

1 Introduction

1.1 Introduction

This Environmental Impact Assessment Report (EIA) is a statement of the potential impacts on the environment which may result from the Proposed College Green Project (the 'Proposed Project').

The objectives of this EIA are:

- To identify the likely significant environmental impacts of the Proposed Project during the construction and operational phases, having regard to the characteristics of the local environment; and
- To evaluate the magnitude and significance of likely impacts and to propose appropriate measures to mitigate potential adverse impacts.

This EIA has been prepared in response to a request from An Bord Pleanála to update the previously prepared Environmental Impact Statement (EIS) which was issued in May 2017. The statutory development consent procedure for the Proposed Project is in accordance with the requirements of Section 175 of the Planning and Development Act, 2000, as amended ('The Act'), Part 10 Planning and Development Regulations 2001, as amended and any other applicable legislation.

This EIA has been prepared on behalf of Dublin City Council (DCC) by a Consultancy Team led by Arup with inputs from a number of specialist sub-consultants.

The site of the Proposed Project is located in Dublin City centre, as illustrated in **Figure 1.1**.

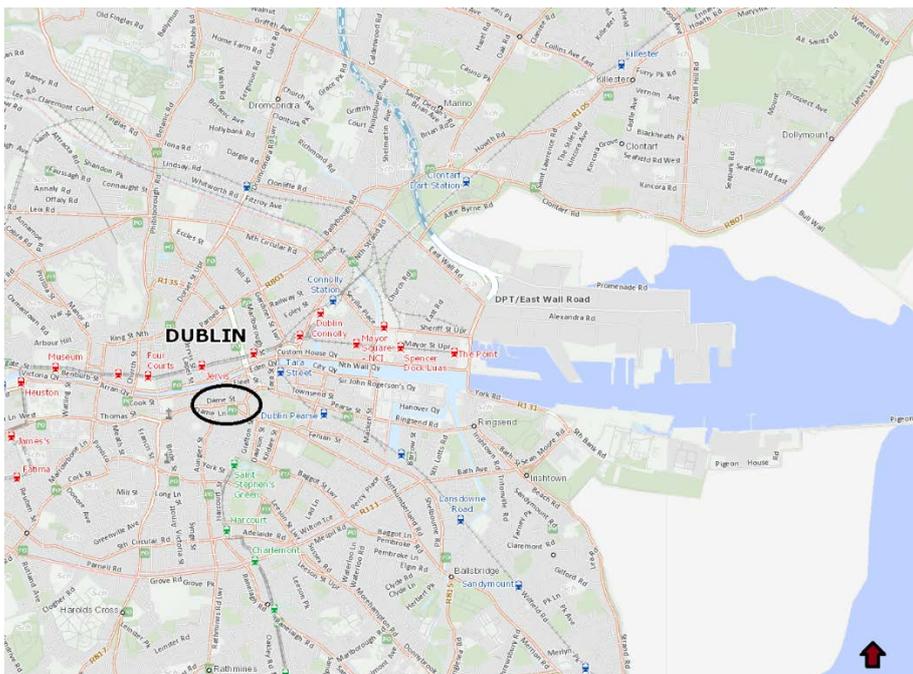


Figure 1.1: Site location

1.2 The Proposed Project

The Proposed Project involves the development of a civic plaza and the introduction of traffic management measures and minor road works in the area of College Green, Dublin. The proposed civic plaza at College Green which will contribute to the achievement of the vision for College Green set out both in the Dublin City Development Plan 2016-2022 and the Heart of Dublin, City Centre Public Realm Masterplan (Dublin City Council, 2016).

The overall objective of the Proposed Project at College Green is in accordance with objective SCO8 of the Dublin City Development Plan (Dublin City Council, 2016) *“To prioritise the redevelopment of College Green as a pedestrian friendly civic space, including the pedestrianisation of Foster Place.”*

Policy SC2 aims to:

“develop the city’s character by cherishing and enhancing Dublin’s renowned streets, civic spaces and squares; to create further new streets as part of the public realm when the opportunities arise; to protect the grain, scale and vitality of city streets; to revitalise the north and south Georgian squares and their environs, and to upgrade Dame Street/College Green as part of the Grand Civic Spine.”

The Heart of Dublin, City Centre Public Realm Masterplan recommends:

“To develop a transport strategy that facilitates the longer-term ambition to create a pedestrian friendly core by reorganising bus routes to minimise traversing of the city centre.”

As outlined in the Dublin City Centre Transport Study (Dublin City Council, National Transport Authority, 2016) the development of Luas Cross City and associated traffic management measures provides a catalyst for major transport change at College Green and the creation of a new public realm:

“At College Green, those revised arrangements, reflecting the reduced road capacity following the commencement of Luas operations, will enable the creation of a new civic plaza, framed by Trinity College to the east, the Bank of Ireland to the north and a row of protected structures which form part of the Grafton Street Architectural Conservation Area, to the south.”

The space created by the Proposed Project has the potential to transform College Green and to redefine the area as a Civic Space of National importance in line with Dublin City Council’s long standing objective for College Green.

The core area of works occupies an area of approximately 14,000m² and extends east-west from the junction with South Great George’s Street to the front of Trinity College. It extends north-south from the end of Grafton Street to College Street. It also includes a number of measures on Trinity Street, St. Andrew’s Street and Church Lane. The extent of the main works area is illustrated in **Figure 1.2**. The proposed civic plaza occupies a space of approximately 7,300m².

The Proposed Project involves the removal of east-west through traffic at College Green, provision of a designated cycle track, bus re-routing and the relocation of some taxi parking and taxi ranks to nearby streets.

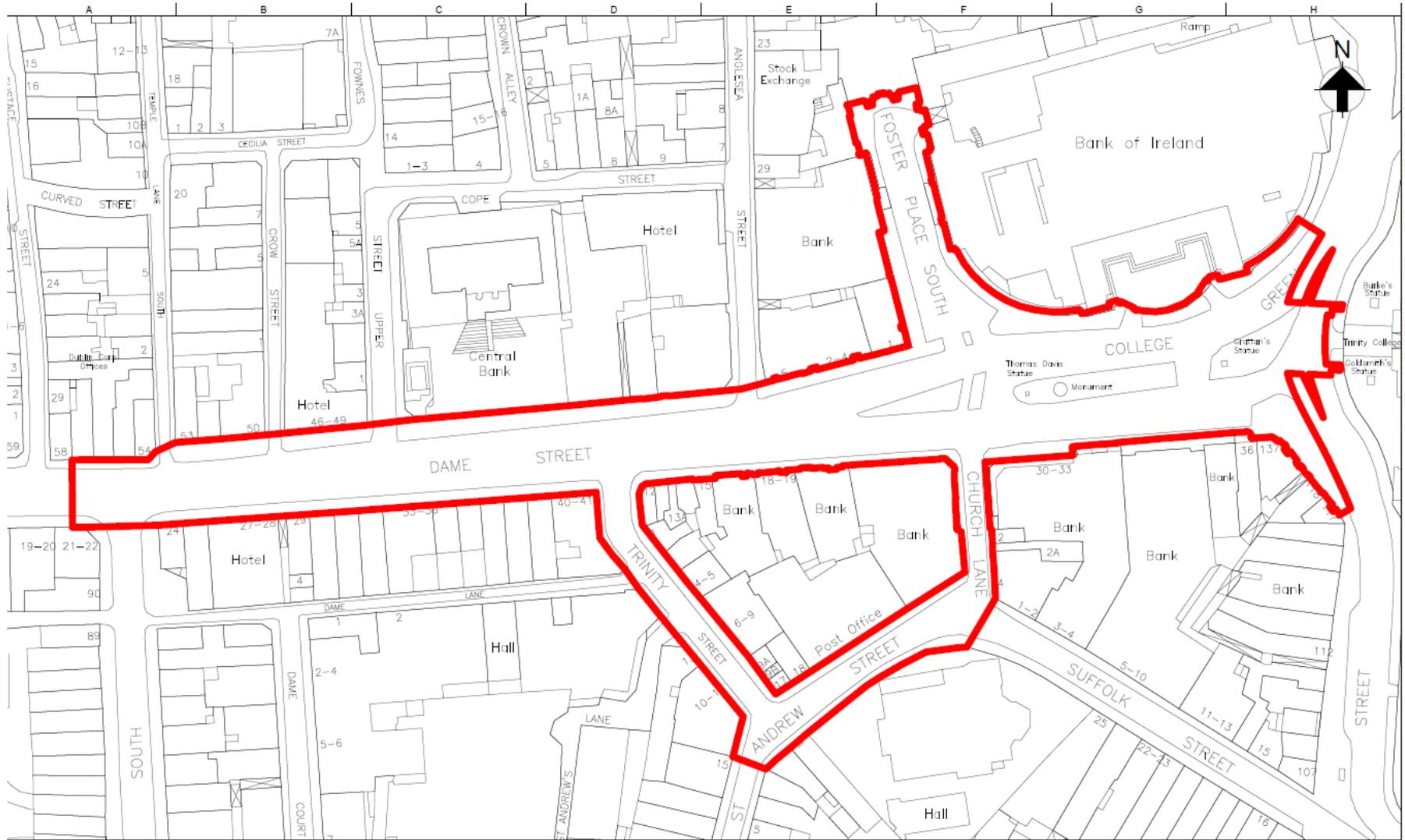


Figure 1.2: Extent of Main Works Area

In addition, the Proposed Project involves the alteration of road and surface pavement, kerbs, street furniture, signage and utilities to provide for the development of a largely vehicular-free civic plaza at College Green.

Further detail on the Proposed Project is provided in Chapter 4, ‘*Proposed Project Description*’.

1.3 Planning Process for the Proposed Project

1.3.1 Need for an EIA

Environmental Impact Assessment legislation as it relates to the planning process has now been largely brought together in Part X of the Planning and Development Acts 2000-2010 and Part 10 and Schedules 5, 6 and 7 of the Planning and Development Regulations 2001-2010.

Part 1 of Schedule 5 to the Planning and Development Regulations lists projects which automatically require EIA. Part 2 of the same Schedule outlines thresholds for other projects which also require EIA.

Dublin City Council engaged CAAS Ltd. to carry out Environmental Impact Assessment Screening in order to determine whether the Proposed Project should be subject to EIA.

In the first instance it was necessary to determine whether the Proposed Project is of a type [or ‘class’] that requires an EIAR. Part 10 of the Planning and Development Regulations 2001-2010 - in Schedule 5 Development for the Purposes of Part 10, Part 2, identifies:

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

As the development area was deemed to be less than 2 hectares in area, CAAS determined that the Proposed Project was to be considered ‘sub-threshold development’ with respect to Class 10 developments.

In deciding whether an EIAR is required for ‘sub-threshold developments’, it is then necessary to determine the characteristics of the Proposed Project, the location of the Proposed Project and the likelihood of whether significant effects on the environment could arise. In their assessment of the Proposed Project, CAAS and DCC determined that:

- *“...the proposal comprises urban development over an extensive area of the core of the Central Business District, the is of a class that requires an EIS.*
- *...the environmental sensitivity of the receiving environment – on account of its social, tourism, cultural and business significance there is a likelihood that significant environmental resources could be affected – which would warrant an Environmental Impact Assessment.*
- *...the potential for significant environmental effects to arise relating to*
 - *Human Beings (socio-economic, amenity, tourism and trade);*

- *Cultural Heritage (context and setting of Protected Structures);*
- *Air [air quality and noise];*
- *Material Assets (traffic and parking);*
- *Health and Safety; and*
- *Interaction, secondary and off-site effects.”*

In addition, the screening report states that *Irish Case law agrees with the European Court of Justice that the wording of the 2011 EIA Directive ‘has a wide scope and a broad purpose’ and accordingly that a project which is likely to have significant effects on the environment is required to have an EIS to be prepared in accordance with the 2011 Directive and the Regulations.*

It was therefore concluded by the screening assessment that an Environmental Impact Assessment should be carried out of the Proposed Project.

In accordance with Section 120 of the Planning and Development Regulations, *“where a local authority proposes to carry out a subthreshold development and the likelihood of significant effects on the environment cannot be excluded by the authority, the authority shall make a determination as to whether the development would be likely to have significant effects on the environment, and where it determines that the development would be likely to have such significant effects it shall prepare, or cause to be prepared, an EIS in respect thereof”.*

Dublin City Council, as the local authority, agreed with the CAAS determination in August 2016, that an EIA was required for the development. This determination is included in Appendix 1.1. Planning Process

1.3.2 Section 175 of the Planning and Development Act 2000

This EIAR has been undertaken in accordance with Section 175 of the Planning and Development Act, 2000 as amended (‘The Act’), Part 10 Planning and Development Regulations 2001 as amended and any other applicable legislation.

Section 175 of the Act covers environmental impact assessment of certain development carried out by or on behalf of local authorities, as set out below:

175.-(1) “Where development belonging to a class of development, identified for the purposes of section 176, is proposed to be carried out—

- (a) by a local authority that is a planning authority, whether in its capacity as a planning authority or in any other capacity, or*
- (b) by some other person on behalf of, or jointly or in partnership with, such a local authority, pursuant to a contract entered into by that local authority whether in its capacity as a planning authority or in any other capacity within the functional area of the local authority concerned (hereafter in this section referred to as “proposed development”), the local authority shall prepare, or cause to be prepared, an environmental impact statement in respect thereof.”*

Under Section 175 of the Planning and Development Act, 2000, An Bord Pleanála is the Competent Authority which is required to carry out the EIA. The requirement to submit the EIAR to An Bord Pleanála is set out at section 175(3):

175.-(3) *“Where an environmental impact statement has been prepared pursuant to subsection (1), the local authority shall apply to the Board for approval.”*

Article 120 of the Planning Regulations 2001 (as amended) outlines the procedure for submission of an EIA to the Board:

- (1) *“Where a local authority proposes to carry out a sub-threshold development, and where it considers that the development would be likely to have significant effects on the environment, it shall prepare, or cause to be prepared, an EIS in respect thereof.”*
- (5) *“Where an EIS is prepared, or caused to be prepared, by a local authority under this article, the local authority concerned shall apply to the Board for approval.”*
- (6) *“An application for approval under sub-article (5) shall be deemed to be an application for approval under section 175(3) of the Act and the provisions of that section shall apply to the application.”*

1.3.3 Directive 2014/52/EU

On 18 July 2016, Dublin City Council initiated a screening determination process pursuant to Article 4(2) of Directive 2011/92/EU and article 120(1) of the Planning and Development Regulations 2001, as amended, and engaged CAAS Ltd. to carry out Environmental Impact Statement [EIS] Screening in respect of the proposed development of a new civic plaza and ancillary traffic management measures at College Green (“the Project”). In August 2016, Dublin City Council determined that, although the project was sub-threshold, it was *“likely to have significant effects on the environment”*. Accordingly, in November 2016, Dublin City Council caused an EIS to be prepared and, on 18 May 2017, an application for approval of that EIS was submitted to An Bord Pleanála. The local authority’s screening determination was included in the application documentation, at Appendix 1.1 to the EIS.

Transitional provisions are contained in Directive 2014/52/EU. Firstly, Recital (39) states:

“(39) In accordance with the principles of legal certainty and proportionality and in order to ensure that the transition from the existing regime, laid down in Directive 2011/92/EU, to the new regime that will result from the amendments contained in this Directive is as smooth as possible, it is appropriate to lay down transitional measures... Accordingly, the related provisions of Directive 2011/92/EU prior to its amendment by this Directive should apply to projects for which the screening procedure has been initiated, the scoping procedure has been initiated, (where scoping was requested by the developer or required by the competent authority) or the environmental impact assessment report is submitted before the time-limit for transposition”.

Thereafter, Article 3 of Directive 2014/52/EU provides:

1. Projects in respect of which the determination referred to in Article 4(2) of Directive 2011/92/EU was initiated before 16 May 2017 shall be subject to the obligations referred to in Article 4 of Directive 2011/92/EU prior to its amendment by this Directive.

2. Projects shall be subject to the obligations referred to in Article 3 and Articles 5 to 11 of Directive 2011/92/EU prior to its amendment by this Directive where, before 16 May 2017:

(a) the procedure regarding the opinion referred to in Article 5(2) of Directive 2011/92/EU was initiated; or

(b) the information referred to in Article 5(1) of Directive 2011/92/EU was provided.

Article 120 of the 2001 Regulations relates to “Sub-threshold EIS” and provides as follows:

(1) Where a local authority proposes to carry out a sub-threshold development and the likelihood of significant effects on the environment cannot be excluded by the authority, the authority shall make a determination as to whether the development would be likely to have significant effects on the environment, and where it determines that the development would be likely to have such significant effects it shall prepare, or cause to be prepared, an EIS in respect thereof.

Accordingly, it is the local authority which is the competent authority to make a determination as to whether its own development should be “screened in” or “screened out” for the purposes of Environmental Impact Assessment [EIA]. As set out above, in August 2016, Dublin City Council decided to “screen in” the Project and, as a consequence, caused an EIS to be prepared. Pursuant to Article 120(5) of the 2001 Regulations, Dublin City Council was required to apply to the Board for approval, which it did on 18 May 2017.

In circumstances where the Project is one in respect of which a screening determination was initiated before 16 May 2017, Dublin City Council was of the view that the Project was subject to the provisions of Directive 2011/92/EU, prior to its amendment by Directive 2014/52/EU. In any event, the EIS submitted with the application for approval was prepared in substantial compliance with the provisions of Directive 2014/52/EU.

In response to the request from An Bord Pleanála, this EIAR for the Proposed College Green Project has now been prepared in compliance with the requirements of Directive 2014/52/EU.

1.4 EIAR Methodology

1.4.1 Purpose of the Environmental Impact Assessment Report

The purpose of an EIAR is to report on the potential effects of a proposed development on the environment and to accompany the consent application of a proposed development.

This EIAR includes information on potential significant environmental impacts of the Proposed Project, and highlights the proposed mitigation measures, where applicable.

1.4.2 Statutory Requirements and Guidance for the Contents of an EIAR

Sections 1 and 2 of the European Communities (Environmental Impact Assessment) Regulations 1989 (S.I. No. 351/1998) as amended, sets out the information that should be included in an EIAR, as follows:

1. (a) *“A description of the proposed development, comprising information about the site and the design and size or scale of the development;*
(b) The data necessary to identify and assess the main effects which that development is likely to have on the environment;
(c) A description of the likely significant effects, direct and indirect, on the environment of the development, explained by reference to its possible impact on —
 - human beings;*
 - flora;*
 - fauna;*
 - soil;*
 - water;*
 - air;*
 - climate;*
 - the landscape;*
 - the interaction between any of the foregoing;*
 - material assets;*
 - the cultural heritage;**(d) Where significant adverse effects are identified with respect to any of the foregoing, a description of the measures envisaged in order to avoid, reduce, and, if possible, remedy those effects.”*

2. *“Further information, by way of explanation or amplification of the information referred to in paragraph 1, on the following matters —*
- (a) the physical characteristics of the proposed development, and the land use requirements during the construction and operational phases;*
 - (b) the main characteristics of the production processes proposed, including the nature and quantity of the materials to be used;*
 - (c) the estimated type and quantity of expected residues and emissions (including pollutants of surface water and groundwater, air, soil and substrata, noise, vibration, light, heat and radiation) resulting from the proposed development when in operation;*
 - (d) (in outline) the main alternatives (if any) studied by the applicant, appellant or authority and an indication of the main reasons for choosing the development proposed, taking into account the environmental effects;*
 - (e) the likely significant direct and indirect effects (including secondary, cumulative, short, medium and long term, permanent, temporary, positive and negative effects) on the environment of the proposed development which may result from —*
 - (i) the use of natural resources;*
 - (ii) the emission of pollutants, the creation of nuisances, and the elimination of waste;*
 - (f) the forecasting methods used to assess any effects on the environment about which information is given under subparagraph; and*
 - (g) any difficulties, such as technical deficiencies or lack of knowledge, encountered in compiling information in this Schedule.”*

Consideration was also given to the following guidance in the preparation of this EIA.

- European Commission, 2001. *Guidance on EIA – EIS Review*;
- Department of the Environment, Community and Local Government (DoECLG), 2013. *Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment*;
- NRA, 2004. *Environmental Assessment and Construction Guidelines*;
- Conservation and Amenity Advice Service (CAAS), 2002. *Guidelines on the Information to be contained in Environmental Impact Statements*;
- CAAS, 2003. *Advice Notes on Current Practice in the Preparation of Environmental Impact Statements*;
- CAAS, 2017, *Draft Revised Guidelines on the Information to be contained in Environmental Impact Assessment Reports*;
- CAAS, 2015, *Draft Revised Advice Notes on Current Practise in the Preparation of Environmental Impact Statements*.

1.4.2 General EIAR Methodology

1.4.2.1 Introduction

The methodology adopted for the preparation of this EIAR comprised a systematic analysis of the impact of the Proposed Project in relation to the existing environment. The overall methodology for preparation of the EIAR is discussed under the following headings:

- Basis for assessment;
- Impact assessment and mitigation; and
- Significance of environmental issues.

1.4.2.2 Basis for Assessment

The impact assessment examines the existing environmental conditions within the study area for each element of assessment and then determines the potential impacts associated with the Proposed Project during its construction and operational phases.

The impact assessment considers the following scenarios:

- Do-minimum (DM) scenario – Represents movement and access in the city centre as it exists currently, taking into account developments with approved planning permissions, as well as projects committed to be implemented prior to the Proposed Project including the Luas Cross City. This scenario includes the continuation of all east-west through traffic at College Green during the weekends and public transport access only from Monday to Friday. This scenario includes no plaza provided at College Green;
- Do-something (DS) scenario – There will be two representative ‘do-something’ scenarios. The first represents a situation where the Proposed Project has been implemented as well as other planned projects outlined in the do-minimum scenario (by 2018). The second represents a situation where the Dublin City Centre Transport Study (Dublin City Council, National Transport Authority, 2016) has been implemented in totality (by 2035). This includes the Proposed Project, as well as a number of ‘other planned projects’. This scenario includes the plaza at College Green.

For the purposes of the transport impact assessment, a Do-Nothing (DN) scenario has also been considered. As set out in Section 6.2, the DN Scenario is defined locally to the College Green area as the traffic management measures which would be in place as envisaged under the Railway Order for Luas Cross City.

The do-minimum scenario is assessed in chapters where relevant. Where there is no discussion around the do-minimum scenario it is assumed that the Proposed Project area will remain as it currently exists and the impact would therefore be neutral.

The study area considered within this EIAR differed for each environmental aspect and extended to incorporate all areas where there was potential for significant impact. Further information on the extent of study area considered for each topic is addressed in the relevant corresponding EIAR chapter.

1.4.2.3 Impact Assessment and Mitigation

The preparation of the EIAR was an iterative process, linking into the design development process. The approach adopted in the impact assessment and preparation of the EIAR was generally based on that recommended in the Draft *Guidelines on the information to be contained in Environmental Impacts Assessment Reports* (EPA, 2017), as outlined below.

A design was developed and the potential impacts of the proposal on the receiving environment were identified along with mitigation measures, as required.

1.4.2.4 Significance of Environmental Issues

The glossaries contained in the *Guidelines on the Information to be Contained in Environmental Impact Assessment Reports* (EPA, 2017) describes an impact as “*Change resulting from the implementation of project*” and the significance of an impact as “*The importance of the outcome of the impact (or the consequence of change) for the receiving environment.*”

The following factors were considered when determining the significance of the impact, both positive and negative, of the Proposed Project on the various aspects of the receiving environment:

- The quality and sensitivity of the existing/baseline receiving environment;
- The relative importance of the environment in terms of national, regional, county, or local importance;
- The degree to which the quality of the environment is enhanced or impaired;
- The scale of change in terms of land area, number of people impacted, number and population of species affected, including the scale of change resulting from cumulative impacts;
- The consequence of that impact/change occurring;
- The certainty/risk of the impact/change occurring;
- Whether the impact is temporary or permanent; and
- The degree of mitigation that can be achieved.

The guidance outlined in the EPA guidelines has also been followed when quantifying the duration and magnitude of impacts. The quality of the impact is described as ‘negative’, ‘neutral’ or ‘positive’. Further information on the specific methodologies utilised for the assessment of each environmental aspect are included in the relevant EIAR chapters.

Where no impact or a positive impact was predicted to occur, the design of the Proposed Project remained unchanged. In the case where significant adverse impacts were predicted, mitigation measures were proposed to avoid or minimise impacts. Where feasible, these measures were then incorporated into the design of the Proposed Project.

The Proposed Project presented in the planning application (including the environmental mitigation measures) will be further progressed and refined during the detailed design and construction stages. This includes any mitigation measures contained in such planning permission, as may be granted.

The detailed design and construction will develop the Proposed Project in a manner such that there is no material change in terms of significant adverse effect on the environment. Opportunities may be identified to further reduce the significance of adverse effect/impact and, in some cases, improve the residual effect/impact through modifications to the Proposed Project. Such modifications may be identified in detailed design or construction in order to allow for innovations in construction methods, available technology or changes in the existing situation.

Any modification to the Proposed Project will only be possible where there would be no significant change, or where there would be an improvement, in environmental impacts. The final Proposed Project design and construction will have to comply with all relevant statutory approvals.

1.4.3 EIA Format

The format used in this EIA document is referred to as the ‘grouped format’ in that it seeks to enable the reader to access the issues of interest to them as easily as possible. The EIA has been divided into the following chapters:

- Chapter 1 – Introduction;
- Chapter 2 – Background to the Proposed Project and Alternatives Considered;
- Chapter 3 – Consultation;
- Chapter 4 – Proposed Project Description;
- Chapter 5 – Planning and Policy;
- Chapter 6 – Traffic and Transportation;
- Chapter 7 – Air Quality and Climate Factors;
- Chapter 8 – Noise and Vibration;
- Chapter 9 – Biodiversity;
- Chapter 10 – Archaeological, Architectural and Cultural Heritage;
- Chapter 11 – Townscape and Visual;
- Chapter 12 – Land, Soils and Water
- Chapter 13 – Resource and Waste Management;
- Chapter 14 – Material Assets: Utilities;
- Chapter 15 – Material Assets: Land Use and Property;
- Chapter 16 – Population and Human Health
- Chapter 17 – Risk of Major Accident and/or Disaster
- Chapter 18 – Cumulative Impacts and Interaction of Effects; and
- Chapter 19 – Summary of Mitigation Measures and Residual Impacts.

Each element of the environment is described in a separate chapter generally under the following headings:

- Introduction;
- Assessment Methodology;
- Baseline Environment;
- Predicted Impacts;
- Mitigation Measures; and
- Residual Impacts.

1.4.4 Consultation Process

Information on all consultation undertaken on the Proposed Project, including a summary of the comments and feedback received, is outlined in Chapter 3 of this EIAR.

1.4.5 EIAR and Design Team

The design team is led by Paul Keogh and Dixon Jones architects on behalf of DCC and the NTA.

This EIAR has been prepared by Arup and various specialist sub-consultants on behalf of DCC. **Table 1.1** includes the relevant EIAR specialists and their qualifications.

Table 1.1: Specialist input and qualifications

Environmental Aspect	Company name	Person responsible	Qualifications
EIAR Manager Population & Human Health Risk of Major Accident and/or Disaster	Arup	Sinead Whyte	B.Sc, M.Sc
			Sinéad Whyte is an Environmental Scientist and an Associate and Senior Environmental Consultant with Arup in Dublin. Since joining Arup in 2000, Sinéad has taken on the role of Project Manager for a wide variety of environmental assessments of plans and projects.
EIAR Support Population & Human Health Risk of Major Accident and/or Disaster	Arup	Ailsa Doyle	B.Sc
			Ailsa joined Arup in 2016 as part of the Environmental Consulting team. Ailsa graduated in 2015 from DIT with a B.Sc in Environmental Planning and Management, which focused largely on environmental impact assessment, resource management, and sustainability. Prior to working in Arup, Ailsa worked for a year at a planning and environmental consultancy in Dublin.
EIAR review	Arup	Niamh O’Sullivan	BE, M.Sc, DIC
			Niamh is a civil engineer and a Director with Arup Consulting Engineers. Niamh joined Arup following graduation from UCC in 1988. Niamh’s project experience includes project management and environmental appraisal of various infrastructural, industrial and commercial developments. This has allowed Niamh to provide expert guidance during the early critical stages of the planning and permitting of projects, in particular scheme feasibility, option assessment and permitting processes.

			She has presented evidence at Public Inquiry and Oral Hearing and has extensive experience in public consultation.
EIAR review	Arup	Donal McDaid	BE, MSc
			Donal McDaid is a Director with consultancy experience in a wide range of civil, transport and environmental engineering fields. Based in Arup's Dublin office, Donal manages the Arup Consulting Practice in Ireland. Since joining Arup, he has also been involved in the planning, management and co-ordination of transport, road, gas pipeline and environmental projects.
EIAR technician	Arup	Gerry McTernan	NCEA Diploma
			Gerry McTernan is a Senior Engineering Technician with the Consulting group in the Dublin office. Since joining Arup, he has been involved in the design of various road re-alignments, traffic management schemes and involved in the production of Environmental Impact Statements. In addition to providing traffic management input on a number of retail and commercial developments.
Construction Strategy	Roughan O'Donovan Consulting Engineers	Eoin O'Cathain	BE, MSc, HDip, CEng, MIEI
			Eoin is an Associate with ROD with over 11 years' experience, primarily in the field of roads and traffic engineering. Eoin is responsible for the planning, design and assessment of transportation schemes, from minor improvements to motorways.
Planning and Policy	Future Analytics Consulting	Richard Hamilton	BA, M.Sc, MIPI MRTPI
			Richard is a Chartered Town Planner with 20 years' experience in public and private sectors in Ireland and UK, covering a broad range of practice including major development application projects and strategic studies.

			Richard has managed large planning applications for large residential and commercial development projects and infrastructure. Richard has lead Masterplan, Development Plan and Urban Design studies, and has a particular specialism in Place Management.
Traffic and Transportation	Arup	Conor McGrath	BAI Conor McGrath graduated with a BAI (Hons) in Civil, Structural and Environmental Engineering from Trinity College Dublin in 2004. During his time with Arup, Conor has gained a vast range of transport planning and traffic engineering experience working on a wide variety of projects. Through his work he has become familiar with various road, bus, cycle and car park design standards in both Ireland and Australia.
		Tiago Oliveira	B.Sc, M.Sc Tiago is an Arup Project Manager on various transportation projects, and provides traffic and transportation advice for a number of projects in which Arup is involved in Ireland and elsewhere in the world. Throughout his career, Tiago has gathered relevant experience in different areas of Transport Planning, including Traffic and Transportation Assessments, Masterplanning, Streetscape Design, Sustainable Transport and Transport Strategies.
Air Quality & Climate	AWN Consulting Ltd.	Edward Porter	BSc PhD C Chem Dr. Edward Porter is responsible for the Air Quality & Climate team in AWN Consulting. He is lead author of the EPA publication "Air Dispersion Modelling from Industrial Installations Guidance Note (AG4)" and has peer reviewed the NRA Air Quality Guidelines (NRA, 2006).

			He specialises in the fields of ambient air quality, odour assessment, climate impacts and air dispersion modelling. A key focus of the air department is achieving savings in compliance costs, particularly emission monitoring costs, through scientific arguments and detailed assessment of technical issues.
Noise & Vibration	Dublin City Council	Brian McManus	Dip, Dip, MIOA, MEHAI
			Brian is the Head of Traffic Noise and Air Quality at Dublin City Council. He is responsible for the preparation of noise mapping and action plans for the Dublin agglomeration.
Biodiversity	Moore Group	Ger O'Donovan	B.Sc. M.Sc.
			Ger has over 20 years' experience as an environmental consultant with particular experience in the planning and management of Environmental Impact Assessments. His primary role in Moore Group is the management and compilation of Environmental Impact Statements and undertaking Ecological Impact Assessments of the terrestrial and aquatic environments of any particular development.
Archaeology, Architectural and Cultural Heritage	Irish Archaeological Consultancy	Faith Bailey	MA, BA (Hons)
			Faith is a Senior Archaeologist and Cultural Heritage Consultant with IAC Ltd. Faith joined IAC in 2004 and in her capacity as Senior EIA Archaeologist, she has been responsible for the production and delivery of a large number of archaeological and built heritage desk top assessments, EIA, master plans, LAP/SEA and management plan associated with all sectors of development in the Republic and Northern Ireland.
			BA(mod), Postgraduate Diploma, MA, MA,

Archaeology, Architectural and Cultural Heritage	Rob Goodbody	Rob Goodbody	<p>Rob has thirty years' experience as a professional planner, working with the London Borough of Redbridge and later with the London Borough of Tower Hamlets, including local plans for the conservation areas. For two years before leaving England he was on the Conservation Advisory Committee for the London Borough of Lewisham.</p> <p>In 1990 he took up a position with Dublin City Council, in which he worked on many aspects of planning including Environmental Impact Assessment on projects such as the North King Street road improvement and on area plans for areas such as Collins Barracks, Islandbridge Mills and Dublin's Quays and on the restructuring of Sheriff Street.</p>
Townscape and Visual	Macro Works	Richard Barker	<p>Irish Landscape Institute Professional Practice Qualification MLA, PG Diploma, BA</p> <p>Richard formerly worked as a Town Planner in New Zealand, London and Dublin before moving into the field of Landscape Architecture. He has spent the last 11 years working as a Landscape Architect in Ireland and has considerable experience in the fields of both Landscape and Visual Impact Assessment (LVIA) and landscape design, covering all stages from project feasibility through to construction. This cross-over of expertise is invaluable in determining and designing the most appropriate and effective form of landscape and visual mitigation for infrastructural development projects.</p>
Townscape and Visual	Macro Works	Nik Hennessy	<p>B.Sc. (Agr.), MAgr(for)</p> <p>Nik brings 20 years' experience of visualisations to the team, from small residential to large industrial, both domestic and overseas. He has numerous successes to his credit and has built a respected profile in the specialised areas of visibility analysis and photo-real simulation for LVIA.</p>

			He has been personally involved with all projects in the Macro Works' portfolio and insists on maintaining a strong input into standards and quality assurance for all deliverables.
Land, Soils and Water	Arup	Catherine Buckley	MSc, BA (Hons), PGeo
			Catherine Buckley is the Hydrogeology team leader for Arup in Ireland. Catherine was recently elected as President of the Institute of Geologists of Ireland. She is also a part-time lecturer on the environmental management of geology and hydrogeology in UCD and an advisor on the new UCC MSc in Applied Environmental Geology.
Land, Soils and Water	Arup	Alison Orr	PhD M.Sc, B.Sc
			Alison is a hydrogeologist in the ground engineering group with Arup in Dublin. She joined Arup in May 2014 and has experience in hydrogeological assessment of infrastructure and buildings projects.
Resource and Waste Management	Arup	Janet Lynch	BE (Hons), FETAC Certificate
			Janet Lynch is a Chartered Engineer and environmental consultant with sixteen years' experience of project management, Environmental Impact Assessment and industrial emissions licensing Prior to joining the Arup Environment Team in Dublin in 2008 Janet worked with Arup London, the Transfrontier Shipping Office in Dublin City Council and Sustainable Energy Ireland. She has extensive expertise in resource and waste management and has worked on waste projects in Ireland, the UK, Middle East, Denmark and Finland.

Material Assets, Land Use and Property	Future Analytics Consulting Ltd.	Richard Hamilton	BA, M.Sc, MIPI MRTPI
			As above

1.5 Difficulties Encountered During the Study

Difficulties encountered in the preparation of the EIA are outlined in each chapter as they relate to the various environmental topics.

Dublin City centre, as with all central environments, is ever-changing and evolving. Proposals for the Proposed Project are made within a dynamic city centre environment, with a broad range of developments and interventions to public space. This includes Luas Cross City construction (and operation) and access arrangements to the city centre generally. This raises issues in terms of the consideration of the baseline scenario. In instances where difficulties arise in determining what represents baseline conditions, a worst-case scenario is assessed.

1.6 References

- Government of Ireland. Planning and Development Act. (2000) Dublin, Ireland.
- Government of Ireland. Planning and Dev Regulations. (2001) Dublin, Ireland.
- Dublin City Council (2016) *Dublin City Development Plan 2016-2022*. Dublin, Ireland.
- Dublin City Council (2016) *The Heart of Dublin City Centre Public Realm Masterplan*. Dublin, Ireland.
- Dublin City Council and National Transport Authority (2016) *Dublin City Centre Transport Study*. Dublin, Ireland.
- Government of Ireland. Environmental Impact Assessment Regulations (1989) [as amended] Dublin, Ireland.
- European Commission (2001), *Guidance on EIA – EIS Review*. Office for Official Publications of the European Communities, Luxemburg.
- Department of the Environment, Community and Local Government (DoECLG) (2013), *Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment*. DoECLG, Dublin, Ireland.
- TII (2004), *Environmental Assessment and Construction Guidelines*. TII, Dublin, Ireland.
- Conservation and Amenity Advice Service (CAAS) (2002), *Guidelines on the Information to be contained in Environmental Impact Statements*. Environmental Protection Agency (EPA), Johnstown Castle Estate, Wexford, Ireland.
- CAAS (2003), *Advice Notes on Current Practice in the Preparation of Environmental Impact Statements*. EPA, Johnstown Castle Estate, Wexford, Ireland.
- CAAS (2015), *Draft Revised Guidelines on the Information to be contained in Environmental Impact Statements*. Environmental Protection Agency (EPA), Johnstown Castle Estate, Wexford, Ireland.
- CAAS (2015), *Draft Revised Advice Notes on Current Practice in the Preparation of Environmental Impact Statements*. EPA, Johnstown Castle Estate, Wexford, Ireland.
- EU Directive 2014/52/EU
- EU Directive 2011/92/EU