Oxley Holdings Ltd.

Proposed Strategic Housing Development
‘The Connolly Quarter’
Rear of Connolly Station,
Sheriff Street Lower,
Dublin 1.

VOLUME I
NON – TECHNICAL SUMMARY

OCTOBER 2019

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1 Introduction

Article 5(1)(e) of the EIA Directive requires the project proponent to include a Non-Technical Summary (NTS) of the Environmental Impact Assessment Report (EIAR) and it is transposed into Irish law under article 94(c) of the Planning and Development Regulations 2001, as amended. The term 'non-technical' indicates that this summary should not include technical terms, detailed data and scientific discussion, that detail is presented in Volume II, the EIAR.

This Non-Technical Summary provides a concise, but comprehensive description of the Project, its existing environment, the effects of the project on the environment, the proposed mitigation measures, and the proposed monitoring arrangements, where relevant. The NTS highlights any significant uncertainties about the project. It explains the development consent process for the Project and the role of the EIA in that process.

It is important to highlight that the assessments that form part of the EIAR were undertaken as an iterative process rather than a one-off, post-design environmental appraisal. Findings from the individual assessments have been fed into the design process, resulting in a project which achieves a 'best fit' within the environment.

The development description is set out in Section 2, briefly summarised that Oxley Holdings Limited are applying for permission for a Strategic Housing Development (SHD) at a site adjacent to Connolly Station, Dublin 1, comprising of 741 no. Built to Rent (BTR) apartments in building blocks ranging in height from 4 to 23 storeys. See **Figure 1**.

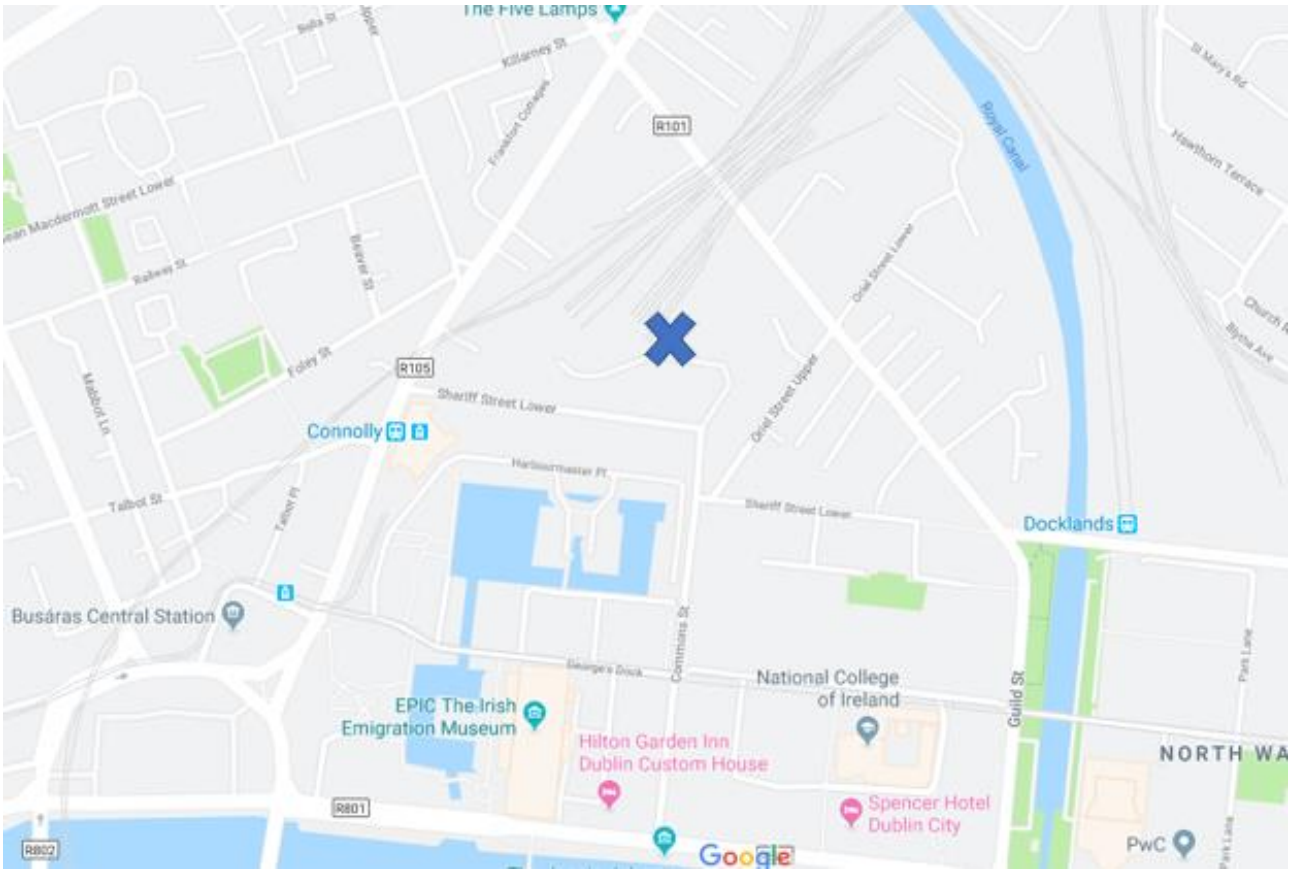

FIGURE 1 SITE LOCATION

It is important to note that this application seeks permission for a c. 2.88-hectare site. However, the proposed residential units, residential support amenities, and all ancillary development is only proposed on the northern portion of the site.

This application for permission essentially constitutes elements of an intended wider development proposal, that will include office and hotel blocks and will be subject to a separate section 34 application for permission and will be accompanied by an EIAR.

1.1 Screening for Environmental Impact Assessment

Environmental Impact Assessment (EIA) requirements derive from EU Directives. Council Directive 2014/52/EU amended Directive 2011/92/EU and is transposed into Irish Law by the European Union (Planning and Development) (Environmental Impact Assessment) Regulations 2018.

Proposed development which falls within one of the categories of development specified in Schedule 5 of the Planning and Development Regulations 2001, as amended, which equals or exceeds, a limit, quantity or threshold prescribed for that class of development must be accompanied by an EIAR.

The subject development does not fall within development classes set out in Part 1 of Schedule 5.

It does however fall within development classes set out in Part 2 of Schedule 5, namely;

10b)

(i) Construction of more than 500 dwellings

The proposed development incorporates 741 No. Build to Rent residential units, thus triggering a requirement for a mandatory EIA.

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

Paragraph 15 of Part 2 is relevant;

Any project listed in this Part which does not exceed a quantity, area of other limit specified in this Part in respect of the relevant class of development, but which would be likely to have significant effects on the environment, having regard to the criteria set out in Schedule 7.

The subject site is 'brownfield' in nature and is currently used for car parking for CIE staff and commercial parking. The site contains a Protected Structure (Ref. No. 130) and 4 no. buildings/structures that will be demolished. The proposed development is an Infrastructure Project for and does exceed the thresholds established in 10(b)(i) and 10(b)(iv). Thus, the planning application for the proposed development is required to have an EIAR submitted. The EIAR determines if the proposed development either alone or in combination with other projects would be likely to have a significant effect on the environment.

1.2 Competency

It is a requirement that the EIAR must be prepared by competent experts. For the preparation of this EIAR, Oxley Holdings Limited engaged McCutcheon Halley Chartered Planning Consultants to direct and coordinate the preparation of the EIAR and a team of qualified specialists were engaged to prepare individual chapters, the consultant firms and lead authors are listed in **Table 1**. Details of competency, qualifications and experience of the lead author of each discipline is outlined in the individual chapters.

Chapter	Aspect	Consultant	Lead Consultant
1	Introduction	McCutcheon Halley Planning Consultants	Paula Galvin Davin Aiken
2	Project Description	McCutcheon Halley Planning Consultants / McCrossan O'Rourke Manning Architects / CS Consulting Group / Hansfield Investments Ltd.	Paula Galvin Davin AIken
3	Alternatives Considered	McCutcheon Halley Planning Consultants / McCrossan O'Rourke Manning Architects / Hansfield Investments Ltd.	Paula Galvin Davin Aiken
4	Population and Human Health	McCutcheon Halley Planning Consultants	Paula Galvin Davin Aiken
5	Landscape & Visual	Bernard Seymour Landscape Architects	Bernard Seymour Arnaud Alatissiere
6	Material Assets: Traffic	O'Connor, Sutton, Cronin Consulting Engineers	Tony Horan Patrick Raggett
7	Material Assets: Built Services	O'Connor, Sutton, Cronin Consulting Engineers	Pat Moynihan
8	Land and Soils	O'Connor, Sutton, Cronin Consulting Engineers	Eleanor Burke
9	Water and Hydrology	O'Connor, Sutton, Cronin Consulting Engineers	Niall McMenamin
10	Biodiversity	Openfield Ecology Bat Ecoservices	Pádraic Fogarty Tina Aughney
11	Noise and Vibration	Irwin Carr Consulting	Shane Carr
12	Air Quality and Climate		
13	Cultural Heritage – Archaeology	IAC Archaeology	Faith Bailey Grace Corbett
14	Cultural Heritage - Architecture	Hogan Architect	Clare Hogan
15	Interactions of the Foregoing	McCutcheon Halley Planning Consultants	Paula Galvin Davin Aiken
16	Summary of Mitigation Measures		

TABLE 1 CHAPTERS OF EIAR & CONTRIBUTORS

1.3 Methodology

In preparing the EIAR the following regulations and guidelines were considered:

- The requirements of applicable EU Directives and implementing Irish Regulations regarding Environmental Impact Assessment;
- Environmental Impact Assessment of Projects Guidance on the preparation of the Environmental Impact Assessment Report (European Commission, 2017)
- Guidelines on the Information to be Contained in Environmental Impact Assessment Reports – DRAFT (Environmental Protection Agency, August 2017).
- Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment (Department of Housing, Planning and Local Government, 2018).

In addition, specialist disciplines have had regard to other relevant guidelines, and where relevant these are noted in individual chapters of the EIAR.

Each chapter of this EIAR assesses the direct, indirect, cumulative and residual impact of the proposed development for both the construction and operational stage of the proposed development.

The identified quality, significance and duration of effects for each aspect is largely based on the terminology set out in the EPAs *Draft Guidelines on the information to be contained in Environmental Impact Assessment Reports* (2017) as summarised as follows:

Quality of Effect	
Positive	A change which improves the quality of the environment (for example, by increasing species diversity; or the improving reproductive capacity of an ecosystem, or by removing nuisances or improving amenities
Neutral	No effects or effects that are imperceptible, within normal bounds of variation or within the margin of forecasting error
Negative/Adverse Effects	A change which reduces the quality of the environment (for example, lessening species diversity or diminishing the reproductive capacity of an ecosystem; or damaging health or property or by causing nuisance)
Significance of Effect	
Imperceptible	An effect capable of measurement but without significant consequences.
Not Significant	An effect which causes noticeable changes in the character of the environment but without significant consequences
Slight Effect	An effect which causes noticeable changes in the character of the environment without affecting its sensitivities.
Moderate Effect	An effect that alters the character of the environment in a manner that is consistent with existing and emerging baseline trends.
Significant Effect	An effect which, by its character, magnitude, duration or intensity alters a sensitive aspect of the environment.
Very Significant Effect	An effect which, by its character, magnitude, duration or intensity significantly alters most of a sensitive aspect of the environment.
Profound Effect	An effect which obliterates sensitive characteristics.
Duration of Effects	
Momentary	Seconds to minutes
Brief	Less than 1 day
Temporary	Less than 1 year
Short-term	1-7 years
Medium-term	7-15 years
Long-term	15-60 years
Permanent	Over 60 years
Extent & Context of Effects	
Extent	Describe the size of the area, the number of sites, and the proportion of a population affected by an effect.
Context	Describe whether the extent, duration, or frequency will conform or contrast with established (baseline) conditions (is it the biggest, longest effect ever?)

Probability of Effects	
Likely	The effects that can reasonably be expected to occur because of the planned project if all mitigation measures are properly implemented.
Unlikely	The effects that can reasonably be expected not to occur because of the planned project if all mitigation measures are properly implemented.
Type of Effects	
Indirect	Impacts on the environment, which are not a direct result of the project, often produced away from the project site or because of a complex pathway.
Cumulative	The addition of many minor or significant effects, including effects of other projects, to create larger, more significant effects.
Do Nothing	The environment as it would be in the future should the subject project not be carried out.
Worst Case	The effects arising from a project in the case where mitigation measures substantially fail.
Indeterminable	When the full consequences of a change in the environment cannot be described.
Irreversible	When the character, distinctiveness, diversity or reproductive capacity of an environment is permanently lost.
Residual	The degree of environmental change that will occur after the proposed mitigation measures have taken effect.
Synergistic	Where the resultant effect is of greater significance than the sum of its constituents, (e.g. combination of SOx and NOx to produce smog).

TABLE 2 IMPACT RATING TERMINOLOGY

1.4 Consultation

A dedicated website for the proposed development is established and the EIAR is available at https://theconnollyquartershd1.ie/.

Additionally, prior to lodging this application, the required information has been issued for the Department of Housing, Planning and Local Government's EIA Portal. The purpose of this tool is to inform the public, in a timely manner, of applications that are accompanied by an EIAR. The portal provides a URL link

Extensive pre-planning consultation was held with Dublin City Council in advance of lodging this application. Guidance received is integrated into the design and in turn is assessed in this EIAR.

Where relevant specialists engaged with prescribed bodies and the details of advice received is provided in the individual chapters of this EIAR.

An Opinion was received from Bord Pleanála following the pre-application consultation meeting and it contained details of the prescribed bodies to be notified of the making of this application. We can confirm that each identified body has received a copy of the application including the EIAR.

1. National Transport Authority
2. Transport Infrastructure Ireland
3. Irish Rail
4. Commission for Railway Regulation
5. Minister for Culture, Heritage and the Gaeltacht (archaeology and architectural heritage and nature conservation).
6. Heritage Council (archaeology and architectural heritage and nature conversation).
7. An Taisce – the National Trust for Ireland
8. Failte Ireland
9. An Comhairle Ealaoín – Arts Council of Ireland
10. Irish Water
11. Dublin City Council Childcare Committee.
12. Irish Aviation Authority.

2 Development Description

2.1 Site Location

The site is located adjacent and to the east of Connelly Station, Dublin 1. The site is bounded by Connolly Station and the railway lines to the west and north, Sheriff Street Lower to the south, Oriel Street Upper to the east, Oriel Hall to the northeast and the Irish Rail Control Centre (IRCC) to the north and east, and Seville Place to the north. The site is shown in Figure 2 and 3.

The site is an urban brownfield site currently comprising a CIE surface car park; three main buildings; several ancillary buildings/structures; two telecommunication masts; and ancillary storage containers.

Existing vehicular and pedestrian access to the site is from Sheriff Street Lower, with an additional pedestrian access through Connolly Station for Irish Rail passengers and CIE staff using the car parking utilities. There are currently three vehicle entrances to the site, two from Sheriff Street Lower in the south of the site located adjacent to one another, and one from the south end of Oriel Street Upper in the east.

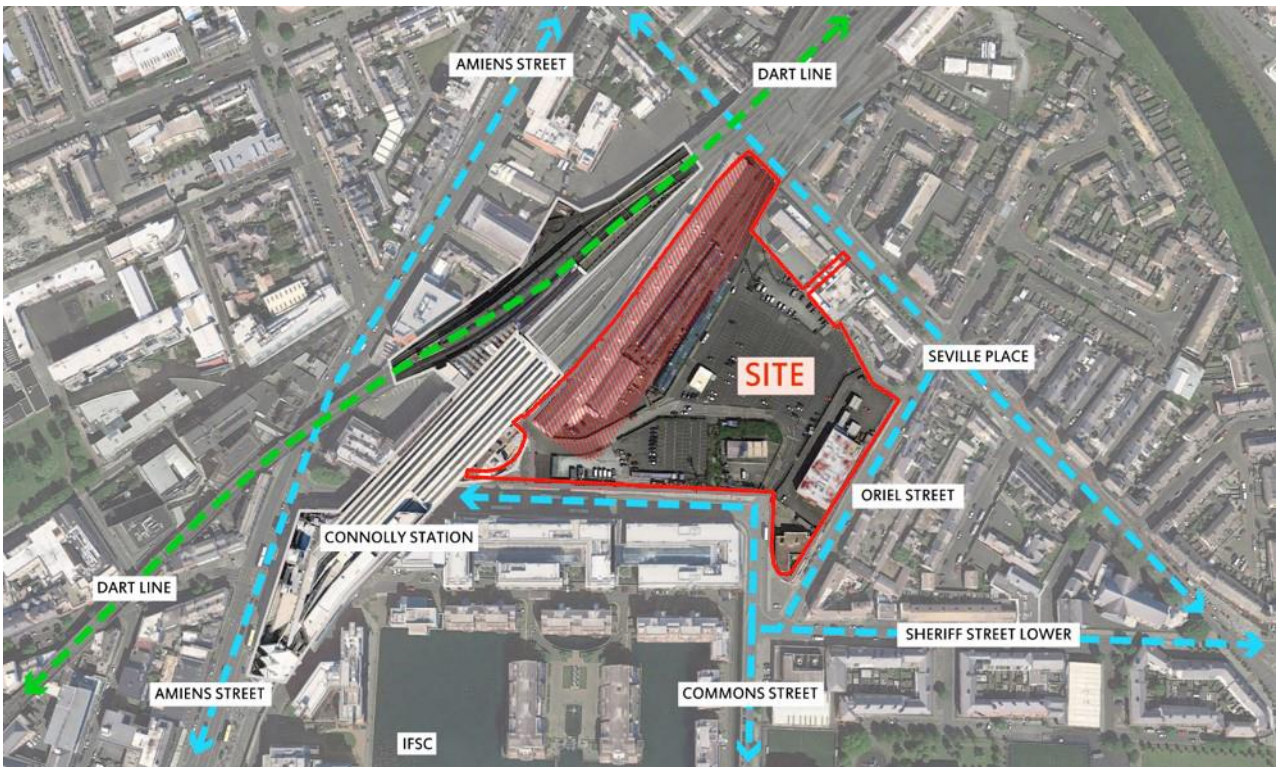

FIGURE 2 AERIAL PHOTOGRAPH OF SUBJECT SITE

2.2 Proposed Development

The proposed development will consist of the following phases of development:

i. The demolition of 4 no. structures with a combined gross floor area of 3,028sq.m;

ii. the construction of 741 no. Build to Rent (BTR) residential units in 8 no. apartment blocks ranging in height from 4 storeys to 23 storeys with lower height buildings located adjacent to the northeast and east site boundaries, with a cumulative gross floor area of 68,535sq.m comprising;
   a. Block B1 (maximum building height 54.917m, total gross internal floor area 11,260sq.m, Apartment Mix: Studio: 25, 1-bed: 37, 2-bed: 51);
   b. Block B2 (maximum building height 54.917m, total gross internal floor area 10,831sq.m, Apartment Mix: Studio: 20, 1-bed: 35, 2-bed: 51,);
   c. Block B3 (maximum building height 51.767m, total gross internal floor area 9,766sq.m, Apartment Mix: Studio: 22, 1-bed: 60, 2-bed: 27, 3-Bed: 1);
   d. Block C1 (maximum building height 79,450m, total gross internal floor area 12,705sq.m, Apartment Mix: Studio: 84, 1-bed: 40, 2-bed: 41);
   e. Block C2 (maximum building height 39,615 m, total gross internal floor area 4,890 sq.m, Apartment Mix: Studio: 9, 1-bed: 33, 2-bed: 3, 3-Bed: 4);
   f. Block C3 (maximum building height 39,650 m, total gross internal floor area 6,775sq.m, Apartment Mix: Studio: 40, 1-bed: 18, 2-bed: 23);
   g. Block D1 (maximum building height 53,392 m, total gross internal floor area 8,418 sq.m, Apartment Mix: Studio: 10, 1-bed: 25, 2-bed: 44, 3-Bed: 1);
   h. Block D2 (maximum building height 30,950 m, total gross internal floor area 3,890 sq.m, Apartment Mix: Studio: 18, 1-bed: 8, 2-bed: 11);

iii. residential support amenities including 1 no. gyms, a resident's lounge, work areas, meeting rooms, dining rooms, recreational areas with a combined GFA of 1,444 sq.m;

iv. change of use from club house to pedestrian passageway of the existing vault (137sq.m GFA) fronting Seville Place, a Protected Structure (RPS No. 130);

v. a basement of 7,253.4 sq.m with vehicular access from Oriel Street Upper incorporating residents' car parking (58 no. spaces), residents cycle parking (640 no. spaces) 7 no. plant rooms (combined 2,228sq.m), waste management facilities (393 sq.m)

vi. at surface level X no. car parking spaces, 766 no. covered cycle parking spaces for residents and visitors, concierge office (233 sq.m) and waste management facilities (126 sq.m);

vii. 'other uses' including 10 no. units providing retail, commercial, and community use with a combined GFA of 3,142 sq.m;

viii. A total of 18,562 sq.m of hard and soft landscaping comprising both public, communal and private open space located throughout the development;

ix. A service and emergency vehicle only access ramp from the Oriel Street Upper site entrance to serve CIE's transport needs at Connolly Station;

x. Enabling works of a non-material nature to safeguard the existing vaults (Protected Structures - RPS No. 130) that form part of the subject site fronting Sheriff Street Lower, Oriel Street Upper, and Seville Place during the construction phase;

xi. All associated ancillary development works including drainage, 6 no. electricity substations, pedestrian access; and

xii. Works to the Masonry wall fronting Oriel Street and the Vaults fronting Seville Place (both a Protected Structure) consisting of the creation of a new vehicular and pedestrian entrance.

FIGURE 3 PROPOSED SITE LAYOUT

The principle development statistics of the proposal are as shown below:

Development Statistic	Proposed Development
No. of Build to Rent Apartments	• 741 no. as follows: ○ 228 no. studio ○ 256 no. 1-bed ○ 251 no. 2-bed ○ 6 no. 3-bed
Site Area	2.88 hectares
Gross Demolition Area	8,824 sq.m
Number of Residential Units	741 no. units
Building Height	4-23 storeys

TABLE 3 PRINCIPLE DEVELOPMENT STATISTICS

2.2.1 Protected Structures on Site

The site contains a Protected Structure (RPS No. 130), which includes all 19th century portions of the main railway station complex. The Luggage Store (Sheriff Street Lower) and workshop building (Sheriff Street Lower), located in the south of the site and shown are Protected Structures, however they do not form part of the SHD application. However, other portions of the protected structure are the boundary wall along Oriel Street Upper, the boundary wall between the Workshop and Luggage Store, and the Vault structure fronting Seville Place are included as interventions and are proposed to facilitate access with Sheriff Street Lower, Oriel Street Upper, and Seville Place. The wall along Oriel Street, the wall

connecting the Workshop and Luggage Store, and the Vault to connect to Seville Place Vault, will be refurbished to retain the existing industrial character.

2.2.2 Amenity and Services

The proposed development includes dedicated amenities and services. These are;

- Private resident services and amenities (gym/fitness, lounge, bar, dining room, work zone, games room, screening room, etc);
- Communal support facilities for both resident and commercial (bicycle stores, concierge and management facilities, maintenance areas, and waste management facilities, etc.); and
- Public open spaces within the new pedestrianised streets.

All communal amenities and services are well distributed throughout the blocks to encourage occupants to meet informally. **Table 3** shows the approximate areas provided for amenities and services.

Amenity and Service Areas	**Area Provided (m^2)**
Private amenity area in balconies	165
Private amenity area in internal residential amenity	1,444
Private amenity area in roof gardens	2,423
Communal amenity area in 'Highline' level	3,149
Communal amenity area in podium gardens	3,072
Total Area	**10,253**

TABLE 3 PROPOSED AMENITY AND SERVICE AREAS

2.2.3 Drainage (Surface & Foul)

A comprehensive surface water management system is proposed integrating a range of Sustainable Urban Drainage System (SuDS) measures to include green roofs; attenuation storage, limiting discharge to the equivalent of greenfield runoff rates (2l/s/ha), infiltration, class 1 oil separators and rainwater harvesting.

The proposed surface water drainage system includes three separate outfalls to existing combined sewers: the 1470mm brick arched sewer in Sherriff Street Lower; the 1200mm-diameter concrete pipe sewer in Sherriff Street Lower and; the 1000mm brick arched sewer in Oriel Street Upper.

Almost the entire extent of the site will be covered in proposed basement; it is therefore proposed that all wastewater from the development be collected in pipes suspended at high level within the basement. To existing combined sewers: the 1470mm brick arched sewer in Sherriff Street Lower; the 1200mm-diameter concrete pipe sewer in Sherriff Street Lower and; the 1000mm brick arched sewer in Oriel Street Upper.

2.2.4 Water Supply

It is proposed to provide a connection to the existing 9-inch watermain on Sherriff Street Lower; this connection will be used as the primary supply point. Due to the size of the proposed development, it is also proposed to provide a secondary connection to the existing 6-inch watermain in Oriel Street Upper

2.2.5 Site Access

All vehicle access will be via the site entrance in the north end of Oriel Street Upper, where pedestrian access will be provided. Entrance comprising 1 no. vehicle access point and 6 no. pedestrian access points. The public realm is conceived as a pedestrian priority urban environment with vehicle access restricted to emergency vehicles only. Proposed access will integrate with the existing access Connolly Station infrastructure and will maintain the provision for emergency service access.

The proposed application provides for the rationalisation of the existing car parking arrangement on the subject site. Currently there are 390 no. spaces operated by CIÉ. The proposed development is subject to an agreement that 180 no. spaces are to be maintained exclusively for the use of CIÉ, in addition to certain access arrangements maintained to meet CIÉ's needs.

2.2.6 Energy Efficiency

The design strategy for the proposed development utilises as many sustainable design options and energy efficient systems that are technically, environmentally and economically viable for the project to achieve a low energy and environmentally friendly development, while also providing suitable dwellings to meet current market demands. The anticipated Building Energy Rating is A2/A3.

2.3 Construction Activities & Phasing

It is expected that the development will be constructed in 6 no. phases and will take approximately 240 weeks based on the planning programme and on market requirements with some phase overlap. Construction will commence with the basement excavation and associated piling. The basement lies entirely within the area of the SHD application. Following on from the construction of the basement work will commence on the C1, C2 and C3 residential blocks followed, in turn, by the B1, B2 and B3 residential blocks alongside, and above, the realigned railway sidings. The SHD element of the development will be completed with the construction of the smaller D1 and D2 residential blocks.

2.3.1 Construction Hours

This plan will include the permitted site operation hours which are expected to be 07:00-19:00 on weekdays (Monday to Friday) and 08:00-14:00 on Saturdays with no works on Sundays or bank/public holidays in accordance with the Environmental Noise regulations 2006 and subject to final agreement with Dublin City Council (DCC).

In exceptional instances where works or deliveries (e.g. abnormal loads) are required outside of these hours, bespoke agreement will be sought from DCC prior to any works taking place. The appointed contractor will be required to prepare and adhere to a Site Environmental Policy Plan and any employed subcontractors will be required to buy into this document. Unscheduled deliveries will not be allowed access.

2.3.2 Pedestrian Access

Pedestrian access will be strictly controlled. Only Safepass accredited personnel will be permitted on site and daily in-out attendance records will be maintained. Safe pedestrian access points will be provided based on the stage of works and layout of the construction site.

2.3.3 Vehicular Access

Construction traffic will access the site via the existing access off Sheriff Street Lower and/or from the new site entrance from Oriel Street Upper when available) to minimise disruption on other routes as illustrated below. Once established the Oriel Street Upper entrance will be used for the construction phase. The routing will be strictly managed and controlled, and details will be incorporated into the traffic management plan.

2.3.4 On Site Parking

On-site provision will be minimised to ensure travel by car is not encouraged while simultaneously being aware of the need to facilitate vehicle travel due to the nature of the work and seeking to avoid any potential overspill parking into the local area. Adequate numbers of cycle parking will be provided for site personnel and personnel will be encouraged to use public transport which is widely available in the surrounding area. A Site Safety & Induction Room will be provided as part of the site construction facilities.

2.3.5 Construction Personnel

Based on a construction contract value of approximately €250 million over a 56-month construction period, it is estimated that 60,000-man weeks of onsite labour will be required for the project. Based on industry standard figures it is likely that an average of 300 construction personnel will be on site daily. However, it is likely that this figure may approach 450 during periods of peak activity.

2.3.6 Construction Vehicle Numbers

Based again on a construction contract value of €250 million over a 56-month construction period, it is estimated that maximum construction vehicle numbers will be of the order of 120 movements spread across the course of the day which is considerably less than the traffic currently generated by the operational of the existing car park and similar to the operational stage of the proposed development.

2.3.7 Site Craneage

Tower Cranes will be required in order to provide efficient site coverage. Whilst the exact number will be dictated by the programme and the specific construction requirements, it is likely that between five and eight tower cranes will be required. It is noted that to maximise efficiency of the tower cranes they will be supplemented by mobile cranes to facilitate lifts at and beyond the extremity of the reach of the tower cranes.

2.3.8 Traffic Management Plan

It is noted that a traffic management plan will be developed for the scheme. All works on the public road will be carried out in accordance with the "Guidelines for Managing Openings in the Public Road" published by the Department of Transport (2017).

2.3.9 Construction Waste

It is noted that waste generated as part of the construction works will be managed in accordance with a Soil Waste Management Plan to be produced by OCSC in advance of the construction stage. That report will identify the nature and classification of the soil waste and will detail management procedures to be implemented to ensure appropriate handling and disposal in accordance with Irish and EU legislative requirements. One of the construction team or the foreperson will be appointed as a Waste Manager to ensure commitment, operational efficiency and accountability.

2.4 Monitoring

2.4.1 Community Liaison

It is important that discussions with local residents, businesses and the general public commence well in advance of work commencing on site. The appointed Main Contractor will be required to follow best practice '*Code of Considerate Practice*' guidelines. The Considerate Constructor experience in Ireland and the U.K. has been that early positive and proactive engagement with businesses and residents impacted by building works is the best approach.

A Community Liaison Officer (CLO) will be appointed by the Main Contractor to lead and manage all community related issues. The CLO will initially host and attend regular community meetings. Following the initial meetings, the CLO will compile a list of stakeholders in the area. These stakeholders will be kept informed of progress and planned works on the site through the publication and distribution of a Monthly Progress Newsletter.

2.4.2 Air Quality

Appropriate Air Quality and Dust monitoring will be carried out and records will be kept of all such monitoring. Construction and demolition works will be carried out in such a way as to limit the emissions to air of pollutants (particularly dust and fine particles (PM10), employing Best Practicable Means. Cover systems will be used on all vehicles removing spoil from site to minimise dust arisings on surrounding streets.

2.4.3 Construction Noise and Vibration

Noise monitoring will be carried out in accordance in accordance with Safety, Health and Welfare at Work (Construction) Regulations 2006 – 2012 Safety, Health and Welfare at Work Act 2005, BS 6187:2011 - Code of Practice for Full & Partial Demolition, BS 5228:2009 Code of Practice for Noise & Vibration Control on Construction & Open Sites.

Noise and Vibration monitoring will be carried out in accordance with any ABP or DCC planning consent and also in accordance with Safety, Health and Welfare at Work (Construction) Regulations 2006 – 2012

Safety, Health and Welfare at Work Act 2005, BS 6187:2011 - Code of Practice for Full & Partial Demolition, BS 5228:2009 Code of Practice for Noise & Vibration Control on Construction & Open Sites, Environmental Protection Agency Act 1992.

2.4.4 Waste Management

It is noted that waste generated as part of the construction works will be managed in accordance with a Solid Waste Management Plan to be produced by OCSC in advance of the construction stage. That report will identify the nature and classification of the soil waste and will detail the management procedures to be implemented to ensure the appropriate handling and disposal in accordance with Irish and EU legislative requirements. One of the construction team or the foreperson will be appointed as Waste Manager to ensure commitment, operational efficiency and accountability.

2.4.5 Wheel Washing

A properly sized and designed wheel wash will be provided and maintained on site for the full duration of construction. Appropriate water collection and filtering will take place prior to discharge to the public sewer system. Gate staff will be trained to inspect vehicles for cleanliness prior to egress to the public road network and any trucks that have been inadequately cleaned will be returned to site.

2.5 General Safety and Health Considerations

Health and Safety Issues will be the primary concern for the appointed contractors. This will apply in respect of persons working on the site and in respect of passing pedestrians, motorists or other transport carriers. In this regard the highest possible care will be taken in providing a detailed Construction Health and Safety Plan in advance of works commencing on the site. A *Site-Specific Safety Statement* and a detailed *Construction Stage Safety & Health Plan* will be compiled prior to any works on site and will be in accordance with the Health & Safety Authority and Local Authority guidelines.

3 Alternatives Considered

This section provides an outline of the main alternatives examined during the design phase. It sets out the main reasons for choosing the development as proposed, considering and providing a comparison on the environmental effects.

The Environmental Protection Agency (2017) *Guidelines on the Information to be Contained in Environmental Impact Assessment Reports - Draft* states;

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

As such, the consideration and presentation of the reasonable alternatives studied by the project design team is an important requirement of the EIA process.

For the purpose of the Regulations, alternatives may be described at three levels:

i. Alternative Locations
ii. Alternative Designs
iii. Alternative Processes

3.1 Alternative Locations

The Applicant's decision to engage with the application site was based on their proven track record of successfully delivering residential schemes to the market and the extant planning permission (DCC reference 2863/11) on the subject site which has an expiry date of 22nd May 2022.

Prior to the acquisition, the site's ability to satisfy environmental criteria was found to offer the following attributes;

- The application area offered the opportunity to bring a previously industrial brownfield site within the Dublin inner city into more constructive use, thus promoting the principles of compact growth and energy efficient design.
- There is a Protected Structure (Ref. No. 130) within the site and the elements will be conserved from further deterioration by incorporation of parts of the protected structures into the proposed development and that the masterplan shows an intention to further this aim in a section 34 application.
- As industrial brownfield site, the subject land provides an opportunity to add to the quantum of much needed residential units, in an ideal location within Dublin inner city centre and within the Dublin Dockland Development area, located adjacent to a major transportation hub, and the financial services centre of the city.
- The site's location within walking distance of public transport corridors and nodes, and within cycling distance of large parts of Dublin, will promote a modal shift from the private car to more sustainable forms of transportation. This in turn will assist with achieving overarching environmental objectives such as improved air quality (CO2, NO2 and particulate emissions) and a reduction in noise pollution.
- The site is not subject to any statutory nature conservation designation and it is unlikely to impact on a designated European Site (Natura2000 network) as detailed in the appropriate assessment screening report that accompanies the application.
- The site is not located within an area identified as susceptible to flooding.

In light of the foregoing, it is considered that the application site is considered to be appropriate from an environmental perspective for the proposed development.

3.2 Alternative Designs

3.2.1 Section 274 and An Bord Pleanála PAC

Pre-Application Consultation was held with Dublin City Council under a Section 247 process, and after this was completed a Pre-Planning Consultation (PAC) process with An Bord Pleanála (ABP) was completed and the Bord issued its opinion on the 24th June 2019. The layout changes resulting from this consultation do not have significant environmental considerations and are:

- Considerations with regard to permeability, in particular the inclusion of the link to Seville Place and connecting the site with the wider community;
- Reduction in residential car parking spaces to a minimum (58 no.) thus promoting a modal shift with consequent environmental improvements; and,
- Revisions to the design to optimise the sunlight/daylight access to the buildings including;
    - removing overhanging balconies that had an adverse effect on daylight levels;
    - increasing the glazing to full width in living rooms on lower levels to increase daylight penetration
    - eliminating north facing units;
    - creating greater distances between buildings; and,
    - reorientation of buildings to maximise each room's exposure to the sky and daylight.

There are three main alternatives for this site:

- Do-nothing and retain the existing use as a car park and ancillary buildings.
- Implement the extant planning permission reference 2863/11.
- Progress the proposed development.

The subject SHD proposal was selected as the optimum alternative as it responds to the current housing crisis that exists within the City. The site is ideally located to support high density development, being adjacent to a range of public transport options and within walking distance of a wide range of employment opportunities. It is clear from the Housing Needs Assessment that there is a need for residential development. Creating high quality city centre living on a brownfield site is inherently sustainable. The proposed development will result in wide ranging environmental benefits including reduced greenhouse gas emissions and improved quality of life for people who will have the option to live closer to work thus reducing commuting times.

3.3 Alternative Processes

The residential units will be designed to comply with the new Building Regulations TGD L 2019 – Conservation of Fuel and Energy – Dwellings. This new version of TGD L includes the requirements for Nearly Zero Energy Building (NZEB). Dwellings compliant with NZEB will usually achieve a BER of A2-A3. To satisfy the new part L, 20% of the building energy must be provided via renewable technologies.

4 Assessment of Environmental Impacts

The EIA process essentially identifies, describes and assesses in an appropriate manner, the direct and indirect significant effects of a project on a series of specified environmental factors;

- Biodiversity, with particular attention to protected species and habitats
- Land, soil, water, air and climate
- Material assets, cultural heritage and the landscape
- Interaction between the above factors

4.1 Population & Human Heath

The assessment of Population & Human Health is contained within Chapter 4 of Volume II.

4.1.1 Existing Environment

The subject site lies within the Dublin City Council administrative area, within Zone 5 ''City Centre''. The proposed development is in the eastern portion of Zone 5 adjacent to Connolly Station.

For the purpose of this report, the study area is broadly based on the characteristic of the area within Zone 5 ''City Centre'' and Zone 1 ''Sustainable Residential Neighbourhoods''.

The noted guidelines identify sensitive receptors as neighbouring landowners, local communities and other parties likely to be impacted by the proposed development. Surrounding developments including homes, hospitals, hotels, schools, rehabilitation workshops and schools have been identified. Consideration has also been given to temporary populations such as tourists, walkers, cyclists and drivers.

The Government's National Planning Framework (NPF) indicates that an increased housing output will be required into the 2020's to deal with a deficit that has built up since 2010. To meet projected population and economic growth as well as increase household formation, the NPF states that an annual housing output of 30,000 to 35,000 homes per annum in the years to 2027 will be needed and sets a target for 25,000 homes to be constructed annually to 2021.

To facilitate the delivery of housing within the Dublin City Development Plan (CDP) 2016-2022 states that the population growth between 2013 and 2022 will be approximately 75,905 persons. The CDP details that in the (Strategic Development and Regeneration Area) SDRA 6 Docklands (including North Lotts and Grand Canal Dock SDZ area and Poolbeg West) the capacity for residential units is approximately 4,600, see extract from Map E of Dublin City Council CDP in **Figure 4**.

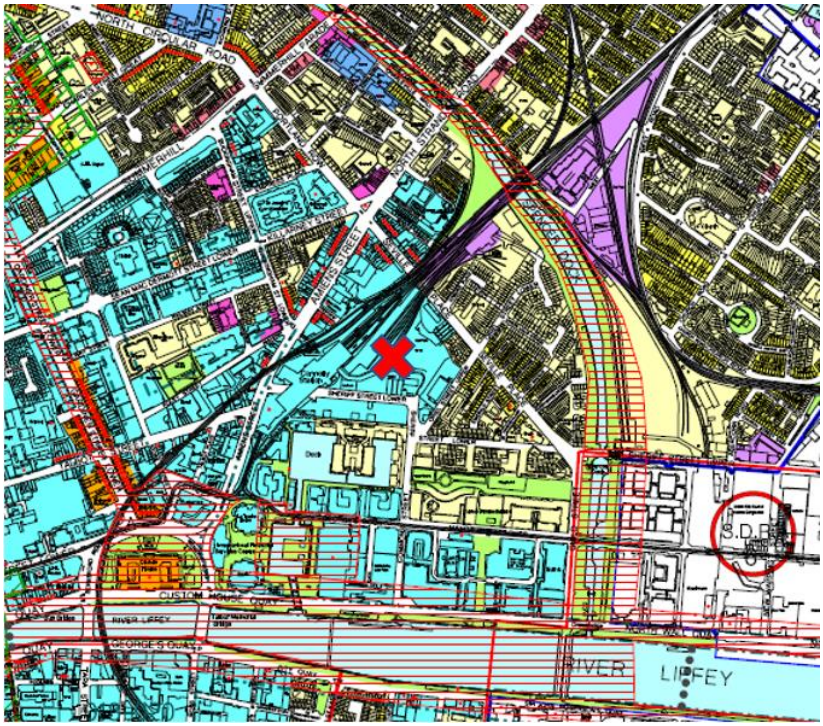

FIGURE 4 LAND USE ZONING

The CDP details that the site location is acceptable for a taller high-density type development like the proposed development. The subject land is in zone Z5 – City Centre. The CDP notes in section 14.8.5 that "*The primary purpose of this use zone is to sustain life within the centre of the city through intensive mixed-use development*". The proposed development is considered consistent with the site zoning and objective and is deemed a permissible use under the Plan.

4.1.2 Impact Assessment

The proposed development complies with statutory land use zone. There will be no severance of land, loss of rights of way or amenities as a result. The impact is likely and will have a permanent significant positive effect that will achieve local and wider county, regional and national objectives.

It is expected that an average of 300 people will be working directly on the construction site and during peak activities this will increase to approximately 450 people. The staff will comprise of managerial, technical, skilled and unskilled workers. As far as practicable local labour will be employed. It is unlikely that the proposed development will increase the population of the area as a result of the construction phase.

In addition to direct employment, there will be substantial off-site employment and economic activity associated with the supply of construction materials and provision of services such as professional firms supplying financial, architectural, engineering, legal, and a range of other professional services to the project.

Revenue generated during the construction phase will have an associated benefit for the local area with respect to expenditure on local goods and services.

The impact of the construction phase will at least extend to the county in terms of the requirement for labour, goods and services. The effect will be significantly positive in the short-term.

Construction works, and emergence of the new structures will be seen in the context of existing views of surrounding public roads and industrial buildings. Many of these are significant developments, which will have the effect of backgrounding and contextualising the proposed works. Works to the public road will

require a road opening licence and temporary closures may be required. The impact of these works is neutral, not significant and temporary.

The construction phase impacts upon in terms of noise, air quality, visual and traffic are assessed in the sections below. No significant residual effects are predicted in each case.

The proposed development complies with the statutory land use zoning. It will deliver 741 no. residential apartments, including 10% or 74 no. apartments that will be provided for the purposes of Part V social housing.

Given the existing housing crisis, it is anticipated that a high-density mixed-use development at this location would result in a likely significant positive impact with a permanent duration as it would realise the aim of increased housing output, consistent with the objective of urban consolidation to be delivered within Dublin inner city, including higher residential densities along public transport corridors and taller buildings near Connolly Station

The proposed design provides for the segregation of pedestrians and traffic and incorporates the principles of Universal Design and access and the requirements of Part M of the Building Regulations, so that the development will be readily accessible to all, regardless of age, ability or disability.

The integration of energy efficient measures into the design will provide for healthier living standards for future occupants and less dependence on fossil fuels for energy generation with a resultant improved air quality and thus the impact is likely to be locally significantly positive and of permanent duration.

Adequate and appropriate exposure to light is critical for health and well-being. Light impacts human health and performance by enabling performance of visual tasks, controlling the body's sleeping and walking system and affecting mood and perception.

A **Daylight, Sunlight and Overshadowing Report** prepared by Integrated Environmental Solutions (IES) accompanies this application under separate cover. The suggested design changes in the IES report are included in the proposed application.

In terms of access to amenity space sunlight 68% of the amenity areas in the development as a whole receive more than 2 hours of sunlight on March 21st, the Proposed Development exceeds Building Research Establishment (BRE) recommendations.

In terms of average daylight factors 98% of the tested rooms in the proposed scheme are projected to have an Average Daylight Factors (ADF) above the recommended Average Daylight Factors (ADF) from the BRE guidelines. The report notes from 2 levels above garden level the pass rate achieved is 100%.

In terms of shading on surrounding properties, the impact of the proposed development is almost identical to that from the previously permitted (the extant permission) scheme as shown by the images in Section 3.

The provision of up to 741 no. quality residential units and including the residential amenity provisions within the proposed development will have a **significant, permanent and positive** impact on the Connolly Station environs, contributing to the regeneration of Dublin inner city.

The new residential population will generate additional spending within the area which will likely have a permanent moderate positive impact on local economic activity generated through the multiplier effect. This increase in population will also support the ongoing provision of an efficient public transport system.

A detailed landscape plan and report has been prepared by BSLArch Landscape Consultants and can be found in the Architects Design Statement which accompanies this application. The landscape plan provides details of the proposed public realm and landscaping treatment for the site. The landscape plan

includes proposals for street furniture and street tree planting, for public, communal, and private outdoor landscaped areas.

Overall, the operational phase of the proposed development, in terms of human health is anticipated to be likely and significantly positive locally with a permanent duration.

4.1.3 Mitigation

A Construction and Environmental Management Plan (CEMP), and a Construction & Demolition Waste Management Plan has been prepared by O' Connor, Sutton, Cronin Consulting Engineers (OSCS) under separate cover. Construction sites post potential risks to health and safety of the public. However, all construction activities will be carefully managed to comply with relevant operational health and safety, as well as environmental requirements, to prevent adverse impacts upon the public.

Adherence to the construction phase mitigation measures presented in this EIAR will ensure that the construction of the proposed development will have an imperceptible and neutral impact in terms of health and safety.

The proposed development has been designed to avoid negative impacts on population and human health through the inclusion of:

- Well-designed residential units within the proposed development which allow year-round sunlight to penetrate, universal access, energy efficient measures and high-quality finishes and materials;
- That the effects on residential units neighbouring the proposed development will be similar to the extant permission.
- Incorporating attractive and functional public realm and landscaping treatments within the layout, including a paved plaza, seating areas;
- Provision of extensive connections and permeability for pedestrians and cyclists throughout the development and between the adjoining street network; and
- the inclusion of a comprehensive foul and surface water management system.

4.2 Landscape & Visual Character

The full assessment of Landscape & Visual Character is contained within Chapter 5 of Volume II.

4.2.1 Existing Environment

The site comprises a brownfield area of c. 2.88ha located adjacent to Connolly Station, to the north of the IFSC in the northern city centre. It is occupied by various railway related uses, structures and infrastructure and has a semi-industrial or infrastructural character. It is unsightly with few elements, features or characteristics of townscape or visual amenity value. As a result, it detracts from the character and visual amenity of the adjacent streets (Sheriff Street Lower, Commons Street, Oriel Street Upper and Oriel Hall) as well as the wider townscape.

Due to several factors – including:

(a) the 'barrier effect' of the elevated railway corridor;

(b) the site's large area;

(c) its boundary conditions and related permeability, and;

(d) the land use pattern in the area,

there is an unusual degree of disconnection and discontinuity in the surrounding townscape. There is limited commonality between the various character areas adjoining the site in terms of land use mix, urban grain, density and scale, plot and building typology and architecture (i.e. the main physical determinants of townscape character).

This is a weakness in character and an opportunity, in that the site – effectively a lacuna in the townscape – while contributing to the current disconnectedness in character and poor visual amenity locally, has significant potential to affect the surrounding areas (positively or negatively). Also, with the wide variety of townscape character surrounding the site, and due to its scale, the site can adopt/establish a character of its own.

These characteristics of the receiving environment have long been recognised in forward planning for the Connolly Station area. Along with the area's unparalleled public transport connectivity, this has resulted in its designation for high density and high-rise development in planning policy.

4.2.2 Impact Assessment – Townscape

The potential effects on the key townscape receptors were assessed as follows:

4.2.2.1 Topography

The ground level of the site will be flattened so as to be level with the adjacent streets at the site boundaries, integrating the internal public space/streets with the surrounding streets, facilitating permeability. **Significance: Slight, positive.**

4.2.2.2 Urban Grain & Movement Patterns

The large, currently undivided area would be divided into development blocks by new pedestrian priority streets with a central square at their junction. The alignment of the streets borrows from the surrounding grain (e.g. the north-south street is parallel to Oriel Street; the east-west street is parallel to Sheriff Street Lower). The location of the entrances responds to the potential desire lines into and across the site. The resulting urban grain is (a) a logical division of the site area, and (b) a functional extension of the existing surrounding grain, improving pedestrian permeability considerably. **Significance: Moderate, positive.**

4.2.2.3 Land Use Pattern

An underutilised city centre area in logistics/infrastructure use, but zoned for 'intensive mixed-use development', would be transformed into a high-density residential quarter, with the residential use supported by retail, café and other commercial uses at street level. (A future S.34 application for hotel and office buildings on the remainder of the Masterplan site would contribute further to the mix of uses.) The resulting use of the site would be (a) in accordance with its zoning and (b) complementary to the surrounding uses (lower density residential to the east and north, mixed use to the west and south, transport hub adjacent to the south west. **Significance: Moderate, positive.**

4.2.2.4 Plot/Building Typologies & Architecture

A cluster of high density, high rise buildings (the tallest being 79.45m) would be introduced to an area already characterised by a wide range of plot/building typologies, scale, architecture and materials. The existing mix is such that the development could not be considered out of character (as there is no predominant character), although the juxtaposition of type/scale with the low-density residential area to the east and north would potentially be stark. Given that the Connolly Station area is designated for high rise development, and the site is the only opportunity (in the 'Connolly area') for the realisation of that objective, the change may be considered positive in that it would realise a development/planning objective. **Significance: Moderate, positive.**

4.2.2.5 Adjacent Streetscapes & Boundary Interfaces

The streetscapes of Sheriff Street Lower and Oriel Street Upper, which due to the existing site condition are of poor character and visual amenity value, would be substantially altered. The changes to Sheriff Street would include the introduction of broad entrances to the site's new internal streets, one through the refurbished warehouse façade, the other where Commons Street meets the site from the south. The changes to Oriel Street Upper include the opening of two broad entrances to the site and in between these a new built frontage to the street (Block D2), while retaining parts of the protected wall. In addition to the physical changes to the street edge, the land use change on the site would generate pedestrian traffic on the streets. The existing high wall on the boundary along Oriel Hall would remain, with new buildings (C2 the nearest) protruding above this. The future S.34 application for office and hotel buildings in the southern part of the site would further alter the streetscapes, reinforcing a new urban character and identity. **Significance: Moderate, positive.**

4.2.2.6 Landscape/Green Infrastructure

Although predominantly hard surfaced the proposed street level public open space includes mounded areas of soft landscaping with trees. Street trees are also proposed along Sheriff Street Lower and Commons Street. Above ground level there are numerous podium and roof terrace open space areas, all with areas of ground cover planting, raised planters and trees. The volume of vegetation and the area of soil coverage (slowing rainwater runoff) would be increased considerably**. Significance: Slight, positive.**

4.2.2.7 Perceptual and Aesthetic Factors

Although predominantly hard surfaced the proposed street level public open space includes mounded areas of soft landscaping with trees. Street trees are also proposed along Sheriff Street Lower and Commons Street. Above ground level there are numerous podium and roof terrace open space areas, all with areas of ground cover planting, raised planters and trees. The volume of vegetation and the area of soil coverage (slowing rainwater runoff) would be increased considerably. **Significance: Slight, positive.**

The geological impact of Connolly Station character would be fundamentally altered by the transformation of an underutilised area attached to the station

The potential effects on surrounding character areas in the townscape were assessed as follows:

4.2.2.8 Connolly Station and Railway Corridor

The Connolly Station character area would be fundamentally altered by the transformation of an underutilised area attached to the station, into a high-density neighbourhood incorporating a cluster of high-rise buildings including a landmark tall building. The change would be visible from the approaches to and immediate setting of the station, and from some of the platforms and from trains passing through the station. **Significance: Moderate.**

4.2.2.9 IFSC/North Lotts

The IFSC and North Lotts area has a generally high degree of built enclosure and an inward focus. From certain locations within and at the northern edges of this area the change nearby to the north and north west would be visible, but without affecting the area significantly (the IFSC and North Lotts being the most similar area in character to the proposed development). **Significance: Not Significant.**

4.2.2.10 Amiens Street Corridor

Amiens Street passes some 100m to the west of the site and on its approach to the city centre is aligned to afford views towards the site. It is a major urban thoroughfare fronted by development of mixed character (although mostly low rise), arriving in the city centre at a major transport hub and a cluster of prominent but diverse elements (Connolly Station, IFSC, Busáras, Custom House). The development would be visible from parts of the Amiens Street corridor to the west. The character of the street corridor would be indirectly affected by the change. **Significance: Slight.**

4.2.2.11 Northern City Centre Mixed Use area West of Amiens Street

West of Amiens Street the potential effects would largely be limited to the development's visibility (in the distance) from a limited number of streets aligned to afford views towards the site (e.g. Talbot Street and Portland Row). The inner-city area generally would be indirectly affected by limited change to views, although in a confined area (Talbot Street) the change would be of greater magnitude. **Significance: Slight to moderate.**

4.2.2.12 Northern City Centre Residential Area East and North of Site

There would be a direct effect on the residential area to the east and north of the site, along Oriel Street Upper and Oriel Hall in particular, as well as a stretch of Seville Place and to a lesser extent Sheriff Street Lower (east of the Oriel Street junction). Along the directly affected edge in particular the character of this area would be substantially altered by the introduction of the cluster of high rise buildings including a landmark tall building, and by the changes to the urban grain and movement pattern, the land use mix, the composition and character of streetscapes and related perceptual and aesthetic factors. Away from the direct interface the change would be indirect and of lesser magnitude. **Significance: Very significant.**

4.2.2.13 Liffey Corridor Including Custom House

Visibility of the development from the Liffey corridor, including the key views of the Custom House from across the river, would be negligible. The character of the Liffey corridor and the setting of the Custom house would not be significantly altered. **Significance: Not significant.**

In order to classify the effects on townscape character as positive, neutral or negative, the proposed development was further assessed against the following:

- the '*considerations for large-scale development*' listed in Section 16.2.2.1 of the Dublin City Development Plan 2016-2022, and;
- the principles for neighbourhood development set out in the Urban Design Manual (DEHLG, 2009). (The Development Plan - in Section 16.10.4 - suggests this is an appropriate way to assess the quality of proposals for '*large neighbourhood'* developments.)

It was found that the proposed development is largely compliant with the Development Plan considerations and the *Urban Design Manual* criteria. Therefore, the townscape effects can be classified positive.

4.2.3 Impact Assessment – Visual

39 no. viewpoints in the receiving environment were selected for detailed assessment of the potential visual effects, informed by verified photomontages:

- 16 no. of these (Nos. 1-16 below) are views which were agreed by the design team and DCC during pre-planning consultation, specifically to assess long range visibility and certain key vistas and sensitivities around the site.
- A further 11 no. viewpoints (Nos. 17-27) were selected by the LVIA author to assess the effects on the streets and neighbourhoods and other sensitivities around the site, identified in the townscape assessment.
- 12 no. additional viewpoints were selected by the conservation architect to inform the preparation of the Built Heritage chapter (Chapter 14). The impacts on these views are not assessed in the Landscape and Visual chapter but it is noted that the proposed development would cause no change in 11 of the 12 views, and only minor change in one view (Viewpoint H01, Buckingham Street).

In many of the mid-distant and long-distance views the development would be visible but would cause a low to medium magnitude of change. Rather than dominating the views the cluster of buildings would add visual interest, making a positive contribution to the skyline and indicating a place of significance (Connolly), improving legibility.

There would be an appreciable gradation in height from the outer edges towards the landmark tall building at the centre of the cluster. The overall scale of the development, and the variations in form, design and materials between the buildings, would cause the development to read as an urban quarter (as opposed to an individual, less strategic development), of distinct identity.

This change is effectively prescribed by Development Plan policy on urban density and building height (which identifies 'Connolly' as one of four locations in the city for high rise development). The following Development Plan policy is pertinent to the assessment:

- "…*taller buildings can also play an important visual role and can make a positive contribution to the skyline of a city. Dublin City Council recognises the merit of taller buildings, including landmark buildings, in a very limited number of locations at a scale appropriate for Dublin*…
- "*Clustering of taller buildings of the type needed to promote significant densities of commercial and residential space are likely to be achieved in a limited number of areas only. Taller buildings (over 50m) are acceptable at locations such as at major public transport hubs, and some SDRAs*…

- "*There are also a few areas where there are good transport links and sites of sufficient size to create their own character, such that a limited number of mid-rise (up to 50m) buildings will help provide a new urban identity*…
- "*In all cases, proposals for taller buildings must respect their context and address the assessment criteria set out in the development standards section, to ensure that taller buildings achieve high standards in relation to design, sustainability, amenity, impacts on the receiving environment, and the protection or framing of important views*."

The subject site can be considered one of the very limited number of areas/sites in the city at which the above policies can be realised. However, their implementation will inevitably result in very significant townscape and visual change locally, as it encourages a new development/design paradigm including new building typologies and scale, which will contrast with existing/previous development types.

The views from nearby the site, including from the adjacent and approaching streets (Sheriff Street Lower, Oriel Street Upper, a stretch of Seville Place, Coburg Place and Commons Street) would generally experience a high or very high magnitude of change. The composition of the views would be transformed by the introduction of a new character of development (a large cluster of tall buildings) to the townscape, the buildings becoming the dominant or co-dominant elements of the views – with the presence of the existing buildings proportionally diminished.

Wide entrances would be opened in the site boundary walls, leading into the new internal streets, and the change in land use would generate a high level of activity on the streets within and surrounding the site, further affecting the streetscape character. While changing the composition and character of the views considerably, the development would add visual interest, identity and would have a transformative effect on legibility. These effects, while very significant, would be confined to a small part of the receiving environment.

4.2.4 Mitigation

No mitigation measures have been proposed as the very significant townscape and visual change have been assessed as positive since (a) they are supported by policy, and (b) the proposal exhibits understanding of and appropriate response to the sensitivities and opportunities presented by the townscape context. No further mitigation measures other than those incorporated in the design are proposed.

4.2.5 Cumulative Effects

At the wider town and cityscape scale, there are several existing and permitted developments of similar type to the proposed development, ie. Clusters of mid-rise to high buildings and/or landmark tall buildings.

4.3 Material Assets: Traffic & Transport

The full assessment of Material Assets: Traffic & Transport is contained within Chapter 6 of Volume II.

4.3.1 Existing Environment

This assessment has been undertaken in accordance with relevant guidelines from the Chartered Institution of Highways and Transportation and Transport Infrastructure Ireland (TII). It was carried out based on existing traffic conditions on the local study area which were ascertained through several bespoke surveys carried out on Thursday 4th October 2018, which included junction turning counts, queue length surveys and pedestrian crossing counts.

Additional traffic was allowed for as part of the assessment to include natural background traffic growth in accordance with TII growth factors and additional traffic from the proposed development. The development traffic was estimated using data from the Trics data which uses real world survey data from similar development types to provide estimates and is an industry standard tool.

The local road network was assessed using guidance from the *Design Manual for Roads and Bridges* (DMRB) and TRANSYT 15 traffic modelling software.

The receiving environment is a brownfield site at present in a relatively undeveloped state forming part of the lands associated with Connolly Station. The main transportation arteries in the study area and with respect to the proposed development are Amiens Street, Seville Place and Oriel Street Upper.

The proposed Strategic Housing Development (SHD) consists of 741 no. Build to Rent (BTR) apartments with ancillary residential and residential amenities. The key aspects with respect to transportation are summarised as follows:

- The development site is bound by Sheriff Street Lower to the south, Oriel Street to the southwest, third party commercial and residential developments such as Oriel Hall to the northeast and Irish rail lands to the northwest;
- The site is highly accessible by a wide variety of sustainable transport options with heavy and light rail services (Luas, DART, Commuter Intercity), national and local bus services (Bus Eireann and Dublin Bus), Dublin bikes etc. all within a short walking distance;
- Through discussions with Dublin City Council and the National Transport Authority, the development was identified as a candidate for zero car parking provision in accordance with *the Guidelines for Planning Authorities, Design Standards for New Apartments* (March 2018) from the Department of Housing, Planning and Local Government. This takes into consideration the BTR nature of the development, the existing demand for car parking and car usage locally based on data from the 2016 Census and existing and proposed public transport, cycle and pedestrian infrastructure locally and a series of comprehensive parking management proposals for the development;
- To facilitate the parking strategy, it is proposed to provide just 58 no. car parking spaces at basement level to serve the development. However, these will be dedicated for use by an on-site car club scheme at the development, such as GoCar, which will be available for use by residents at the development as part of the overall parking management strategy, ensuring access to a vehicle for non-commuting purposes without the need to own a car;
- The development is to be served by one vehicular entrance on Oriel Street which will operate under a simple uncontrolled layout designed in accordance with the Design Manual for Urban Roads and Streets (DMURS);
- A total of 1,406 no. cycle parking spaces are being provided to facilitate and encourage a high modal share for cycling.

It is noted that the assessment has considered the overall context for the masterplan lands which the SHD development forms part of. This includes the following additional development:

- 24,747m2 Office;
- 7,765m2 Hotel;
- 2,834m2 Retail.

4.3.2 Construction Stage Impact

The peak traffic hours have been defined as 07:00-08:00 and 16:15-17:15 based on the results of the traffic surveys combined with the trip generation estimates for the proposed development. The normal permitted construction working hours are 08:00 to 19:00 on a weekday. As a result, staff travelling in private vehicles will arrive and depart the site outside of the peak traffic hours:

- An appropriately limited amount of on-site parking will be provided to encourage staff to car share and to travel by the numerous public transport options serving the locality. However, the provision will be adequate to prevent overspill parking in the local area;
- Heavy vehicles will facilitate the movement of materials to and from the site including excavated material and deliveries. Given the current topography and proposed design, the amount of excavation will be relatively limited, and the duration of such works will be very short term in nature. Furthermore, heavy vehicles travelling to and from the site will be spread across the course of the working day with efforts made to limit the number of arrivals and departures during the peak traffic hours where possible;
- Most contractor vehicles are expected to arrive and depart just before and after the site opening and closing hours respectively, with a small number spread across the course of the day;
- The peak hour vehicle movements for the construction phase are notably lower than that predicted for the operational stage.

Mitigations measures proposed include the provision and implementation of a *Construction & Environmental Management Plan.*

It is considered that the impact of the construction phase on Traffic and Transport will likely be **adverse but moderate and short-term**.

4.3.3 Operational Stage Impact

The impact of the operational stage was considered in the following context:

- Do-Nothing – no development taking place in the local area and only allowance for natural background traffic growth;
- Do-Something – Natural background traffic growth and the additional traffic estimated to be generated by the proposed development.

The Do-Nothing analysis shows that all junctions within capacity, with reserve capacity available even at the Design Year of 2037. The proposed development is shown to operate well, with considerable reserve capacity and negligible amounts of queuing which is expected given the minimal car parking proposed at the development and highly accessible nature of the site.

The link capacities for the study area road network will continue to operate within acceptable limits for all scenarios assessed, though maximum capacity is reached by the design year.

Mitigation measures as part of the proposed development included a significantly reduced rate of car parking provision, dedication of all car parking to car club vehicles, increased rate of cycle parking provision, increased permeability through the site and implementation of a bespoke Travel Plan at the development.

It is considered that the impact of the operational phase on Traffic and Transport will likely be **neutral, slight and long-term**.

4.3.4 Mitigation

The operational stage impact of the proposal will be negligible in terms of traffic. The proposed entrance on Oriel Street Upper is proposed as simple priority junction meaning existing traffic will not be impeded. As such no mitigation measures have been proposed.

A series of mitigation measures have been incorporated into the design of development with respect to traffic & transportation while others have been identified as part of the detailed analysis of the local road network.

Mitigation measures regarding the construction phase of the development will be dealt with by the appointed contractor through the development and implementation of a *Construction & Environmental Management Plan*. This plan will be agreed with the Local Authority prior to the commencement of construction.

4.4 Material Assets: Built Services

The full assessment of Material Assets: Built Services is contained within Chapter 7 of Volume II.

This chapter addresses issues relating to the material assets of surface water drainage, foul water drainage, water supply and utilities in respect of the subject lands and assess the impact of the proposed development on these aspects of the existing environment.

4.4.1 Existing Environment

4.4.2 Surface Water

Runoff from the existing site is collected through a network of below ground pipes. There is no interception or other form of runoff volume reduction. There is no flow control and attenuation of runoff from the site. All surface water runoff from the site is directed to existing combined sewerage infrastructure draining to Irish Water's Mayor Street Pumping Station. Combined Sewer Overflows (CSOs) on the receiving sewerage network discharge the Liffey Estuary at North Wall Quay. The Mayor Street Pumping Station discharges to existing gravity sewerage in Amiens Street that ultimately drains to Ringsend Wastewater Treatment Works.

The proposed surface water drainage system therefore comprises a Sustainable Urban Drainage System (SUDS) consisting of green roofs, blue roofs, pervious paving, bio-retention areas, attenuation storage and flow control. The proposed SUDS devices provide a treatment train for rainfall runoff, delivering interception storage, water quality treatment, runoff volume reduction and runoff rate reduction.

In the absence of this proposed development, surface water runoff from the site would continue to flow un-attenuated into the receiving combined sewerage infrastructure. Un-attenuated flow contributes to the frequency of CSO discharges of combined sewage to the Liffey Estuary in times of high rainfall.

It is expected that surface water runoff during construction would be discharged to Irish Water's combined sewerage network. While the combined sewerage network normally conveys flow to the Ringsend Wastewater Treatment Works, Combined Sewer Overflows (CSOs) on the network present a residual risk that untreated surface water runoff from the construction site would enter the Liffey Estuary. In the

absence of mitigation measures, surface water runoff during construction activities may contain increased silt levels or become polluted from construction activities.

Such contaminants could potentially cause deoxygenation of water in the receiving watercourses, the gills of fish to become obstructed with waterborne silt and aquatic plants and invertebrates to be smothered by settled silt, limiting exposure to sunlight and oxygen. However, mitigation measures are available to control and manage these risks. The Contractor will be required to prepare and implement a Surface Water Management Plan that ensures avoidance and minimisation of effects. Surface water storage in excavations may be directed to on-site settlement ponds, where silt removal will be facilitated prior to discharge off site at a controlled rate. Periodic testing of the surface water discharge may also be undertaken.

The proposed Sustainable Urban Drainage System (SUDS) for the development incorporates flow control and attenuation of discharge from the site to the receiving sewerage network. This will result in a significant decrease in surface water discharge from the site. The decrease in surface water discharge from the site will reduce the risk of flooding in the receiving sewerage network and will reduce the risk of CSO discharges to the Liffey Estuary.

The proposed drainage system for the development incorporates interception in the form of green roofs and bio-retention areas that facilitate losses through evapo-transpiration, thereby reducing the annual volume of surface water runoff. The proposed drainage system will be commissioned and subject to a regular operational inspection and maintenance regime to ensure the system keeps operating within the design specifications.

4.4.2.1 Wastewater Drainage

In the vicinity of the subject site, there is an extensive network of combined sewers (collecting both wastewater and surface water) in the ownership of Irish Water. The existing combined sewers provide services to domestic, commercial and industrial customers in the immediate vicinity of the site and in the wider area. All wastewater generated on the site is directed to existing combined sewerage infrastructure draining to Irish Water's Mayor Street Pumping Station. Combined Sewer Overflows (CSOs) on the receiving sewerage network discharge the Liffey Estuary at North Wall Quay. The Mayor Street Pumping Station discharges to existing gravity sewerage in Amiens Street that ultimately drains to Ringsend Wastewater Treatment Works.

In April 2019, An Bord Pleanála granted permission (ref: ABP-301798-18) to Irish Water for works at Ringsend WWTP, amending the proposals for works permitted in 2012.

The proposed development will increase the wastewater generated on the subject site contributing to the existing public sewerage system. However, the reduction in the rate of surface water runoff from the site entering the existing public sewerage system will help to reduce the frequency of Combined Sewerage Overflows (CSOs) from the existing public sewerage system to the River Liffey.

In the absence of this proposed development, wastewater flow from the site would continue to discharge to the receiving sewerage network. The expected increase in wastewater flow arising from the proposed development would not be discharged to the existing sewerage network. However, surface water runoff from the site would continue to flow un-attenuated into the receiving combined sewerage infrastructure. Un-attenuated flow contributes to the frequency of CSO discharges of combined sewage to the Liffey Estuary in times of high rainfall.

During construction it is envisaged that the contractor will put in place temporary drainage facilities to manage water within excavations. During the construction phase, welfare facilities for construction personnel will be located on site. Wastewater effluent from these facilities will be discharged to the sewerage system at a location and at a flow rate subject to the conditions of a discharge licence from Irish Water.

The proposed drainage system will be designed with appropriate capacity for the development and

ensure self-cleansing velocities are achieved to reduce the risk of blockages and odours. In order to reduce the risk of defective or leaking sewers, all new sewers will be pressure tested and CCTV surveyed to ascertain any possible defects. Such defects, if they arise, would be repaired prior to the connection of any future development to the sewers. The proposed drainage system will be commissioned and subject to a regular operational inspection and maintenance regime to ensure the system keeps operating within the design specifications.

4.4.2.2 Water Supply

In the vicinity of the subject site, there is an extensive network of watermains in the ownership of Irish Water. These watermains provide services to domestic, commercial and industrial customers in the vicinity of the site and across the city centre area.

The proposed development will increase the water demand generated on the subject site on the existing water supply system. It is proposed to provide a water storage tank at basement level with booster pumps to supply the development via internal watermains. It is proposed to connect to existing watermains in Sheriff Street Lower and in Oriel Street Upper. Irish Water has advised that an upgrade of water infrastructure, consisting of a 300mm-diameter watermain connecting to the existing 600mm-diameter trunk watermains at North Wall Quay and running for approximately 430m along Commons Street to the location of the site, will be required. As such, it is considered that the impacts on the trunk watermain network are considered to be neutral, not significant and permanent.

During the construction phase, welfare facilities for construction personnel will be located on site. These welfare facilities will lead to an increase in demand for potable water. Supply from the public watermains will be subject to the conditions of a connection agreement with Irish Water.

The watermains will be tested according to the requirements of Irish Water prior to commissioning. The proposed water supply system will be commissioned and subject to a regular operational inspection and maintenance regime to ensure the system keeps operating within the design specifications.

4.4.2.3 Electricity Supply

There is no over ground or underground ESB line traversing the subject site. There are multiple underground low and medium voltage cables in the streets surrounding the subject site. A high voltage power line runs along Seville Place to the north of the site. The ESB's Oriel Street substation is located on the eastern site boundary. The existing development on the subject site causes relatively low demand on the electricity supply network.

All proposed power cables within the development will be underground or internal within the building. The estimated maximum demand for the proposed development is in the region of 8MVA. Six new ESB sub-stations will be constructed within the subject site.

Connections for construction phase and operational phase will be made to the existing electricity supply network. It is expected that ESB will make provision to accommodate increase in demand.

The proposed electricity supply system will be commissioned and subject to a regular operational inspection and maintenance regime to ensure the system keeps operating within the design specifications. ESB will test and commission all of their work and will monitor and maintain their ESB sub-stations and network cabling post installation. All supplies will be metered to allow the new loads on the network to be monitored in use.

4.4.2.4 Gas Supply

There are existing gas mains in Sheriff Street Lower, Oriel Street Upper and in Seville Place. It is understood that there is no existing gas supply to the subject site.

Subject to connection agreement with Gas Networks Ireland, it is proposed to connect to the gas supply system and provide underground gas pipelines within the development. It is anticipated that the new development will require approximately 9MW peak heating output.

During construction of the proposed development and installation of gas connection, there is a potential for temporary loss of gas supply to surrounding areas to facilitate the installation of the new gas connection. The connection to the existing gas network will be managed by Gas Networks Ireland. It is expected that infrastructural requirements for future development will be accommodated by Gas Networks Ireland.

The proposed gas supply system will be commissioned and subject to a regular operational inspection and maintenance regime to ensure the system keeps operating within the design specifications.

There are existing gas mains in Sheriff Street Lower, Oriel Street Upper and in Seville Place. It is understood that there is no existing gas supply to the subject site.

Subject to connection agreement with Gas Networks Ireland, it is proposed to connect to the gas supply system and provide underground gas pipelines within the development. It is anticipated that the new development will require approximately 9MW peak heating output.

During construction of the proposed development and installation of gas connection, there is a potential for temporary loss of gas supply to surrounding areas to facilitate the installation of the new gas connection. The connection to the existing gas network will be managed by Gas Networks Ireland. It is expected that infrastructural requirements for future development will be accommodated by Gas Networks Ireland.

The proposed gas supply system will be commissioned and subject to a regular operational inspection and maintenance regime to ensure the system keeps operating within the design specifications.

4.4.2.5 Telecommunications

There are a number of telecommunication service provider networks in the vicinity of the subject site, comprising a combination of overhead and underground cables. The existing development on the subject site causes relatively low demand on the telecommunications network.

Any telecommunications networks in the proposed development will consist of cables in underground ducts or internally within the building. New connections will be provided via ducting connections to the existing on-street network. The proposed telecommunications system will be commissioned and subject to a regular operational inspection and maintenance regime to ensure the system keeps operating within the design specifications.

During the removal of the existing telecommunication masts and the installation of telecommunications connections, there is a potential for temporary loss of service to surrounding areas. These works will be managed by utility service providers.

The proposed development will increase the demand on the telecommunications systems. It is expected that infrastructural requirements for future development will be accommodated by utility service providers.

4.5 Land & Soils

The full assessment of Land and Soils is contained within Chapter 8 of Volume II.

An assessment of the proposed development at Connolly Quarter, Dublin 1 of the existing soils, geology and hydrogeology environments was carried out using data collected from a detailed desk study, site-specific ground investigations and assessments. These investigations included the drilling of boreholes, examination of the geology, soil sampling, groundwater monitoring and soil chemical analysis assessments. These works provided information on the baseline soils and groundwater conditions within the propose development site and provided geotechnical input to the proposed design.

The geology encountered at the Connolly Quarter site was consistent with conditions previously described for the wider area and comprised the following;

- Geology of the site was proven to be circa 7.2m thick later of Made Ground overlying glacial till layer comprising Gravel embedded among or between a layer of Sandy Gravelly Clay (Dublin Boulder Clay). Rock head was not encountered throughout the site investigation even though the 3 no. rotary core boreholes progressed to a maximum depth of 42.3m below ground level.

The site is expected to be underlain by Carboniferous Limestone (Calp) from the Lucan Formation. The bedrock has been classified as a 'Locally Important' aquifer which is moderately productive in local zones only. The rock is essentially impermeable with groundwater flow dependant on fractures within the rock which are generally more frequent within the upper 50m. There are no known recorded groundwater users within the vicinity of the site.

The geological environment of the site can be described as a passive/benign geological environment in that it is an area of thick subsoils underlain by competent limestone in an historically stable geological environment. The Dublin region is the most extensively investigated, characterised and understood geological areas of the country and there are numerous examples and case histories of excavations, retaining walls and basements in the area which are similar or larger to the proposed development. The proposed basement will be founded completely within the glacial subsoils and therefore will not impede groundwater flow in the bedrock.

The potential effects of the Connolly Quarter development on the geological/hydrogeological environment include:

- The excavation of topsoil and subsoil and its reuse/recovery/disposal off site;
- Accidental spills or leaks of construction related material; and
- Discharge of dewatering groundwater to the public sewer.

The impacts are limited to the construction phase and are primarily related to the excavation of soil which is unavoidable. The construction impact is assessed to be **negative/neutral, permanent, imperceptible/slight impact.**

Proposed mitigation measures include:

- Controlled excavation of soil and appropriate management under the Waste Management Act;
- Reuse of subsoil on site or for other projects where possible;
- Excavation dewatering during basement construction to be designed and carried out by a suitably qualified hydrogeologist. The chemical quality of the discharged groundwater must fully satisfy the requirement set by the discharge to sewer license to be obtained by Irish Water;
- Good housekeeping on the project to mitigate against the risk of any spills and reduce impacts associated with dust and nuisance dirt; and
- A detailed Construction Management Plan and Construction and Demolition Waste Management Plan will be put in place and will outline how spills or environmental incidents will be dealt with should they occur.

The principle residual impact on soils and the geological environment from the proposed Connolly Quarter development is the excavation of soil which is a permanent impact that cannot be avoided due to the nature of the proposed development. The significance of the excavation impact has been reduced through minimising the basement area required for the development. The significance of the excavation impact can be reduced through the reuse of material on site, followed by reuse off site with disposal of material being the least favourable option. The residual impact is assessed to be **negative/neutral, permanent, imperceptible/slight impact.**

4.6 Water & Hydrology

The full assessment of Water & Hydrology is contained within Chapter 9 of Volume II.

This chapter addresses issues relating to water and hydrology in respect of the subject lands and assesses the impact of the proposed development on these aspects of the existing environment.

4.6.1 Local Hydrology

The site lies within the Eastern River Basin District, which covers a large area extending from parts of Co. Cavan in the north to south Wicklow and from parts of Co. Westmeath to the Irish Sea. The main river catchments in the RBD are the Boyne, the Nanny/Delvin, the Liffey and the Avoca/Vartry. The District is further divided into Hydrometric Areas (HA) and the site lies within HA09 which is the catchment draining to Dublin Bay. HA09 is the most densely populated in Ireland and contains a relatively large area of urbanised land. Given the urban nature of the catchment, the water bodies within it are subject to prolonged and sustained pressure from pollution via point and diffuse sources. The water bodies have also been subject to high degrees of modification and canalisation as a result of development through the years.

The site is located on land historically reclaimed from the Liffey Estuary and can be within the Liffey Catchment. The Liffey Estuary stretches from Islandbridge to the end of the Bull Wall. For the purposes of WFD assessment and classification, the estuary was split into the upper and lower water bodies. The Liffey Estuary is dominated in terms of land use by Dublin City and in the lower reaches by Dublin Port and the associated industrial areas. The former industrial docklands area has undergone major redevelopment in recent years and now has a service sector development along its perimeter. Whilst the flow in the estuary itself is to some extent regulated by the controlled release of water from the upstream reservoirs, the mixing processes in the estuary are typified by a classic “salt wedge”.

The Liffey Estuary is tidal up to Islandbridge and has been classified as a eutrophic, nutrient sensitive water. The WFD report for the waterbody classifies the overall status as Moderate with an objective to restore good status by 2027. The catchment is at risk of not achieving the conservations objective. The main risk factor has been identified as Combined Sewer Overflows (CSOs). These are known to occur from many points within the Dublin City catchment including from the combined sewerage receiving discharge from the subject site. The River Liffey Estuary has not been designated as a European Site under the Habitat’s Directive. However, it is hydrologically linked to a number of designated sites namely: North Dublin Bay SAC; South Dublin Bay SAC; North Bull Island SPA; South Dublin Bay and River Tolka Estuary SPA;

Runoff from the existing site is collected through a network of below ground pipes. There is no interception or other form of runoff volume reduction. There is no flow control and attenuation of runoff from the site. All surface water runoff from the site is directed to existing combined sewerage infrastructure draining to Irish Water’s Mayor Street Pumping Station. Combined Sewer Overflows (CSOs) on the receiving sewerage network discharge the Liffey Estuary at North Wall Quay. The Mayor Street Pumping Station discharges to existing gravity sewerage in Amiens Street that ultimately drains to Ringsend Wastewater Treatment Works.

The proposed surface water drainage system therefore comprises a Sustainable Urban Drainage System (SUDS) consisting of green roofs, blue roofs, pervious paving, bio-retention areas, attenuation storage and flow control. The proposed SUDS devices provide a treatment train for rainfall runoff, delivering interception storage, water quality treatment, runoff volume reduction and runoff rate reduction.

In the absence of this proposed development, surface water runoff from the site would continue to flow un-attenuated into the receiving combined sewerage infrastructure. Un-attenuated flow contributes to the frequency of CSO discharges of combined sewage to the Liffey Estuary in times of high rainfall.

It is expected that surface water runoff during construction would be discharged to Irish Water's combined sewerage network. While the combined sewerage network normally conveys flow to the Ringsend Wastewater Treatment Works, Combined Sewer Overflows (CSOs) on the network present a residual risk that untreated surface water runoff from the construction site would enter the Liffey Estuary. In the absence of mitigation measures, surface water runoff during construction activities may contain increased silt levels or become polluted from construction activities. Such contaminants could potentially cause deoxygenation of water in the receiving watercourses, the gills of fish to become obstructed with waterborne silt and aquatic plants and invertebrates to be smothered by settled silt, limiting exposure to sunlight and oxygen. However, mitigation measures are available to control and manage these risks. The Contractor will be required to prepare and implement a Surface Water Management Plan that ensures avoidance and minimisation of effects. Surface water storage in excavations may be directed to on-site settlement ponds, where silt removal will be facilitated prior to discharge off site at a controlled rate. Periodic testing of the surface water discharge may also be undertaken.

The proposed Sustainable Urban Drainage System (SUDS) for the development incorporates flow control and attenuation of discharge from the site to the receiving sewerage network. This will result in a significant decrease in surface water discharge from the site. The decrease in surface water discharge from the site will reduce the risk of flooding in the receiving sewerage network and will reduce the risk of CSO discharges to the Liffey Estuary. The proposed drainage system for the development incorporates interception in the form of green roofs and bio-retention areas that facilitate losses through evapo-transpiration, thereby reducing the annual volume of surface water runoff. The proposed drainage system will be commissioned and subject to a regular operational inspection and maintenance regime to ensure the system keeps operating within the design specifications.

4.6.2 Wastewater Drainage

In the vicinity of the subject site, there is an extensive network of combined sewers (collecting both wastewater and surface water) in the ownership of Irish Water that is operated and maintained in conjunction with Dublin City Council. Drainage Record Plans provided by Dublin City Council indicated that there are no foul sewers (collecting only foul sewage) in the vicinity of the subject site, and waste water is currently directed to existing combined sewerage infrastructure draining to Irish Water's Mayor Street Pumping Station.

The proposed development will increase the wastewater generated on the subject site contributing to the existing public sewerage system. However, the reduction in the rate of surface water runoff from the site entering the existing public sewerage system will help to reduce the frequency of Combined Sewerage Overflows (CSOs) from the existing public sewerage system to the River Liffey.

In the absence of this proposed development, wastewater flow from the site would continue to discharge to the receiving sewerage network. The expected increase in wastewater flow arising from the proposed development would not be discharged to the existing sewerage network. However, surface water runoff from the site would continue to flow un-attenuated into the receiving combined sewerage infrastructure. Un-attenuated flow contributes to the frequency of CSO discharges of combined sewage to the Liffey Estuary in times of high rainfall.

During construction it is envisaged that the contractor will put in place temporary drainage facilities to manage water within excavations. During the construction phase, welfare facilities for construction personnel will be located on site. Wastewater effluent from these facilities will be discharged to the sewerage system at a location and at a flow rate subject to the conditions of a discharge licence from Irish Water.

The proposed drainage system will be designed with appropriate capacity for the development and ensure self-cleansing velocities are achieved to reduce the risk of blockages and odours. In order to reduce the risk of defective or leaking sewers, all new sewers will be pressure tested and CCTV surveyed to ascertain any possible defects. Such defects, if they arise, would be repaired prior to the connection of any future development to the sewers. The proposed drainage system will be commissioned and subject to a regular operational inspection and maintenance regime to ensure the system keeps operating within the design specifications.

4.7 Biodiversity

The full assessment of Biodiversity is contained within Chapter 10 of Volume II.

A review of the biodiversity of the site was carried out by OPENFIELD Ecological Services and this included a study of existing information from the area and a site survey. A site survey was carried out on the 15th of November 2018. Due to the highly modified nature of the site, no constraints to a full assessment of biodiversity impacts were encountered.

It was found that the site is not within or adjacent to any area that is designated for nature conservation at a national or international level. There are no plants recorded from the site that are listed as rare or of conservation value. There are no habitats that are examples of those listed on Annex I of the Habitats Directive.

There are no alien invasive plant species as listed on Schedule 3 of SI No. 477 of 2011. The site can be described as entirely composed of buildings and artificial surfaces. There are no semi-natural habitats of high biodiversity value. There are no water courses, ponds, ditches or wetland areas. Dedicated bat surveys were carried out during the optimal flight periods in 2018 and 2019. No bat roosts were found and the level of bat activity was assessed as low.

No semi-natural habitats of high biodiversity value are to be affected by this project. Good site management practices will ensure that pollution to water courses does not occur during the construction phase. Surface water will be attenuated using sustainable urban drainage systems (SUDS). Additional landscaping will compensate for the loss of habitat that will occur. With the suggested mitigation in place, the ecological impacts of this proposed development will be neutral. There are no impacts that could affect any area designated for nature conservation.

It is important to note that without any mitigation measures in place the following impacts could potentially occur.

4.8 Noise & Vibration

The full assessment of Noise & Vibration is contained within Chapter 11 of Volume II.

A Noise and Vibration Assessment has been undertaken for the proposed mixed-use development at the subject site adjacent to Connolly Station, Dublin. In the absence of any Irish statutory noise limitation values, the current *Noise Action Plan for the Agglomeration of Dublin* of December 2018 – July 2020 were used as indicators for the undertaking of the assessment.

Transport Infrastructure Ireland's (TII) *Good Practice Guidance of the Treatment of Noise during the Planning of National Road Schemes* contains information on the permissible noise and vibration levels during the construction phase of this project.

The noise was based on measurement of existing noise levels which were carried out over a 6-day period during the daytime and night-time. These measurements provided the baseline levels which were compared to the predicted noise from the construction and operational phase of the site.

It should be noted that this assessment is with regards to both the construction and demolition phase of the proposed development.

Most of the construction of the proposed site will take place between 0700 – 1900hrs from Monday to Friday and between 0900 – 1300 on Saturdays. No construction will occur on Sunday or Bank Holidays.

The predicted levels are considered worse case and are expected to only occur for a short period of time as they assume that all equipment is working continuously at full power. It should be noted that construction noise limits are fixed limits and are irrespective of existing background levels.

Duration of the construction works will be a short-term impact and the predicted levels show the noise levels will be neutral and below the guideline levels and will be slight.

The final site layout will be assessed in line with the appropriate standards as set out in the ProPG, Dublin City Development Plan and TII Guidance and the results of the assessments presented in line with the requirements of the EIAR.

While the effect of construction noise is not considered to be significant, the following noise control measures are recommended in order

The vibration assessment considered the impacts of vibration from the construction phase on existing properties in line with the levels provided in BS5228.

4.9 Air Quality & Climate

The full assessment of Air Quality and Climate is contained within Chapter 12 of Volume II.

The air quality assessment considered both short-term dust impacts from the construction phase of the site as well as the longer-term impacts from the traffic related pollutants from the operational phase of the proposal. The assessment regarded current guidelines for the Clean Air for Europe (CAFÉ) Directive and Institute of Air Quality Management Guidance in relation to the dust assessment.

The assessment of the construction phase considered two types of receptors which may be impacted by dust general: 'Human Receptors'; and 'Ecological Receptors'. The assessment methodology considers three separate dust impacts, with account being taken of the sensitivity of the area that may experience this:

- Annoyance due to dust soiling;
- Risk of health effects due to an increase in exposure to PM10; and
- Harm to ecological receptors.

Climate; Construction traffic would be expected to be the dominant source of greenhouse gas emissions as a result of the development. Vehicles will give rise to emissions during construction. However, based on the small number of construction vehicles and equipment to be used during the short duration of the construction period, the potential impact on climate is deemed negligible.

Dust; Emissions of dust to air can occur during the preparation of the land (e.g. demolition, land clearing, and earth moving), and during construction. Emissions can vary substantially from day to day, depending on the level of activity, the specific operations being undertaken, and the weather conditions.

The scale of these impacts depends on the dust suppression and other mitigation measures applied. It is estimated that with the implementation of effective site-specific mitigation measures the environmental effect will not be significant in most cases. Site-specific mitigation measures are outlined for the construction phase and ADMS modelling software was used to assess the impacts of the long-term air quality. It is noted that the impact in most cases is dependent on the mitigation measures adopted.

Due to the site's location in proximity to several transport services, the anticipated modal shift will be beneficial in terms of greenhouse gas emissions associated with road traffic emissions within the study area.

Taking into consideration the original risk assessment of the proposed construction works and further to mitigation being enacted, it is concluded that no significant impacts will result because of the proposed development. Whilst it may be there are 'slight', 'moderate' or 'substantial' impacts at one or more receptors, the overall effect may not necessarily be judged as being significant in some circumstances.

4.10 Cultural Heritage: Archaeology

This assessment was prepared to study the impact, if any, on the archaeological and cultural heritage resources of the proposed redevelopment of the Connolly Quarter, Dublin 1.

The zone of archaeological potential for Dublin City (RMP DU018-020) is located c. 100m to the west of the development area. There are three recorded monuments, all of which are scheduled for inclusion on the RMP at the next revision, within a c. 500m radius of the proposed development. The closest of these, a mill (DU018-020501), lies c. 295m to the west. There are no stray finds recorded in the topographical files within the study area for the proposed development.

There have been no previous archaeological investigations within the proposed development however there have been 28 examples within the study area. 19 of these did not discover anything of archaeological note, the remainder mainly discovered evidence for post-medieval reclamation and structures. The most significant excavation recovered the oldest date for Mesolithic fish traps in Ireland and provided evidence of prehistoric activity in the area preserved underneath reclamation deposits.

Originally the proposed development area was located within the estuary of the River Liffey before it was reclaimed. It became part of the city ward of Custom House, named after the administrative building, before being renamed as North Dock Ward. Connolly Station represents the most significant aspect of cultural heritage within the vicinity of the proposed development area owing to its architectural character and association with Irish history.

It is possible that the excavation of a basement car park level associated within the proposed development may have a direct, permanent, profound or significant negative impact on the prehistoric shore line and estuarine deposits located between 10m and 12m below the current ground level of the highest part of the development area. The proposed basement level will have a depth of approximately 3m metres below present ground level of Sherriff Street Lower. All excavation associated with the construction of the basements will be subject to archaeological monitoring. This will ensure the identification of any archaeological features that may be present, which may be associated with the former estuarine area. This will be undertaken by a suitably qualified archaeologist. Full provision will be made available for the resolution of any archaeological deposits or features that may be identified, should that be deemed the most appropriate way to proceed.

It is possible that the excavation of modern infilling within the proposed development area, along with the excavation of basement areas will have a direct, permanent, profound or significant negative impact on the possible remains of post-medieval building foundations associated with the industrial function of the site. These include a workshop (c. 1860), saw mill (c. 1870) and goods shed (c. 1880). Following the removal of modern infill within the area of proposed development all ground disturbances carried out in vicinity to the potential structures will be subject to archaeological monitoring. This will ensure the identification of such features.

The proposed development area is located within an area of reclaimed land, which once formed part of the Liffey estuary. The reclamation deposits are post-medieval and will require excavation as part of the construction of the proposed development. It is possible that some of these deposits may contain archaeological artefacts that were re-deposited during this period. As such, any construction excavation will result in the permanent loss of any archaeological artefacts located within these deposits resulting in a potential moderate negative impact upon the archaeological resource.

The excavation of the post-medieval reclamation deposits will be subject to archaeological monitoring. This will include inspection of the deposits in order to allow for the retrieval of any archaeological artefacts that might be present. Monitoring will be carried out by a suitably qualified archaeologist and based on a specified programme of finds retrieval.

If any features of archaeological potential are discovered during the monitoring of construction works further archaeological mitigation may be required, such as preservation in-situ or by record. Any further mitigation will require approval from the National Monuments Service of the Department of Culture, Heritage and the Gaeltacht and Dublin City Archaeologist.

Following the completion of the mitigation measures, all archaeological and cultural heritage remains at the site will have been preserved in-situ or by record. Therefore, there would be no residual impacts on the archaeological and cultural heritage resource as result of the proposed development.

4.11 Built Heritage: Architecture

An architectural heritage assessment has been undertaken to identify and record the location, nature, and dimensions of any historic building fabric or artefact that may be impacted by the Connolly Station redevelopment proposals. The assessment includes an examination of existing sources and the acquisition of new data arising from site inspections and surveys that have been carried out. The assessment gauged the level of predicted impacts, includes recommendations for the mitigation of any intervention to protected structures and built heritage within the development area and the visual impact on the historic core of the city.

The 19th century limestone boundary walls located on Sheriff Street Lower and Oriel Street Upper are designated as protected structures. Inspections of their current condition reveals deterioration of the historic building fabric mainly due to water penetration from various sources.

The site is relatively modern, dating from the mid nineteenth century when the railway line and station were constructed, and an artificial ground level was created approximately seven metres above the surrounding street levels. Amiens Street Station rapidly developed to facilitate growth and development within the port and became part of the country's extensive railway system. The assessment included a desk study of the historic background to the site and has been supplemented by ongoing site inspections and reviews of the architectural design as it impacted on the protected structures listed buildings and the wider context of the city.

The proposed development includes works for the conservation of the 19th century limestone construction, the re-opening of infilled aches, the removal of sections of wall to permit access to the site, and the incorporation of boundary wall within the design and structure of a contemporary development. The proposals include the removal of site infilling carried out when the station was first developed and the demolition of twentieth century buildings including Oriel House.

There will be significant visual impact on terms of the height, scale and form of the proposed development on the adjacent streets and a negligible impact on the wider context of the historic core of the city. The visual impact has been assessed with the aid of computer-generated verified views carried out by Modelworks. Of the significant composed views of the Georgian city only the view along Talbot Street has been demonstrated to have been altered.

During the construction phase there is a potential risk of damage to protected structures and temporary protection, supervision and phasing will be required. Vibrations from piling and the excavation of basement levels in proximity to the walls has the potential to cause damage and appropriate monitoring and precautionary measures will be put in place to ensure such damage is avoided.

Following finalisation of detailed site design, site specific monitoring and mitigation strategies will be formulated with input from specialist consultants. Mitigation will take due regard of the heritage policies and objectives included in the *Dublin City Development Plan 2016–2022* and in the *Architectural Heritage Protection Guidelines for Planning Authorities*.

Subject to the granting of permission for the Connolly Station Project, architectural pre-construction mitigation will include a metrically accurate detailed survey to Level 3 inventory of all protected structures contained within the site and a management plan devised to ensure safe custody during construction. Demolition and excavation will be monitored, and the opportunities will be taken to record more fully the nature of the historic building fabric during the implementation of the works.