All conditions of this licencing agreement will be complied with.
Site Compound	The site compound will be temporary in nature and will be constructed on hardstanding, which will be removed upon completion of construction and disposed of to a licenced facility.

Identification of Likely Significant Impacts

There is no predicted long-term impact on the soil, geology and hydrogeology environments associated with the operational phase of the proposed development.

The proposed development works can be assessed cumulatively with the permitted Strategic Housing Development (SHD) to the south (ABP Ref. TA29S.311591), and other existing and permitted development in the vicinity of the site. The existing perimeter secant pile wall, which was constructed around the entire site in 2003, isolates the overall development in geotechnical terms from posing a risk of contamination to the external environment. Similarly, the proposed construction work within the existing secant pile 'box' can proceed with neutral effect on existing or proposed development. The cumulative effects of the proposed development are considered to be imperceptible.

Overall, the residual impacts arising once the mitigation measures are implemented are imperceptible.

(VIII) WATER

Assessment Methodology

The assessment considered the potential impacts on the surface water environments during the proposed construction & operational phases. The main water body relevant to the proposed development is the River Liffey. The assessment also takes into account Dublin City Council's Development Plan, in particular the requirement to implement Sustainable Drainage Systems into the proposed design to ensure that surface water quality is enhanced prior to ultimate discharge into Dublin Bay. The proposed stormwater drainage system has been designed in accordance with Dublin City Council's Regional Code of Practice for Drainage Works and the Greater Dublin Strategic Drainage Study.

The subject lands were also reviewed against Dublin City Council & national guidelines for potential flooding from a variety of sources. These included an assessment of potential flooding sources such as tidal, fluvial, pluvial, groundwater, and infrastructure failure. The site's current designation is Flood Zone 'C' (the lowest hazard category); as such, the proposed development is considered appropriate.

All aspects of the proposed development contained within the hydrology chapter were also analysed with regard to the potential impacts of climate change. A climate change factor of 20% was applied to the rainfall data to ensure that the proposed development is in accordance with Dublin City Council's development policy and is fit for purpose in the future. The inclusion of Sustainable Drainage Systems (SuDS) measures will ensure a greater overall surface water quality discharge from the development post construction. The inclusion of an attenuation system on site to restrict the volumes of storm water generated during extreme storm events has been designed to Dublin City Council requirements and will limit the storm water discharge rates post development to the un-developed green field discharge rate. The onsite storage proposed has been designed to accommodate the predicted storm water volumes expected during a 1-in-100-year storm event, increased by 20% for the predicted influence of climate change.

The scheme assessment reviewed the proposed development to ensure that what has been proposed will not impede or be adversely affected by the predicted future climate change challenges. The receptors looked at the Rivers Liffey & Camac and the potential to affect the overall water quality of same, during construction and operational phases.

Identification of Likely Significant Impacts

The magnitude and significance of the potential impacts for the proposed development were deemed to be long term and slight. Upon completion of the development, Dublin City Council will have responsibility for the monitoring and maintenance of the public storm water system, while the development's facilities management entities shall maintain the private drainage systems.

The residual impacts of the proposed development are neutral, slight, and long term.

Cumulative effects have been considered, with no additional significant residual effects predicted following the implementation of mitigation measures.

Summary of Mitigation Measures

Mitigation measures during the construction phase are summarised as follows:

- Implementation of the Environmental Management Plan
- Measures to maintain and manage surface water run-off

Table 9 Table of Mitigation Measures for Water

Character of potential impact	Mitigation measure
Construction Phase	
Environmental Management	Prior to construction the Contractor will be required to develop an Environmental Management Plan which will incorporate mitigation measures such as containment procedures, audit and review schedules and an Emergency Response Plan in the event of spills, flooding or other incidents that may contribute to pollution to water during construction.
Surface Water Run off	All batching and mixing activities will be located in areas away from watercourses and drains.
Surface Water Run off	Protection measures will be put in place to ensure that all potentially hazardous materials used during the construction & demolition phase are appropriately handled, stored and disposed of in accordance with recognized standards and manufacturer's guidance. These measures will include: <ul style="list-style-type: none"> - Refuelling of machinery at a designated bunded refuelling area. - Treatment and disposal of wastewater from general clean-up of tools and equipment. - The provision of spills control and cleanup kits. - Silt trapping and oil interception.
Surface Water Run off	The batching and mixing plant will be isolated from the surrounding surface water drainage, and washout from the plant will be collected in a designated, contained impermeable area from which it shall be removed offsite for treatment.
Surface Water Run off	Spills of concrete, cement, grout or similar materials will not be hosed into drains.
Surface Water Run off	Rainwater that accumulates on site will be discharged to the DCC sewer system, under an appropriate discharge licence.
Site Management	The Contractor will comply with the following guidance documents: <ul style="list-style-type: none"> - CIRIA – Guideline Document C532 Control of Water Pollution from Construction Sites (CIRIA, 2001) - CIRIA – Guideline Document C624 Development and Flood Risk - guidance for the construction industry (CIRIA, 2004).
Surface Water Discharges	Dewatering and surface water discharges on the site, during construction and prior to completion will be controlled. The lead construction contractor will ensure that all necessary facilities are incorporated, such as settlement ponds/tanks, oil/grit interceptors with shut down valves, bunded oil storage tanks adjacent to a petrol interceptor for storage of any recovered oil. A monitoring programme including sampling for water quality before discharge to the Council sewer during construction will be carried out to ensure that only clean surface water is discharged to the receiving systems.
Operational Phase	

Surface Water run off (site flooding)	The provision of flow control with storm-water attenuation will ensure the rate of discharge of surface water is limited to greenfield run-off rates of 2 litres/second/hectare with a total allowable surface water discharge of 5.0 litres/second in line with the recommendations of the Greater Dublin Regional Code of Practice for Drainage Works and the Greater Dublin Strategic Drainage Study.
Surface Water run off (unattenuated flow)	The provision of flow control with storm-water attenuation will ensure the rate of discharge of surface water is limited to greenfield run-off rates of 5.05 litres/second/hectare with a total allowable surface water discharge of 2.27 litres/second in line with the recommendations of the Greater Dublin Regional Code of Practice for Drainage Works and the Greater Dublin Strategic Drainage Study.
Surface Water (River Liffey & Camac)	Incidental surface run-off from underground basement car parks, compactor units and waste / service yard areas will be discharged into the foul drainage system.

(IX) AIR AND CLIMATE

The HSQ site is bounded by St John's Road West and is close to Heuston Rail Station and the LUAS Red Line service. This corridor is the main road and rail artery to the west of the country. The dominant influences on air quality in the area are emissions from commercial energy and heating sources, domestic heating and especially traffic.

The potential air quality and climate impacts on the surrounding environment that requires consideration for a proposed development of this type includes two distinct stages, the short-term construction phase and the long-term operational phase.

Construction Phase Impacts

The impact assessment that was completed shows that the most significant potential impacts are those associated with demolition work which is very dependent on weather conditions. Damp weather and low wind speeds will reduce the level of impact experienced at the receptor locations. There will be a short-term, slight impact on the closest receptors during the demolition programme and a short-term, not significant impact on the closest receptors during the construction works. Construction traffic impacts will be not significant and experienced in the short-term. In the absence of mitigation measures, the overall impact of dust arising during the construction phase is considered to be short term in duration and its significance will vary from not significant to slight.

Potential emissions from construction traffic using the local road network have been assessed to contribute less than 5% change to the existing air quality emission levels. It can therefore be concluded that the additional transport will not generate significant emissions in terms of local air quality and no material change in air quality relative to the existing situation is predicted.

In the absence of mitigation measures the construction phase activities will range from an imperceptible to slight impact on local air quality depending on the activities occurring and in all cases will be short-term in duration.

Operation Phase Impacts

The only predicted air quality impacts associated with operation of the development are emissions to atmosphere from traffic associated with the proposed development.

Traffic Flow data were used to assess the likely change in emissions to air as a result of changes in traffic numbers. The change in traffic volume at the key junctions for the opening year was a less than 5% increase for am and peak hours for all but the am peak at the least trafficked Junction analysed at the eastern access to the HSQ Complex which projects a +10.1% change. The potential impact on air quality associated with a traffic volume change of this magnitude is considered not significant in a local context and imperceptible in an overall context particularly considering the advanced developments made in cleaner and more efficient vehicle engines.

The operational phase activities will have a not significant impact on local air quality and will be long-term in duration.

Climate Impact

The operation of the proposed development will result in indirect emissions of GHGs including carbon dioxide (CO₂) resulting from off-site energy generation required for space heating and road traffic. The CO₂ released due to energy usage is directly reduced by enhancing the energy efficiency of the proposed development.

The scheme has been designed to provide thermally efficient buildings and utilises zero on-site fossil fuels. This will reduce the impact the operational phase of the development will have on the micro and macro climate.

Due to the size, nature and design of the development, greenhouse gas emissions resulting from the development will be imperceptible in the local and national context. There will therefore be no adverse impacts on climate and no significant contribution to Irelands greenhouse gas budget.

The construction phase activities will have a not significant impact on climate and will be short-term in duration while the operational phase activities will have an imperceptible impact on climate and will be long-term in duration.

Cumulative Impact Assessment

The cumulative impacts of this proposed development together with the permitted SHD development (ABP Ref. TA29S.311591) on the adjoining site have been considered in conjunction with known other developments in the immediate area. The assessment for the subject site has concluded that the predicted impacts will be either imperceptible, not significant or slight and short term, so there is deemed to be no risk of a significant adverse cumulative impact if both developments proceed simultaneously.

Mitigation Measures

A Dust Management Plan will be formulated for the construction phase of the project, as construction activities are likely to generate some dust emissions. The principal objective of the Plan is to ensure that dust emissions do not cause significant nuisance at receptors in the vicinity of the site.

The design of the construction programme and the location and layout of the construction compound and the storage of materials will be carefully planned to ensure that air quality impacts are minimised.

Table 10 Table of Mitigation Measures for Air and Climate

Character of potential impact	Mitigation measure
Construction Phase	
Dust	A designated Site Agent will be assigned overall responsibility for Dust Management;
Dust	Implementation of the Construction Management Plan.
Dust	The design of the site and Construction programme considers dust impact management and chooses design approaches to minimise dust emissions;
Dust, general air quality	An effective training programme for site personnel will be implemented for the duration of the Construction Programme;
Dust, general air quality	A strategy for ensuring effective communication with the local community will be developed and implemented;
Dust	A programme of dust minimisation and control measures will be implemented and regularly reviewed;
Dust	A monitoring programme will be implemented.
Dust	Activities with potential for significant emissions will wherever possible be located at a position as far as possible removed from the nearest residential and commercial receptors;
Dust	The areas on site which vehicles will be travelling on will generally be hard-surfaced or compressed ground thus significantly reducing the potential for dust emissions from the vehicles;
Dust	The construction compound area will have hard standing areas to minimize dust generation from windblow.
Dust	In order to minimise the potential for wind-generated emissions from material storage bays, these bays will be oriented away from the dominant wind direction to minimise the effects of wind on release of dust and particulate.
Dust	Fixed and mobile water sprays will be used to control dust emissions from material stockpiles and road and yard surfaces as necessary in dry and/or windy weather.
Dust	A daily inspection programme will be formulated and implemented in order to ensure that dust control measures are inspected to verify effective operation and management.
Dust	A dust deposition monitoring programme will be implemented at the site boundaries for the duration of the construction phase in order to verify the continued compliance with relevant standards and limits.
Aspergillus Risks	The National Guidelines will be followed with regard to the effective management of Aspergillus risks.
Operational Phase	
Climatic Factors	The scheme shall only contain thermally efficient buildings. All buildings shall contain thermally enhanced glazing and window and door frames.

Residual Impacts

Due to the size and nature of the development and the nature and volume of the potential emissions, the construction phase activities will have a not significant impact on climate and will be short-term in

duration while the operational phase activities will have an imperceptible impact on climate and will be long-term in duration.

(X) NOISE AND VIBRATION

The potential noise and vibration impacts on the surrounding environment that requires consideration for a proposed development of this type includes two distinct stages, the short-term construction phase and the long-term operational phase.

During the construction phase the main site activities will include demolition, site clearance and excavation, foundations, building construction. This phase has the greatest potential for noise and vibration impacts on the surrounding environment but this phase will be of short-term impact.

During the operational phase of the proposed development, no significant sources of noise or vibration are expected from within the development. The primary source of noise in the operational context relates to any changes in traffic flows along the local road network and any operational plant noise.

Predicted Impact of Construction Noise

A variety of items of plant will be in use for the purposes of site clearance, demolition, preparation and construction activities. There will be no blasting techniques used during construction, and it is not envisaged that rock-breaking will be required as part of the site clearance works. Piling will be required for the foundations.

The actual noise level produced by construction work will vary at the nearest sensitive receptor boundary at any time depending upon a number of factors including the type of plant in use, plant location, duration of operation, hours of operation and intervening topography.

The results indicate that the predicted construction noise levels associated with site works will not exceed the assessment criteria for construction works of 70dB $L_{Aeq,1hr}$ for the works assessed. It should be noted that the construction noise levels are short-term impacts and are transient in nature and therefore the likely noise impact is considered to be Imperceptible to Moderate.

Predicted Impact of Construction Traffic

The traffic information in Chapter 11 of this EIAR calculates that during peak construction activity, the construction traffic will be modest in relation to existing traffic levels in this area. The additional traffic generated as a result of the construction phase of the proposed development results in a small increase in peak hour traffic. Therefore, the noise contribution from site traffic during the construction phase will not be perceptible and can be classified as "not significant" and it will be short term in duration.

Operational Phase Impacts

The only predicted contributions to the noise environment in the vicinity of the site will result from increased traffic movements as a result of the increased activity in the area.

For the purposes of assessing potential noise impact, the relative increase in noise level associated with traffic movements adjacent to the proposed development with and without the development was considered.

Overall, the noise climate in the area would be expected to remain very similar to the present situation as currently the predominant source of noise is passing traffic unrelated to the Scheme. There is no

significant change in traffic patterns predicted for the area and overall traffic volumes are predicted to increase slightly from current levels hence there is no observable change to the noise climate predicted.

In summary, the predicted change in noise levels associated with vehicles is neutral, long term and not significant.

Cumulative Impacts

The cumulative impacts of this proposed development together with other developments proposed by the Applicant have been considered in conjunction with known other developments in the immediate area. Construction noise impacts associated with the near-by developments being constructed at the same time as the subject site will contribute to a higher noise environment at the nearest noise sensitive locations during certain periods of construction. However, the assessment considered a four year construction phase and concluded that cumulative noise and vibration impact as a result of the adjacent developments is likely to be both temporary in nature and not significant in an overall context.

The potential for cumulative impacts to arise is greatest for those developments closest to the proposed development site, which in this instance is the adjoining permitted residential development immediately to the south (ABP SHD Planning Ref. TA29S.311591). It is likely that the permitted SHD scheme will be constructed simultaneously with the subject development as a single construction project and thereby extending the estimated construction period from 2 years to circa 4 years. Given the close proximity and potential scale of the development, this proposed development presents the greatest potential for cumulative impacts to arise.

The assessment for the subject site has concluded that the predicted impacts will be within the prescribed levels as set out by Dublin County Council in their guidelines even when a worst-case assessment scenario is applied. The quantitative assessment has determined that the zone of potentially significant cumulative impacts is 20m from the site boundary for construction works and therefore there is the potential for cumulative impacts to arise. The layout of the site and the potential impact on receptors was considered and it was deemed that provided the mitigation measures proposed are applied that there is no risk of a significant adverse cumulative impact if both developments proceed simultaneously. There might be a requirement to phase some limited amount of works in close proximity to each other at some times but this is readily managed as part of the overall Construction Environmental Management Plan for the site.

Mitigation Measures

Whilst the construction phase is not expected to give rise to significant negative noise impacts at sensitive receptors, the guidance on the control of noise and vibration from demolition and construction activities presented in BS 5228 will be followed. In addition site-specific mitigation measures have been proposed for selected activities to ensure that impacts are minimized.

The contractor shall prepare a Noise and Vibration Management Plan (NVMP) which will deal specifically with on-site activities in a strategic manner to remove or reduce significant noise and vibration impacts associated with the construction works.

The contractor shall appoint a community relations officer who will deal on a one-to-one basis with local stakeholders and will notify them before the commencement of any works forecast to generate appreciable levels of noise or vibration, explaining the nature and duration of the works.

Table 11 Table of Site Specific Mitigation Measures for Noise and Vibration

Character of potential impact	Mitigation measure
Construction Phase	
Construction noise	The contractor shall ensure that when work is undertaken on the rising floors that an acoustic synthetic barrier shall be employed along the external facade to minimise noise transmission to the surrounding environment.
Generators	Generators should be located as far as possible from sensitive boundaries especially the residential buildings.
Concrete breaking	Concrete breaking is one of the activities forecast to have the highest potential noise impact. During concrete breaking, the activity shall be screened with localised temporary barriers in order to break line of sight to the sensitive receptors. This may give up to a 10 dB reduction in noise levels which would ensure compliance with the required limits even when other activities are underway.
Foundation Works	Although CFA Piling is virtually vibration free and is the lowest noise level technique for piling routinely available, there are associated activities with potential to cause disturbance. The cutting of steel for the piles will give rise to significant noise levels when carried out in close proximity to residential receptors. It is therefore proposed that this activity shall be carried out at locations removed from the boundary of the site wherever possible to minimise noise impact. Where this is not feasible, an acoustic shroud / barrier shall be employed to minimise noise impact.
Monitoring	<p>It is proposed to undertake vibration monitoring when the demolition works are underway and during the installation of piles. Although CFA piling is virtually vibration free, it is proposed that monitoring shall be undertaken to ensure that there is (a) no nuisance as a result of this activity, and / or (b) no structural damage to nearby protected structures.</p> <p>Noise monitoring will also be undertaken throughout the construction phase in accordance with Dublin City Council Good Practice Guide as follows. Carry out regular on site observation monitoring and checks/audits to ensure that Best Practicable Means (BPM) is being used at all times. Such checks shall include;</p> <ul style="list-style-type: none"> • Hours of work • Presence of mitigation measures • Number and type of plant • Construction methods <p>Monitor noise and vibration continuously during demolition, piling, excavation and sub and superstructure works at agreed locations and report to DCC at agreed intervals and in an agreed format.</p>

Residual Impacts

During the construction phase of the proposed development there will be some noise impacts experienced at the nearest receptors to the subject site. It is predicted that the mitigation measures proposed will ensure that noise and vibration impacts are kept to a minimum. The predicted noise and vibration impacts on the receiving environment during the construction phase are considered to be moderate and temporary and over a short time-period.

The potential for noise generation during the operational phase of the proposed development is limited to additional vehicles on the surrounding road network. The change in vehicle numbers predicted is not significant in an overall context. The predicted noise and vibration impacts on the receiving environment during the operational phase are considered to be not significant and long-term.

(XI) MATERIAL ASSETS: TRAFFIC AND TRANSPORTATION

Impacts Assessed

This chapter of the EIAR assesses and evaluates the likely impact of the proposed development on the surrounding road network, with a particular focus on the operation of nearby existing road junctions. Both the development's construction phase and its operational phase are considered, and proposed mitigation measures are identified.

Relevant Receptors

In the context of this chapter, environmental receptors susceptible to being affected by the proposed development comprise elements of the surrounding road network (adjacent streets and their junctions), as well as nearby public transport services.

Baseline Scenario

Assessment of the three existing road junctions closest to the development site (including the two existing access junctions to the Heuston South Quarter complex) shows that all three junctions currently operate efficiently and within their design limits.

The development site benefits from proximity to good quality public transport services, being within a 10-minute walk of Luas tram stops, Heuston railway station, and numerous bus routes. Existing surrounding pedestrian facilities are generally of a good standard, and an advisory cycle lane is in place on St. John's Road West.

Traffic Impact Assessment

The methodology employed for assessing the development's impact on nearby road junctions comprises the following:

- A traffic survey to establish baseline vehicle traffic movements.
- The application of growth factors to scale these flows up to future year levels.
- Calculation of the development's vehicle trip generation during peak hours (as well as those of nearby committed and planned developments), using a database of past traffic surveys.
- Distribution of these vehicle trips across the local road network in accordance with existing traffic patterns.

- Computer modelling of nearby junctions to determine their operational performance under existing and future traffic conditions.

Construction Phase Impacts

The subject development will generate vehicular trips to and from site during the construction phase. Temporary access restrictions will also be required during construction, resulting in the diversion of some light vehicle traffic that currently uses the northern access junction of the HSQ complex. An assessment of junction performance found that nearby junctions will operate efficiently under these conditions. During its construction phase, the subject development is therefore predicted to result in a short-term slight adverse impact on the operation of junctions on the surrounding road network. This impact will be confined to the duration of construction activity on site and will therefore be entirely reversible.

There is also potential during the construction phase for construction-related activity to impact upon the surrounding road network in other ways, for instance through surrounding roads being temporarily obstructed by stopped/parked construction vehicles or by delivery/loading operations, or being fouled by dirt/debris originating from the construction site. In the absence of mitigation measures, these impacts will be adverse in nature, short-term in duration, and significant. The construction phase mitigation measures previously described are however intended to prevent and minimise these impacts, and these measures will be strictly adhered to.

Given the high capacity of nearby public transport services and the fact that most construction personnel will travel outside of background peak hours, the adverse effects of construction personnel using public transport for travel to and from the site will be imperceptible and short-term.

Cumulative Operational Impacts

In its operational phase, the subject development shall generate regular vehicular trips on the surrounding road network, increasing traffic flows at nearby existing junctions. An assessment of nearby junctions was conducted under the predicted traffic conditions for the design year 2039 (15 years after completion of the subject development), including traffic generated by the subject development, and this was compared to the Do-Nothing scenario previously described. As under the Do-Nothing scenario, additional vehicle traffic that will be generated by nearby other committed and planned developments was included in the operational phase assessment, representing a cumulative impact assessment. This analysis showed that the traffic flows generated by the subject development will produce slight increases in vehicle queues and delays at nearby junctions but will not have a pronounced effect on their operation.

During its operational phase, the subject development is therefore predicted to result overall in a long-term slight adverse impact on the operation of junctions on the surrounding road network. This impact should be considered reversible to a degree, as any future measures that reduce local vehicular traffic volumes (e.g. improvements in public transport or cycling infrastructure, junction redesign, or changes in general traffic flow restrictions) have the potential to improve local traffic flows generally, as well as to reduce vehicle trips to/from the subject development.

In its operational phase, the development also has the potential to affect the operation of adjacent public transport services, pedestrian and cyclist facilities. Given the high capacity of public transport services within easy reach of the subject site (including the Luas Red Line, mainline rail services, and numerous bus services), the proposed development is likely to have a long-term imperceptible adverse

effect on the operation of these services. The proposed development is also likely to have a long-term imperceptible adverse effect upon the operation of adjacent pedestrian and cyclist facilities.

Construction Phase Mitigation Measures

The lead contractor appointed for the construction of the development will be required to prepare a site-specific Construction Management Plan (CMP), which will outline measures to be taken to mitigate the effects of construction traffic on the surrounding road network. A Designated Community Liaison Officer (DCLO) will be nominated for the subject development, who will work with DCLOs on other active sites to coordinate construction activities. The DCLO will also act as a point of contact for local residents, Dublin City Council, An Garda Síochána.

The final site-specific CMP will include a plan for the scheduling and management of construction traffic, so as to:

- avoid heavy construction traffic travelling via unsuitable roads and junctions;
- avoid construction traffic parking, queueing, or loading/unloading the public road;
- schedule most construction traffic outside peak hour times; and
- keep the public roads around the site clean.

Construction personnel will be encouraged to make use of the available high-quality public transport links to the area and/or to commute by bicycle, to minimise private car trips to and from the site. To avoid problems of parking overspill on surrounding streets, however, limited essential staff parking shall be provided within the site. In parallel with this, parking restrictions and management measures on surrounding streets will be reviewed and implemented as necessary in agreement with local residents and Dublin City Council.

The impact of construction personnel using public transport for travel to and from the site will be minimal, given the high capacity of nearby public transport services and the fact that most construction personnel will travel outside of background peak hours. Nonetheless, as an additional mitigation measure, the lead contractor appointed to the project will be required to make provisions for the alternative group transport of construction personnel by:

- providing a charter bus service to/from suitable collection areas; and
- facilitating car sharing among construction personnel.

The above measures will be subject to public health guidance applicable at the time of construction.

Operational Phase Mitigation Measures

The development shall incorporate several design and management elements intended to mitigate the impact of the development on the surrounding road network during its operational phase. These include:

- a reduced car parking provision, which shall discourage unnecessary vehicular trips to the development (by development occupants and visitors); and
- a high provision of secure bicycle parking, which shall serve to encourage bicycle journeys by both development occupants and visitors.

A Travel Plan Coordinator shall be appointed for the proposed development, with the remit to implement and oversee an ongoing Workplace Travel Plan (WTP). This shall assist development

occupants and visitors in making the most of sustainable transport opportunities and in avoiding single-occupant car journeys to and from the development site where possible.

Table 12 Table of Mitigation Measures for Material Assets: Traffic and Transport

Character of potential impact	Mitigation measure
Construction Phase	
Reduction of adjacent road junctions' operational performance due to vehicular trips to/from proposed development	Deliveries and material removal trips will be scheduled outside of peak hour periods
	HGV movements to and from the site will be staggered
	Haulage vehicles will be prevented from travelling in convoys of more than two vehicles at any time
	Haulage vehicles will be spaced by a minimum of 250m at all times
Obstruction of adjacent roadways by parked or queuing construction vehicles	All loading and unloading operations will be conducted within the site
	Limited essential parking for construction personnel and visitors will be provided within the site
	Construction personnel will be supported in making use of public transport and/or in cycling, when commuting to site
	Parking restrictions and parking management measures will be implemented on surrounding streets
Fouling of adjacent roadways by construction-related dirt/debris	All loading and unloading operations will be conducted within the site
	A vehicle wheel wash will be installed at the exit from the site
	A road sweeper will be deployed as necessary to keep surrounding streets clean
CMP	All mitigation measures in the Construction Management Plan will be implemented
Operational Phase	
Reduction of adjacent road junctions' operational performance due to vehicular trips to/from proposed development	The development design includes a limited internal car parking provision
	The development design includes a high provision of internal bicycle parking
	A Workplace Travel Plan will be implemented

DCC PLAN NO: 4610/22
 RECEIVED: 04/08/2022

Workplace Travel Plan	A Travel Plan Coordinator will be appointed to implement the Workplace Travel Plan
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Future Do-Nothing Scenario

The Do-Nothing scenario relates to the design year 2039 (15 years after completion of the subject development). This allows for general increases in background vehicle traffic over this period, as well as additional vehicle traffic that will be generated by nearby other committed and planned developments. Vehicle traffic generated by the subject development itself is not included.

Under these conditions, assessment shows that the existing junction of Military Road with St. John's Road West (R148) will experience traffic flows higher than designed for and, unless upgraded in the interim, will cease to function effectively by the year 2039. Both existing HSQ access junctions will continue to operate effectively but the northern access junction will approach the limit of its design capacity.

Under a Do Nothing scenario, whereby the subject development is not constructed, the operation of nearby public transport services and adjacent pedestrian/cyclist facilities will nevertheless be affected by prevailing trends in travel habits, changes in service provision and transport infrastructure, and the influence of other nearby developments. It is however not possible to quantify these effects over the medium or long term.

Major Accidents

With respect to traffic and transport matters, the subject development does not have the potential to result in any major accident or disaster within the meaning of the EIAR Guidelines. While a serious flooding event would have the potential to obstruct access to the development, flood risk modelling indicates that the development site is located in the lowest-risk zone for river flooding.

Monitoring

The lead contractor appointed for the construction of the development will be required to prepare a site-specific Construction Management Plan (CMP), which shall outline measures for monitoring the impact of construction traffic on the operation and condition of the surrounding street network, including remedial actions to be taken in the event of construction traffic causing damage to road infrastructure.

The lead contractor will also be required to monitor the travel habits of construction personnel and to tailor supports for public and shared transport use accordingly. Surrounding streets will be monitored to ensure that no nuisance parking associated with construction activity takes place.

Post-development monitoring of the surrounding street network's performance is not required or proposed in this case. Within the scope of the Workplace Travel Plan (WTP) to be implemented for the development, however, the Travel Plan Coordinator shall be responsible for monitoring the travel habits of development occupants and visitors. The Travel Plan Coordinator shall gather data on travel patterns, for instance by conducting periodic travel surveys of development occupants.

Residual Impacts

With full implementation of the identified mitigation measures, the residual traffic-related impact of the proposed development during its construction phase will be limited to the short-term and slight adverse effects of construction traffic on the operation of nearby road junctions, which will be confined to the

duration of construction activity on site. The adverse effects of construction personnel using public transport for travel to and from the site will be imperceptible and short-term.

The residual traffic-related impact of the proposed development during its operational phase will be that described under 'Cumulative Operational Impacts'; such residual effects are considered to be adverse in nature, long-term in duration, but slight in significance. In its operational phase, the proposed development is likely also to have a long-term imperceptible residual adverse effect on the operation of nearby public transport services and upon the operation of adjacent pedestrian and cyclist facilities.

(XII) MATERIAL ASSETS: WATER SUPPLY, DRAINAGE AND UTILITIES

This chapter of the EIAR was prepared by both CS Consulting (water infrastructure) and IN2 consultant Engineers (gas, electricity and telecomms).

Proposed Development

The potable water and wastewater section of the Material Assets Chapter reviewed the requirements of the proposed development against the current Irish Water infrastructure in the area. The proposed development will install and commission, to Irish Water standards, new potable water and wastewater infrastructure to facilitate the scheme.

In accordance with the requirements of Irish Water, a Pre-Connection Enquiry for foul & potable water connections has been made to Irish Water. This submission allowed Irish Water to evaluate the current local & regional infrastructure to establish if the proposed foul loading and potable water demand could be met.

Irish Water have issued a *Confirmation of Feasibility* for the proposed development, and have indicated that the scheme can be accommodated by their current network without local or regional upgrades.

The Electrical, Gas and Telecoms sections of the Material Assets Chapter reviewed the demands of the proposed development against the current ESB, Gas Networks and Telecoms utility infrastructure in the area. The existing utilities infrastructure will be extended to provide new ESB and Telecoms connections sized for the proposed development. Each of these connections will be designed, installed and commissioned in full compliance with the relevant guidelines and standards.

There is no new Gas supply proposed to the site as the heating, cooling and hot water production will all be provided by Air Source Heat Pumps.

Identification of Significant Impacts

The proposed foul drainage system and potable water system have been designed in accordance with the relevant Irish Water codes of practice, notably the Code of Practice for Wastewater Infrastructure and the Code of Practice for Water Infrastructure. The magnitude and significance of the development's impacts on potable water and foul services will be short-term and slight during the construction phase, and long term and slight during the proposed development's operational phase.

As Irish Water has assessed the regional requirements for both water and wastewater services, and shall monitor and have operational responsibility for these services going forward, no short term construction or long term operational issues have been identified.

The residual impacts on foul drainage and potable water supply have been deemed to be long term and imperceptible. Cumulative effects have been considered, with no additional significant residual effects predicted following the implementation of mitigation measures.

The impact of the development on the Electrical and Telecoms infrastructure during the construction phase will be short term and slight, while the impact on the Gas network will be short term and imperceptible.

The long-term impact of the development on the Electrical and Telecoms infrastructure during the operational phase will also be slight.

Mitigation Measures

Table 13 Table of Mitigation Measures for Material Assets: Water Supply, Drainage and Utilities

Character of potential impact	Mitigation measure
Construction Phase	
Environmental Management	Temporary discharge utilising the existing or permitted sewerage network will be by agreement with Dublin City Council and Irish Water. All necessary health and safety measures and best practice will be undertaken to ensure the safety and welfare of construction personnel, the public and road users during construction of the foul infrastructure.
Damage to Public System	The contractor will make all necessary arrangements for a temporary water supply in agreement with Irish Water and Dublin City Council. A water meter will be installed to monitor water consumption on the site and to enable early detection of any potential leaks. Inspection and acceptance of connections will be required prior to services being allowed.
Site Management	Good site governance to ensure storm generated on site is disposed into the storm system and foul into the temporary foul system so that no misconnections occur.
ESB	<p>The contractor will engage with ESB to facilitate the installation of the required infrastructure. Site ductwork and sub-stations will be constructed to ESB technical standards and will remain locked and under full control of the ESB once power is provided to the site.</p> <p>Prior to excavation the Contractor will carry out additional site investigation, including camera survey of existing ducts, in order to determine the exact location of the electricity network in close proximity to the works area.</p> <p>All works in the vicinity of ESB Networks infrastructure will be carried out in ongoing consultation with ESB Networks and will be in compliance with any requirements or guidelines they may have including procedures to ensure safe working practices are implemented when working near live overhead/underground electrical lines</p>

	Where new services are required, the Contractor will apply to ESB Networks for a connection permit where appropriate and will adhere to their requirements
Gas Network	<p>Prior to any excavation adjacent to gas services the Contractor will carry out additional site investigation to determine the exact location of the gas network in close proximity to the works area. This will ensure that the underground gas network will not be damaged during the construction phase.</p> <p>All works in the vicinity of GNI infrastructure will be carried out in ongoing consultation with GNI and will be in compliance with any requirements or guidelines they may have including procedures to ensure safe working practices are implemented when working near live gas mains.</p>
Operational Phase	
Foul	The development's proposed internal foul drainage network, when completed, will not be vested to Irish Water. As such, the development's facilities management company will have responsibility for its ongoing maintenance and operation. Any issues going forward will therefore be addressed and mitigated against.
Water Supply	The development's proposed internal potable water supply network, when completed, will not be vested to Irish Water. As such, the development's facilities management company will have responsibility for its ongoing maintenance and operation. Any issues going forward will therefore be addressed and mitigated against.
Reduction in Ringsend WwTP	Ringsend WwTP is currently the subject of upgrade works to ensure its fitness for purpose. The upgrade works will ensure that future capacity for the greater Dublin region is available.

(XIII) CULTURAL HERITAGE: ARCHAEOLOGY

This chapter describes the archaeological and historical implications of a development site at St John's Road/ Military Road, Kilmainham, Dublin 8., known as Heuston South Quarter. The report consists of both a desk- based archaeological evaluation and the results of archaeological excavation on the site. The excavation report is included as Appendix 13.A. Results of excavations in the immediate vicinity are presented in Appendix 13.B.

The report has been prepared by Claire Walsh, licensed archaeologist, who carried out the original test excavation and subsequent full excavation on the site prior to development. Claire Walsh is a partner in Archaeological Projects Ltd and has worked for over 36 years primarily in development archaeology.

Receiving Environment

The receiving environment is a basement which was constructed in 2002 onwards. No archaeological strata remain on the site which was fully excavated by the writer in 2002 onwards.

Characteristics of the Proposed Development

The proposed development will provide a mixed use commercial development comprising of a hotel (238 no. bedrooms) and an office block providing a cumulative Gross Floor Area (GFA) of 33,653, inclusive of basement area. The proposed basement will be integrated with the existing basement levels. Construction over the basement and lower ground floor levels will consist of a six-storey hotel and a twelve- storey office building to the east of the hotel.

Assessment Methodology

This assessment has been carried out in accordance with the requirements of the European Union (Planning and Development) (Environmental Impact Assessment) 2018-S.I. No 296 of 2018.

The chapter has been prepared having regard to the following EPA guidelines and guidance:

1. Guidelines on the Information to be Contained in Environmental Impact Assessment Reports (Environmental Protection Agency, May 2022);
2. Guidelines on the Information to be contained in Environmental Impact Statements (EPA, 2002); and
3. Advice Notes on Current Practice in the Preparation of Environmental Impact Statements (EPA, 2003).

The report draws on the following:

- files held in National Monuments (the Record of Monuments and Places listing for the various features on or close to the site is used in this report)
- cartographic sources
- written sources, including archaeological and historical material
- full excavation on site, carried out by the writer, under licence 02E0067 (extension) from National Monuments Service, Department of Culture, Heritage and the Gaeltacht.

Identification of Likely Significant Impacts

The basement to the entire site has already been constructed, following full archaeological excavation of features where present on the site. Therefore, this assessment found that there is no impact on the archaeological resource in completion of development of this part of the larger site.

Mitigation & Monitoring Measures

Mitigation measures are required during the construction phase. The site lies within the zone of notification of DU018-112 and DU018-020528, the garden of the Royal Hospital. Where works are intended to be carried out at or within the zone of notification of a Recorded or Registered Monument, they are required to give notice to the Minister two months before commencing that work.

No mitigation measures are required for the operational phase.

Table 14 Table of Mitigation Measures for Cultural Heritage & Archaeology

Character of potential impact	Mitigation measure
Construction Phase	
Recorded Monuments DU018-112 and DU018-020528.	Give notice to the Minister for Housing, Local Government and Heritage two months before commencing work at the site.

Residual Impacts

There are no residual impacts on the Cultural Heritage, Archaeology, of this development. All mitigation has been undertaken as part of the larger site works in 2002 -2004.

Interactions Arising

There are no interactions arising in respect of the Cultural Heritage, Archaeology, of this development.

(XIV) CULTURAL HERITAGE: ARCHITECTURAL HERITAGE

The subject site forms part of a larger development called Heuston South Quarter (HSQ). The existing mixed-use development consists of apartments, office and retail space. There is a permitted SHD for Built-To-Rent (BTR) apartments on a site immediately south of the subject site.

Receiving Environment

The site is situated along St John's Road West opposite the rail infrastructure leading into Heuston Station. To the east is an office block of the HSQ development. Part of the boundary to the west is shared with the Royal Hospital Kilmainham (RHK) gardens. The site contains a partially completed building, work having ceased at the time of the 2008 financial crisis.

This RHK buildings and gardens are part of an internationally significant complex. These lands which are part of the historic parish of Kilmainham would later become part of the Phoenix Park, the ground of the RHK being carved from them. There are a number of historic structures in the vicinity associated with the later use of the Phoenix Park for military purposes such as military Infirmaries, barracks, hospitals and Kilmainham Gaol. These range from Regional to National importance on the National Inventory of Architectural Heritage. These are summarised in the table below and listed in by category from those ascribed International importance through to Regional importance.

Figure 3 Identification of Protected Structures (within the enclosing urban environment and their relationship with the subject development site overlaid on aerial view) (Google Earth)

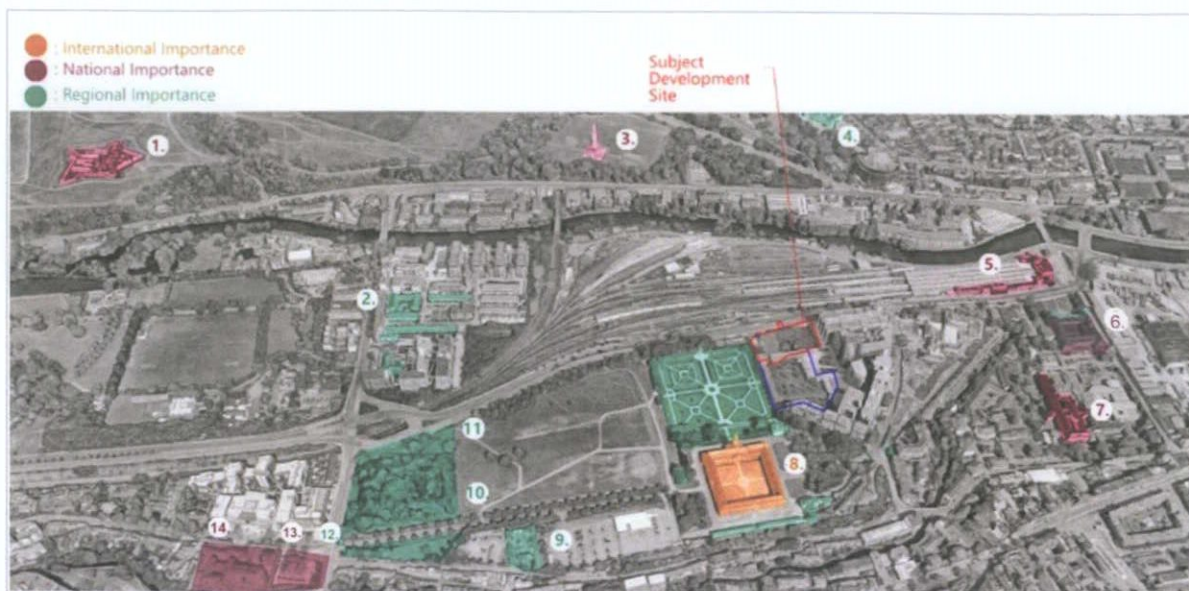


Table 15. Table of Protected Structures within the enclosing urban environment and their relationship with the subject development site

Key	RPS No.	Address	Description	Relationship with the Subject Site
NIAH Rating: International Importance				
8.	5244	Military Road, Dublin 8	Royal Hospital Kilmainham and attendant buildings. Dublin's earliest large-scale classical building.	The primary northern facade of the RHK addresses the formal gardens directly adjacent to the subject site, which is at a lower level.
NIAH Rating: National Importance				
1.	6760	Phoenix Park, Dublin 8	Magazine Fort, Military Road. A mid-eighteenth-century magazine.	Located on elevated site at southern side of Phoenix Park to the north-west of the subject site.
3.	6762	Phoenix Park, Dublin 8	Wellington Monument, Wellington Road. Freestanding granite obelisk.	Situated in a large grass area of the Phoenix Park, to the northeast of the development site.

5.	7576	St. John's Road West, Islandbridge, Dublin 8	Heuston Station: Terminal building and offices.	Due northeast of the development site, separated by the bypass and the Phase 1 HSQ development.
7.	856	Bow Lane West, Dublin 8	St. Patrick's Hospital: original building, wall, gates and gatehouse.	Due southeast of the development site, separated from the RHK by the Phase 1 HSQ development.
6.	7840	Steevens Lane, Dublin 8	Dr Steevens Hospital (original building).	Due east of the development site, separated from the RHK by the Phase 1 HSQ development.
13.	3986	Inchicore Road, Dublin 8	Kilmainham Courthouse.	Due west of the development site, separated from the RHK by trees in the Bully's acre and topography.
14.	3987	Inchicore Road, Dublin 8	Kilmainham Gaol.	Due west of the development site, separated from the RHK by trees in the Bully's acre and topography.
NIAH Rating: Regional Importance				
2.	1851	Circular Road South, Dublin 8	Clancy Barracks: 19th century artillery barracks buildings.	Located due west of the subject development site, separated from the RHK by the railway line at Heuston Station.
4.	3993	Infirmery Road, Dublin 7	Department of Defence (former Royal Infirmery, Phoenix Park).	Located in the elevated south-east corner of the Phoenix Park. Its visual prominence has been altered by the extension and modern surrounding development.
9.	4256	Kilmainham Lane, Dublin 8	Garda Station: all buildings within complex.	Positioned at the south-western boundary of the RHK complex, at a distance from the subject site.
10.	N/A	Bully's Acre, off South Circular Road	Graveyard with c.70 headstones dating from 1764 to 1832. Incorporating earlier burials, from c.1200 onwards.	Positioned on axis with the western facade of the RHK, the graveyard has been annexed from its greater context by the adjacent road developments.
11.	N/A	Off St. John's Road West, Dublin 8	Military cemetery for occupants of RHK, established in 1880 & 1905 and used until 1905 & 1931 respectively.	Positioned on axis with the western facade of the RHK, the graveyard has been annexed from its greater

				context by the adjacent road developments.
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Characteristics of the Proposed Development

The proposed development is a mixed-use commercial building which comprises of a hotel (238 no. bedrooms) and an office block providing a cumulative Gross Floor Area (GFA) of 19,474 sqm, exclusive of basement area. There is a 5-storey (over lower ground floor and basement) hotel to the west adjacent to the RHK gardens and a 12-storey (over lower ground floor and basement) office. The office element is to the east of the edge of the Cone of Vision (COV); this is a view from the Royal Hospital Kilmainham (RHK) looking north towards the Phoenix park which is deemed significant and forms part of the development plan. This view is from the terrace towards the north and spans from the Magazine Fort in the Phoenix Park to the west to the Cupola (Dome) of the Royal Infirmary to the east which is situated close to the entrance to the park. The hotel element is lower to allow a view over the development towards the Phoenix Park.

Assessment Methodology

The desktop aspect of the study referred to the legislation surrounding architectural heritage and the National Inventory of Architectural Heritage (NIAH) and the Record of Protected Structures (RPS). Primary material included historic maps and secondary material included studies of the historic structures and landscape. The site was also visited and the surroundings studied.

Identification of Likely Significant Impacts

There are no protected structures or architectural heritage on the site itself. There are two aspects of the architectural heritage which may be impacted as a result of the proposed development; firstly, structures that might be physically affected during the construction of the development or through its continuing operation and secondly, visual impacts on the views from the adjacent and important RHK building and grounds and also the views of the RHK from various important locations around it, such as looking towards the RHK from the Phoenix Park.

The impact of the proposed development was assessed by analysing photomontages prepared by Modelworks of the proposed development. For each view, the existing view is shown, then a view with the proposed commercial development and finally a view with the proposed commercial development and the adjacent permitted residential development (the SHD). These form part of the submission.

The view from the Cone of Vision (COV) is not adversely affected by the development as the hotel is of a height that the Cupola of the Royal Infirmary can still be seen from nearly all vantage points on the terrace – it is not visible from the very east but the presence of the existing HSQ development detracts from this view already. The 12-storey office tower has a curved glazed façade with offset panels and the effect of this is to soften the eastern edge of the COV.

Part of the attraction of a walled garden is its secluded nature. The proposed development shares a boundary of some 15 metres with the far northeast corner of the RHK garden. The proposed hotel is behind the existing stone garden wall and the proposed materials of warm brick and the regularity and reticence of the façade design help to reduce its impact. Proposed planting on the roof will help reduce the impact also. It does not adversely affect the sense of enclosure in the garden.

The proposed office element is visible from a number of locations such as the Phoenix park opposite and from the banks of the Liffey opposite Heuston Station. The proposed tower merges with the mass

of development that forms the HSQ. The curved glazed façade, as described above, helps to reduce the effect of the mass of the tower as the light is reflected in varying ways. From a closer perspective the proposed tower obscures the irregularity of the phase 1 HSQ development.

Mitigation & Monitoring Measures

Mitigation measures are proposed to reduce and remove significant impacts arising from the proposed development. This measures are summarised below:

Construction Phase: The RHK garden wall should be recorded, protected and monitored during the work by a Conservation Architect. Vibration monitoring should also be undertaken to ensure protected structures in the vicinity are not damaged.

Operational Phase: The proposed roof top planting should be implemented and maintained as it softens the impact of the building. A lighting plan to avoid light spillage and a plan to limit noise from the hotel should be implemented to ensure the qualities of the RHK garden are maintained.

Table 16 Table of Mitigation Measures for Architectural Heritage

Character of potential impact	Mitigation measure
Construction Phase	
Visual Impacts	Scaffolding covers will be used to ameliorate the visual impact of scaffolding on the garden, and the impacts of debris and dust been blown from the site.
Visual Impacts	Discrete construction signage and hoarding will be utilised to reduce the visual impact on the garden and the public’s enjoyment.
Vibration and Ground Disturbance	Vibration monitoring will be undertaken to mitigate risks to the RHK boundary wall and adjacent protected structures will be implemented. This will be undertaken under the supervision of a conservation architect.
Protection from Damage	Protection measures for the boundary will be put in place prior to the works at the proposed hotel and works to foundations and services. Protection measures will include measures to ensure both debris and machinery do not damage the wall. These measures should be monitored during the work.
Operational Phase	
Noise	The use of the roof terrace should not allow for events to take place which generate excessive noise during times when the gardens are open
Lighting	Lighting at the development will be managed so that light spillage will not detract from the enjoyment of the garden.

Residual Impacts

There will be residual visual impacts as a result of the proposed development. These should be seen in the context of necessary urban growth in a part of the city with excellent amenities and transport links. These visual residual impacts have been minimised where possible through the proposed materials, the restrained rhythm of the façade and the massing of the building which maintains the COV.

Interactions Arising

Landscape and Visual Impact – the planting on the roof terraces will assist in softening the impact of the proposed development.

(XV) LANDSCAPING AND VISUAL IMPACT ASSESSMENT

The commercial development site at Military Road / St Johns Road West, Kilmainham is part of the Heuston South Quarter (HSQ) Strategic Development Regeneration Area (SDRA -7). The main aim of the Heuston SDRA is to develop a high-quality area for living, working and socialising. This aim is to be achieved by means of high-quality sustainable urban architecture which incorporates the prioritisation of public space and interconnects sympathetically with the existing architecturally sensitive area.

Receiving Environment

The proposed site lies between the relatively recently developed first phase of the HSQ which bounds Military Road to the east and the Royal Hospital Kilmainham (RHK) which lies to the west of the site. The lodged Strategic Housing Development application is immediately to the north of the commercial site and the commercial site fronts onto St John Road West. The proposed commercial development will create pedestrian access routes between St John Road West, the permitted SHD development (ABP Ref. TA29S.311591) and the existing HSQ development.

Proposed Development

The commercial development will comprise a 6 storey (over basement) hotel and a 12 storey (over lower ground and basement level). While the proposed commercial buildings face onto St Johns Road West they are orientated towards a plaza and a proposed connecting avenue connecting avenue into the grounds of the RHK subject to grant of planning. A diagonal ramped access route from St Johns Road West creates a direct accessible pedestrian link which is designed to have a visual connection with the Wellington Monument in the Phoenix Park. These connecting pedestrian routes will also connect with the existing HSQ Plaza and onwards to Military Road. Both the hotel and the office building have landscaped roof terraces increasing the available open space in the development for hotel guests and office workers. The hotel building is closest to the RHK formal gardens and given the existing ground level differential between the RHK Gardens and the HSQ site the hotel buildings will appear as 3 storeys above the gardens. The architectural treatment of the hotel building façade and fenestration facing the RHK gardens is designed to complement the formal gardens and planting along the building parapet and roof terraces visually link the development with the RHK gardens.

The landscape design for the development will include the use of high-quality materials across the site and with a strong emphasis on a diverse planting palette from clipped semi mature trees, clipped specimen hedging, shrub planting with year-round appeal to grouped native species planting to encourage biodiversity on the site.

Assessment Methodology

The LVIA reviewed the visual impacts of the proposed development along with the cumulative impacts of the permitted SHD scheme and buildings in the vicinity. A series of 24 No. photomontages was set up around the site in conjunction with comments from Dublin City Council to evaluate the visual impacts of the development.

Identification of Likely Significant Impacts

A visual analysis of the photomontages, based on the Environmental Protection Agency (EPA) Significance Criteria, was carried out and this analysis showed that visual impacts would range from imperceptible to moderate negative during the construction phase depending on location with the most visually negative impacts for views from the southwest and west, i.e., where views were from elevated positions and there was little existing screening. In the operational phase visual impacts ranged from imperceptible neutral (views from the east) to slight negative tending to imperceptible (view from the garden terrace of the RHK Deputy Master's House) where there was little existing screening.

The cumulative visual impacts of the SHD development to the south of the commercial development site was also evaluated along with the other proposed building developments planned or granted close to the site. The analysis showed that views from the east and south as imperceptible neutral as the existing HSQ buildings and SHD buildings screened the majority of views towards commercial phase. Views from the southwest and west of the RHK ranged from slight negative to moderate negative as more of the building was visible. The cumulative impact of other proposed buildings in planning or under construction was also considered based on available information.

Overall, the visual impact from the proposed development can be described at worst as moderate negative in the construction stage and slight negative tending to imperceptible in the operational stage.

Mitigation Measures

Below is the full list of mitigation measures relating to Landscape and Visual Impact.

Table 16 Table of Mitigation Measures for Landscape and Visual Impact

Character of potential impact	Mitigation measure
Construction Phase	
Protecting of existing street trees	Provision of secure hoarding / tree protection measures for existing retained trees.
Materials falling from a height	Use of screening and webbing to prevent materials falling from a height endangering local residents / office staff / visitors.
Site lighting	Directing site lighting away from existing residents / office / retail / creche.
Building phasing	Phasing of development in order that the buildings and surrounding landscape works are completed as soon as possible.
Landscape Contractor selection	Landscape Architect to ensure a competent experienced landscape contractor is appointed to undertake the work

Landscape tender implementation	Landscape Architect to oversee soil preparation, planting and hardworks commissioning to be as specified in the in the Landscape Drawings and Landscape Hardworks and Softwoks specifications.
Operational Phase	
Landscape Maintenance	Given the location of the development and proposed connection into the RHK grounds a comprehensive landscape maintenance scheme is proposed
Landscape Review	Site administration to organise reviews of the hardworks, and softworks and update / repair / replant as required to mitigate against public liability issues which may arise.

(XVI) INTERACTIONS WITH THE FOREGOING

Chapter 16 of the EIAR provides an assessment of the interactions and interrelationships of the different environmental factors / impacts that will occur as a result of the proposed development including synergistic and cumulative impacts.

All environmental topics are interlinked to a degree such that interrelationships exist on numerous levels. The comprehensive assessments undertaken as part of this EIAR has revealed that the proposal will not result in any significant adverse effects on the environment. Mitigation measures have been proposed to avoid, remedy or reduce identified impacts.

This assessment of interactions arising concluded that the proposed development will not result in any significant synergistic interactions or cumulative adverse impacts on the environment.

In all instances, mitigation measures have been proposed to avoid, remedy or reduce identified impacts. Mitigation measures are proposed and outlined within individual EIAR chapters to ensure that any potential adverse impacts that may arise as a result of the proposed development are minimised/neutralised.

(XVII) MITIGATION MEASURES

Chapter 17 of the EIAR compiles and lists the mitigation measures and monitoring requirements described in the previous chapters of the EIAR. The mitigation measures described in the EIAR are listed in the sections above.

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