EAST ROAD STRATEGIC HOUSING DEVELOPMENT: 1-4 EAST ROAD, DUBLIN 3

Non-Technical Summary (NTS) - Volume 1

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Environmental Assessment **Built Environment**

Client: Glenveagh Living Ltd.

Date: 18 June 2019

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Contents

1 Introduction

This Environmental Impact Report (EIAR) has been prepared in support of a planning application for a proposed Strategic Housing Development (SHD) and associated infrastructure at 1-4 East Road, East Wall, Dublin 3 (hereafter referred to as "the proposed Project"), for Glenveagh Living Ltd., the applicant.

This Report (NTS - Volume 1) is a summary of the information contained in the Main Report - EIAR (Volume 2). For detailed information and key mitigation measures please see the full EIAR (Volume 2).

Having regard to the 2014 EIA Directive, and the Circular Letter PL 1/2017 of the Department of Housing, Planning, Community and Local Government, the Main Report has been titled an Environmental Impact Assessment Report (EIAR). This constitutes and fulfils the requirement of an Environmental Impact Statement (EIS) as required under and in accordance with the Planning and Development Act, 2000, as amended, (Part X); and Part 10 of the Planning and Development Regulations, 2001-2017.

2 The Environmental Impact Assessment (EIA) Process

2.1 The Purpose of an EIAR

The Environmental Impact Assessment (EIA) Directive aims to provide a high level of protection to the environment and ensures environmental considerations are taken into account in the preparation of a proposed Project, with the view to reducing environmental impacts.

The objective of this EIAR is to identify and predict the *likely environmental impacts* of the proposed Project. The EIAR describes the means and extent by which any environmental impacts can be avoided, reduced or improved; to interpret and communicate information about the likely impacts; and to provide an input into the decision making and planning process.

2.2 The Requirements for an EIAR

The 2014 Directive specifies the classes of project for which an EIA is required and the information which must be contained within the EIAR. In accordance with *Article 4(1)* of the 2014 Directive. All projects listed in Annex I are considered as having *significant effects* on the environment and are subject to an Environmental Impact Assessment (EIA). Projects listed in Annex II of the EIA Directive, the national authorities may determine whether an EIA is needed, either on the basis of thresholds / criteria or on a case by case examination.

Projects needing an EIA are listed in Schedule 5 of the Planning and Development Regulations 2001-2017.

Schedule 5 (Part 2) of the Planning & Development Regulations 2001 (as amended) set mandatory thresholds for each project class. Sub-sections 10(b)(i) and 10(b)(iv) addresses '*infrastructure projects*' and requires that the following class of project be subject to EIA:

> *"Class 10(b) (i).* ***Construction of more than 500 dwelling units****."*
> *"Class 10(b) (iv). Urban development which would involve an* ***area greater than 2ha*** *in the case of a* ***business district****, 10ha in the case of other parts of a built-up area and 20ha elsewhere." [Emphasis added].*

Therefore, an EIA is required and an EIAR (Volume 2) has been prepared and will be submitted to An Bord Pleanála with the Strategic Housing Development (SHD) Planning Application.

The proposed Project at 1-4 East Road, East Wall, Dublin 3, will consist of a mixed-use development set out in 9 No. blocks, ranging in height from 3 to 15 storeys to accommodate 554 No. apartments, an enterprise space, retail units, foodhub / café / exhibition space, residential amenity, crèche and a Men's shed. The proposed Project will

also include car parking spaces, bicycle parking, storage, services and plant areas. The Site (at 1-4 East Road, East Wall, Dublin 3) has an area of c.2.11 hectares.

The following components are addressed in the EIAR:

- The EIA Process
- The Planning and Development Context
- Description of the Proposed Project
- Consideration of Alternatives
- Consultation
- Population & Human Health
- Cultural Heritage, Archaeology & Architectural
- Biodiversity (Flora & Fauna)
- Landscape (Townscape) & Visual
- Traffic & Transport
- Land, Soils, Geology & Hyrdogeology
- Surface Water - Hydrology
- Air Quality & Climate
- Noise & Vibration
- Microclimate - Daylight / Sunlight
- Microclimate - Wind
- Material Assets - Services
- Material Assets - Waste
- Interactions
- Cumulative Impacts
- Schedule of Environmental Commitments.

3 Planning & Development Context

This Chapter is a review of the planning policy context at a national, regional and local level and other relevant statutory and non-statutory planning documents.

At the **National level** the *National Development Plan (NDP) 2018-2027* sets out the significant level of investment and drives its implementation over the next ten years.

The *National Planning Framework (NPF) - Project Ireland 2040* identifies the urgent requirement for a major uplift of the delivery of housing within the existing built-up areas of cities and other urban areas. The NPF has a particular focus on brownfield development, targeting derelict and vacant sites that may have been developed before but have fallen into disuse. The NPF requires the delivery of a baseline of 25,000 homes annually to 2020, followed by a likely level of 30-35,000 annually up to 2027.

At **Regional level** the *Eastern and Midland Regional Assembly - Draft Regional Spatial & Economic Strategy (RSES)* plan identifies that the central need for the RSES to be people focussed. As such '*quality of life*' encapsulates strong economic output and stability, good environmental performance and a good standard of living for all. The *Regional Planning Guidelines for the Greater Dublin Area 2010-2022 (RPGs)* reinforce the implementation the strategic planning framework set out in the National Spatial Strategy.

Furthermore the RPGs for the Greater Dublin Area:

> *'supports the delivery of the hierarchy, focusing new housing within the existing footprint of the metropolitan areas and planning expansion of the footprint in conjunction with new high quality public transport investment; designation of multi-modal transport corridors providing enhanced public transport linkages serving key towns and linked investment in developing these designated towns in the hinterland area'*.

At **Local level** the Dublin City Development Plan 2016-2022 sets the statutory planning policy for development within the Dublin City boundary, having regard to national and regional plans and policies (mentioned above). The proposed Project Site at 1-4 East Road is located within the administrative area of Dublin City Council.

The main strategy of the Dublin City Development Plan is to promote the intensification and consolidation of Dublin City, and the Docklands is identified as one of the Strategic Development Regeneration Area (SDRA) capable of realising this objective. Furthermore, the Site is zoned Z14 within the Dublin City Development Plan. The objective of Z14 is to:

> *'to seek the social, economic and physical development and / or rejuvenation of an area with mixed use, of which residential and 'Z6' would be the predominant uses.'*

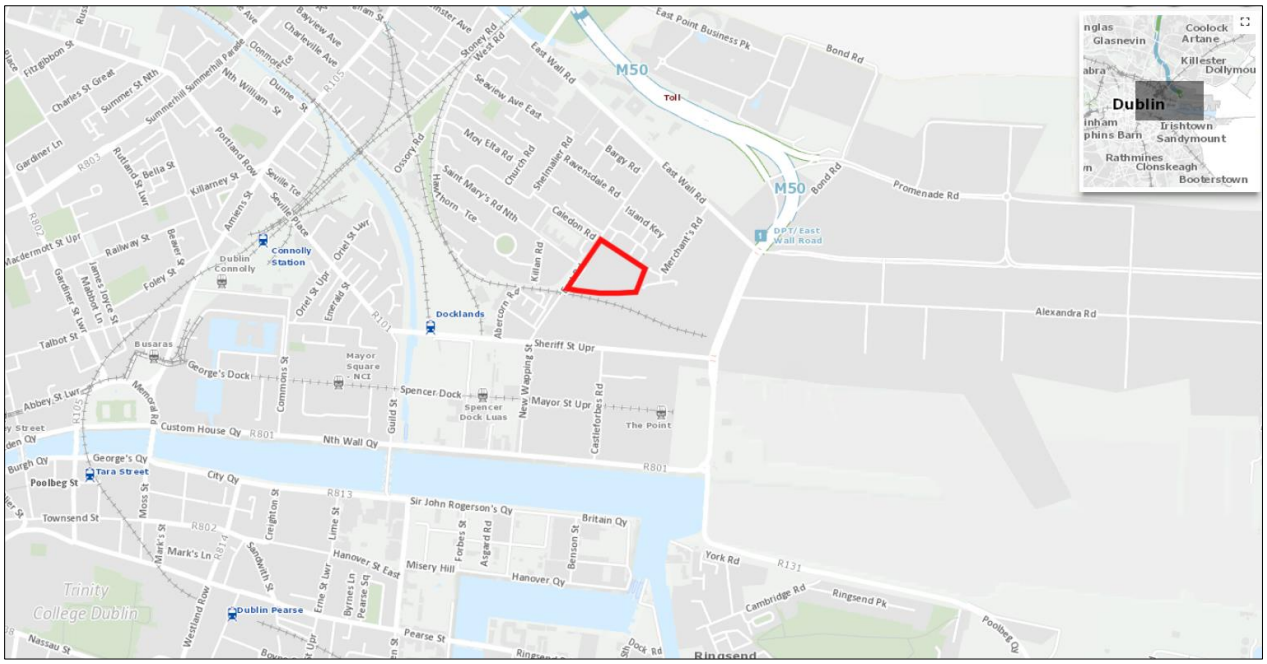
4 Description of the Proposed Project

4.1 Site Location and Context

The Site (1-4 East Road) is located on East Road, East Wall, Dublin 3 and is within a core area of the Dublin City and Docklands. The Site has an area of c.2.11 hectares and is currently used as plant and equipment hire, sales and maintenance facility incorporating a number of light industrial units and a substantial concrete surfaced trailer parking yard.

The Site is bound by East Road to the west, Island Key Apartments to the north, Merchant's Square to the east and railway tracks to the south, see Figure 1 below. The land uses surrounding the Site are a mix of commercial and residential (with both individual houses and larger residential apartment blocks).

Figure 1: Location of the Site for the Proposed Project[1] (Site location in red)



The Site is easily accessible as it is a 600m walking distance from both the Spencer Dock Luas Stop and the Docklands Rail Station. The Spencer Dock Luas Stop is also the future proposed location of the Docklands DART Underground Station. In addition there is an existing bus stop directly in front of the Site which is to have its frequency increased under the proposed Bus Connects (Core Bus Corridor Project). The public transport infrastructure connects to the

[1] Department of Housing, Planning and Local Government (My Plan): http://www.myplan.ie/webapp/

City centre and to the wider Dublin area for employment and education opportunities. The Site is also within walking / cycling distance of the North and South Docklands employment hubs, the IFSC and the City Centre.

4.2 Main Features of the Proposed Project

The proposed Project at 1-4 East Road, East Wall, Dublin 3, will consist of a mixed-use development set out in 9 No. blocks, ranging in height from 3 to 15 storeys to accommodate 554 No. apartments, an enterprise space, retail units, foodhub / café / exhibition space, residential amenity, crèche and a Men's shed. The proposed Project will accommodate 241 No. car parking spaces, 810 No. bicycle parking spaces, storage, services and plant areas.

The apartments / residential units will sit at podium level (Level 1) above ground level which contains residential car-parking, cycle parking, plant areas and ground floor uses. These ground floor uses include a crèche and 3 No. retail units, a foodhub / café / exhibition space, enterprise space and a Men's shed. The 554 No. apartments comprising:

- 72 studios, 202 No. 1 bed units;
- 232 No. 2 bed units; and
- 48 No. 3 bed units.

The Site will be accessed from a relocated entrance off East Road, with the car parking split into two areas accommodating bicycle parking, car parking spaces, plant, the ESB sub-stations, storage areas, waste storage areas and other associated facilities. The planning application includes for alterations to the existing road layout and junction on East Road.

The proposed Project also includes for a new centrally landscaped public plaza, which incorporates surface car-parking and cycle parking. The proposed Project planning application includes all site landscaping works, green roofs, boundary treatments, lighting, servicing, signage, and associated and ancillary works, including the Site development works.

5 Consideration of Alternatives

This Chapter provides a summary of the main alternatives which were considered for the proposed Project at 1-4 East Road, Dublin 3. Furthermore, the Chapter sets out the main reasons for choosing the proposed Project. The alternatives may be described at five levels:

1. 'Do-Nothing' Alternative
2. Alternative Locations
3. Alternative Layouts & Designs
4. Alternative Processes

'Do-Nothing' Alternative

A '*do-nothing*' scenario was considered an inappropriate alternative as the Site is as a Strategic Development Regeneration Area (SDRA) within the Development Plan 2016-2022

Alternative Locations

As outlined above the Site is zoned as a SDRA and as such consideration of alternative locations for the construction of houses and apartments proposed in this Strategic Housing Development application *was not considered necessary*.

Alternative Layouts & Designs

During the design process a range of alternative layouts for the proposed Site were considered. The proposed layout is designed to function as a mixed-use development on a currently underutilised brownfield site. The proposed Project is intended to provide a landmark building and public space at East Wall.

During the design process for the proposed Project a range of alternative were considered. However, the proposed Project at East Road has been prepared in accordance with the requirements of the Development Plan 2016-2022.

The proposed Project has been the subject of a number of pre-application meetings and pre-application SHD consultation with An Bord Pleanála prior to lodgement. As a result, design alterations came out of this process also.

Alternative Processes

An alternative process is not considered relevant to this EIAR, with regard to the nature of the proposed Project - a Strategic Housing Development, where the planning application will be submitted to An Bord Pleanála.

6 Consultation

Consultation was undertaken which identified the environmental and community issues that needed to be taken into consideration in designing the proposed Project for the Site.

A series of meetings have been held with both the Development Agency and Dublin City Councils Planning Department as formal pre-application discussions on the substance of the proposed Project. In addition meetings and consultation took place with officials from the Roads & Traffic Section, Drainage and Housing Departments.

Following this, a Pre-Application Consultation Meeting was held with An Bord Pleanála, DCC and Glenveagh Living Ltd. (the applicant) in February 2019. An Bord Pleanála provided details of the prescribed bodies to be notified about this SHD planning application.

This proposed Project has a dedicated website: www.eastroadshd1.ie

7 Population & Human Health

This Chapter evaluated the impacts, if any, of the proposed Project on the Population and Human Health with specific focus on Population (Gender & Age), Land Use, Employment, Local Amenity and Human Health. Human health is also addressed through a review of expected effects on air quality and climate, noise and vibration and traffic.

The Construction Phase related activities have the potential to impact the local population, in relation to new employment, a change in land use and a potential to increase baseline noise, which could cause disturbance to the local residents and the users of the community and recreational facilities. However, these activities will be short-term impacts. Construction Phase mitigation measures outlined in the EIAR will ensure that the construction works will reduce or to prevent any impacts identified.

The Operational Phase of the proposed Project will contribute to the settlement growth of Dublin City, and provide a portion of the planned population growth of the City. The Operational Phase will also have a *positive* impact on employment.

The mitigation measures outlined in the EIAR will ensure that there will be no negative impacts or effects on Population & Human Health, during the Construction and Operational Phase.

The proposed Project will provide residential accommodation which will be a *positive effect* for the local area and will provide a significant positive impact to the overall economy of the local area and Dublin City.

8 Cultural Heritage, Archaeology & Architectural

The proposed Project is located on a brownfield site located at the heart of the industrial docklands, an area which was, and remains, predominantly industrial in nature. The 19th century housing to the west of East Road was built for those who worked in the area and is inherently linked with its industrial heritage. Originally slob lands of the broad River Liffey estuary, this area was developed following the large-scale reclamation projects of the 17th and 18th centuries. Historic maps show that by the mid-19th century, when much of the area was still relatively undeveloped, there was a large residence named Forbes Castle located in the northern half of the proposed Project;

this was in ruins by 1887. During the early and mid-20th century the site was in use as a timber yard, with several large buildings (stores, sheds and workshops), all of which have since been demolished.

Archaeological Heritage

There are no recorded archaeological sites (RMP/SMR) sites within the proposed Project Site or in its vicinity and it also located well outside of the zone of archaeological potential (ZAP) for Historic Dublin.

There have been no previous archaeological investigations within the proposed Project Site or in close proximity to it. Investigations in the surrounding area have mostly found no significant archaeological material. The results indicate that the archaeological potential of this area is represented by a sequence of 17th century reclamation deposits sealed by remains of 18th / 19th century plots and structural remains. Of note are the excavations at Spencer Dock, which identified Late Mesolithic fish traps and a late Neolithic wattle fence preserved in the riverine silts beneath the later reclamation deposits (c.550m southwest). Further waterlogged wooden remains of possible prehistoric date were identified on a neighbouring site during archaeological monitoring of bulk excavations (c.320m southwest).

It is likely that the foundations of the 19th and earlier 20th century buildings that once occupied the Site survive below ground (mostly warehouses, sheds etc.). The foundation remains of the early 19th century Forbes Castle would be of particular interest, however, as one of the earliest residential buildings in the North Lotts. If any such remains survive, they would require full recording prior to removal.

As no basement level is proposed for the proposed Project, it is unlikely that any pre-reclamation deposits would be uncovered by ground disturbance works.

Archaeological monitoring of ground disturbance works would ensure the full recognition of, and - if required - the proper excavating and recording of all archaeological features, finds or deposits which may lie undisturbed beneath the ground surface.

Architectural Heritage

There are no architectural heritage sites (RPS or NIAH) in proximity to the proposed Project. The closest is the Sheriff Street Lifting Bridge, which is located over 300m to the east on Sheriff Street Upper (NIAH Ref. 50010016), and will not be impacted by the proposed Project.

Cultural and Industrial Heritage

Two undesignated sites of industrial heritage interest are located in the environs of proposed Project (listed in the Dublin City Industrial Heritage Record): the late 19th century bridge carrying East Road across the railway line (just outside the proposed Project) and an early 20th century pumping station c.30m south. Neither site will be negatively affected and it is considered that the proposed Project of an otherwise unattractive urban plot would have a positive impact on the environs of the sites. No sites of cultural heritage interest are located within or in the vicinity of the proposed Project.

9 Biodiversity (Flora & Fauna)

An appraisal of the likely effects on biodiversity (flora and fauna) arising out of the proposed Project was undertaken. Measures to mitigate the potential impacts on defined key ecological receptors are proposed. The assessment involved a desk study and field surveys by a suitably qualified ecologist. The methodologies used to determine the value of ecological resources, to characterise impacts of proposed Project and to assess the significance of impacts and any residual effects are in accordance with the *National Roads Authority (NRA) Guidelines for Assessment of Ecological Impacts of National Road Schemes*[2]. This methodology is consistent with the

[2] NRA / TII, 2009

Guidelines for Ecological Impact Assessment in the United Kingdom and Ireland – Terrestrial, Freshwater, Coastal and Marine[3].

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

The Site is entirely urban in nature, and no rare habitats or habitats of high ecological value (*i.e.* of International, National or County Importance) are present at the Site. No rare plants were recorded during the Site visits. With the exception of a few street trees that have been planted near the entrance to the Site, and an area of buddleia dominated scrub on the earth embankment in the south-western corner the Site is entirely dominated by buildings or hard surfaces. Occasional ruderal plants are present.

No evidence of badgers, otters, amphibians or reptiles has been recorded on the Site. No evidence of bats was recorded. In fact the Site is entirely unsuited to use by any protected fauna. The bird fauna recorded on the Site was very limited, and there is no habitat on the Site suitable for use, even on a very occasional basis, by any overwintering birds, such as pale-bellied Brent goose, or any other protected bird species listed as a Special Conservation Interest (SCI) in any European Site.

Overall, the Site is of no ecological importance, in accordance with the ecological resource valuations presented in the *Guidelines for Assessment of Ecological Impacts of National Road Schemes*.

The proposed Project will require the removal of the existing hard-standing areas / buildings as well as an area of scrub and their replacement with the mixed-use development and landscaping. There will be *no significant impacts* as a result of this habitat loss.

There are no bat roosts on the Site, and none of the structures are remotely suitable for roosting bats. Similarly there are no trees on the Site remotely likely to be used by roosting bats, even occasionally. Furthermore there will be no disturbance to or loss of habitat for other mammals, such as otters or badgers. There will be *no significant impacts* as a result of disturbance to or loss of habitat for mammals.

There will be a very minor reduction in vegetation cover for nesting birds as a result of the proposed Project, following the removal of the scrub in the south-western corner of the Site. In the absence of mitigation (landscape planting) this would be *a long-term minor negative impact* as there will be a loss in established vegetation. However, the landscaping proposed will lead to an increase in habitat (feeding and nesting) for birds.

It is not expected that there will be any impacts on amphibians, reptiles, lepidoptera or any other species groups as a result of the proposed Project.

No designated conservation areas will be impacted in any way by the proposed Project and no mitigation measures are required.

New planting will be incorporated into the landscape design. The proposed planting / landscaping strategy will use a mix of appropriate species, incorporating a range of species that will attract feeding invertebrates, including moths, butterflies and bees. It will take account of and implement the relevant objectives of the *All-Ireland Pollinator Plan 2015-2020*. All planting plans and landscaping proposals will further ensure that no invasive species are introduced, either deliberately or inadvertently, to the Site.

Where feasible and practicable, the clearance of the scrub area in the south-western corner of the Site, which may be suitable for use by small numbers of nesting birds, will be undertaken outside the bird nesting season (avoiding the period 1st March to 31st August). Should the construction programme require vegetation clearance between March and August bird nesting surveys will be undertaken by suitably qualified ecologists. If no active nests are recorded, vegetation clearance will take place within 24 hours. In the event that active nests are observed, an

[3] 'the CIEEM Guidelines', CIEEM, September 2018

appropriately sized buffer zone will be maintained around the nest until such time as all the eggs have hatched and the birds have fledged. Once it is confirmed that the birds have fledged and no further nests have been built or occupied, vegetation clearance may take place immediately.

No bat roosts have been recorded at the Site and it will not be necessary to apply for a derogation licence under Regulation 54 or 55 of the *European Communities (Birds and Natural Habitats) Regulations 2011-2015*. The lighting design for the proposed Project will not require any particular measures to prevent any impacts on commuting or foraging bats. No other mitigation measures are considered necessary for the protection of fauna.

The proposed Project will result in the removal of derelict buildings, hard surfaces and habitats of negligible ecological value and their replacement with new development and associated public open space and landscaped areas. This will result in *no long-term residual impact* on any ecological receptors, either within or in the vicinity of the Site, or associated with any site designated for nature conservation.

The landscape planting that is proposed will ensure that there will be an overall increase in biodiversity on the Site.

10 Landscape (Townscape) & Visual

This Chapter comprises an assessment of the likely effects on the landscape and visual environment arising from the proposed Project of a sustainable mix of living, employment, community uses and public realm on lands at 1 – 4 East Road, East Wall, Dublin 3.

A series of Photomontages were prepared from representative locations in the wider City, North Docklands and local context to illustrate the physical and visual character of the proposed Project (see the Planning Application pack for the Photomontages).

Existing Receiving Environment

The Site is located on the eastern side of East Road, and is currently used as plant and equipment hire, sales and maintenance facility incorporating a number of light industrial units and a substantial concrete surfaced trailer parking yard. The Site includes a pair a two storey red-bricked former residential properties that are currently in use as the East Wall Men's Shed.

East Road traditionally defined the boundary between the residential areas of East Wall and the North Docks. It was a working class area, with strong associations with Dublin Port and the City Centre. The small scale of the houses, typically one and two storey, were located in proximity to the larger scale industrial facilities in the North Docks and along North Wall Quay. The area was also characterised by the network of railway lines, many elevated that brought both passenger and freight trains to Amiens Street and North Wall Stations, and to the Goods Stations along North Wall Quay and into the North Docks.

In more recent years, and as the North Lotts have been regenerated as a new urban district with commercial, residential and amenity uses, the East Wall locality has pushed eastwards across East Road, with taller and higher density residential and commercial buildings. East Road still defines the boundary between the smaller scale traditional residences and the larger scale development, but the larger scale development is now residential and commercial. Substantial areas of underutilised industrial and former dockland and railway lands remain.

The Site and the East Wall area are guided by the policies and objectives as set out in of the *Dublin City Development Plan 2016-2022*, and is also located within the *SDRA 6 Docklands (SDZ and Wider Docklands Area)*. The land use zoning objective seeks the social, economic and physical development and / or rejuvenation of the area with mixed use, of which residential and enterprise and employment would be the predominant uses. The introduction of the *Urban Building Height Guidelines* establish the principle for the re-examination of height limits on a Site specific contextual basis, and these also inform the development height strategy at East Road.

Characteristics of the Proposed Project

The proposed Project is a comprehensive redevelopment of the existing Site that will transform the currently underutilised and light industrial site to become a landmark and gateway building and public space for both the immediate locality and the wider East Wall and Docklands area. It will incorporate a sustainable mix of living, employment, community uses and public realm, and in a manner that will be provide a distinctive, attractive and vibrant contemporary addition to the established and expanding neighbourhood.

The proposed Project comprises nine distinct blocks over ground level podiums, and ranging in height from 3 to 15 storeys. Accommodation will include apartments, commercial / enterprise space, retail units, foodhub, residential amenity services, a crèche and a Men's shed. The nine blocks will be arranged such that the tallest will establish the landmark and gateway feature at East Road Bridge, and subsequent blocks will step down so is provide appropriate interfaces at site boundaries and to optimise sunlight and daylight access.

The proposed Project will include high quality public spaces and streets, podium level landscaped courtyards and communal and private spaces. The new public space will have active frontage and incorporate both formal and informal play areas, and will ensure a vibrant and attractive new neighbourhood environment.

Predicted Impacts of the Proposed Project

During construction, the proposed Project will give rise to both landscape and visual effects at the scale of the wider City, the Docklands, and the local context. These will arise from site clearance, excavation and ground works, structural and general construction works. Construction will include construction traffic, erection and operation of tower cranes, movement of machinery and personnel, and the gradual emergence of the various elements of the project. Landscape and visual effects will generally be more slight and neutral at the wider city scale, and becoming more moderate, significant and negative closer to the site. Construction effects however will be temporary and short term by their nature.

Once completed, and in operation, the proposed Project will represent a comprehensive regeneration and transformation of the currently underutilised light industrial lands to a high density mixed use urban development. The form and massing of the project is such that the tallest block will be located adjacent to the East Road Bridge, with adjoining blocks stepping down to the north and east so that lower blocks will adjoin existing residential developments.

At the wider city scale, the form and massing of the project is such that there will be locations from where the taller elements may present a new feature on the Docklands skyline. Landscape and visual effects will be *positive* as the new skyline feature will not detract from the existing skyline, and will aid legibility from the wider city by presenting the East Wall landmark. The proposed Project will not be visible from within the Georgian Core.

At the closer Docklands scale, the proposed Project will provide a substantial new urban landmark within an urban context that is continuing to evolve. The presence of the new buildings will become part of the composition of established and partially established streetscapes, and will provide a landmark focal point that signals East Wall as a gateway and destination with the Docklands. Landscape and visual effects will range from *moderate* to *moderate / slight*, and will typically be *positive* as the buildings provide legibility, order and regeneration within an evolving and regenerating context, and the quality of the architectural design, form and detailing is becoming apparent with proximity to the Site.

At the local scale, from the adjoining established residential streets and developments at East Wall and at Merchant's Square, the new taller buildings will give rise to substantial change within certain streetscapes. The new and larger scale development will become part of the character of established low rise residential streetscapes. The City and Docklands context of East Wall is already evident from many residential streets as larger modern high density commercial and residential development is evident just beyond the immediate streetscape.

The proposed Project will however be a part of the East Wall locality, and its physical and visual presence will be reinforced by the public spaces and community facilities it provides within the neighbourhood. Landscape and visual

effects will range from *significant / moderate* to *moderate / slight*. They are likely to be perceived initially as *negative* by virtue of the change and the larger scale, however these will become more acceptable over time as the buildings are occupied and the development provides a new destination and facilities to the locality.

11 Traffic & Transport

This Chapter has been prepared by DBFL Consulting Engineers and addresses all transport and related sustainability issues including means of vehicular access, pedestrian, cyclist and local public transport connections. The principal objective of this Chapter is to quantify any level of impact across the local road network and subsequently ascertain the operational performance of the local road network.

The Site is currently occupied by Hireco Park, with vehicular access currently provided from East Road and is located in the East Wall district which forms the eastern edge of Dublin City Centre. The lands are zoned:

- Z14 '*To seek social, economic and physical development and/or rejuvenation of an area with mixed use of which residential and "Z6" would be the predominant uses'*.
- '*Land Use Zoning Objective Z6: To provide for the creation and protection of enterprise and facilitate opportunities for employment creation*.'

The Site benefits from excellent public transport accessibility levels including Dublin Bus operated services which are easily accessible from the Site and Luas & heavy rail services that may be accessed at the Docklands Luas Stop / Rail Station.

The collision statistics on the Road Safety Authority (RSA) website were reviewed in order to ascertain the safety record of the local road network over the most recent ten-year period. DBFL have concluded that there are no apparent significant trends in the collisions occurring on and in the vicinity of the proposed Project access junction on East Road.

The proposed Project include the provision of a total of 241 number car parking spaces onsite have been allocated as follows:

- 227 number car parking spaces have been allocated to residents (1 of which are allocated to a car share facility) of the 554 number apartment units;
- 7 number parking spaces have been allocated to staff based at the Enterprise Hub (including the childcare facility staff); and
- 7 number parking spaces are allocated within the internal court yard to facilitate servicing, short duration parking and childcare facility pickup / drop off.

The proposed Project include the provision of a total of 112 short-term and 698 long-term bicycle parking stands / opportunities (810 in total) onsite within the proposed Project. The level of bicycle parking proposed onsite for the apartment units has been provided in the context that the proposed Project car parking proposals are below the Dublin City Council development plan standards. DBFL consider this reduction to be consistent with the '*substantial*' reduction that the DHPLG[4] guidelines recommend and at which the high DHPLG bicycle parking requirements would be of greater relevance. The proposed onsite bicycle parking provision of 810 spaces is approximately 37% more than the 585 parking opportunities required by the Dublin City Council development management standards.

The proposed Project includes the construction of a mixed-use development set out in 9 No. blocks, ranging in height from 3 to 15 storeys to accommodate 554 No. apartments and an Enterprise Hub. The Site will accommodate car parking spaces, bicycle parking, storage, services and plant areas. Landscaping will include a new central public space and residential podium courtyards.

An assessment to establish the potential level of impact of the proposed Project traffic upon the key junctions of the local road network has been undertaken. The resulting percentage increase in traffic flows as a result of the

[4] Department of Housing Planning Local Guidelines

traffic generated by the proposed Project is established as below the 10% threshold (5% for congested networks) at the adjacent local key junctions.

The Site will benefit from one vehicle access point which will be provided on East Road. The proposed access will be incorporated into the Church Road / East Road priority-controlled junction and will include the upgrading of the aforementioned junction to traffic signal controlled. This access will be utilised by all modes of transport travelling to / from the proposed Project. The proposed junction arrangement allows for the provision of 4 formal car parking spaces (2 of which are allocated to a car share facility) on East Road adjacent to the Site.

The operational assessment of the proposed upgraded junction has been undertaken using the Transport Research Laboratory (TRL) computer package TRANSYT for signal-controlled junctions. In order to determine if the proposed upgraded Site access junction will cater for the predicted level of traffic generation, a traffic modal of the Site access junction was analysed for the schemes *2020 Opening Year* and *subsequent 2025* and *2035 Future Design Years*. The TRANSYT results indicate that the Site access junction will operate within capacity for the *2020 Opening Year* and *the 2025* and *2035 Future Design Years*. The highest degrees of saturation (DoS) and corresponding queues are being experienced on the East Road northern arm during the AM peak hour, and the East Road southern arm during the PM peak hour, respectively. DBFL believe these results are consistent with the existing AM and PM travel demands (*i.e*. in the AM peak period the majority of vehicles are travelling southbound / inbound, whilst in the PM peak period the demand is reversed.

With the objective of mitigating the potential impact of the proposed Project during its Operational Phase, the following initiatives and associated timescale for their implementation have been identified and subsequently form an integral part of the proposed Project.

- Management - A number of management measures will be implemented prior to the subject scheme opening which include:
    - A Mobility Management (MMP) is to be rolled out with the aim of guiding the delivery and management of coordinated initiatives by the scheme promotor. The MMP ultimately seeks to encourage sustainable travel practices for all journeys to and from the proposed Project. It is proposed that two land use specific MMP's are developed under the framework of a 'parent' MMP for the entire Site. These two associated MMP's will be developed in partnership with Dublin City Council to specifically consider the opportunities of shaping all journeys and promoting sustainable transport habits at both the proposed (i) apartments, and (ii) the Enterprise Hub.
    - The accesses to the under-croft parking areas will be barrier controlled to ensure unpermitted vehicles cannot gain entry. In order to be allocated a dedicated parking space within these under croft parking areas, both tenants and employees based at the site will have to apply to the management company to gain a parking permit and an assigned dedicated parking space.
    - The 7 number parking spaces within the internal court yard area will be restricted to short duration parking only (*i.e.* 30-60 minutes). A clamping enforcement regime will be in place within the Site to ensure these parking restrictions are adhered to.
- Service - The facilitation of a dedicated car share facility (3 spaces) will reduce the need to own a private motor car thereby contributing to reducing the overall number of vehicle trips generated by the proposed Project.
- Facilities - The provision of a total of 112 short-term and 698 log-term bicycle parking stands / opportunities (810 in total).
- Infrastructure - Prior to 2020 Opening Year Upgrading of the East Road / Church Road / Site Access junction to traffic signal controlled.

Accordingly, it is concluded that through the implementation of the proposed mitigation measures and the rollout / uptake of the Mobility Management Plan initiatives, the proposed Project will not result in a material deterioration of road traffic conditions. As a result, we believe there are no significant traffic or transportation related reasons that should prevent the granting of planning permission for the proposed Project.

12 Land, Soils, Geology & Hyrdogeology

This Chapter assesses and evaluates the potential impacts of the proposed Project on the geological and hydrogeological environment. The Geological Survey of Ireland (GSI) geological web viewer shows the Site is underlain by >30 metres (m) MADE GROUND and overburden soil. This was confirmed by onsite investigations undertaken at the site in June 2018.

The profile onsite comprises thin hardstand overlying > 1.5m of MADE GROUND comprising mostly of sandy gravelly CLAY with fragments of redbrick. Beneath this to circa 7.5m was fine to coarse SANDS and SILTS with occasional cobbles and occasional CLAY deposits. Underlying this is a CLAY horizon to circa 15.6mbgl and the drill logs note this is similar to Dublin Port Clay. An additional layer of GRAVEL & SANDS underly this to circa 17.4mbgl with glacial deposits noted at some locations (BH05A, BH07 and BH11). However, stratum depths are not heterogeneous throughout the site with the deepest borehole (BH9B) recording sand and gravel deposits to 30.90mbgl

The Groundwater Body (GWB) underlying the Site is the Dublin GWB (EU Groundwater Body Code: IE_EA_G_008). Currently, the EPA (2018) classifies the Dublin GWB as having *'Good Status'* (2010-2015), with a WFD risk currently *"not at risk"* meaning the Dublin GWB is not at risk of not meeting the WFD objectives.

Based on the the National Roads Authority[5] (NRA) (See Appendix A12.2, Volume 3), criteria for rating site importance of geological features, the importance of the bedrock and soil features at this Site is rated as low importance with medium quality significance or value on a local scale. There are no extractable minerals or areas of geological heritage and the soils are suitable for agricultural use but are typical of surrounding agricultural land.

The Site was previously used as a timber yard and is currently a container / trailer park. Analysis of chemicals of concern, confirmed contamination in the fill / shallow overburden underlying the Site and has been shown to be contaminated to varying degrees. Comparison with LQMS / CIEH S4Uls showed twelve of the forty-one samples analysed exceeded levels for residential land use. All levels were below the corresponding levels for residential for use for commercial development. Waste Acceptance Criteria (WAC) analysis confirmed that soil (at location where the inert WAC criteria is exceeded) can be disposed of a non-hazardous land fill

Based on the NRA / IGI criteria for rating the importance of hydrogeological features (see Appendix A12.2, Volume 3), the importance of the hydrogeological features at this Site is rated as *Low to Medium Importance*. This is based on the assessment that the attribute has a medium quality significance or value on a local scale. The aquifer beneath the site is a *locally important* (LI) bedrock aquifer, Bedrock which is *Generally Moderately productive*. It is not used for public water supply or widely used for potable use and is well protected (low vulnerability). In addition, it does not host any groundwater dependent ecosystems (SACs / NHAs).

The potential impacts of Construction Phase and mitigation measures proposed have been identified. The mitigation measures incorporated in the project design address potential impacts which include:

- Soil Removal & Compaction;
- Fuel and chemical handling, transport and storage; and

Construction Phase will require the removal of soils / stones (circa 7,500 m^3). The aquifer vulnerability is classified as *'Low'* throughout the Site area based on Site investigations with circa 30m of overburden recorded. As it is not proposed to significantly alter the total hardstand at the Site and due to the thickness of the overburden the underlying hydrogeological environment will have significant protection from surface infiltration during construction.

Surface water management in accordance with the design (e.g. runoff directed to a settlement tank and through a petrol interceptor prior to discharge) will ensure there is no risk to the underlying aquifer. Temporary storage of soil will be carefully managed to prevent any potential negative impact on the receiving environment. This material

[5] NRA 2009: https://www.tii.ie/technical-services/environment/planning/Guidelines-on-Procedures-for-Assessment-and-Treatment-of-Geology-Hydrology-and-Hydrogeology-for-National-Road-Schemes.pdf

will be stored away from the surface water drainage network. Movement of material will be minimised in order to reduce degradation of soil structure and generation of dust.

All excavated material will be removed offsite. It will be visually assessed for signs of possible contamination such as staining or strong odours. As it has already been determined that the soil material underlying the site is contaminated, this will be segregated, classified and appropriately disposed of by a suitably permitted / licensed waste disposal contractor.

During the Construction Phase, there is a risk of accidental pollution incidences from the following sources:

- spillage or leakage of temporary oils and fuels stored on site;
- spillage or leakage of oils and fuels from construction machinery or site vehicles;
- spillage of oil or fuel from refuelling machinery on site; and
- run-off from concrete and cement works.

There will be no direct discharges to the ground or abstractions from the aquifer during the operation of the proposed Project. The potential impacts of the development operation in relation to land soils and environment have been assessed under the following headings:

- Accidental Emissions
- Reduction in Local Recharge to Groundwater

Construction Phase works will require the removal of soils / stones. The aquifer vulnerability is classified as '*Low*' throughout the Site area based on site investigations. Removal of soil cover will increase the vulnerability of the underlying bedrock during construction however, due to the thickness of the overburden and the fact that a large proportion of the Site will be capped / paved this will provide protection from surface infiltration during operation.

Surface water management in accordance with the design (*e.g.* runoff directed to attenuation storage and through a petrol interceptor prior to discharge) will ensure there is no risk to the underlying aquifer. Temporary storage of soil will be carefully managed to prevent any potential negative impact on the receiving environment. This material will be stored away from the surface water drainage network. Movement of material will be minimised in order to reduce degradation of soil structure and generation of dust.

Although there is no evidence of contamination at the Site, all excavated materials will be visually assessed for signs of possible contamination such as staining or strong odours. In the event that any unusual staining or odour is noticed, samples of this soil will be analysed for the presence of possible contaminants in order to ensure that historical pollution of the soil has not occurred. Should it be determined that any of the soil excavated is contaminated, this will be segregated, classified and appropriately disposed of by a suitably permitted / licensed waste disposal contractor.

To minimise any impact on the underlying subsurface strata from material spillages it is proposed that all fuels, oils, solvents and paints used during construction will be stored within temporary bunded areas or will be contained in double skinned tanks in designated areas of the site away from surface water drains.

Re-fuelling of construction vehicles and the addition of hydraulic oils or lubricants to vehicles will take place offsite or in a designated area that will be away from any existing surface water drains. The area will be determined by the appointed Contractor prior to commencement onsite but is likely to be carried out in a designated area of the contractor's compound. In the event of a machine requiring refuelling outside of this area, fuel will be transported in a mobile double skinned tank. An adequate supply of spill kits and hydrocarbon adsorbent packs will be stored in this area. All relevant personnel will be fully trained in the use of this equipment. Guidelines such *as "Control of Water Pollution from Construction Sites, Guidance for Consultants and Contractors*" [6] will be complied with.

[6] CIRIA 532, 2001

There will be no bulk storage of fuel required for the operation of the proposed Project. The majority of the Site will be covered in hardstanding. The impermeable surface will minimise the potential influx of any contaminants into soils and underlying groundwater.

Any accidental leaks from cars within the car parking / road areas will be directed through the surface drainage system via an appropriately sized interceptor.

The attenuation system will ensure that the discharge rate is maintained at greenfield runoff rate. The attention facility will accommodate rainfall events up to, and including, the 1-in-100-year storm event. The foul water system discharges to the public sewer and subsequently to the Rinsend WWTP to the south of the proposed Project. Due to the close proximity of the WWTP, there is a very low risk of contamination to ground from leakage from the foul drainage system.

Following implementation of mitigation measures detailed in Chapter 12 of the Main Report - EIAR (Volume 2), the predicted impact during the Construction Phase of the proposed Project will be *short-term, imperceptible and neutral*.

Following implementation of the mitigation measures proposed in Chapter 22 of the Main Report - EIAR (Volume 2), the predicted impact on land, soils and geology once the development is constructed and operational (*in accordance with EPA Draft EIA Guidelines, 2017*) is considered to be *long-term, imperceptible with a neutral effect* on quality. There will be no emissions to ground or the underlying aquifer from operational activities.

13 Surface Water - Hydrology

AWN Consulting has prepared this Chapter of the EIAR which assesses and evaluates the potential impacts on the surrounding water & hydrological environment. In assessing likely potential and predicted impacts, account is taken of both the importance of the attributes and the predicted scale and duration of the likely impacts.

The Liffey estuary is located circa 600m to the south of the proposed Project with the Tolka Estuary 1km to the north. The River Liffey and River Tolka drain a large catchment of Dublin City and are located in hydrometric area No. 9 [7]. There is no surface water course recorded at or bordering the Site and it is not hydraulically linked (other than through man made sewers) to the estuarine waters to the north and south. The Site is serviced by an existing surface water sewer located to the west of the site along East Road which runs in a southerly direction. This sewer in turn connects to the existing 600mm diameter combined sewer on Church Road and continues in a southerly direction passing under the railway, discharging to the existing Irish Water pumping station on East Road.

The River Tolka and River Liffey Estuaries (transitional / estuarine waterbodies) are identified as being *"At Risk"* of not meeting their WFD objectives (current assessment). These waters were categorised as having a "*Moderate*" status during the previous WFD assessment phase (2010-2015).

There are no hydrological features at the proposed Project or any in direct hydrological linkage. Based on the the National Roads Authority[8] (NRA) (See Appendix A13.1) methodology, for the criteria for rating the importance of hydrological features, the features at this site are rated as Low Importance.

A Flood Risk Assessment (FRA) has been prepared by DBFL Consulting Engineers in accordance with the DEHLG / Office of Public Works (OPW) *Guidelines on the Planning Process and Flood Risk Management*[9]. The FRA is provided as part of the planning application and supporting information is included in the DBFL Infrastructure Design Report 170200-Rep-002. The assessment identifies the existing flood and sets out mitigation measures to ensure there is no likely flooding of the proposed Project or surrounding lands as a result of the proposed Project. It is deemed appropriate for the Site to be located within Flood Zone A.

[7] EPA 2019: www.epa.ie
[8] NRA 2009: https://www.tii.ie/technical-services/environment/planning/Guidelines-on-Procedures-for-Assessment-and-Treatment-of-Geology-Hydrology-and-Hydrogeology-for-National-Road-Schemes.pdf
[9] OPW, 2009: https://www.opw.ie/media/Planning%20System%20and%20Flood%20Risk%20Management%20Guidelines.pdf

The Office of Public Works Flood Mapping (CFRAM[10] Mapping) shows that the Site is within a modelled flood extent for the 0.5% AEP (Annual Exceedance Probability) *i.e*. 1 in 200-year tidal flood event as per the Irish Costal Protection Study. The Site is however in an area that benefits from flood defence measures. Following the OPW *Flood Risk Management Guidelines* the site-specific FRA was advanced to a Stage 3. The conclusion of the FRA show that the finished floor levels (FFL) are located above the 0.1% AEP flood level, in addition to a climate change allowance and a conservative freeboard, giving a minimum FFL for this type of development of 4.08m.

A possible source of flood risk from the surcharging or blockage of the development's drainage system has been identified. This risk is mitigated by suitable design of the drainage network (as detailed in DBFL Infrastructure Design Report 170200-Rep-002), mitigation includes regular maintenance and inspection of the network and establishment of exceedance overland flow routes. The proposed Project's drainage design includes for a 10% climate change allowance. The proposed Project will include attenuation, a hydrobrake and interceptor to manage stormwater runoff and satisfies the requirement of the Strategic Flood Risk Assessment (SFRA) to reduce flooding and improve water quality.

The potential impacts of construction and mitigation measures proposed have been identified. The mitigation measures incorporated in the project design address potential impacts which include:

- Increased Runoff & Sediment Loading
- Contamination of Surface Water Drainage

During the Construction Phase any outflows carrying a high sediment load will be diverted through settlement ponds / tanks. The settlement ponds / tanks will be located between the area of construction and the surface water drain. Surface water runoff will not be discharged directly to local watercourses. The following mitigation measures will be adopted:

- the drainage system and settlement ponds / tanks will be constructed as a first step;
- silt reduction measures including sit traps and settlement tanks will be employed during the Construction Phase;
- any excavations required will remain open for as little time as possible before the placement of fill. This will help to minimise potential for groundwater ingress into excavations;
- weather conditions will be considered when planning Construction Phase activities to minimise risk of run off from the Site;
- distance between topsoil piles etc. and surface water drains will be maintained - to protect from dampening operations; and
- the generation of runoff from stockpiles of soils, excavated during construction, will be prevented from entering surface water drains by diverting runoff to the settlement ponds / tanks onsite, and removing the material offsite as soon as possible to designated storage areas / licenced disposal facility.

To minimise any impact on minor drainage channels onsite from material spillages, all oils, solvents, paints and fuels used during construction will be stored within temporary bunded areas and each of these areas will be bunded to a volume of 110% of the capacity of the largest tank / container within it (plus an allowance of 30mm for rainwater ingress). Drainage from the bunded area(s) will be diverted for collection and safe disposal. There is no notable surface watercourse onsite. The drainage ditch to the south is to be culverted as part of the initial construction works.

Wet concrete operations adjacent to watercourses will be avoided where possible. A suitable risk assessment for wet concreting will be completed prior to works being carried out which will include measures to prevent discharge of alkaline wastewaters or contaminated storm water to groundwater.

[10] CFRAM: Coastal Flood Risk Assessment and Management

The appointed Contractor will be required to make provision for removal of any concrete wash waters, most likely by means of tankering offsite and no such wash waters will be discharged to groundwater. Any effluent generated by temporary onsite sanitary facilities will be taken offsite for appropriate treatment.

Re-fuelling of construction equipment and the addition of hydraulic oil or lubricants to vehicles / equipment will take place in designated bunded areas where possible. Re-fuelling will be avoided in so far as possible at the other work sites but where necessary will take place on hard stand areas and fuel stored in bunded areas.

If it is not possible to bring a machine to the refuelling point, fuel will be delivered in a double skinned mobile fuel bowser. A drip tray will be used beneath the fill point during refuelling operations in order to contain any spillages that may occur. The vehicles and equipment will not be left unattended during refuelling. Spill kits and hydrocarbon absorbent packs will be stored in the cab of each vehicle and operators will be fully trained in the use of this equipment.

The implementation of mitigation measures detailed in Chapter 13 of the Main Report - EIAR (Volume 2) will ensure that the potential impacts on the surface water environment do not occur during the Construction Phase and that the residual impact will be *short-term, imperceptible and neutral.*

Potential impact of the development during the Operational Phase include

- increased surface water run-off;
- contamination of surface water;
- foul water; and
- water supply.

The proposed Project drainage system for the Site as outlined in DBFL's Infrastructure Design Report and has been designed in accordance with Greater Dublin Strategic Design System (GDSDS) specifications. The drainage system will employ a number of attenuation methods. The surface water strategy includes two attenuation tanks to provide the required volume to ensure the proposed Project does not flood in the 1 in 100-year storm event (accounting for a 20% increase with climate change). The main attenuation storage will be located in the square of the development (East Square) with another attenuation system located under the pedestrianised street that runs through the spine of the proposed Project. As such the design includes improved measures for management of stormwater runoff in relation to flood impact.

The proposed Project provides treatment of collected run-off by providing a SuDS treatment train approach resulting in a low risk of pollutants entering off site drainage.

Due to a variety of measures such as the design of the attenuation system with hydrocarbon interceptor and the design of the wider drainage system (see DBFL Infrastructure Report) in line with SuDS the likelihood of any spills entering the water environment is *negligible*. The only fuel storage onsite will be within the belly tank of the life safety generator (1,200L). This will be internally bunded and double lined. Servicing and inspection of the generator and tank containment will be the responsibility of the presiding management company.

All incidental drainage from the car park is discharged separately via a Class 2 oil separator to the foul sewer.

The proposed foul drainage has been designed to drain via one outfall to the Irish Water combined sewer in East Road. An Irish Water (IW) pre-connection enquiry was sought for the development and the feasibility of this has been confirmed by IW. Full details of the foul sewer design can be found in DBFL's Infrastructure Design Report submitted as a separate document to this application (Report No. 170200-Rep-002).

The water main layout and details including valves, hydrants, metering etc. will be in accordance with Irish Water's Code of Practice and Standard Details for water infrastructure.

Following implementation of the mitigation measures proposed in the Main Report - EIAR (Volume 2) the predicted impact on the surface water environment once the proposed Project is constructed and operational (in accordance with EPA Draft EIA Guidelines, 2017) is considered to be likely*, neutral, imperceptible and long-term.*

14 Air Quality & Climate

AWN Consulting Limited were commissioned to conduct an assessment into the likely air quality and climate, if any, associated with the proposed Project.

In terms of the existing air quality environment, baseline data and data available from similar environments indicates that levels of nitrogen dioxide, carbon monoxide, particulate matter less than 10 microns and less than 2.5 microns and benzene are generally well below the National and European Union (EU) ambient air quality standards.

The Operational Phase impact of the developments was assessed for the pollutants nitrogen dioxide, particulate matter less than 10 microns, particulate matter less than 2.5 microns, carbon monoxide and benzene using the *UK Design Manual for Roads and Bridges* screening model which is a recommended screening model for assessing the impact of traffic on air quality. The inputs to the air dispersion model consisted of information on road layouts, receptor locations, annual average daily traffic movement's, annual average traffic speeds and background concentrations. However due to the low Operational Phase impact on local traffic, the DMRB screening criteria indicates that no road links can be classed as 'affected' by the proposed Project and therefore, a local air quality assessment is not required as *impacts are neutral in the long and short-term*.

The greatest potential impact on air quality during the Construction Phase is from construction dust emissions, particulate matter less than 10 microns emissions, particulate matter less than 2.5 microns emissions and the potential for nuisance dust. In order to minimise dust emissions during construction, a series of mitigation measures have been prepared in the form of a Dust Minimisation Plan. When the dust minimisation set out in the Plan are implemented, fugitive emissions of dust from the Site *will be insignificant and pose no nuisance at nearby receptors*.

15 Noise & Vibration

AWN Consulting Limited were commissioned to conduct an assessment of the likely noise and vibration impacts associated with the proposed Project at 1-4 East Road, East Wall, Dublin 3.

The existing noise climate in the vicinity of the proposed Project has been surveyed. Prevailing noise levels are primarily due to local road traffic.

The noise impact assessment has focused on the potential outward impacts associated with the Construction and Operational Phases of the proposed Project on its surrounding environment.

During the Construction Phase involving site clearance, demolition and building construction works, the assessment has determined that the construction noise criteria can be complied with at the nearest sensitive properties. There is potential for elevated levels of noise at some adjacent properties during demolition works of buildings within the grounds. A schedule of noise mitigation measures including, noise limits and screening will all be employed to ensure any noise and vibration impacts during the Construction Phase will not exceed the recommended limit values.

During the Operational Phase, the outward noise impact to the surrounding environment will be include any additional traffic on surrounding roads and plant noise from the residential and commercial buildings as part of the proposed Project. The impact assessment has concluded that additional traffic from the proposed Project will have an insignificant impact on the surrounding noise environment and that plant items will be designed to ensure any noise and vibration impacts during the Operational Phase will not exceed the recommended limit values. The resulting impact is of *neutral, long-term and not-significant.*

16 Microclimate - Daylight / Sunlight

ARC Architectural Consultants Ltd were commissioned to conduct an assessment to prepare a Daylight and Sunlight Access Analysis of the proposed Project.

A three dimensional (3-D) digital model of the proposed Project and, of existing buildings in the area was constructed by ARC Consultants based on drawings and three dimensional models supplied by the Design Team; on drawings and information available from the Dublin City Council online planning register; and with reference to on-site, satellite and aerial photography. Using the digital model, shadows were cast by ARC at several times of the day at the equinox and presented on shadow study diagrams submitted with the EIAR. ARC also analysed the three digital models of the proposed Project and of the existing buildings surrounding the Site using proprietary sunlight and daylight analysis software in order to quantify the likely impact of the proposed Project on windows with a reasonable expectation of sunlight and to establish the likely impact on daylight access within chosen sample rooms in buildings in close proximity to the Site.

ARC's analysis predicts that the proposed Project is likely to result in additional overshadowing of East Road and Church Road to the west during the mornings, Teeling Way to the north at various times of the day and Merchants Square to the east during the afternoons and evenings throughout the year. However, the construction of the proposed Project is unlikely to result in any undue adverse impacts on buildings and amenity areas on lands surrounding the proposed Project within the meaning of the BRE Guide. The predicted impact of shadows cast by the proposed Project on lands to the west, north and east is likely to range from "*imperceptible*" to "*moderate*" over the course of the year. Under a worst-case scenario, the predicted impact of shadows cast by the proposed Project on East Road, Church Road, Teeling Way and Merchants Square is likely to be consistent with emerging trends for development in the area and is unlikely to result in any undue adverse impacts on sunlight access to existing buildings and amenity areas.

During the winter months, when the sun is low in the sky, shadows cast by the proposed Project have the potential to extend some distance to the west, north and east. However, due to the density of the shadow environment at this time of the year, the construction of the proposed Project is unlikely to result in a material change to the shadow environment of more distant lands to the north of the site. The impact of shadows cast by the proposed Project on more distant lands to the west, north and east of the Site is, therefore, predicted to range from none to *"imperceptible*" to "*slight*" for a short time during the winter months.

The impact of the proposed Project on daylight access within existing buildings has the potential to be most significant in the case of existing buildings at close proximity with windows directly opposing the Site. ARC's analysis indicates that the proposed Project on the Site is likely to result in a reduction in daylight access to rooms in buildings opposing the Site at Church Road, East Road, Teeling Way and Merchants Square, as would be expected where the major redevelopment of a largely vacant, brownfield site takes place. The impact of the proposed Project on daylight access to existing residences in proximity to the Site is predicted to range from "i*mperceptible*" to "*slight*" to "*moderate*". Having regard to the pattern of development in the area and to statutory planning policy for densification for the urban area, under a worst-case scenario, the impact of the proposed Project on existing buildings in proximity to the Site is predicted to be consistent with an emerging pattern of medium to high density development in the area and, therefore, "*moderate*" in extent. Given that the potential for development to result in impacts on daylight access diminishes with distance, the proposed Project is unlikely to have a material impact on daylight access within buildings in the wider surrounding area.

17 Microclimate - Wind

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

The criteria used to describe windiness in this study are those of T.V. Lawson of Bristol University which describe acceptability for particular activities in terms of *'comfort'* and '*distress'* (or safety). The onset of discomfort depends on the activity of the individual; *'sitting', 'standing', 'strolling' or 'business walking'*. There is also a distress criterion for '*General Public Access'*, equivalent to a mean speed of 15m/s and a gust speed of 28m/s (62mph) to be exceeded

less often than once a year. Less able individuals or cyclists may find this wind physically difficult. There is a distress criterion beyond which even '*Able-bodied'* individuals may find themselves in difficulties at times. This corresponds to a mean speed of 20m/s and a gust speed of 37m/s (83mph) to be exceeded less often than once a year. This wind makes it difficult for anyone to remain standing.

Existing Receiving Environment

Met Éireann's meteorological station at Dublin Airport is the closest meteorological station to Dublin and to the Site. The expected statistics for wind strength and direction are based on historic wind data recorded over a 30-year period, between 1988 and 2018, at this weather station. The most common and strongest winds in Dublin come from the southwest and west. These are relatively warm and often bring rain. The winds from the east are not as common as the westerlies, however, they are relatively cold, which can make them as annoying as the stronger westerlies.

The existing Site is located to the east of East Road, immediately north of the railway yard in the North Docks area of Dublin City. Given the location of the Site, the most common winds are from the southwest and west. It is also likely that stiff easterly winds can occur due to the proximity of the Site to Dublin Bay.

Potential Impacts of the Proposed Project

In general, the results reveal that the wind microclimate within the elevated podium and promenade will be suitable for all the intended purposes. However, it is anticipated that there will be areas within the proposed Project where high-speed winds will occur. Higher speed winds are likely to occur at the following locations:

- the public footpath situated adjacent the proposed Project along East Road is subjected to moderate south-westerly winds;
- the main walkway of the proposed Project is subjected to general windiness and funnelling due to various wind directions;
- in the gap between Block D2 and Block D1 may occur funnelling due to southwesterly winds;
- In the gap between Block B1 and Block B2 may occur funnelling due to easterly winds;
- at the elevated promenade between the Blocks DT2, D2, D1 and C1;
- at the entrance of Block DT2 downdraft may occur due to easterly winds; and
- near the corners of blocks DT2, C2, C2, B2 and B1 for winds blowing from east and southeast.

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

Avoidance, Remedial and Mitigation Measures

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

- provision of planting and soft landscape features at ground level along the main thoroughfare;
- provision of planting and soft landscape features along the East Road;
- provision of planting and soft landscape features at podium level along the gap between Blocks D1 and D2;
- provision of 2.1m high wind screen at podium level between Blocks B1 and B2 to provide shelter to the public realm at ground level below;
- provision of 2.1m high wind screens on either side of the outdoor play area for the crèche; and
- provision of 2.1m high wind screens in conjunction with planting along the edge of the southern plazas;
- provision of canopy along western edge of Block D2 / DT2 in conjunction with a covered walkway between Blocks C2 and D2 to provide shelter against the downdraft occurring at the southwest plaza.

Predicted Impacts of the Proposed Project

A study of the proposed Project at 1-4 East Road, was carried out to help assess the windiness in and around the development in terms of suitability for pedestrian activities. The critical wind directions for the proposed Project in terms of pedestrian comfort are the east, southeast, southwest and west.

In general, the wind microclimate with the proposed Project is considered suitable for all intended purposes. In certain areas of the development, it is anticipated that the proposed mitigation measures will help alleviate distress where it may be encountered on occasion.

Overall, the proposed Project is likely to provide *a comfortable* and an attractive environment for pedestrians and occupants.

18 Material Assets - Services

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

In accordance with the D*raft EPA Guidelines on the Information to be contained in Environmental Impact Assessment Reports*:

> *"Material assets can now be taken to mean built services and infrastructure".*

The potential impacts associated with the proposed Project, if any, are assessed with regards to the following proposed built services:

- urban settlements;
- ownership and access;
- wastewater services;
- water supply;
- gas supply;
- electricity; and
- telecommunication.

This Chapter describes the existing services to the Site and describes the predicted impacts which the proposed Project may have on these services and recommends suitable mitigation measures.

The Construction Phase of the proposed Project will have a *temporary* impact to the local built services, and may cause temporary disruption to these services. This Chapter sets out a series of mitigation measures to reduce or eliminate any significant adverse impacts identified. Section 18.5.1 of the Main Report - EIAR (Volume 2) outlines the Construction Phase mitigation measures. With these mitigation measures implemented, the level of the impact is reduced to *slight* as the services will have been satisfactorily diverted or amended, and will continue to operate in their current form as required.

The Operational Phase of the proposed Project will likely result in an increase in traffic volumes to the local road network. A *Traffic and Transport Assessment* report has been prepared by DBFL Consulting Engineers, which is submitted with this planning application. The design and construction of the site services will be in accordance with relevant codes of practice and guidelines.

The proposed Project will have a positive impact on the existing urban environment by creating a high quality mixed-use development which will respond to current housing need and cater to the needs of a growing population.

19 Material Assets - Waste

AWN Consulting Limited were commissioned to carry out an assessment of the potential impacts associated with waste management during the Construction and Operational Phases of the proposed Project. The receiving environment is largely defined by Dublin City Council as the local authority responsible for setting and administering waste management activities in the area through regional and development zone specific policies and regulations.

During the Construction Phase (including demolition), typical Construction & Demolition (C&D) waste materials will be generated which will be source segregated onsite into appropriate skips / containers, where practical and

removed from the Site by suitably permitted waste contractors to authorised waste facilities. Where possible, materials will be reused onsite to minimise raw material consumption. Source segregation of waste materials will improve the re-use opportunities of recyclable materials offsite. Groundworks for the construction of piles, pile caps and ground beams will require the excavation of c. 7,500m^3 of soils, stones, clay, gravel and made ground. It is anticipated that there will be no opportunities for reuse of the excavated material onsite and so it will require removal from site for offsite reuse, recovery and / or disposal.

A carefully planned approach to waste management and adherence to the site-specific Construction and Demolition Waste Management Plan prepared by AWN Consulting Limited (see the Planning Application pack) during the Construction Phase will ensure that the effect on the environment will be *short-term, neutral and imperceptible*.

During the Operational Phase, waste will be generated from the residents and commercial tenants. Two dedicated communal waste storage areas have been allocated for the residents on ground level. The waste storage areas have been appropriately sized to accommodate the estimated waste arisings. The commercial tenants have dedicated waste storage areas located on ground floor level. The waste storage areas have been allocated to ensure a convenient and efficient management strategy with source segregation a priority. Waste will be collected from the designated waste collection area by permitted waste contractors and removed off-site for re-use, recycling, recovery and / or disposal.

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

Provided the mitigation measures outlined in Chapter 19 of the Main Report - EIAR (Volume 2) are implemented and a high rate of reuse, recycling and recovery is achieved, the predicted effect of the Operational Phase on the environment will be *long-term, neutral and imperceptible*.

20 Interactions

This Chapter addresses potential interactions and inter-relationships between the environmental factors discussed in the preceding Chapters.

This includes both the Construction and Operational Phases of the proposed Project. In the Main Report – EIAR (Volume 2), the specialist chapters have included and described assessments of potential interactions between aspects however this Chapter presents a summary and assessment of the identified interactions.

21 Schedule of Environmental Commitments

This Chapter provides the environmental commitments / mitigation measures identified in the specialist chapters of the EIAR. These mitigation measures are considered necessary to protect the environment prior work being carried out at 1-4 East Road, Dublin 3, and during both the Construction and Operational Phases of the proposed Project.

The appointed Contractor will be required to follow and implement these mitigation measures, to ensure the protection of the environment and to ensure sustainable development.

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