
Chapter 1

Introduction

Contents

1.	Introduction	1-1
1.1.	Purpose of this Report	1-2
1.2.	DART+ Programme Objectives	1-3
1.3.	Project Overview	1-4
1.4.	The Applicant	1-6
1.5.	Requirement for EIA	1-8
1.6.	Other Relevant Requirements to Inform Application	1-10
1.7.	EIA Process	1-13
1.8.	Key Stages of the EIA Process	1-15
1.9.	Difficulties Encountered / Limitations	1-23
1.10.	Structure of the Environmental Impact Assessment Report	1-24
1.11.	EIA Project Team	1-24
1.12.	Consultation	1-29
1.13.	References	1-33

1. Introduction

Córas Iompair Éireann, hereafter referred to as CIÉ or ‘the Applicant’, is applying to An Bord Pleanála (“the Board”) for a Railway Order (“RO”) for the DART+ South West Project (“the proposed Project”) under the Transport (Railway Infrastructure) Act 2001 (as amended and substituted) hereafter referred to as ‘the 2001 Act’.

The 2001 Act was recently further amended by the European Union (Railway Orders) (Environmental Impact Assessment) (Amendment) Regulations 2021 in Statutory Instrument No. 743 of 2021 to give further effect to the transposition of the EIA Directive (EU Directive 2011/92/EU as amended by Directive 2014/52/EU) on the assessment of the effects of certain public and private projects on the environment. In summary, section 37 of the 2001 Act requires, inter alia, that the application be made in writing and be accompanied by:

- A draft of the proposed Railway Order;
- A plan of the proposed railway works;
- A book of reference to a plan describing the works which indicates the identity of the owners and of the occupiers of the lands described in the Plan; and
- A report on the likely effects on the environment of the proposed railway works.

A report of the likely effects on the environment of the proposed railway works is addressed by the preparation of this Environmental Impact Assessment Report (EIAR) (previously referred to as an Environmental Impact Statement (EIS) in section 39 of the 2001 Act prior to the amendments effected by S.I. No. 743 of 2021). This EIAR is based on a coordinated approach in order to facilitate An Bord Pleanála carrying out a coordinated assessment with any assessment under the Habitats Directive (Council Directive 92/43/EEC of 21 May 1992) or the Birds Directive (Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009).

The initial Directive of 1985 (Council Directive 85/337/EEC) and its three amendments were codified by Directive 2011/92/EU of 13 December 2011. Directive 2011/92/EU was amended in 2014 by Directive 2014/52/EU (which came into force in May 2014) and together all of these Directives are referred to herein as “the EIA Directive” and/or “the 2014 EIA Directive”. A significant body of domestic/national and EU case law exists in relation to the interpretation of the EIA Directive and regard has been had to same in the preparation of this application and in the EIAR as whole. Accordingly, this EIAR has been prepared in accordance with the EIA Directive 2014/52/EU of the European Parliament and of the Council of 16 April 2014 amending Directive 2011/92/EU on the assessment of the effects of certain public and private projects on the environment (EIA Directive), the 2001 Act (as amended and substituted) including by S.I. No. 743 of 2021 and having regard to relevant guidance documents and guidelines.

The EIAR is prepared by RPS and TTA-JV (Typsa, Tuc Rail and Atkins Joint Venture) on behalf of Iarnród Éireann (who is a wholly owned subsidiary of Córas Iompair Éireann (CIÉ)). It is submitted by CIÉ to a Competent Authority (in this case An Bord Pleanála (ABP)) as part of the Railway Order consent process.

1.1. Purpose of this Report

The purpose of this EIAR for the DART+ South West Project is to inform the EIA process by identifying, describing and assessing the potential significant environmental effects of the proposed Project and examining how these impacts can be avoided or reduced during the design, implementation and operational phases of the project.

CIÉ, as the applicant for this Railway Order, has ensured that this EIAR is prepared by competent experts; contains a description of the proposed railway works comprising information on the site, design, size and other relevant features of the proposed works; contains a description of the likely significant effects of the proposed railway works on the environment; contains the data required to identify and assess the main effects which the proposed railway works are likely to have on the environment; contains a description of any features of the proposed railway works, and of any measures envisaged, to avoid, prevent or reduce and, if possible, offset likely significant adverse effects on the environment; contains a description of the reasonable alternatives studied by the applicant (here CIÉ) which are relevant to the proposed railway works and their specific characteristics, and an indication of the main reasons for the option chosen, taking into account the effects of the railway works on the environment; contains a summary in non-technical language of the above information; takes into account the available results of other relevant assessments under European Union or national legislation with a view to avoiding duplication of assessments; in addition to and by way of explanation or amplification of the specified information referred above, the EIAR contains such additional information specified in Annex IV to the EIA Directive relevant to the specific characteristics of the particular railway works, or type of railway works, proposed and to the environmental features likely to be affected and in this regard Annex IV sets out the information which is referred to in Article 5(1) of the EIA Directive. Further this EIAR includes the information that may reasonably be required for reaching a reasoned conclusion in accordance with section 42b of the 2001 Act on the significant effects of the proposed railway works on the environment, taking into account current knowledge and methods of assessment.

In addition, the EIAR specifically:

- Provides statutory and non-statutory consultees with information to enable an understanding of the proposed Project;
- Provides a description of the reasonable alternatives considered for the proposed Project and an indication of the main reasons for the option selected including taking into account the effects of the proposed Project on the environment;
- Presents the existing environmental baseline information, established from desktop studies, site-specific surveys and/or consultation;
- Indicates any limitations encountered during the compilation of the environmental information, including the acknowledgement of any data gaps or deficiencies and confidence in the information gathered;
- Describes the methodology used within the EIAR to identify, describe and assess effects;

- Presents the potential environmental impacts arising from the proposed Project, based upon the baseline information and data gathered, and the analysis and impact assessments completed;
- Puts forward proposed mitigation measures to avoid, prevent, reduce or, if possible, offset any identified significant adverse effects on the environment and, where appropriate, proposes monitoring arrangements.

This full EIAR forms part of a Railway Order application documentation that is submitted by CIÉ to the Board for its approval of the proposed Project. It is intended that the EIAR is read alongside the EIAR Non-Technical Summary (NTS) (Volume 1), which provides a brief non-technical overview of the information presented in the EIAR (Volume 2) and appendices and the proposed Project drawings (Volumes 3 and 4). The EIAR Non-Technical Summary is a stand-alone companion document to the EIAR.

This EIAR has been prepared to facilitate the Board's undertaking of an Environmental Impact Assessment (EIA) for the proposed Project. It is the Board which carries out the EIA. EIA is the process by which the effects on the environment (positive and negative) of a proposed development or project are assessed; where effects are significant, relevant design and / or other mitigation measures can be taken to avoid or reduce those effects. The application for a Railway Order is made to the Board, and among the documents which must accompany the application as per section 37(3)(e) of the 2001 Act is an EIAR which is prepared in accordance with Directive 2014/52/EU and inter alia contains the information referred to in section 39 of the 2001 Act and having regard to relevant guidance documents and guidelines.

1.2. DART+ Programme Objectives

The DART+ South West Project is the second of the infrastructural projects of the DART+ Programme (5 projects in total). The primary objective of the DART+ Programme is to support urban compact growth and contribute to reducing transport congestion and emissions in Dublin by enabling modernised high-quality commuter rail services between Dublin City Centre and the areas of Drogheda, Maynooth, Dunboyne, Celbridge and Greystones. This is aimed to provide a safe, sustainable, efficient, integrated, and accessible public transport service along these corridors, see Figure 1-1.

Objectives of the DART+ Programme include:

- Cater for existing heavy rail travel demand and improve customer services along established rail corridors in the Greater Dublin Area (GDA) through the provision of a higher frequency, higher capacity, electrified heavy rail service which supports sustainable economic development and population growth.
- Improve accessibility to jobs, education, and other social and economic opportunities through the provision of improved inter-rail and inter-modal connectivity and integration with other public transport services.
- Enable further urban compact growth along existing rail corridors, unlock regeneration opportunities and more effective use of land in the Greater Dublin Area, for present and future generations through the provision of a higher capacity heavy rail network.

- Deliver an efficient, sustainable, low carbon and climate resilient heavy rail network, which contributes to a reduction in congestion on the road network in the Greater Dublin Area and which supports the advancement of Ireland’s transition to a low emissions transport system and delivery of Ireland’s emission reduction targets.
- Provide a higher standard of customer experience including provision of clean, safe, quiet, modern vehicles and a reliable and punctual service with regulated and integrated fares.

Provides Sustainable Transport Options

- Over-reliance on private car use and increasing congestion in GDA.
- DART+ is more sustainable and cleaner than current diesel trains.

Achieve Climate Change Targets

- Will help reduce the transport sector greenhouse gas emissions which continue to rise
- Supporting the Government’s Climate Action Plan



Integration of Land-use & Transport Planning

- Co-ordination and integration of spatial planning with rail transport
- Supporting compact growth and increased densities in the GDA
- Supports the implementation of the 'Project Ireland 2040 and the National Planning Framework

Facilitates Integration with other modes of transport

- Improves integration of rail services with all modes of travel (Car/P&R, cycling, walking)
- Enables greater cross-modal journeys through improved integration with other modes - Bus, Luas, MetroLink.

Supporting Economic and Population Growth

- Congestion in GDA is increasing
- Cost of Time Lost in the Dublin Region is - €350million/annum and forecast to rise to €2,000million/annum by 2033]
- Sustainable public transport infrastructure (pedestrian, cycling, bus and rail) will sustain economic and population growth while reducing emissions

Figure 1-1 DART+ Programme Benefits (source www.dartplus.ie)

1.3. Project Overview

The operating capacity of services in the Heuston area is currently constrained by railway infrastructure limitations and the ability of Heuston Station to accommodate terminating trains. DART+ South West aims to improve train services by increasing train fleet and operating capacity on the route from Hazelhatch & Celbridge Station to Heuston Station, as well as the route through the Phoenix Park Tunnel Branch Line to the Dublin Docklands area (Spencer Dock and Grand Canal Dock) covering a distance of circa 20km. This will be achieved by implementing an electrified railway network to accommodate higher capacity DART trains, increasing the frequency of trains, four tracking between Park West & Cherry Orchard Station and Heuston Station, and providing a new station at Heuston West.

DART+ South West will significantly increase train capacity from the current 12 trains per hour per direction to 23 trains per hour per direction (i.e. maintain the existing 12 services, with an additional 11 train services provided by DART+ South West - four will finish service at Heuston and seven will follow the Phoenix Park Tunnel Branch Line towards the Docklands area.). This will increase passenger capacity from the current peak capacity of approximately 5,000 passengers per hour per direction to approximately 20,000 passengers per hour per direction.

The electrification of the rail line will predominantly follow the existing railway corridor. The principal project components are as follows:

- Diversions for utilities located along the route as part of the enabling works for the project.
- Construction of overhead line equipment (OHLE) from Hazelhatch & Celbridge Station to Heuston Station and also from Heuston Station to Glasnevin Junction, via the Phoenix Park Tunnel Branch Line.
- Signalling upgrades and additional signalling infrastructure.
- Telecommunications infrastructure including buildings.
- Ancillary equipment cabins.
- Works to the Permanent Way (or track or railway corridor) including all ancillary installations such as rails, sleepers, ballast interfaces with existing utilities, boundary treatments, drainage works, vegetation management and other ancillary works.
- Construction of a new portal structure at the South Circular Road Junction.
- Works to Phoenix Park Tunnel including horizontal and vertical realignment to ensure that structural and passing clearances are achieved.
- Construction of six electrical substations at intervals along the rail line to provide power to the network.
- Undertaking improvements/reconstructions of bridges to achieve vertical and horizontal clearances.
- Retaining walls supporting widening of the rail corridor and replacement bridges.
- Overhead electrified line protection works at bridges including parapets.
- Construction and delivery of a new Heuston West Station
- Provision of construction compounds to support the construction works.

The design is compatible with future stations at Kylemore and Cabra, although the construction of these stations is not part of the DART+ South West Project.

Works outside of Córas Iompair Éireann lands will be required at a number of locations for some of the scheme elements such as:

- Widening of the railway corridor for four-tracking between Park West & Cherry Orchard Station and Heuston Station;
- Bridge reconstruction and/or improvements;
- Construction of substations (to facilitate the provision of power to the line); and
- Use of land for temporary construction/storage compounds and all ancillary works required for the project.

The DART+ South West Project supports the overall DART+ Programme objectives. It represents the second of the infrastructural projects of the DART+ Programme to be delivered (the first will be the DART+ West Project).

Figure 1-2 provides a schematic layout of the proposed DART+ South West Project.

1.4. The Applicant

The application is being made by Córas Iompair Éireann (CIÉ), Ireland's national public transport provider. Under section 37(1) of the 2001 Act, CIÉ may apply to the Board for a Railway Order. Iarnród Éireann (IE) is a wholly owned subsidiary of CIÉ. Iarnród Éireann is responsible for the operation of the DART, commuter, and intercity rail passenger services throughout Ireland and more specifically for the proposed Project area. Iarnród Éireann provides passenger and some freight rail services along the proposed Project area. Iarnród Éireann have developed the proposed Project from concept to application stage on behalf of CIÉ.

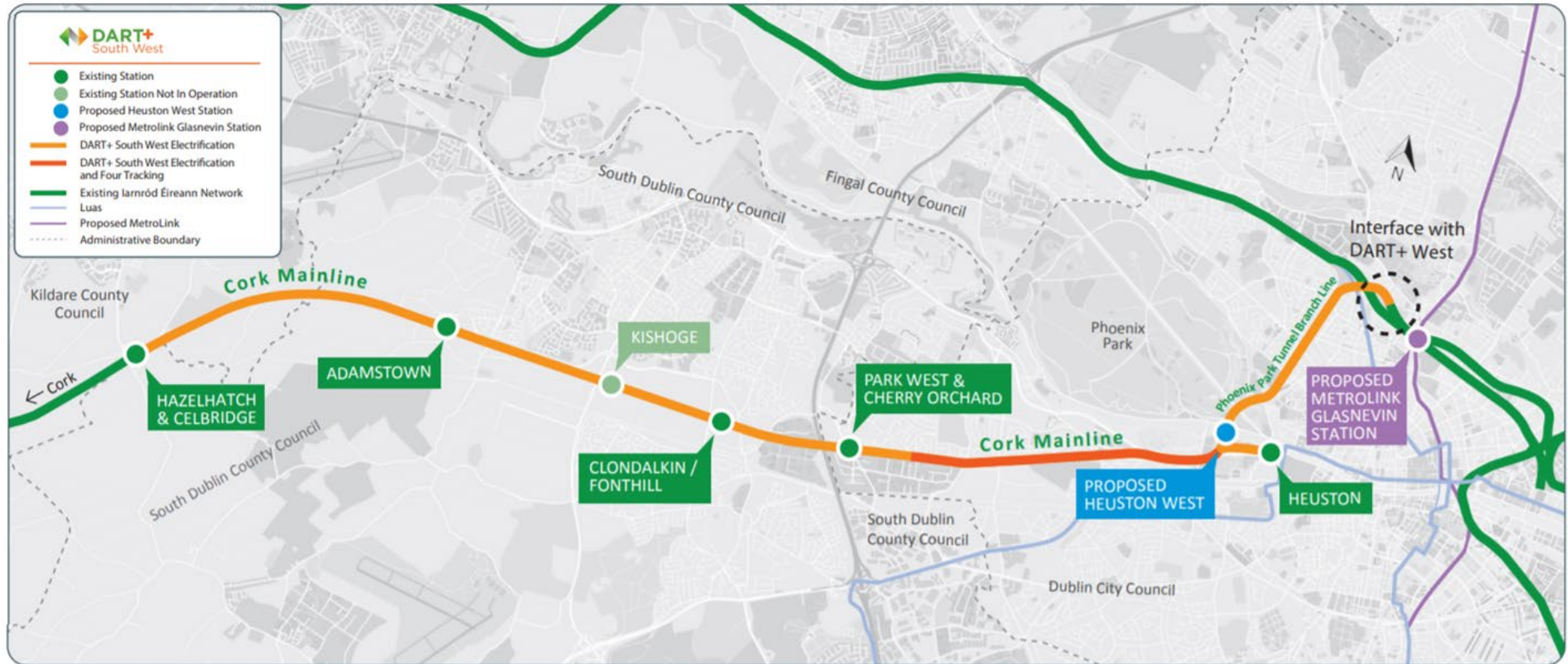


Figure 1-2 DART+ South West

1.5. Requirement for EIA

1.5.1. Transport (Railway Infrastructure) Act 2001

As stated in paragraph 1 (Introduction), the Transport (Railway Infrastructure) Act 2001 (as amended and substituted) (“the 2001 Act”), and as most recently amended by S.I. No. 743 of 2001, provides for the application for a Railway Order (“RO”) by inter alia Córas Iompair Éireann to An Bord Pleanála (“the Board”).

The 2001 Act sets out a bespoke process covering all aspects of the Railway Order requirements in relation to the application, consideration, assessment and decision-making for a proposed Railway Order and if granted, for the construction, maintenance, improvement and operation of a railway and railway works, including powers of compulsory acquisition.

The Railway Order application is made pursuant to the provisions of section 37 of the 2001 Act. Section 37 of the 2001 Act requires, inter alia, that the application be made in writing and be accompanied by:

- (a) a draft of the proposed Railway Order;
- (b) a plan of the proposed railway works;
- (c) in the case of an application by the Agency or a person with the consent of the Agency, a plan of any proposed commercial development of land adjacent to the proposed railway works,
- (d) a book of reference to a plan describing the works which indicates the identity of the owners and of the occupiers of the lands described in the Plan; and
- (e) a report of the likely effects on the environment of the proposed railway works (this Report).

A report of the likely effects on the environment of the proposed railway works (at point (e)) is addressed by the preparation of this Environmental Impact Assessment Report (EIAR) as described in section 39 of the Act.

1.5.1.1. Compulsory Acquisition of Land & Other Rights in Relation to Land

A Railway Order when granted confers powers on CIÉ to allow for the acquisition of land and other rights in relation to land to facilitate the construction, maintenance, improvement and operation of the railway. For example, section 45(1) of the 2001 Act inter alia states:

“Upon the commencement of a railway order, the Agency or CIÉ shall thereupon be authorised to acquire compulsorily any land or rights in, under or over land or any substratum of land specified in the order and, for that purpose, the railway order shall have effect as if it were a compulsory purchase order...”

In accordance with section 37(2)(d) of the 2001 Act, a book of reference has been prepared (*indicating the identity of the owners and of the occupiers of the lands described in the plan*) and this EIAR has assessed the proposed railway works set out in the plan. All reasonable efforts have been made to engage with all affected property owners throughout the design and EIA process. Where

engagement has been forthcoming this has informed the design and EIA process and is documented as appropriate in this EIAR.

1.5.2. EIA Directive 2014/52/EU

This EIAR has been prepared in accordance with requirements of the 2001 Act (as amended and substituted) most recently amended by S.I. No. 743 of 2021 (including at section 39 of the 2001 Act as further amended by S.I. No. 743 of 2021), the EIA Directive and includes the information set out in Article 5 and Annex IV to the EIA Directive. The information provided in this EIAR meets these requirements. Table 1.1 below includes the chapter reference where each of the information requirements is addressed in this EIAR.

Table 1.1: Annex IV Information Required by Art. 5.1 of 2011/92/EU, as Amended by 2014/52/EU

Ref	Information for the EIAR as per Article 5(1)	Chapter in this EIAR
1	Description of the project, including in particular: (a) a description of the location of the project; (b) a description of the physical characteristics of the whole project, including, where relevant, requisite demolition works, and the land-use requirements during the construction and operational phases; (c) a description of the main characteristics of the operational phase of the project (in particular any production process), for instance, energy demand and energy used, nature and quantity of the materials and natural resources (including water, land, soil and biodiversity) used; (d) an estimate, by type and quantity, of expected residues and emissions (such as water, air, soil and subsoil pollution, noise, vibration, light, heat, radiation) and quantities and types of waste produced during the construction and operation phases.	Chapter 4 and Chapter 5
2	A description of the reasonable alternatives (for example in terms of project design, technology, location, size and scale) studied by the developer, which are relevant to the proposed Project and its specific characteristics, and an indication of the main reasons for selecting the chosen option, including a comparison of the environmental effects.	Chapter 3
3	A description of the relevant aspects of the current state of the environment (baseline scenario) and an outline of the likely evolution thereof without implementation of the project as far as natural changes from the baseline scenario can be assessed with reasonable effort on the basis of the availability of environmental information and scientific knowledge.	Chapters 6 - 24
4	A description of the factors specified in Article 3(1) likely to be significantly affected by the project: population, human health, biodiversity (for example fauna and flora), land (for example land-take), soil (for example organic matter, erosion, compaction, sealing), water (for example hydromorphological changes, quantity and quality), air, climate (for example greenhouse gas emissions, impacts relevant to adaptation), material assets, cultural heritage, including architectural and archaeological aspects, and landscape.	Chapters 6 – 24 (Refer to Table 1.2)
5	A description of the likely significant effects of the project on the environment resulting from, inter alia: (a) the construction and existence of the project, including, where relevant, demolition works; (b) the use of natural resources, in particular land, soil, water and biodiversity, considering as far as possible the sustainable availability of these resources; (c) the emission of pollutants, noise, vibration, light, heat and radiation, the	Chapters 6 – 24, Chapter 25 and 26

Ref	Information for the EIAR as per Article 5(1)	Chapter in this EIAR
	<p>creation of nuisances, and the disposal and recovery of waste;</p> <p>(d) the risks to human health, cultural heritage or the environment (for example due to accidents or disasters);</p> <p>(e) the cumulation of effects with other existing and/or approved projects, taking into account any existing environmental problems relating to areas of particular environmental importance likely to be affected or the use of natural resources;</p> <p>(f) the impact of the project on climate (for example the nature and magnitude of greenhouse gas emissions) and the vulnerability of the project to climate change;</p> <p>(g) the technologies and the substances used.</p> <p>The description of the likely significant effects on the factors specified in Article 3(1) should cover the direct effects and any indirect, secondary, cumulative, transboundary, short-term, medium-term and long-term, permanent and temporary, positive and negative effects of the project. This description should take into account the environmental protection objectives established at Union or Member State level which are relevant to the project.</p>	
6	A description of the forecasting methods or evidence, used to identify and assess the significant effects on the environment, including details of difficulties (for example technical deficiencies or lack of knowledge) encountered compiling the required information and the main uncertainties involved.	Chapters 6 – 24, Chapter 25 and 26
7	A description of the measures envisaged to avoid, prevent, reduce or, if possible, offset any identified significant adverse effects on the environment and, where appropriate, of any proposed monitoring arrangements (for example the preparation of a post-project analysis). That description should explain the extent, to which significant adverse effects on the environment are avoided, prevented, reduced or offset, and should cover both the construction and operational phases.	Chapters 6 – 24, Chapter 25, 26 and 27
8	A description of the expected significant adverse effects of the project on the environment deriving from the vulnerability of the project to risks of major accidents and/or disasters which are relevant to the project concerned. Relevant information available and obtained through risk assessments pursuant to Union legislation such as Directive 2012/18/EU of the European Parliament and of the Council or Council Directive 2009/71/Euratom or relevant assessments carried out pursuant to national legislation may be used for this purpose provided that the requirements of this Directive are met. Where appropriate, this description should include measures envisaged to prevent or mitigate the significant adverse effects of such events on the environment and details of the preparedness for and proposed response to such emergencies	Chapter 24
9	A non-technical summary of the information provided under points 1 to 8.	Volume 1: Non-technical Summary
10	A reference list detailing the sources used for the descriptions and assessments included in the report.	Volume 2: All chapters

1.6. Other Relevant Requirements to Inform Application

1.6.1. Habitats Directive 92/43/EEC

This EIAR is based on a coordinated approach in order to facilitate ABP carrying out a coordinated assessment with any assessment under the Habitats Directive (Council Directive 92/43/EEC of 21 May 1992) or the Birds Directive (Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009). Council Directive 92/43/EEC of 21 May 1992 on the Conservation of

Natural Habitats and of Wild Fauna and Flora ('the Habitats Directive') and Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds ("the Birds Directive") provides legal protection for habitats and species of European importance. Articles 3 to 9 of the Habitats Directive provide the legislative means to protect habitats and species of Community interest through the establishment and conservation of an EU-wide network of sites known as Natura 2000. In Ireland, these Natura 2000 sites are designated as European Sites and include Special Areas of Conservation (SAC), established under the Habitats Directive for habitats and species and Special Protection Areas (SPA), established under the EU Birds Directive.

In order to ensure the protection of European sites in the context of land use planning and development, Article 6(3)¹ of the Habitats Directive provides for the assessment of the implications of plans and projects for European sites, as follows:

"Any plan or project not directly connected with or necessary to the management of the site² but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subject to appropriate assessment of its implications for the site in view of the site's conservation objectives. In the light of the conclusions of the assessment of the implications for the site and subject to the provisions of paragraph 4, the competent national authorities shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the site concerned and, if appropriate, after having obtained the opinion of the general public."

The requirements arising out of Article 6(3) are transposed into Irish law by Part XAB of the Planning and Development Act 2000 (as amended and substituted) and by the European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. No. 477 of 2011) as amended (the Habitats Regulations), including Part 5 thereof.

The assessment associated with Article 6(3) of the Directive, as transposed is referred to as an "Appropriate Assessment" (AA). This is a separate process to EIA, with its own distinct tests for compliance but it is nonetheless inter-related. The determination of whether or not a plan or project requires AA is referred to as "Stage 1" or "AA Screening". A Stage 1 Screening Report for Appropriate Assessment has been prepared to consider whether the proposed Project, individually or in combination with other plans or projects, is likely to have a significant effect on any European site(s). This AA Screening Report concluded that, in adopting the precautionary approach in accordance with current guidance, the assessment should progress to Stage 2 and the preparation of a Natura Impact Statement (NIS). The NIS accompanying the Railway Order contains an examination of the implications of the proposed Project, on its own or in combination with other plans or projects, for European sites. It has been prepared in accordance with the provisions of the Habitats Directive and Part XAB of the Planning and Development Act 2000 (as amended), including

¹ Article 7 of the Habitats Directive provides that the provisions of, inter alia, Article 6(3) are to apply to SPAs under Directive 2009/147/EC (the "Birds Directive") also.

² Including, where applicable, 'sites'.

inter alia sections 177U, 177V, 177S thereof, to facilitate the carrying out of an Appropriate Assessment by the Board.

The Stage 2 AA ‘Natura Impact Statement’ (NIS) is included as a separate document to this EIAR. Chapter 8 Biodiversity of the EIAR also references to European sites.

1.6.2. Water Framework Directive 2000/60/EC

The Water Framework Directive (WFD) (2000/60/EC) of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy came into force in December 2000 and establishes a framework for the protection of inland surface waters, transitional waters, coastal waters and groundwater. The Directive has been transposed into Irish law by the European Communities (Water Policy) Regulations 2003 (S.I. No. 722 of 2003) (as amended) and the European Communities Environmental Objectives (Surface Waters) Regulations 2009 (S.I. No. 272 of 2009). Ireland is required to comply with four main obligations under the environmental objectives of the WFD, namely to:

- Prevent deterioration of the status of all bodies of surface water and groundwater;
- Protect, enhance and restore all bodies of surface water and groundwater with the aim of achieving good status by the end of 2027;
- Protect and enhance all artificial and heavily modified bodies of water, with the aim of achieving good ecological potential and good surface water chemical status; and
- Achieve compliance with the requirements for designated protected areas.

Any works which could affect the biological, physiochemical or hydromorphological quality of a waterbody requires an assessment in line with the WFD to demonstrate how the proposed works will not lead to a degradation in status and where possible, enhance waterbody status in order to achieve the required “at least Good status” target as set out in the directive. The likely impacts to various hydrological and hydrogeological parameters and how these affect WFD status are assessed in this EIAR, in Chapter 10 Water (including Hydrology & Flood Risk) and Chapter 11 Hydrogeology.

1.6.3. The Planning System and Flood Risk Management Guidelines for Planning Authorities (S. 28 Guidelines)

In accordance with the requirements of “The Planning System and Flood Risk Management, Guidelines for Planning Authorities” and associated Technical Appendices (Office of Public Works, November 2009), a separate Flood Risk Assessment (FRA) has been carried out.

The Guidelines outline the key principles that should be considered when assessing flood risk to proposed sites. It recommends a staged approach to the assessment of flood risk. The FRA may conclude at any stage if criteria are not met to progress to the next stage. The stages are listed below:

- Stage I Flood Risk Identification – to identify whether there may be any flooding or surface water management issues.

- Stage II Initial Flood Risk Assessment – to confirm sources of flooding that may affect an area or proposed development, to appraise the adequacy of existing information and to scope the extent of the risk of flooding which may involve preparing indicative flood zone maps.
- Stage III Detailed Flood Risk Assessment – to assess flood risk issues in sufficient detail and to provide a quantitative appraisal of potential flood risk to a proposed or existing development or land to be zoned, of its potential impact on flood risk elsewhere and of the effectiveness of any proposed mitigation measures.

The site specific flood risk assessment (FRA) is included as a separate document to this EIAR. It is intended to be read alongside, and to support, the main EIAR for the proposed Project, in particular Chapter 10 Water (including Hydrology & Flood Risk) which addresses the proposed Project's potential effects on the surface water environment.

1.7. EIA Process

In summary, the carrying out of an EIA in relation to proposed railway works in a draft Railway Order by the Board means a process consisting of: the preparation of an EIAR by the applicant – in this case CIÉ – in accordance with section 39 of the 2001 Act; the carrying out of consultation; the examination by the Board of – (a) the information presented in the EIAR; (b) any further information provided by the applicant under section 41 and, where applicable, section 47D, and (c) any relevant information received through consultation under section 40, section 41 and, where applicable, section 47D of the 2001 Act; (d) the reaching of a reasoned conclusion by the Board in accordance with section 42B of the 2001 Act on the significant effects of the proposed railway works on the environment, taking into account the results of the examination referred to in (c) and, where appropriate, its own supplementary examination, and (e) the integration by the Board of its reasoned conclusion into its decision under section 43 of the 2001 Act; an examination, analysis and evaluation by the Board under sections 42B and 43 in order to identify, describe and assess, in the light of each individual case, the direct and indirect significant effects of the proposed railway works, including significant effects derived from the vulnerability of the activity to risks of major accidents and disasters relevant to it, on: population and human health; biodiversity, with particular attention to species and habitats protected under the Habitats and Birds Directives; land, soil, water, air and climate; material assets, cultural heritage and the landscape, and the interaction between the above factors.

Further to the above, EIA is defined in Article 1 of the EIA Directive to mean a process consisting of:

- I. the preparation of an EIAR by the developer, as referred to in Article 5(1) and (2);
- II. the carrying out of consultations as referred to in Article 6 and, where relevant, Article 7;
- III. the examination by the competent authority of the information presented in the EIAR and any supplementary information provided, where necessary, by the developer in accordance with Article 5(3), and any relevant information received through the consultations under Articles 6 and 7;

- IV. the reasoned conclusion by the competent authority on the significant effects of the project on the environment, taking into account the results of the examination referred to in point (iii) and, where appropriate, its own supplementary examination; and
- V. the integration of the competent authority's reasoned conclusion into any of the decisions referred to in Article 8a.

The EPA (2022) further define it as:

“The process of examining the anticipated environmental effects of proposed project - from consideration of environmental aspects at design stage, through consultation and preparation of an Environmental Impact Assessment Report (EIAR), evaluation of the EIAR by a competent authority, the subsequent decision as to whether the project should be permitted to proceed, encompassing public response to that decision”.

Broadly speaking, the EIA process involves a number of steps which includes the production of an EIAR, although this is not the end in itself but rather an output to assist in a wider decision-making framework.

An EIAR is a statement prepared by the developer, providing information on the significant effects on the environment based on current knowledge and methods of assessment. It is carried out by competent experts, with appropriate expertise to provide informed assessment on the environmental factors as required under the EIA Directive. The EIAR consists of a systematic analysis and assessment of the potential effects of a proposed development on the receiving environment.

This EIAR will be used by the Board to make a decision to consent or refuse the application or to seek further information if required. In line with current guidance, the EIA for the project commenced at the project design stage.

1.7.1. Guidance

This EIAR has been prepared in accordance with the requirements of the 2001 Act (as amended and substituted) and the EIA Directive. The preparation of the EIAR has also been informed by relevant international and national EIA guidelines including the following:

- Guidelines on information to be contained in Environmental Impact Assessment Reports (EPA, 2022).
- Advice Note Seventeen: Cumulative effects assessment relevant to nationally significant infrastructure projects, 2019 published by the Planning Inspectorate, an executive agency of the Ministry of Housing, Communities and Local Government of the United Kingdom.
- Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment, (DHPLG, August 2018).
- Circular PL 05/2018 -Transposition into Planning Law of Directive 2014/52/EU amending Directive 2011/92/EU on the effects of certain public and private projects on the environment (the EIA Directive).

- Environmental Impact Assessment of Projects–Guidance on Scoping (Directive 2011/92/EU as amended by 2014/52/EU) (European Commission, 2017).
- Environmental Impact Assessment of Projects – Guidance on the preparation of the Environmental Impact Assessment Report (European Commission, 2017).
- Environmental Impact Assessment of National Road Schemes - A Practical Guide, Revision 1 (NRA/TII, 20 November 2008).
- Advice notes on current practice in the preparation of Environmental Impact Statements (EPA, 2003).
- Guidelines for the Assessment of Indirect and Cumulative Impacts as well as Impact Interactions (European Commission, 1999).

Other legislation, guidelines from Transport Infrastructure Ireland (TII) and other bodies have also been considered and are detailed in the relevant technical assessment chapters of this EIAR. Each environmental factor assessed in this EIAR sets out the legislative context, policy context and guidance relevant to that environmental factor. In addition to the applicable EIA legislation and guidance, relevant EU Directives and national legislation relating to the specialist areas have also been considered as part of the process and are addressed in each of the relevant assessment chapters contained in this EIAR.

1.8. Key Stages of the EIA Process

Figure 1-3 outlines the overall EIA process and the position of the EIAR in the overall process (EPA, 2022). Further details on the requirement for an EIAR and other related documentation is provided in the project Planning Report which is included as a separate document to this EIAR.

1.8.1. Screening

The project was screened in accordance with EU and national guidelines. The purpose of screening as set out in the European Commission’s Guidance on Screening (European Commission, 2017) is to determine whether or not an EIA is required for a particular project.

An Environmental Impact Assessment (EIA) screening exercise was undertaken to establish whether the proposed Project would require an EIA under the Planning and Development (Environmental Impact Assessment) Regulations 2018 (S.I. No. 296 of 2018), the Transport (Railway Infrastructure) Act 2001 (as amended) or any other planning legislation.

As described in Section 1.5.1 of this EIAR, section 37 (2)(e) of 2001 Act (as amended) by European Union (Railway Orders) (Environmental Impact Assessment) (Amendment) Regulations 2021 (S.I. No. 743 of 2021) requires a Railway Order application to be accompanied by “*a report of the likely effects on the environment (referred to subsequently in this Part as an ‘environmental impact statement’) of the proposed railway works*”. It is therefore mandatory to submit an EIAR with a Railway Order application.

This requirement effectively negates the need to apply further EIA screening criteria as it is mandatory to submit a ‘report of the likely effects on the environment’ to accompany the application for a Railway Order.

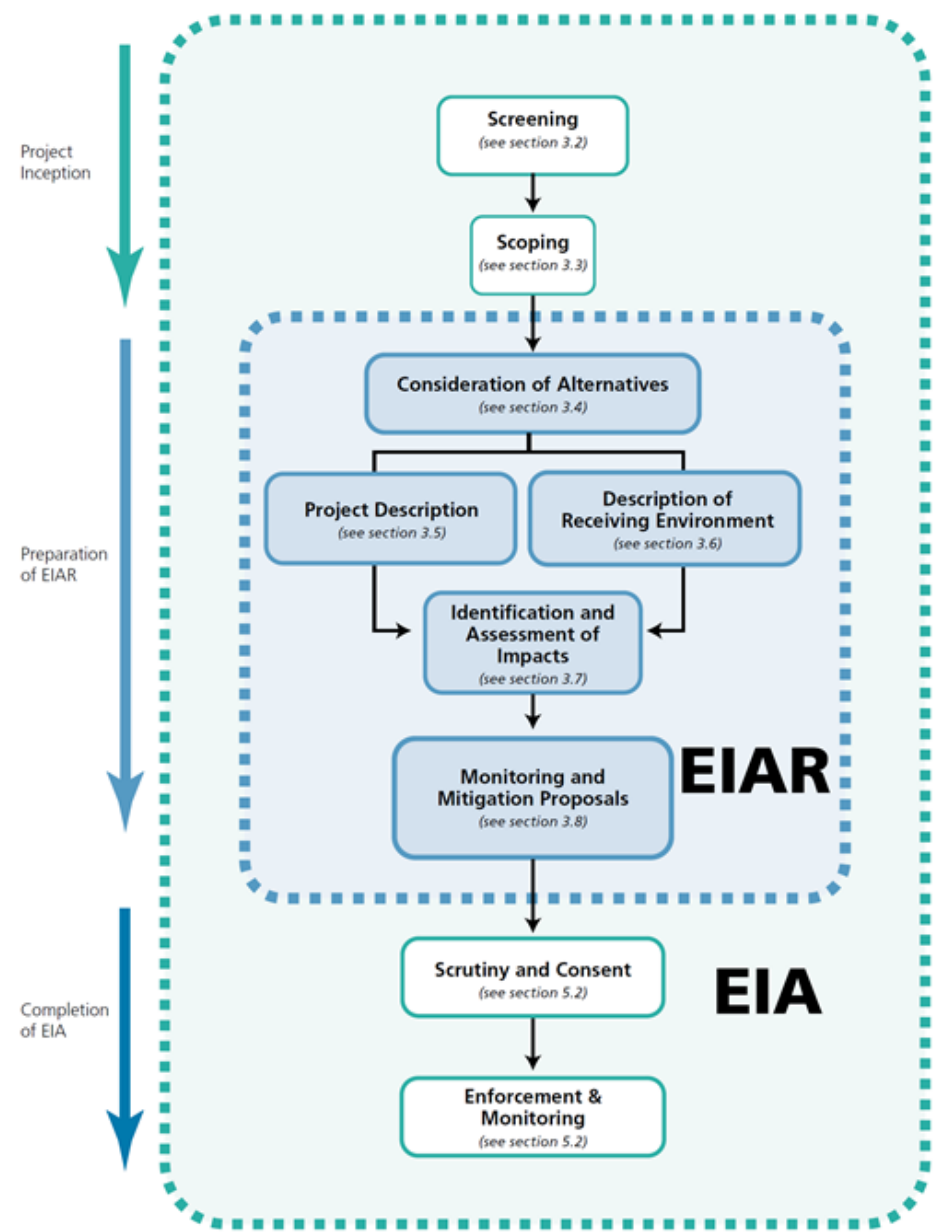


Figure 1-3 The EIA Process (EPA, 2022)

1.8.2. Scoping

Scoping is an integral part of the EIA process, the aim of which is to identify matters that should be covered in the EIAR. It is defined in the EPA Guidelines (2022) as:

“identifying the significant issues which should be addressed by a particular Impact Assessment, as well as the means or methods of carrying out the assessment”.

EIA scoping seeks to identify the aspects of the environment where there is an interaction (either direct or indirect, positive or negative), with a proposal and the potential effects, which need to be assessed. The process is dynamic, reflecting the evolution of the project design, comment from stakeholders and development of baseline information relevant to the receiving environment as a result of desktop and field surveys.

A scoping process to identify the issues that are likely to be most important during the EIA process was carried out by the applicant, design team and EIAR team and informed the format of this EIAR. An informal EIA Scoping Report (Appendix 1.1 in Volume 4 of this EIAR) was prepared on DART+ South West and sent to environmental stakeholders on the 10th of November 2021.

On the basis of the information provided in the informal EIA Scoping Report, views were sought on the scope and level of detail that should be considered when preparing this EIAR, including proposed content of the EIAR and the potential impacts that have been scoped in/out, proposed assessment methodologies to assess the potential impacts and any other data that the environmental assessments should consider and address. The prescribed bodies and key stakeholders were invited to comment over a 5-week period. The submissions received have been considered as part of the preparation of this EIAR, as appropriate. The responses received have been considered as part of the topic assessments of the EIAR in Chapters 6 to 24 (see heading titled ‘Consultation’ within each chapter).

The list of prescribed bodies and key stakeholders that were invited to comment, a summary of the feedback received and how the feedback has been considered by the project team as part of preparation of this document is provided in full in Appendix 1.2 in Volume 4 of this EIAR.

Taking into account the nature, size and location of the proposed Project (see Chapter 4 Project Description for full details), the information provided from EIA scoping and other consultation responses, the topics outlined in Table 1.2 have been identified as requiring consideration within this EIAR. The topics have been aligned to refer to the factors outlined by Article 3(1) and 3(2) of the 2014 EIA Directive.

Table 1.2: The Environmental Factors to be Included in an EIAR (EIA Directive) and the Corresponding Location in this EIAR

EIA Directive – Environmental Factors	Where addressed in the Project EIAR
1(a): Population and human health	Chapter 7: Population Chapter 22: Electromagnetic Compatibility & Stray Current Chapter 23: Human Health
1(b): Biodiversity, with particular attention to species and habitats protected under Directive 92/43/EEC and Directive 2009/147/EC	Chapter 8: Biodiversity
1(c): Land, soil, water, air and climate	Chapter 9: Land and Soils (Soils & Geology) Chapter 10: Water (including Hydrology & Flood Risk) Chapter 12: Air Quality Chapter 13: Climate Chapter 14: Noise and Vibration

EIA Directive – Environmental Factors	Where addressed in the Project EIAR
1(d): Material assets, cultural heritage and the landscape	Chapter 6: Traffic and Transportation Chapter 15: Landscape and Visual Chapter 16: Material Assets: Agricultural Properties Chapter 17: Material Assets: Non-agricultural Properties Chapter 18: Material Assets: Utilities Chapter 19: Material Assets: Resource and Waste Management Chapter 20: Archaeology & Cultural Heritage Chapter 21: Architectural Heritage
1(e): The interaction between the factors referred to in points (a) to (d).	Chapter 25: Interactions
2: The effects referred to in paragraph 1 on the factors set out therein shall include the expected effects deriving from the vulnerability of the project to risks of major accidents and/or disasters that are relevant to the project concerned	Chapter 24: Major Accidents and Disasters

1.8.3. EIAR

The EPA 2022 Guidelines note that the main purpose of an EIAR is to “*identify, describe and present an assessment of the likely significant effects of a project on the environment. This informs the CA’s assessment process, its decision on whether to grant consent for a project and, if granting consent, what conditions to attach (EPA, 2022).*”

The EIAR focuses on:

- *effects that are both likely and significant;*
- *description of effects that are accurate and credible.”*

In accordance with the EIA Directive and guidance documents the EIA process facilitates ongoing design review allowing for the project design to be adapted and reviewed in light of predicted environmental effects emerging during the preparation of an EIAR. The design team and the environmental specialists have maintained a regular dialogue through the design preparations and revisions to ensure that this objective is achieved.

1.8.3.1. Consideration of Alternatives

The EIA Directive requires that the EIAR contains:

“A description of the reasonable alternatives (for example in terms of project design, technology, location, size and scale) studied by the developer, which are relevant to the proposed project and its specific characteristics, and an indication of the main reasons for selecting the chosen option, including a comparison of the environmental effects.”

Further information on this process and consideration of the various reasonable alternatives studied is presented in Chapter 3 of this EIAR.

1.8.3.2. Identification and Assessment of Impacts

The following key stages formed the basis for the identification and assessment of impacts undertaken to inform the EIAR as outlined in Chapters 6 to 24:

- Topic specialists undertook a review of the description of the proposed Project (see Chapter 4 Project Description and Chapter 5 Construction Strategy) to understand the activities that have potential for effects and to define a suitable study area to establish a baseline and allow for an assessment of each topic;
- A robust baseline of the existing environment on and around the proposed Project was established using sources of information to inform the assessment including desktop review of available data and literature, interpretation of site specific surveys where required and considering relevant feedback from the consultation process;
- Assessment of the environmental impacts and establishing their significance. This process utilised an iterative approach, where impacts that were initially assessed as significant were discussed with IÉ and the design team to allow changes to be incorporated into the design to reduce the impact (e.g. design development resulted in a permanent way solution which negates the requirement to remove a turret associated with a locomotive shed to the south of line at Inchicore works. This structure is listed in the National Inventory of Architectural Heritage); and
- Development of mitigation measures to ameliorate the potential impacts of the proposed Project that cannot be avoided practically through design.

Through the iterative feedback between the design and the specialists undertaking the environmental assessments, potential impacts have been avoided or minimised through changes to the design and or incorporation of mitigation measures.

1.8.3.3. Approach to Specialist's Assessment

The assessment of each topic (e.g. air quality, climate, noise and vibration, biodiversity) forms a separate chapter of this EIAR. For each topic chapter, the following components are included:

- Introduction - This section provides an overview of the specialist area. It also provides a description of the legislation, policy and guidance (topic-specific) where relevant.
- Impact assessment methodology – this section outlines the following:
 - Identification of the study area for the topic-specific assessments;
 - Sources of information to inform the assessment including desktop study, site surveys and consultation feedback;
 - A description of the key activities that have potential to result in likely significant effects on each topic during the construction and operational phases of the proposed Project;
 - A description of the topic-specific guidance documents used for the assessment and the approach to the assessment including the criteria applied in the assessment to determine the magnitude of the impact, the sensitivity of the receptor and the

significance of the effect. Any deviation from guidance is noted and justified by topic specialists; and

- Data limitations and difficulties encountered.
- A description of the receiving baseline environment and identification of the receptors for which impacts and effects are considered;
 - A description of the 'Do nothing' scenario is also provided. This scenario describes the evolution of the environment in the absence of the proposed Project.
- Assessment of likely significant effects, which includes:
 - Assessment of the significance of identified effects in the absence of mitigation measures. This is also completed in accordance with the relevant guidance for the particular topic; noting and justifying any deviation from guidance.
- Mitigation measures – this section identifies any mitigation measures required in respect of likely significant effects.
- Monitoring - including the identification of any future monitoring requirements.
- Residual effects – this describes the residual effects.
- Cumulative impact assessment , which includes:
 - Cumulative impact assessment methodology;
 - Assessment of any cumulative effects arising from the proposed Project and other major developments, including existing and approved projects and, insofar as is possible, proposed projects.
- References – list of sources used in the assessment.

1.8.3.4. Criteria for the Assessment of Effects

A key document that has informed the assessment methodology is the *Guidelines on the information to be contained in Environmental Impact Assessment Reports* (EPA 2022). Section 3.7 (Assessment of Effects) of these Guidelines, and specifically Table 3.4, which is reproduced in Table 1.3 below forms the basis to consistently describe specific effects for the purposes of environmental impact assessment reporting. The consideration of potential impacts includes direct, indirect, secondary and cumulative impacts as appropriate, with reference to the appropriate guidance. Where specialists' environmental factors have recognised guidance / standards relating to the description, and the significance of effects these are set out in the respective sections as part of that specialist chapter, as appropriate.

Table 1.3: Description of Effects (EPA 2022)

Quality of Effects	
Positive	A change which improves the quality of the environment (for example, by increasing species diversity, or improving the 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	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).
Describing 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 without significant consequences.
Slight effects	An effect which causes noticeable changes in the character of the environment without affecting its sensitivities.
Moderate effects	An effect that alters the character of the environment in a manner that is consistent with existing and emerging baseline trends.
Significant effects	An effect which, by its character, magnitude, duration or intensity significantly alters a sensitive aspect of the environment.
Very significant Effects	An effect which, by its character, magnitude, duration or intensity significant alters most of a sensitive aspect of the environment.
Profound effects	An effect which obliterates sensitive characteristics.
Describing the Extent and 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?)
Describing the Probability of the Effects:	
Likely effects	The effects that can reasonably be expected to occur because of the planned project if all mitigation measures are properly implemented.
Unlikely effects	The effects that can reasonably be expected not to occur because of the planned project if all mitigation measure are properly implemented.
Describing the Duration and Frequency of Effects	
Momentary effects	Effects lasting from seconds to minutes
Brief effects	Effects last less than a day
Temporary effects	Effects lasting less than a year
Short-term effects	Effects lasting one to seven years
Medium-term Effects	Effects lasting seven to fifteen years
Long-term effects	Effects lasting fifteen to sixty years.
Permanent effects	Effects lasting over sixty years
Reversible effects	Effects that can be undone, for example through remediation or restoration.
Frequency of effects	Describe how often the effect will occur. (once, rarely, occasionally, frequently, constantly – or hour, daily, weekly, monthly, annually).

1.8.3.5. Interactions

Article 3(1) of the EIA Directive requires that the interaction between the environmental factors (population and human health, biodiversity, land, soil, water, air and climate, material assets, cultural heritage and the landscape) is identified, described and assessed in the EIAR.

The interactions assessment has been carried out with regard to the following guidelines:

- *EPA Guidelines on the information to be contained in Environmental Impact Assessment Reports (2022)*; and
- *The Guidelines for the Assessment of Indirect and Cumulative Impacts as well as Impact Interactions (EC, 1999)*.

The potential for interaction of effects has been assessed throughout this EIAR, as part of the overall impact assessment process described throughout Chapters 6 to 24 of the EIAR. These chapters detail the individual environmental baseline information and identify the significant potential and residual construction and operational and maintenance effects of the proposed Project. In addition, the potential for other environmental interactions are identified and the relevant impact either on, or from, these other aspects is analysed via data exchange between and assessment review by the relevant specialists and where required the design team. This process has been managed by the EIA coordinator when collating the integrated findings from the impact assessment process.

Chapter 25 Interactions provides a matrix indicating the significant interactions that are likely to occur between the various environmental topics along with a description of the potential interactions. Where any potential negative impacts have been identified as a result of interactions during the assessment process, these impacts have been avoided or reduced by design modifications and / or the implementation of proposed mitigation measures proposed in the specialist assessments. It is important to note that the interactions assessment considers only effects produced by the proposed Project, and not those from other projects (which are considered within Chapter 26 Cumulative Effects). Further detail on the approach and methodology for the assessment of interactions is provided in Chapter 25 Interactions.

1.8.3.6. Mitigation and Monitoring

Article 5(1) of the EIA Directive requires that “a description of the features of the project and/or measures envisaged in order to avoid, prevent or reduce and, if possible, off set likely significant adverse effects on the environment” should be included in the EIAR.

The iterative approach to the impact assessment process for the proposed Project involves a feedback loop. A specific impact, and the significance of the resulting effect, is initially assessed and, if this is deemed to be a significant adverse effect in EIA terms, changes are made (where practicable) to the design in order to avoid, reduce or offset the magnitude of that impact or mitigation measures are proposed for implementation during the phases of the proposed Project. The assessment is then repeated, and the process continues, until:

- The effect has been reduced to a level that is not significant in EIA terms; or

- Having regard to other constraints, no further changes to the design in order to reduce the magnitude of impact (and hence significance of effect) are feasible. In such cases, an overall effect that is still significant in EIA terms may be presented in the EIAR as a residual impact.

1.8.3.7. Cumulative Impact Assessment

Annex IV of the EIA Directive sets out the information referred to Article 5(1)(e) of the EIA Directive and inter alia includes:

“A description of the likely significant effects of the project on the environment resulting from, inter alia:

“(e) the cumulation of effects with other existing and/or approved projects taking into account any existing environmental problems relating to areas of particular environmental importance likely to be affected or the use of natural resources;”

Annex IV also notes *“The description of the likely significant effects on the factors specified in Article 3(1) should cover the direct effects and any indirect, secondary, cumulative, transboundary, short-term, medium-term and long-term, permanent and temporary, positive and negative effects of the project. This description should take into account the environmental protection objectives established at Union or Member State level which are relevant to the project.”*

A fundamental requirement of undertaking cumulative impact assessment (CIA) is to identify those projects, plans or activities with which the proposed Project may interact to produce a cumulative impact. These interactions may arise during the construction or operational and maintenance phases. This process is referred to as ‘screening’. A process is applied to methodically and transparently screen the projects and activities that may be considered cumulatively alongside the proposed Project. This involves a staged process that considers the level of detail available for projects and activities, as well as the potential for interactions on a conceptual, physical and temporal basis.

Further explanation of the staged approach to CIA and the cumulative impacts within the proposed Project in respect of each of the environmental factors are identified and addressed in Chapter 26 of this EIAR.

1.9. Difficulties Encountered / Limitations

This EIAR has been prepared on the best available information and in accordance with current best practice and relevant guidelines.

It must be noted that due to the unprecedented Covid-19 pandemic, Government restrictions during both 2020 and 2021 presented unique challenges for the project team to progress the EIAR. In March 2020, Ireland began imposing restrictions on movement in order to combat the spread of Covid-19. Most workplaces, shops and schools were closed, and all unnecessary travel beyond 5km from home was discouraged. The compilation of the information necessary for the EIAR (including environmental surveys and traffic counts) was carried out at times when travel restrictions had been eased and lifted and subsequently did not present any significant difficulties.

The Covid-19 pandemic and the associated Government restrictions on passenger car and public transport journeys has had impacts on travel patterns and traffic flows. As a result, some assumptions and projections were necessary for certain areas of this assessment, particularly the traffic assessments. Survey work has been undertaken to compliment data from official sources to provide reliable and up-to-date base line information on which to undertake the environmental assessments.

Due to the public health restrictions, in-person consultation was not permitted for the public consultation events for the project. Public participation during the design development process for communities along the route was facilitated through a series of webinars.

Any topic specific difficulties encountered beyond those presented above have been noted within the specialist Chapters 6-24 of this EIAR.

1.10. Structure of the Environmental Impact Assessment Report

The overall EIAR is arranged in four volumes as follows:

- Volume 1: Non-technical Summary
- Volume 2: Main Environmental Impact Assessment Report
- Volume 3A: Technical Figures
- Volume 3B: Photomontages
- Volume 4: Appendices

1.11. EIA Project Team

The 2001 Act and Article 5(3)(a) of the 2014 EIA Directive requires that “*the developer shall ensure that the environmental impact assessment report is prepared by competent experts*” to ensure the completeness and quality of the EIAR. In this regard, the EIAR and Railway Order are being prepared on behalf of Córas Iompair Éireann (“the Applicant”), by RPS and TTA-JV with inputs from a team of competent, technical experts who have the knowledge and understanding to assess the potential impacts associated with the proposed Project and develop mitigation measures and propose monitoring where required.

Table 1.4 below outlines the qualifications and expertise of the key members of the project team who were involved in the preparation of this EIAR.

Table 1.4: Qualifications and Experience of EIA/Competent Experts

Specialist	Qualifications	Responsibility and Relevant Experience
Dr. Antonia Gaughran (RPS)	BSc (Hons) PhD MIEnvSc	EIA Co-ordinator: Dr. Antonia Gaughran is a Technical Director with RPS with over 22 years' experience in the field of environmental assessment of infrastructural projects and plans. Antonia has input to statutory processes and co-ordinated statutory environmental documentation to support consent applications for major infrastructural projects in Ireland. Antonia has a PhD dealing with ecological subject matter and holds an Advanced Diploma in Planning and Environmental Law.
Caitriona Reilly (RPS)	(BSc (Hons), HDipGIS, Dip Acoustics & Noise Control, IDipNEBOSH, AMIOA, MIEnvSc)	EIA Co-ordinator and Major Accidents & Disasters: Caitriona Reilly is a Principal Scientist with RPS with over 18 years' experience in environmental assessment. She has acted as Environmental Manager and EIA coordinator for a range of linear and non-linear projects, which requires the coordination of technical specialists, management of subcontractors, client liaison and stakeholder engagement.
Justin Xantho (Atkins)	CEng MIEI, AMSAICE	Traffic & Transportaion: Justin Xantho is a Senior Engineer in the Highways & Transportation Department with Atkins. He has 23 years of experience in the planning and design management of civil engineering infrastructure. He is the Highways and Transportation Discipline Lead for the design team on the DART+ South West Project.
Michael Higgins (RPS)	BA (Hons) MSc, HDip, MIPI, CIHT	Traffic & Transportaion: Michael Higgins is an experienced Transport and Urban Planner working with the Planning Team in RPS with over 12 years' experience. He holds a BA in Economics and English, an MSc in Regional and Urban Planning and a HDip in Education. He is a corporate member of the Irish Planning Institute (IPI) and a member of the Institute of Highways and Transport (IHT). He has worked on a diverse portfolio of land use, transportation and development projects in both the public and private sectors in Ireland and the UK and has experience in the areas of Planning, Transport and Land Use Assessment, Mobility Management Plans, EIARs and Site Development Appraisals.
Valerie Brennan (RPS)	BA International (Hons), H Dip Ed, MSc, MRTPI MIPI	Population: Valerie is the Planning Business Unit Director of the planning unit with RPS. She is a Chartered Town Planner and is currently the Chair of the Royal Town Planning Institute. Valerie has over 18 years professional planning experience advising on a wide range of strategic infrastructure, commercial and renewable energy projects in the areas of project management, feasibility studies, masterplans, environmental impact assessment management, statutory approval procedures, planning appeals, stakeholder and public

Specialist	Qualifications	Responsibility and Relevant Experience
		consultation.
Carl Mogensen (RPS)	BSc, MSc, CIEE, Dip	Population: Carl is a Senior Planner and Urban Designer with the RPS Planning team with 9 years of experience. Carl has coordinated and prepared EIAR including the preparation of planning, socio-economic and population and community impact assessments.
Dr Miles Newman (RPS)	BSc, MSc, PGDip, PhD, CEnv, MCIEEM	Biodiversity: Dr Miles Newman is a Senior Ecologist in RPS with over 12 years of experience. He provides key ecological input into Environmental Impact Assessment projects including ecological surveying and coordination, ecological impact assessment, mitigation strategy development, ecological clerk of works, long-term site management plans, and operational stage surveying and reporting.
Eoin Hurst (RPS)	BE (Hons), DIC, MSc	Land & Soils and Hydrogeology: Eoin Hurst is a Senior Engineer in RPS with over 12 years' experience working in the fields of civil and environmental engineering, environmental impact assessment, contaminated land assessment and remediation, environmental due diligence and geology and hydrogeology. He has extensive international experience in the management and technical assessment of large-scale brownfield site investigation and remediation projects, environmental infrastructure assessments, feasibility studies, policy assessment and development, and permitting and regulatory compliance. Eoin has experience in the preparation and coordination of EIA and EIA with specialist knowledge of CEMP development, preparation of chapters on the topics of land, soils, geology, hydrogeology and hydrology, as well as experience with on-site assessment methods and in relation to enforcement of planning conditions.
Dr Uzzal Mandal (RPS)	BSc MSc Ph.D. CEng MIEI MIAHS	Water (Hydrology & Flood Risk): Dr Uzzal Mandal is an Associate in RPS with over 31 years' experience in hydrology, flood risk assessment, hydraulic modelling and detailed design of flood relief and highway drainage works in both Ireland and outside of Ireland. He has carried out hydrological impact assessments and detailed designs of the hydrological and hydraulic aspects of a number of major road and gas field development projects. He has carried out flood risk assessments for several major commercial and residential developments.
Paul Chadwick (RPS)	BA (Hons), MPhil, AIEMA	Air Quality & Climate: Paul Chadwick is a Technical Director in RPS with over 22 years' experience. Paul specialises in the fields of air quality and climate and risk assessment. He has considerable experience, both academic and professional, in

Specialist	Qualifications	Responsibility and Relevant Experience
		<p>ambient air quality and a wide range of atmospheric pollutants. As a result of two years research in atmospheric chemistry, he has an in-depth knowledge of the chemical and physical transformations associated with local and regional air pollution and climate change.</p>
John Mahon (RPS)	PhD Acoustics and Vibration; BA BAI (Hons) Mechanical Engineering; CEng. MIEI; MIA	<p>John Mahon is an Associate at RPS and a Chartered Engineer. John holds a BA BAI in Mechanical Engineering and PhD in Acoustics and Vibration, both from Trinity College Dublin. John has 18 years' experience in environmental projects including planning applications and environmental impact assessments for a wide range of strategic infrastructure projects including linear transport projects. He has contributed to Irish wind energy association planning group and provided expertise on the area of wind turbine noise. He also sits on the Irish Committee for Standardization CEN/TC226/WG 6 in relation to Road traffic noise reducing devices.</p>
Eugene McKeown (RPS)	BE, LLB, MSc, CEng, MIOA, MASA, FIEI	<p>Noise & Vibration: Eugene McKeown is a Senior Associate at RPS and a Chartered Engineer. Eugene holds a BE in Mechanical Engineering, an LLB and a MSc in Applied Acoustics. Eugene specialises in the fields of airborne noise, underwater noise and vibration and has over 40 years' experience on airborne and underwater acoustic modelling, designing and operating large scale acoustic monitoring systems. Eugene has prepared noise models and undertaken noise impact assessments for major road projects, wind farms, electrical grid infrastructure, energy plants, marine infrastructure, wastewater treatment plants and industrial sites.</p>
Eimear O'Connor (RPS)	B Agr Sc (Hort), MLA, MILI, MLI (UK)	<p>Landscape and Visual: Eimear O'Connor is a Principal with RPS with over 20 years of experience. She has considerable experience in landscape and visual impact assessment for EIA as part of the planning consent process for a range of linear and non-linear projects in power, mining and minerals, transport and industrial sectors. She provided advice on projects at options appraisal stage and also detailed design stage, has expertise in landscape design and landscape mitigation strategies as part of the EIA process.</p>
Darragh Malone (Atkins)	BEng (Hons) DIS CEng MIEI	<p>Material Assets: Agricultural and Non-Agricultural Properties and Utilities: Darragh Malone is an Associate Director in Atkins Ireland. He has 16 years of experience leading large scale projects across the Energy and Transportation Sectors. He has significant experience in managing utilities in the planning and design of urban and rural roads schemes. He is the Utilities Discipline Lead for the</p>

Specialist	Qualifications	Responsibility and Relevant Experience
		design team on the DART+ South West Project. Darragh has also worked closely with Iarnród Éireann's Property Referencing Team to develop the schedules for the Railway Order and attend meetings with IE and property owners and residents, as required for the Project.
Conor McGovern (RPS)	BSc (Hons), MSc (MEM), MIEI, MCIWM	Waste Management: Conor McGovern is an Associate with RPS specialising in resource and waste management, energy and sustainability. He holds BSc in Environmental Science, an MSc in Engineering Management, a National Diploma in Pollution Assessment and Control, and a National Certificate in Applied Chemistry. He has over 22 years' experience working and advising on waste management projects with a focus on waste, biowaste and bioenergy, market development and regulatory compliance.
Siobhan Deery (Courtney Deery Heritage Consultancy)	MA(Hons), HDip, MIAI	Archaeology and Cultural Heritage: Siobhan Deery has over 23 years of experience in carrying out surveys and evaluations of archaeological monuments, buildings, sites and landscapes for the purposes of conservation, environmental impact assessment, management and development control. Siobhan has accumulated a significant knowledge in identifying and communicating to all interested parties the uniqueness of the character of cultural heritage in various landscapes and cityscapes and the issues surrounding the treatment, protection and promotion of archaeological and architectural sites and remains in these environments.
Rob Goodbody (Historic Building Consultants)	BA (Mod), MA, PGDip, DipABRC, MUBC,	Architectural Heritage: Rob Goodbody is an established Historic Building Consultants with over 30 years of experience. He has gained an array of qualifications in building conservation, history and environmental planning. These include a B.A., two postgraduate diplomas and two master's degrees. Rob is also a Member of the Irish Planning Institute and a Member and former director of ICOMOS Ireland. He spent nearly thirty years as a professional planner and has also been researching the histories of buildings and towns for more than thirty years. Rob established Historic Building Consultants in 2003 and has prepared detailed reports for clients throughout Ireland. Work has included architectural heritage inputs to EIS for a large number of roads and cycleways, including works on railways, canals and bridges.
Richard Williams (Atkins)	BEng (Hons), MSc Electrical Energy Systems, MIET	Electromagnetic Compatibility & Stray Current: Richard Bryn Williams is a Senior Electrical Engineer within the Electrical Systems practice of SNC-Lavalin's Atkins UK. He has over ten years' experience of Electromagnetic Compatibility and Earthing and Bonding as well as the

Specialist	Qualifications	Responsibility and Relevant Experience
		<p>application of Engineering Safety Management within the context of railway operation and systems integration. Richard has led the design and assurance processes across a variety of diverse projects for a range of clients; both national and international. He has developed a working knowledge of technical assurance and validation processes required at multiple stages of various rail infrastructure projects Richard spent two years based in the USA, as the Lead EMC Engineer; developing technical assurance and acting as the client representative on the MTA Purple Line Project. He has also worked on Systems Integration Team for HS2. Prior to joining Atkins, Richard studied at Cardiff School of Engineering, graduating with a BEng in Electrical Engineering and an MSc in Electrical Energy Systems.</p>
<p>Ryngan Pyper (RPS)</p>	<p>BA & MA (Hons), PGDip Public Health, GDip Law, PGDip Legal Practice</p>	<p>Human Health: Ryngan Pyper is the Director of Health and Social Impact at RPS. Ryngan has over 15 years' experience as a professional consultant and works across the fields of public health, environmental science and impact assessment. Ryngan provides health input into EIA for major infrastructure schemes including road transport. He also advises Government and professional bodies on good practice. Ryngan has advised the World Health Organization on addressing health in EIA and in 2021 was involved in the updated HIA Guidance for Ireland and Northern Ireland for the Institute of Public Health (IPH), incorporating the most recent developments and best practice in the field. Ryngan is the current chair of the health section of the International Association for Impact Assessment.</p>

1.12. Consultation

Consultation during the design development and the environmental impact assessment process is a key element of any project. Consultation can take many forms and have many functions over the course of a project of this type. The main types of consultation carried out over the course of the project included:

- An Bord Pleanála Pre-application Consultation: Formal engagement with the Bord over nine meetings between April 2021 –September 2022.

These meetings presented information to the Board on the emerging design, environmental issues and stakeholder engagement. A summary of the information presented is provided in the Planning Report which is included as a separate document to this EIAR and the environmental issues discussed at the nine meetings is provided in Volume 4, Appendix 1.6 of this EIAR.

- Public Consultation: undertaken at three key stages in the design process as follows:
 - Public Consultation 1 (PC 1) on the Emerging Preferred Option - Non-statutory public consultation (12th May 2021 to 23rd June 2021).
 - Public Consultation 2 (PC 2) on the Preferred Option - Non-statutory public consultation (10th November 2021 to 17th December 2021).
 - Public Consultation 2 follow up with potentially impacted property owners (throughout 2022).

The material presented for PC1 and PC2, along with the findings from these consultations and the subsequent follow up consultations with potentially impacted property owners are recorded in three related reports: Public Consultation Findings Report 1 (2021); Public Consultation Findings Report 2 (2022) and Public Consultation 2 Addendum Report (2022). These three reports are presented in Appendix 1.3, Appendix 1.4 and Appendix 1.5 in Volume 4 of this EIAR. A summary of the findings is also presented in Chapter 3 of Alternatives, Section 3.4.

- EIA Scoping Consultation: Informal EIA Scoping was undertaken in parallel with but separate to PC 2 consultation between 10th November 2021 and 17th December 2021.

An EIA Scoping Report (Appendix 1.1 in Volume 4 of this EIAR) was prepared for the DART+ South West Project and sent to environmental stakeholders to inform the consultation. Responses received and how they have been addressed in this EIAR are summarised in Appendix 1.2 in Volume 4 of this EIAR.

- Technical Engagement with Stakeholders: Ongoing throughout the design development and EIA process to gather data, provide information and consult on emerging issues.

The wider project team undertook engagement with a range of stakeholder on key technical issues. Technical engagement was undertaken in particular with the three Local Authorities along the length of the route - Kildare County Council, South Dublin County Council and Dublin City Council. The wider project team met with various departments on issues including but not limited to: traffic and transport, built heritage, water and drainage and flood risk. The outcome of these meetings fed directly into the design development and the scope of the EIAR. Other bodies were also consulted with on specific issues e.g. OPW, Waterways Ireland. Table 1.5 below provides a summary of the technical engagement carried out. Specific consultations relevant to the environmental factors are presented in Chapters 6-24 of the EIAR.

Table 1.5: Summary of Technical Engagements

Consultee	Date of Meeting	Purpose of Meeting
Kildare County Council (Members & Executive)	5 meetings from November 2020 – August 2022	Online meetings via Microsoft Teams which included Introduction Presentation on DART + Programme, discussions with various departments on the Emerging Preferred Option, Preferred Option overview.
South Dublin County Council (Members & Executive)	6 meetings from November 2020	Online meetings via Microsoft Teams which included Introduction Presentation on DART + Programme, discussions with various

Consultee	Date of Meeting	Purpose of Meeting
Executive)	to August 2022	departments at various stages of the Project including Emerging Preferred Option, Preferred Option stage, present Substation location.
Dublin City Council	24 meetings from October 2020 to Oct 2022	Online meetings via Microsoft Teams which included Introduction Presentation on DART + Programme, discussions with Planning, Transport and Traffic, Archaeology, Conservation, Drainage, Architects and Property Teams at various stages of the Project including Emerging Preferred Option, Preferred Option stage.
Mid-Eastern Regional Authority	1 meeting in June 2021	Online meeting via Microsoft Teams which included discussion with planning department
Bus Connects	3 meetings from October 2020 to February 2021	Online meetings via Microsoft Teams which included Introduction meeting, discussions with Transport and Civils teams of BusConnects at various stages of the Project including Emerging Preferred Option, Preferred Option stage.
National Transport Authority	7 meetings from September 2020 to February 2021	Online meetings via Microsoft Teams which included discussions with various departments on Optioneering, MCA updates and consultation materials
Transport Infrastructure Ireland	3 meetings from May 2021 to September 2022	Online meetings via Microsoft Teams which included discussions with Transport and Civil, and Property teams of TII relating to impacts on M50 Bridge at Park West
Waterways Ireland	1 meeting October 2021	Online meeting via Microsoft Teams which included discussion on the Royal Canal Crossing, Flood Risk Assessment (FRA) and data request for the FRA.
Office of Public Works	1 meeting August 2022	Online meeting via Microsoft Teams which included discussion on impact on Phoenix Park and other OPW properties.

1.12.1. RO Statutory Consultation

The EIAR will accompany an application to the Board wherein it will be circulated to statutory stakeholders and made available to the public for consultation prior to any decision being made.

Section 40 of the 2001 Act details the notification and publication process which is carried out before an application is made by CIÉ for a Railway Order. This includes:

- Depositing – and keeping deposited – at places which are accessible to the public as directed by An Bord Pleanála, a copy of the draft order RO and all documents accompanying the application, for not less than 6 weeks following the publication of the notice referred to in section 40(1)(b) of the 2001 Act.
- Publishing a notice in one or more newspapers circulating in the area to which the Railway Order relates:
 - indicating that an application will be made for an order.

- indicating the time and the place or places at which, and the period (which shall be 6 weeks) during which, a copy of the draft order and accompanying documents deposited under section 40 may be inspected.
 - stating that An Bord Pleanála will consider any submissions in relation to the proposed order or in relation to the likely effects on the environment of the proposed railway works which are submitted in writing to it by any person within the 6 week consultation period.
 - stating that a copy of or extract from the draft order and accompanying documents may be purchased on payment of a fee not exceeding the reasonable cost of making such copy or extract stating, if it be the case, that the proposed railway works are likely to have significant effects on the environment in Northern Ireland.
 - stating that a person may question the validity of a decision of An Bord Pleanála by way of an application for judicial review, under Order 84 of the Rules of the Superior Courts (S.I. No. 15 of 1986).
 - identifying where practical information on the review mechanism can be found.
- Serve on the planning authority/planning authorities in whose functional area(s) (or any part thereof) the proposed railway works are proposed to be carried out, on the Minister for Transport and on such other persons (if any) as An Bord Pleanála may direct a copy of the draft order and accompanying documents and the notice referred to in section 40(1)(b) of the 2001 Act.
 - Serve a copy of the newspaper notice together with relevant extracts from the documents referred to in section 40(1)(a) of the 2001 Act on every occupier and every owner of a land referred to in the draft order.
 - Members of the public and any other body can make a submission or observation in writing in relation to the RO application, including the EIAR and the compulsory purchase order and supporting documents.
 - An Bord Pleanála may request further information. If the response to the further information contains significant data in relation to the likely effects on the environment of the proposed Project, An Bord Pleanála must direct CIÉ that the information is put on a further public consultation for at least three weeks. Valid submissions received will be considered by An Bord Pleanála as part of the decision-making process.
 - It is at the discretion of An Bord Pleanála whether or not an oral hearing will be held.
 - After the Oral Hearing An Bord Pleanála will prepare an assessment of the proposed development and will decide whether to grant, grant in part or refuse the RO. An approved RO is required to construct and operate the proposed development and for the necessary compulsory purchase order arrangements.

1.13. References

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