

Volume 5: Wider Scheme Aspects

Chapter 32

Population and Human Health

Contents

32.	Population and Human Health	32.1
32.1	Introduction	32.1
32.2	Methodology	32.2
32.3	Baseline Environment	32.9
32.4	Characteristics of the Proposed Development	32.16
32.5	Potential Effects	32.16
32.6	Mitigation and Monitoring Measures	32.26
32.7	Residual Effects	32.27
32.8	Transboundary Effects	32.28
32.9	Cumulative Effects	32.28
32.10	References	32.28

Tables

Table 32.1	IEMA Health Sensitivity Methodology Criteria	32.8
Table 32.2	IEMA Health Magnitude Methodology Criteria	32.9
Table 32.3	IEMA Generic Indicative EIA Significance Matrix and corresponding EPA significance terminology	32.9
Table 32.4	Population – Main Settlements (Source: CSO)	32.12
Table 32.5	Age Profile Census 2022. Source: CSO	32.13
Table 32.6	Type of household occupancy Census 2022. Source: CSO	32.13
Table 32.7	Social Class/Workforce Census 2022. Source: CSO	32.13
Table 32.8	Perception of Health Census 2022. Source: CSO	32.14
Table 32.9	Summary of Construction Residual Effects	32.27
Table 32.10	Summary of Operational Residual Effects	32.27

32. Population and Human Health

32.1 Introduction

An assessment of likely significant effects from the North Irish Sea Array (NISA) Offshore Wind Farm (hereafter referred to as the ‘proposed development’) has been undertaken for this Environmental Impact Assessment Report (EIAR). This chapter of the EIAR presents an assessment of likely significant effects on population and human health during its construction, operation and decommissioning phases.

This chapter sets out the methodology followed (Section 32.2), describes the baseline environment (Section 32.3) and summarises the main characteristics of the proposed development which are of relevance to the population and human health assessment (Section 32.4) including any embedded mitigation. Potential impacts and relevant receptors are identified, and an assessment of likely significant effects of the proposed development on population and human health is undertaken, details of which are provided (Section 32.5). Additional mitigation measures are proposed to mitigate and monitor these effects if required (Section 32.6) and any residual likely significant effects then are described (Section 32.7). Transboundary effects are also considered (Section 32.8) with cumulative effects summarised in Section 32.9 and detailed in Chapter 38 Cumulative and Inter-Related Effects (hereafter referred to as the Cumulative Effects Chapter).

The EIAR includes the following:

- Detail on the competent experts that have prepared this chapter is provided in Appendix 1.1 in Volume 8
- Detail on the extensive consultation that has been undertaken with a range of stakeholders during the development of the EIAR including those relating to socio-economic, tourism and recreation is set out in Appendix 1.2; and
- A glossary of terminology, abbreviations and acronyms is provided at the beginning of Volume 2 of the EIAR

A detailed description of the proposed development including construction, operation and decommissioning is provided in Volume 2, Chapter 6: Description of the Proposed Development – Offshore (hereafter referred to as the ‘Offshore Description Chapter’) and Volume 2, Chapter 7: Description of the Proposed Development – Onshore (hereafter referred to as the ‘Onshore Description Chapter’). The construction methodology is described in Volume 2, Chapter 8: Construction Strategy – Offshore (hereafter referred to as the ‘Offshore Construction Chapter’) and Volume 2, Chapter 9: Construction Strategy – Onshore (hereafter referred to as the ‘Onshore Construction Chapter’)

This population and health assessment should be read in conjunction with following EIAR chapters:

- Volume 4, Chapter 21: Land, Soil, Geology and Hydrogeology (hereafter referred to as the Land and Soils Chapter)
- Volume 4, Chapter 22: Water (hereafter referred to as the Water Chapter)
- Volume 4, Chapter 24: Traffic and Transportation (hereafter referred to as the Traffic and Transportation Chapter)
- Volume 5, Chapter 27: Air Quality (hereafter referred to as the Air Quality Chapter)
- Volume 5, Chapter 29: Seascape, Landscape and Visual (hereafter referred to as the Seascape, Landscape and Visual Chapter)
- Volume 5, Chapter 30: Noise and Vibration (hereafter referred to as the Noise Chapter)
- Volume 5, Chapter 33: Socio-economic, Tourism and Recreation (hereafter referred to as the Socio-Economics Chapter); and
- Volume 5, Chapter 34: Major Accidents and Disasters (hereafter referred to as the Major Accidents and Disasters Chapter)

32.2 Methodology

This section presents the study area and appraisal method for the assessment of effects on population and human health. The methodology has been informed by relevant guidance on health impact assessment (HIA) including:

- Health Impact Assessment Guidance: A Manual. Institute of Public Health (IPH), 2021
- Institute of Environmental Management and Assessment (IEMA) Guide to Effective Scoping of Human Health in Environmental impact Assessment, November 2022
- Institute of Environmental Management and Assessment (IEMA) Guide to Determining Significance for Human Health in Environmental Impact Assessment, November 2022

32.2.1 Study Area

The study area for the population and human health assessment comprises the onshore communities that are potentially affected by the proposed development through its impacts on health determinants and community resources. Effects on marine users have been assessed separately in Volume 3, Chapter 16: Commercial Fisheries and Chapter 17: Shipping and Navigation.

Effects on population and human health arise as a result of a range of impacts on health determinants and/or community resources. The term “impacts” is therefore generally used in health assessment to describe health determinants and the term “effects” is used to describe impacts or effects on health. These occur over different geographic areas and therefore the study area varies depending on the nature of the impact giving rise to the population and human health effect. The areas considered are as follows:

- Impacts on economic determinants of health such as employment may occur at regional and national level, as described in the socio-economic assessment in Chapter 33
- Impacts on environmental amenity may occur as a result of combined environmental effects across a range of geographic levels, as defined by the study areas for the following environmental assessment topics:
 - The air quality assessment (Air Quality Chapter) considers sensitive receptors within 250m of the proposed development
 - The visual impact assessment (Seascape, Landscape and Visual Chapter) considers sensitive receptors within 3km of above ground features, 500m for underground cable routes and 40km for offshore elements; and
 - The noise assessment (Noise Chapter) considers sensitive receptors within 300m of any works within the onshore development area and those onshore sensitive receptors closest to the offshore development area
- Impacts on accessibility and journey pattern are considered at the local community level. The study area defined in the traffic and transport assessment (Traffic and Transportation Chapter) comprises the road network along which the underground cable will be constructed, the road network providing access to the temporary construction compounds and proposed temporary partial and full road closures and associated diversion routes. Accessibility and journey pattern impacts may be experienced by the communities using these routes and therefore the population and health assessment study area includes the residential neighbourhoods and community resources that principally rely on the affected road network.

32.2.2 Relevant Guidance

This assessment has been undertaken with due regard to the following guidance documents:

- Environmental Protection Agency (EPA) (2022) *Guidelines on the Information to be contained in Environmental Impact Assessment Reports* (EPA Guidelines)
- European Commission (2017) *Environmental Impact Assessment of Projects: Guidance on the preparation of the Environmental Impact Assessment Report* (EC Guidance)

- Institute of Public Health (IPH) (2021) *Health Impact Assessment Guidance: A Manual* (IPH HIA Guidance)
- Institute of Environmental Management and Assessment (IEMA) (2022) *Guide to Determining Significance for Human Health in Environmental Impact Assessment* (IEMA Guide to Health in EIA)

The EPA Guidelines are described in Volume 2, Chapter 3: EIA and Methodology for Preparation of the EIAR. Guidance is provided on the interpretation of ‘Population and Human Health’ as referred to in EIA Directive 2014/52/EU.

The EC Guidance states: *‘Human health is a very broad factor that would be highly Project dependent. The notion of human health should be considered in the context of other factors in Article 3(1) of the EIA Directive and thus environmentally related health issues (such as health effects caused by the release of toxic substances to the environment, health risks arising from major hazards associated with the Project, effects caused by changes in disease vectors caused by the Project, changes in living conditions, effects on vulnerable groups, exposure to traffic noise or air pollutants) are obvious aspects to study.’*¹

The IPH HIA Guidance provides guidance on defining sensitivity and references information contained in the baseline, such as age profile, deprivation, economic activity, health conditions and access to services.

The IPH HIA Guidance recommends an approach to health assessment based on the World Health Organization (WHO) definition of health as *‘a state of complete physical, mental and social wellbeing and not merely the absence of disease or infirmity’* and on the principle that *‘community health is determined by behavioural choices, by social, environmental and economic conditions and by access to quality healthcare services’*. These factors are termed ‘health determinants.’ The IPH HIA Guidance supports a qualitative approach to health assessment based on the magnitude of impacts to health determinants and the sensitivity of receptor communities, drawing on evidence and quantitative information, including that from other EIA topics.

The IEMA Guide to Health in EIA presents a framework that supports a proportionate approach to assessing the significance of health effects, which can apply to all scales of EIA. The IEMA Guide to Health in EIA describes the principles of health assessment, includes assessing effects on health at population level (as opposed to individual level) and consideration of effects on health inequalities and vulnerable groups. It sets out a qualitative approach to assessing significant health effects arising from impacts on health determinants, including criteria for assessing the magnitude of impacts and the sensitivity of receptor populations.

32.2.3 Data Collection and Collation

Baseline data on the sensitive community receptors present in the study area and the demographic, social and health characteristics of the affected population was collected by means of:

- Primary data sources (e.g., demographic data from Census 2022 and Census 2016 produced by the Central Statistics Office (CSO))
- Spatial data, including Google Maps and Google Streetview, Open Street Map, Department of Education school maps
- Relevant environmental data collected by other disciplines during the preparation of the EIAR; and
- Information contained in the Fingal County Development Plan 2023-2029 and Dublin City Council Development Plan 2022-2028 (further details in Volume 2, Chapter 3: Legal and Policy Framework)

¹ Environmental Impact Assessment of Projects: Guidance on the preparation of the Environmental Impact Assessment Report, European Commission, 2017 <http://ec.europa.eu/environment/eia/eia-support.htm>

32.2.4 Scope of Assessment

32.2.4.1 Population Assessment Scope

Population Receptors

The types of resources that are considered as ‘sensitive receptors’ for the population assessment include the following:

- Homes (including care homes and other residential facilities)
- Community assets, including (but not limited to):
 - Hospitals, medical centres and GP practices
 - Schools and educational facilities
 - Community centres and village halls
 - Sports and leisure facilities
 - Local neighbourhood centres providing shops, banks, post offices etc; and
 - Restaurants, cafes and other hospitality facilities.
- Community land, including (but not limited to):
 - Parks and playgrounds
 - Public open spaces
 - Beaches and publicly accessible coastline; and
 - Allotments
- Local businesses; and
- Public rights of way and permissive routes

Hotels and holiday accommodation are considered in the Socio-Economics Chapter.

Population Effects

The population assessment considers the likely significant impacts of the proposed development on the following factors:

- **Accessibility and journey patterns:** Accessibility refers to people’s access to their homes, or to community facilities from their home or place of work, particularly as it affects facilities used by older people, children, or other vulnerable groups such as those with limited mobility and/or disabilities. For a development of this nature, effects on journey patterns may arise due to additional traffic movements, traffic restrictions, road closures and diversions. Affected receptors will include drivers, public transport users, cyclists, and pedestrians using the affected routes to access their homes or community facilities.
- **Amenity:** Amenity effects arise from the proximity to construction works or disturbance during operation or decommissioning as it affects the pleasantness and perceived safety of the environment for walking and cycling, leisure and day-to-day activities. Amenity effects arise due to a combination of environmental effects such as noise or visual intrusion and increased traffic. Mitigation measures proposed by the relevant topic assessments are taken into account and therefore the residual effects of these topics are considered in the assessment of amenity.

This assessment of population effects is based on the residual effects identified in the traffic and transport, noise, air quality and visual assessments, taking into account of committed mitigation measures identified for these topics.

The proposed development will not give rise to direct effects on population receptors resulting from land take and demolitions; therefore, such effects are not considered further in the assessment.

32.2.4.2 Human Health Assessment Scope

Human Health Receptors

In accordance with the IEMA Guide to Health in EIA, the assessment considers effects on population health, as opposed to individual health. Population health refers to the health outcomes of a group of individuals, including the distribution of such outcomes within the group. The IEMA Guide notes that:

‘EIA analysis [of health effects] at the level of individuals would likely mean that all determinants of health conclusions, positive or negative, would be significant on all projects because of the effects to some particularly sensitive individuals. This would be contrary to supporting decision-makers in identifying the material issues’.

The assessment will also consider sub-groups within the population, who may be particularly vulnerable to changes in biophysical and socio-economic factors (adversely or beneficially) whereby they could experience differential or disproportionate effects when compared to the general population.

The receptor populations considered in the human health assessment include:

- The populations of Counties Dublin and Fingal and the wider Leinster Province, who may be affected by economic and employment impacts of the proposed development
- Residents of the towns and settlements potentially affected by amenity and accessibility impacts arising from the onshore infrastructure, including (but not limited to):
 - Settlements near Bremore beach, the landfall site and grid facility – Balbriggan
 - Settlements along the R132: Balbriggan, Balrothery, Seatown Park and Swords
 - Settlements along the R107, southwest of Malahide: Seabury, Streamstown, Abbeyville, Kinsealy, St Doolaghs and Balgriffin Park
 - Settlements along the R124: Drumnigh, Snugborough and Portmarnock; and
 - Northern suburbs of Dublin (within Dublin City Council (DCC) jurisdiction), along the R139: Darndale, Donaghmede & Belcamp Park
- Residents of the villages and rural properties along the onshore cable route, who are potentially affected by amenity and accessibility impacts; and
- Users of affected services and facilities such as parks and open spaces, hospitals, and schools

The vulnerable population sub-groups considered in the human health assessment include:

- Age-related groups: children and older people
- Income-related groups: people who are on low incomes, unemployed or economically inactive
- Health and disability-related groups: people with physical or learning difficulties, people with long-term health problems; and
- Geographical groups: people living in isolated areas, areas with poor access to services and facilities, or areas of high deprivation

Human Health Determinants

The scope of the human health assessment is based on the premise that health and wellbeing are influenced by a range of social, environmental and economic factors, termed the ‘wider determinants of health’ (or ‘health determinants’). Where significant changes in these factors are identified and potential pathways exist for exposure of the population to these changes, there is a potential for a health effect to occur.

In this Chapter, the term ‘impacts’ is used to refer to changes in the determinants of health and the term ‘effects’ is used to refer to changes in health outcomes.

In line with common practice, impacts on health determinants have been assessed based on the residual effects identified by other topics assessed in the EIAR, taking into account committed mitigation measures identified for those topics. The potential health effects resulting from these impacts are identified in Section 32.5 and are ‘pre-mitigation’ in terms of health-specific mitigation measures.

The human health assessment considers health effects arising from the likely significant impacts of the proposed development on the following health determinants:

- **Accessibility** impacts may arise due to changes in traffic flows and partial or complete closure and diversion of roads during the construction phase. Impacts on accessibility have the potential to affect health and wellbeing in the following ways:
 - **Access to services and facilities:** the ability to access health and social care services and basic needs such as food retail
 - **Access to employment and education:** the ability to access places of work, schools and colleges
 - **Social connections and lifestyle:** the ability to access social networks, sports and leisure facilities, parks and public open spaces; and
 - **Active travel:** the perceived safety and attractiveness of active travel modes such as walking and cycling
- **Amenity** impacts may arise from the combination of noise, air emissions, visual intrusion and traffic disruption, affecting people’s perception of the quality of their local environment. Amenity impacts have the potential to affect health and wellbeing in the following ways:
 - **Neighbourhood quality:** people’s attachment to and enjoyment of their local environment, its perceived quality and distinctive characteristics; and
 - **Green space:** the quality and tranquillity of green and blue space including parks, rural public rights of way, beaches and coastal walks
- **Economic** impacts (assessed in the Socio-Economics Chapter of the EIAR) have the potential to affect the following health determinants:
 - **Employment:** the direct creation or loss of jobs and associated effects on earnings, training and career opportunities; and
 - **Economic regeneration:** wider effects of inward investment in communities and associated social and economic benefits
- **Electromagnetic Fields:** exposure of the population to electromagnetic fields (EMF) in proximity to substations and the onshore cable route has the potential to affect physical health. (Refer also to Volume 11, Appendix 32.1 of the EIAR)

Effects on environmental determinants of health have been assessed in other chapters of the EIAR, as described below. These assessments consider effects on human receptors and therefore take account of health and wellbeing; therefore, these assessments have not been duplicated in the human health assessment. It is also noted that environmental assessments are undertaken at the level of individual sensitive receptors, whereas the human health assessment is concerned with population health. The potential for population-level health effects has been considered and determined not to lead to likely significant effects, either because the extent of exposure is not sufficient to give rise to population-level health effects, or because such effects will be prevented from occurring by committed mitigation measures identified in other assessments. For these reasons, the following issues have not been assessed further in this chapter:

- **Noise:** The impacts of noise on human receptors are assessed in the Noise Chapter. The noise assessment is based on thresholds defined in the relevant guidance and standards, which take into account the impact of noise on health and wellbeing, including quality of life (annoyance) and sleep disturbance.

The noise assessment identifies impacts on individual sensitive receptors rather than population-level impacts. Due to the nature and scale of the proposed development, there are no likely significant impacts on noise exposure at population-level. Therefore, no further assessment of likely significant population health effects arising from noise is required in this chapter. Residual noise effects are, however, considered as a contributing factor in the assessment of Amenity (see above).

- **Air Quality:** The impacts of air quality on human receptors are assessed in the Air Quality Chapter. The air quality assessment is based on thresholds defined in the relevant guidance and standards, which take account of (among other factors) the impacts of air pollutants on respiratory and cardio-vascular health. The air quality assessment identifies impacts on individual sensitive receptors rather than population-level impacts. Due to the nature and scale of the proposed development, there are no likely significant effects on air quality at population-level. Therefore, no further assessment of the effects of air pollutants on population health is required in this chapter. Residual air quality effects are, however, considered as a contributing factor in the assessment of Amenity (see above).
- **Landscape and visual:** The landscape and visual impacts of the proposed development are assessed in the Seascope Landscape and Visual Chapter. Effects on sensitive human receptors are assessed as described in Section 29.2.4.3 (Visual Receptor Sensitivity) of the Seascope, Landscape and Visual Chapter. This includes groups for whom visual impacts may contribute to wellbeing, such as: residents at home; people engaged in outdoor recreation, including use of public rights of way; and communities where views contribute to the landscape setting enjoyed by residents in the area. The assessment criteria are based on the value associated with views, including factors such as tranquillity, perceived naturalness, and sense of place. It is considered that the effects on wellbeing resulting from the visual impacts of the proposed development are fully assessed in the Seascope, Landscape and Visual Chapter and therefore no further assessment is required in this chapter. Residual visual impacts are, however, considered as a contributing factor in the assessment of Amenity (see above).
- **Ground and water contamination:** The Irish Government is required to protect the quality of surface waterbodies (including rivers, lakes, coasts and estuaries) to international standards and provide sufficient water to meet human needs, in line with the Water Framework Directive (WFD) (2000/60/EC). More stringent standards are applied to bathing waters through the Bathing Water Quality Regulations 2008 (S.I. 79 of 2008). An assessment of the potential impacts of the proposed development on surface water and groundwater quality is reported in the Land and Soils Chapter and in the Water Chapter and demonstrates compliance with the WFD and Bathing Water Quality Regulations. Impacts on soil contamination and land quality are also assessed in the Land and Soils Chapter, including an assessment of compliance with national and international regulations and standards to protect health. Therefore, no further assessment of health effects from ground and water contamination is required in this chapter.
- **Major Accidents and Disasters:** A risk assessment of potential major accidents and disasters arising as a result of the proposed development is reported in the Major Accidents and Disasters Chapter. This assessed the likelihood of accidents or disasters occurring and their consequences, including on human health, injury, and loss of life. Therefore, no further assessment of health effects from major accidents and disasters is required in this chapter.

32.2.5 Assessment Methodology

The assessment of population and human health effects follows the approach set out in the EPA Guidelines to identify likely significant effects. The broad approach to assessment is set out in Volume 2, Chapter 2: EIA and Methodology for Preparation of the EIAR (Section 2.6) of the EIAR. Topic-specific methodologies and criteria for the population and human health assessments are set out in the sections below.

32.2.5.1 Population Assessment Methodology

The assessment of the significance of population effects has been based on the magnitude of impact on a receptor and the sensitivity of the receptor.

Receptor sensitivity has been defined as high, medium, low or negligible, taking into account the following factors:

- Level of use of a resource – number of users, frequency of use, proportion of the local population using the resource
- Availability of alternatives to the affected resource, including consideration of access and capacity
- Type of users – whether users include sensitive receptors such as children, older people, people with health problems or disabilities etc.

Magnitude of impact has been defined as high, medium, low or negligible, taking into account the following factors:

- Nature of effect on a resource, e.g. direct (total or partial loss of resource) or indirect (e.g. effects on amenity or access)
- Duration of effect – temporary, short, medium or long term
- Frequency of effect – sporadic or continuous

The assessment of population effects has been guided by the Chart Showing Typical Classifications of the Significance of Effect, Figure 3.4 of the EPA Guidelines. Effects have been described using the terminology defined in the EPA Guidelines and set out in Volume 2, Chapter 2: EIA and Methodology for the Preparation of the EIAR (Table 2.3) of the EIAR.

32.2.5.2 Human Health Assessment Methodology

The IEMA Guide to Health in EIA provides guidance on determining the significance of health effects in EIA, based on an assessment of the magnitude of impacts on health determinants and the sensitivity of receptor populations.

In line with the IEMA Guide to Health in EIA, the health assessment considers the effects of the proposed development on population health (as opposed to individual health) and also considers effects on health inequalities and vulnerable groups.

The IEMA Guide to Health in EIA provides indicative criteria to inform judgements of magnitude and sensitivity, which are presented in Tables 32.1 and 32.2. It recommends that the use of these terms is supported by a narrative explaining the rationale for the assessment.

Table 32.1 IEMA Health Sensitivity Methodology Criteria

Category/Level	Indicative criteria (judgement based on most relevant criteria; it is likely in any given analysis that some criteria will span categories) <i>The narrative explains that the population or sub-population's sensitivity is driven by (select as appropriate):</i>
High	High levels of deprivation (including pockets of deprivation); existing wide inequalities between the most and least healthy; people who are prevented from undertaking daily activities; dependants; people with very poor health status; and/or people with a very low capacity to adapt.
Medium	Moderate levels of deprivation; existing widening inequalities between the most and least healthy; people who are highly limited from undertaking daily activities; people providing or requiring a lot of care; people with poor health status; and/or people with a limited capacity to adapt.
Low	Low levels of deprivation; existing narrowing inequalities between the most and least healthy; people who are slightly limited from undertaking daily activities; people providing or requiring some care; people with fair health status; and/or people with a high capacity to adapt.
Very Low	Very low levels of deprivation; existing narrow inequalities between the most and least healthy; people who are not limited from undertaking daily activities; people who are independent (not a carer or dependant); people with good health status; and/or people with a very high capacity to adapt.

Table 32.2 IEMA Health Magnitude Methodology Criteria

Category/Level	Indicative criteria (judgement based on most relevant criteria; it is likely in any given analysis that some criteria will span categories) <i>The narrative explains that the population or sub-he narrative explains that the magnitude of change due to the project is driven by (select as appropriate):</i>
High	High exposure or scale; long-term duration; continuous frequency; severity predominantly related to mortality or changes in morbidity (physical or mental health) for very severe illness/ injury outcomes; majority of population affected; permanent change; substantial service quality implications
Medium	Low exposure or medium scale; medium-term duration; frequent events; severity predominantly related to moderate changes in morbidity or major change in quality-of-life; large minority of population affected; gradual reversal; small service quality implications
Low	Very low exposure or small scale; short-term duration; occasional events; severity predominantly related to minor change in morbidity or moderate change in quality-of-life; small minority of population affected; rapid reversal; slight service quality implications
Negligible	Negligible exposure or scale; very short-term duration; one-off frequency; severity predominantly relates to a minor change in quality-of-life; very few people affected; immediate reversal once activity complete; no service quality implication.

The IEMA Guide to Health in EIA provides a matrix to guide the assessment of significance. It is noted that the matrix is a tool to assist with judgement and that there are no clear cut-off points between categories. The point at which an impact changes category is a professional judgement and should be supported by evidence and justification. The IEMA Guide sets out that any impacts that are identified as major or moderate should be considered significant and any that are minor or negligible should be considered as not significant.

Table 32.3 shows the matrix set out in the IEMA Guide. Corresponding EPA assessment terminology has been applied in this assessment. The IEMA terminology is shown in the table below, with corresponding EPA terminology.

Table 32.3 IEMA Generic Indicative EIA Significance Matrix and corresponding EPA significance terminology

		Sensitivity				
		IEMA / EPA terminology	High	Medium	Low	Very Low
Magnitude	High	IEMA	Major	Major/Moderate	Moderate/Minor	Minor/Negligible
		EPA	Very Significant	Very Significant / Significant	Significant / Moderate	Moderate / Slight
	Medium	IEMA	Major/Moderate	Moderate	Minor	Minor/Negligible
		EPA	Very Significant / Significant	Significant	Moderate	Moderate / Slight
	Low	IEMA	Moderate/Minor	Minor	Minor	Negligible
		EPA	Significant / Moderate	Moderate	Moderate	Slight / Imperceptible
	Negligible	IEMA	Minor/Negligible	Minor/Negligible	Negligible	Negligible
		EPA	Moderate / Slight	Moderate / Slight	Slight / Imperceptible	Slight / Imperceptible

32.3 Baseline Environment

An assessment of the receiving environment is necessary to predict the likely significance of the effects of the proposed development. Demographic data published by the Central Statistics Office (CSO) in Ireland helps to demonstrate the nature of the population near the proposed development and who could be affected during either the construction, operational or decommissioning phases.

32.3.1 Settlements and community facilities in the study area

The proposed development onshore is located within the jurisdictions of Fingal County Council (FCC) and Dublin City Council (DCC). The landfall site and grid facility are located north of Balbriggan and the onshore cable route passes through a number of towns and settlements, e.g. Balrothery, Swords, Malahide, Kinsealy before connecting into the national grid at the existing 220kV substation at Belcamp. The settlements are shown on the background mapping in Figure 7.3 (Volume 7).

The Dublin region is the economic centre of Ireland with global pharmaceutical, information and communications technology companies in the Greater Dublin Area (GDA). The main settlements in the study area include Balbriggan, Swords and Malahide, which are located within the FCC area, and Belcamp which is located within DCC.

Bus services intersect the proposed onshore cable route, providing links between Balbriggan, Balrothery, Courtlough, Five Roads, Lusk, Blakes Cross, Seabury, Swords and Dublin City Airport and Dublin City. These areas are also serviced by the Belfast-Dublin rail line and the Dublin Area Rapid Transit (DART) which provides commuter services.

32.3.1.1 Balbriggan

Balbriggan is a coastal town within the FCC jurisdiction. It is serviced by the Belfast-Dublin main line of the Irish rail network adjacent to the M1 motorway. Balbriggan offers a number of commercial and retail facilities, primary schools, secondary schools, leisure and cultural facilities. Given its coastal setting, Balbriggan is conducive to amenity and recreation and has a number of sports facilities. It has a substantial quantum of zoned land for high technology and general industrial development in the Fingal County Development Plan (2023-2029).

The landfall site is located to the north of Balbriggan, in an area which consists predominantly of agricultural land with relatively few dwellings in the vicinity. The grid facility will be located in the townland of Bremore, west of the R132 and north of the residential areas along Flemington Lane. The site is located on greenfield, agricultural land with a surrounding boundary of hedgerow and mixed vegetation. The immediate surrounding fields are in pasture, with two dwellings adjacent to the grid facility site (Refer to Figure 7.3 of Volume 7).

The proposed onshore cable route runs through Balbriggan along the R132, turns west and south along Harry Reynolds Road and joins back onto the R132 just south of Balbriggan. South of Balbriggan the route continues on the R132 past the town of Balrothery and the small settlement of Knock Cross. (Refer to Figure 7.3 of Volume 7).

Population and health receptors in proximity to the proposed landfall site, grid facility and onshore cable route in Balbriggan include (but are not limited to):

- Parks and open spaces, such as Glebe Park Balrothery and Knight's Playground in Balrothery
- Community Centres, such as Flemington Community Centre and Balbriggan Men's Shed
- Places of worship and cemeteries, including several churches located along the R132 Dublin Street in Balbriggan, and Balrothery Cemetery and St Peter's Church in Balrothery
- Sports facilities, such as O'Dwyers Gaelic Athletic Association (GAA) Club, Balbriggan Golf Club, Balrothery Football Club and Balrothery Tennis Club
- Healthcare facilities, such as Balbriggan Medical Centre, Yew Medical Centre and Bracken Clinic
- Care homes, such as Hamilton Park Care Facility
- Schools, such as St. Molagas National School, Loretto Secondary School, John Bailey Hall Secondary school and several preschools situated along the R132
- Beaches, such as Bremore Bay, Tankardstown Bay and Balbriggan Beach, Balbriggan Harbour, and the coastal path

- Allotments, including Balbriggan Community Allotments (c.500m to the northwest of the grid facility); and
- Residential communities in Balbriggan (c.300m to the south and east of the grid facility and adjacent to the R132)

32.3.1.2 *Rural communities in Fingal*

From Balrothery to Swords, the proposed onshore cable route follows the R32 through rural areas in the FCC jurisdiction. The route passes through the small settlements of Knock Cross and Corduff and passes a number of rural residential properties.

Population and health receptors in proximity to the proposed onshore cable route include (but are not limited to):

- Corduff National School in Corduff village

32.3.1.3 *Swords*

Swords is a large town in the FCC jurisdiction, situated ten kilometres north of Dublin city centre. It is located adjacent to the key gateways of Dublin Port, via Dublin Port Tunnel, and Dublin Airport, two important gateways to the country. With the announcement of the indicative route for the new Metro North (Metrolink), Swords will be extremely well connected to Dublin City's economic and commercial life and to Dublin Airport. FCC's Strategic Vision for Swords is to create a sustainable 'new city'.

The proposed onshore cable route skirts the northern edge of Swords, running along the R132 dual carriageway to the edge of the Seatown Park residential area, and then northeast along Lissenhall road before turning onto Estuary Road to pass under the M1 motorway.

Population and health receptors in proximity to the proposed onshore cable route include (but are not limited to):

- Parks and open spaces, such as Balheary Park and the Ward River path
- Places of worship and cemeteries, such as St. Peter's and Paul's Cemetery and Balgriffin Cemetery
- Sports facilities, such as Balheary Par 3 Golf Course and Fingallians GAA Club
- Healthcare facilities, such as CDNT Swords child health care centre
- Care homes, such as Fingal House Nursing Home
- Schools, such as Tigin Montessori School; and
- Residential communities on the northern edge of Seatown Park

32.3.1.4 *Seabury and Malahide Road*

Malahide is a coastal settlement which is easily accessible from Dublin city centre by road and rail. The Fingal County Development Plan (2023-2029) supports the development of Malahide as a sustainable, vibrant and prosperous Town Centre. Public Realm Strategies have been prepared for Malahide which aim to strengthen and protect the historic core of the town whilst enhancing connectivity and urban development. The town is situated on the edge of the Malahide Estuary Special Protection Area (SPA) and Special Area of Conservation (SAC) which offers residents and visitors excellent access to natural amenities.

The proposed onshore cable route runs along Estuary Road adjacent to Malahide Estuary, and through the residential community of Seabury on Estuary Road and Swords Road. It then runs southwards along the R107 Malahide Road, through the residential areas of Streamstown, Abbeyville, Kinsealy, St Doolaghs and Balgriffin Park. At Northern Cross, it turns west along the R139 to Belcamp in the north of Dublin city (DCC jurisdiction). At Kinsealy, there are currently two route options considered, the alternative route turns east onto Chapel Road and south onto the R124, along the Hole in the Wall road, before turning west onto the R123 where it meets the R107 Malahide Road at Northern Cross.

Population and health receptors in proximity to the proposed onshore cable route include (but are not limited to):

- Parks and open spaces, such as Broadmeadow Estuary Walk, Malahide Park, Seabury Park and Children Playground, Malahide Caste and Gardens and Father Tom Collins Park
- Places of worship and cemeteries, such as Catholic Church of the Sacred Heart, Seabury, St Nicholas of Myra Catholic Church, Kinsealy and Fingal Burial Ground, Balgriffin Park
- Sports facilities, such as Malahide Rugby Club, Swords Sailing and Boating Club, Seabury Park Basketball Court
- Healthcare facilities such as Seabury Medical Centre, St Doolagh’s Park Care and Rehabilitation Centre and Northern Cross Medical Centre, Balgriffin Park
- Care homes such as Woodlawn Manor Nursing Home in St Doolaghs
- Schools, such as LittleRuggers Montessori Preschool, St Micholas of Myra National School of Kinsealy and Malahide / Portmarnock Educate Together National School
- Residential communities along Estuary Road and Swords Road in Seabury, and along Malahide Road, Chapel Road, Hole in the Wall Road

32.3.1.5 *Belcamp and North Dublin*

The townland of Belcamp is situated on the northern edge of Dublin city, to the south of the R139, and comprises suburban residential areas and parkland. The proposed onshore cable route runs along the R139 dual carriageway and connects into the national grid at the existing substation area in Belcamp. The route into the existing substation will follow the existing access road. It will connect to an existing 220kV bay within the substation compound.

Population and health receptors in proximity to the proposed onshore cable route and the existing 220kV Belcamp substation include (but are not limited to):

- Parks and open spaces, such as Darndale Park and Belcamp Park
- Places of worship and cemeteries, such as People’s Church Dublin City
- Sports facilities, such as St Michael’s House Leisure Centre, Craobh Chiarans GAA Pitches, Belcamp Football Pitches
- Residential communities on Belcamp Cottages, Cara Park, and Clonshaugh Road, alongside the R139

32.3.2 *Population profile*

32.3.2.1 *Census Data*

Table 32.4 shows the populations of the main settlements and jurisdictions in the study area in 2016 and 2022. The populations of all areas increased between the 2016 and 2022 Census, with the highest increases in Malahide and Balbriggan.

Table 32.4 Population – Main Settlements (Source: CSO)

Settlement	Population 2016	Population 2022	Percentage Change increase
Balbriggan	21,722	24,322	12.0%
Swords	39,248	40,776	3.9%
Malahide	16,550	18,608	12.4%
Fingal	296,020	330,506	11.6%
Dublin City	554,554	592,713	6.9%

Settlement	Population 2016	Population 2022	Percentage Change increase
State	4,761,865	5,149,139	8.1%

Table 32.5 shows the age profile in the main settlements and jurisdictions in the study area. Balbriggan has a significantly younger population profile than the rest of the study area and Ireland as a whole. Dublin City has a lower than average proportion of children under 19 and above average numbers of people between 20 and 40. Malahide has above average numbers of older people in the 60-69 and 70+ age brackets.

Table 32.5 Age Profile Census 2022. Source: CSO

Settlement	Percentage of population in age range						
	0-19	20-29	30-39	40-49	50-59	60-69	70+
Balbriggan	34.0%	10.2%	14.5%	19.4%	10.8%	6.3%	4.8%
Swords	27.6%	11.8%	16.2%	17.2%	12.7%	8.2%	6.3%
Malahide	26.3%	10.2%	10.4%	15.5%	14.1%	10.8%	12.6%
Fingal	29.3%	11.3%	14.9%	17.4%	11.7%	7.9%	7.5%
Dublin City	20.1%	17.7%	18.7%	14.2%	11.3%	8.6%	9.5%
State	26.2%	11.7%	13.9%	15.2%	12.6%	9.9%	10.5%

Table 32.6 shows household occupancy types for the main settlements and jurisdictions in the study area. Dublin City and Balbriggan have a high proportion of rented accommodation and lower than average owner occupancy. Malahide has high owner occupancy and low levels of social housing.

Table 32.6 Type of household occupancy Census 2022. Source: CSO

Settlement	Owned with mortgage or loan	Owned outright	Rented from private landlord	Rented from local authority	Rented from voluntary body	Occupied free of rent	Not stated
Balbriggan	42.6%	14.6%	22.5%	13.6%	3.2%	0.6%	2.8%
Swords	45.4%	22.7%	20.9%	5.9%	1.4%	0.6%	3.2%
Malahide	44.0%	36.5%	14.8%	1.3%	0.2%	0.8%	2.3%
Fingal	43.2%	22.9%	20.6%	6.9%	1.8%	0.7%	3.9%
Dublin City	25.6%	22.6%	30.4%	11.8%	2.2%	1.1%	6.3%
State	35.7%	31.4%	17.6%	8.4%	1.5%	1.3%	4.2%

Table 32.7 shows the social class/workforce data for the main settlements and jurisdictions in the study area. The majority of the study area is close to the national average across all categories. However, Malahide has a significantly above average proportion of professional, managerial, and technical workers and low levels of skilled, semi-skilled and unskilled workers.

Table 32.7 Social Class/Workforce Census 2022. Source: CSO

Settlement	Professional	Managerial/ Technical	Non-manual	Skilled	Semi-skilled	Unskilled	Other
Balbriggan	5.1%	26.7%	19.0%	14.3%	14.2%	3.6%	17.2%
Swords	7.3%	34.1%	21.0%	13.3%	10.5%	2.7%	11.1%
Malahide	16.4%	48.1%	16.1%	6.4%	4.3%	1.0%	7.6%
Fingal	9.7%	34.7%	17.4%	11.7%	9.4%	2.7%	14.4%
Dublin City	10.5%	27.7%	14.7%	9.5%	9.8%	3.3%	24.4%

Settlement	Professional	Managerial/ Technical	Non-manual	Skilled	Semi-skilled	Unskilled	Other
State	9.3%	30.7%	16.2%	12.9%	11.2%	3.1%	16.6%

The proportion of the population with a disability in the Dublin City area is in line with the national average of 16%. In Fingal the proportion is lower at 13%.

Table 32.8 shows self-rated health for the main settlements and jurisdictions in the study area. Self-rated health in Balbriggan and Swords is broadly in line with Fingal, Dublin City and national averages. In Malahide, self-rated ‘very good’ health is significantly higher than average.

Table 32.8 Perception of Health Census 2022. Source: CSO

Settlement	Very good	Good	Fair	Bad	Very bad	Not stated
Balbriggan	51.8%	31.4%	9.0%	1.8%	0.4%	5.5%
Swords	54.9%	30.8%	7.6%	1.2%	0.2%	5.3%
Malahide	63.9%	26.4%	5.7%	0.8%	0.1%	3.0%
Fingal	55.4%	28.8%	7.2%	1.2%	0.3%	7.2%
Dublin City	48.1%	27.7%	8.6%	1.6%	0.4%	13.6%
State	53.2%	29.7%	8.6%	1.4%	0.3%	6.7%

32.3.2.2 Pobal Deprivation Index

The Pobal Deprivation Index for Small Areas² is based on Census data. The Index ranks Census Small Areas (CSAs) on the following eight-point scale from least to most deprived: 1. extremely affluent; 2. very affluent; 3. affluent; 4. marginally above average; 5. marginally below average; 6. disadvantaged; 7. very disadvantaged; 8. extremely disadvantaged. CSAs are defined by population size rather than geographic area, typically comprising 65-90 households.

Balbriggan

CSAs in the rural area to the north of Balbriggan, where the landfall site and grid facility are located, is categorised as **marginally above average**.

The majority of CSAs in Balbriggan, including areas in the north closest to the grid facility, are categorised as **marginally above average** or **marginally below average**. However, there are pockets of **disadvantaged** and **very disadvantaged** communities adjacent to the proposed onshore cable route along the R132.

- Balrothery, to the south of Balbriggan on the R132, comprises areas categorised as **marginally above average** and **marginally below average**.
- CSAs in the rural area to the east of Balbriggan and Balrothery are categorised as **affluent**.

Fingal rural areas along the R132

- Rural areas of the study area between Balrothery and Swords are predominantly **marginally above average**, with some areas categorised as **marginally below average**.

Swords

- The proposed onshore cable route skirts the northern edge of Swords, running along the R132 dual carriageway to the edge of the Seatown Park residential area, and then northeast along an unnamed road, before turning onto Estuary Road to pass under the M1 motorway.

² Pobal HP Deprivation Indices Map. Available at <https://data.pobal.ie/portal/apps/experiencebuilder/experience/?id=3b0acba7eb694ffa85340a60f81d516c>. Accessed February 2024.

- The area west of the R132 on the approach to Swords is categorised as **marginally below average**. The area to the west of the R132, where the proposed onshore cable route follows Lissenhall Road and Estuary Road, and the Seatown residential area south of the route, are categorised as **marginally above average**.

Seabury, Malahide Road and Kinsealy

- East of the M1 Motorway, where the proposed onshore cable route follows Estuary Road, is classed as **affluent**.
- The residential area of Seabury is predominantly **affluent**, with some areas categorised as **very affluent** and **marginally above average**.
- The communities along Malahide Road, including Kinsealy, are predominantly **affluent**.

Portmarnock and Balgriffin

- The proposed onshore cable route (option 14.B.2) runs along the western side of Portmarnock on the R124. Residential neighbourhoods in this area are classified as **marginally above average** to **affluent**.
- The proposed onshore cable route options and diversions run along the northern edge of Balgriffin on the R123, along Hole in the Wall Road to the east and Malahide Road to the west. Eastern and northern areas of Balgriffin Park range from **marginally above average** to **affluent**, whereas areas further west on Malahide Road range from **disadvantaged** to **affluent**.

Belcamp

- Communities along the R139, including Darndale Park and Belcamp, range from **disadvantaged** to **very disadvantaged**.

32.3.3 Vulnerable Groups in the Study Area

The following vulnerable groups have been identified in the population and human health study area:

Age-related groups

- Children and young people are present throughout the study area, with a higher than average proportion of this group in the Balbriggan area. As described in Section 32.3.1, there are a number of receptors within the study area that are used disproportionately by children, including schools, colleges, preschools, parks, playing fields and some healthcare facilities.
- Older people (over 60) are present throughout the study area, with a higher than average proportion of this group in the Malahide area. As described in Section 32.3.1, there are a number of receptors within the study area that are used disproportionately by older people, including care homes and healthcare facilities.

Income-related groups

- People who are on low incomes, unemployed or economically inactive are present throughout the study area. The proportion of semi-skilled and low skilled workers, who are likely to be low paid, is close to average in the Balbriggan and Swords areas as a whole, and below average in the Malahide area. People in areas of high deprivation (see below) are more likely to be on low incomes, unemployed or economically inactive.

Health and disability-related groups

- People with physical or learning difficulties and long-term health problems are present throughout the study area. Areas with a higher proportion of older people or high levels of deprivation are likely to have a higher than average proportion of long term health problems.

Geographical groups

- Isolated areas are present in rural areas around the R132, in the northern part of the study area. People in these areas are more likely to have poor access to services and facilities locally, and to depend on the road network to access services.

- The majority of the study area has close to average levels of deprivation. However, there are pockets of disadvantaged and very disadvantaged communities in the Balbriggan and Belcamp areas.

32.4 Characteristics of the Proposed Development

Details of the proposed development are provided in the Offshore Description Chapter and the Onshore Description Chapter. The Offshore Construction Chapter and the Onshore Construction Chapter provide details of the construction strategy for the proposed development. As described in Section 32.2.1 above, there are no human sensitive receptors in proximity to the offshore array area. The population and human health assessment considers the onshore infrastructure and nearshore at the landfall site, since these elements are considered to have potential effects on the population.

The relevant aspects of the proposed development are the proposed infrastructure at the landfall site (including nearshore works related to the HDD during construction only), the grid facility, onshore cable route and the grid connection at Belcamp. During operation, the only above ground visible structures will be the grid facility, small marker posts to indicate the location of the cable and manhole covers associated with joint bays, link boxes and communications chambers and a permanent access routes to provide access to joint bays and associated infrastructure. All other infrastructure onshore and nearshore will be underground during operation.

The proposed onshore cable route will stay within the road as far as technically feasible but will traverse private lands where necessary. The onshore cable route was selected to reduce impacts on areas of congested utilities, as well as proximity to residential areas. The roads or private land along the onshore cable route will be reinstated and returned to their current use post-construction, although in the case of private land, future access for inspection and maintenance purposes will be required in places. Refer to the Onshore Construction Chapter for further details.

32.5 Potential Effects

32.5.1 Do-Nothing Scenario

In the do-nothing scenario, access and amenity in the study area would remain unchanged. Although the predicted increases in inward investment associated with the proposed development would not occur, existing trends in population growth and economic growth in parts of the study area would continue. The magnitude of impacts on all community resources and health determinants is assessed as negligible and the significance of effects on population and human health are assessed as imperceptible.

32.5.2 Construction Phase

32.5.2.1 Population

The construction phase is described in Onshore Construction Chapter and impacts on road traffic and public transport resulting from full and partial road closures are assessed in the Traffic and Transportation Chapter. The likely population effects of the construction of onshore elements assessed in this chapter are as follows:

- Short term impacts on accessibility and journey patterns due to increased traffic generated by the construction of the proposed development, potentially resulting in increased congestion and longer journey times for drivers
- Temporary impacts on accessibility and journey patterns resulting from full and partial road closures, associated diversions and increased congestion on the local road network. Potential population effects include:
 - Increased journey time for drivers, resulting in reduced accessibility of local services, facilities and increased community severance
 - Increased journey times for bus users, including increased walking distance to bus stops and longer travel times; and

- Reduction in the ease of movement for walkers and cyclists navigating partial footpath closures and diversions
- Temporary impacts on amenity arising from the combined effects of noise, air emissions, visual impacts and localised traffic disruption.

The population effects are assessed below.

32.5.2.2 *Accessibility and Journey Patterns*

Traffic generated during the construction phase of the proposed development has the potential to affect road users and increase journey times, reducing the accessibility of community facilities and services. Tables 24.29 and 24.30 of the Traffic and Transportation Chapter show the projected construction traffic flows on the onshore cable route for the AM and PM peak periods, with and without the proposed development. The projected percentage increases in traffic flow are low due to the relatively high level of existing traffic flows on the affected roads. Projected increases in traffic flow are between 1-5% of the daily peak hour traffic, with the highest increase of 5% in both the AM and PM peak occurring on the R132 on the north side of Balbriggan. The residual impact on overall traffic flows is assessed as negative, slight, and temporary in the Traffic and Transportation Chapter. Based on this assessment, the effects of increased traffic flows from the construction of the proposed development on accessibility and journey patterns is assessed as neutral.

The Traffic and Transportation Chapter has identified the need for full and partial road closures along the onshore cable route. Closures and diversion routes comprise:

- Strategic diversion routes for full and partial road closures: linking to the strategic road network via main roads
- Local diversion routes for full and partial road closures: the shortest routes to be taken for local journeys; and
- Local bus diversion routes for full road closures

The Traffic and Transportation Chapter has identified temporary residual significant effects on all diversion routes as a result of additional traffic flows (see Tables 24.53 to 24.55). The affected routes and bus services are used by local communities along the length of the onshore cable route for day-to-day access to work, school, local shops and services. The duration of closures ranges from one to four weeks; however, some communities are affected by several closures which, if they occur concurrently, may result in longer durations of impact on some local journeys. Access to residential properties and businesses will be maintained throughout the construction phase.

The residual significant traffic and transportation effects on the communities along the onshore cable route are summarised below and the effects on accessibility and journey patterns for drivers, pedestrians, cyclists and bus users are assessed.

Balbriggan

Full and partial road closures and associated significant traffic and transportation impacts on local and strategic diversion routes in this area include:

- Section 1, full closure of the R132 north of Balbriggan, 2-3 weeks. Temporary significant traffic impact on R122 Chapel Street and Harry Reynolds Road
- Section 2, partial closure of Harry Reynolds Road, 15 weeks. Temporary significant traffic impacts on R132 Drogheda Street South – R122 Chapel Street; and Hamlet Lane – Castlemill Road – Stephenstown Link Road – Balbriggan Outer Relief Road; and
- Section 3.1, partial closure of R132, 99 weeks. Temporary significant traffic impacts on Balbriggan Outer Relief Road – R122 Naul Road – M1; Matt Road – R122 Naul Road – M1; Old Coach Road – Knightswood – L1190 Old Coach Road; and Unnamed Road (Knock Cross) – Unnamed Road (The Five Roads) – Hedgestown Lane

The affected routes are relied on by the local community in and around Balbriggan to access employment sites, local services and facilities in Balbriggan. Affected users will include the whole community, including sensitive groups such as children, older people and people with disabilities. The sensitivity of receptors is therefore assessed as high.

The total duration of disruption resulting from the partial closure of the R132 will be 99 weeks, although individual locations will be impacted for short periods. It is likely that a proportion of the community will experience increased journey times accessing work, social networks, services and facilities throughout this period.

Impacts on rural communities to the north of Balbriggan as a result of the full closure of the R132 (Section 1) will be short lived at 2-3 weeks. The diversion via Flemington Road is not considered to adversely affect access for private vehicles. The diversion of bus route Eireann 101 along Flemington Road will result in the temporary suspension of stops at Gormanston Station for 2-3 weeks. The nearest alternative stops are 600m and 1km north at the top of Flemington Road, and there is no footpath along this stretch of the R132.

The community in Balbriggan town will be affected for 15 weeks by increased traffic flows and potential congestion at peak times on Harry Reynolds Road, increasing journey times, reducing ease of access to some services and facilities. Footpaths will remain open where practicable, but pedestrians and cyclists in Balbriggan are likely to experience some localised disruption. The diversion of bus route Eireann 101 along Flemington Road will result in the temporary suspension of bus stops on Drogheda Street for 2-3 weeks. The nearest alternative stops are between 650m and 1.7km to the south on Dublin Street. Residents of Balrothery and the surrounding rural areas to the south of Balbriggan will also experience periodic increases in journey times when accessing employment sites, services and facilities in Balbriggan.

The magnitude of impact on accessibility and journey patterns in and around Balbriggan is assessed as medium. The population effect is assessed as temporary, negative and significant.

Rural communities in Fingal

Full and partial road closures and associated significant traffic and transportation impacts in this area include:

- Section 3.1, partial closure of R132, 99 weeks for sections 3.1 and 3.2 overall (with this overall duration made up of sequential ~200m partial closures). Temporary significant traffic impacts on Balbriggan Outer Relief Road – R122 Naul Road – M1; Matt Road – R122 Naul Road – M1; Old Coach Road – Knightswood – L1190 Old Coach Road; and Unnamed Road (Knock Cross) – Unnamed Road (The Five Roads) – Hedgestown Lane
- Section 3.2, partial closure of R132, 99 weeks for sections 3.1 and 3.2 overall (with this overall duration made up of sequential ~200m partial closures). Temporary significant traffic impacts on Hedgestown Lane – L1155 Old Coach Road – L1160 Quickpenny Road – L5245 Chapel Road – Church Road – Barrack Lane – L1400 Dublin Road – R127 Dublin Road
- Section 5, full closure of R129 at Blake’s Cross (junction with R132), 2 weeks. Temporary significant traffic impacts on Ballough, Colecot, Harlockstown Lane, Balheary Road, R125 Castlegrange Road, Balheary Road, Batter Lane, R132, R125 Castlegrange and R125 Rathbeale Road; and
- Section 6, partial closure of R132, 27 weeks. Temporary significant traffic impacts on R129 – Harlockstown Lane – Balheary Road - R125 Castlegrange Road – R132; and R129 – Harlockstown Lane – Balheary Road – Batter Lane

The affected routes are relied on by the rural community to access employment sites, local services and facilities in nearby centres such as Lusk and Swords. Affected users will include the whole community, including sensitive groups such as children, older people and people with disabilities. Rural communities are particularly sensitive to severance due to a lack of local services and facilities. The sensitivity of receptors is therefore assessed as high.

However, it is likely that a proportion of the community will experience increased journey times accessing work, social networks, services and facilities throughout this period. Journeys to Corduff National School will be affected by partial closure of the R132 in the vicinity of Corduff.

There will be no significant impact on pedestrian footpaths, cycle paths or bus services. The magnitude of impact on accessibility and journey patterns is assessed as medium.

The population effect is assessed as temporary, negative and significant.

Swords

Full and partial road closures and associated significant traffic and transportation impacts on local and strategic diversion routes in this area include:

- Section 8, partial closure of R132, 20 weeks. Temporary significant traffic impact on R132 – Batter Lane – Balheary Road – R125 Castlegrange Road
- Section 9, full closure of Spittal Hill / Lissenhall, 1-2 weeks. Temporary significant traffic impact on Seatown Road and Mantua Road; and
- Section 10.1, full closure of Estuary Road, 2-3 weeks. Temporary significant traffic impacts on Spittal Hill / Lissenhall, Seatown Road and Mantua Road

The affected routes are relied on by the local community in Seatown Park to access local services and facilities in Swords town centre. Affected users will include the whole community, including sensitive groups such as children, older people and people with disabilities. Therefore, the sensitivity of receptors is assessed as high.

The duration of traffic disruption will be short-lived and will affect a relatively small community in the Seatown Park area. During the full and partial closures, this community is likely to experience increased journey times to employment sites, services and facilities in Swords, particularly during peak times. Footpaths will remain open, but pedestrians and cyclists are likely to experience some localised disruption. There are no significant impacts on bus services. The magnitude of impact on accessibility and journey patterns is assessed as low.

The population effect is assessed as temporary, negative and moderate (not significant).

Seabury and Malahide Road (north)

Full and partial road closures and associated significant traffic and transportation impacts on local and strategic diversion routes in this area include:

- Section 10.2, full closure of Estuary Road, 3-4 weeks. Temporary significant traffic impacts on Estuary Road, the R106 and Mantua Road
- Section 11, partial closure of Estuary Road, 5 weeks. Temporary significant traffic impact on Old Yellow Walls Road – Millview Road – R106 Swords Road
- Section 12, full closure of Swords Road, 3-4 weeks. Temporary significant traffic impacts on Estuary Road, Old Yellow Walls Road, R106 Dublin Road, Mountgorry Way, Feltrim Road, R107 Malahide Road, R106, R132 and R125
- Section 13, full closure of Malahide Road, 3-4 weeks. Temporary significant traffic impacts on R106 Main Street, R124 Church Road, Chapel Road, Back Road, Kinsealy Lane, R106 Swords Road, Mountgorry Way, Feltrim Road, R106, R132, R125 and R139

The affected routes are relied on by the local community in Seabury, Malahide, Streamstown and other settlements along Malahide Road to access local services and facilities in Malahide and Swords. Affected users will include the whole community, including sensitive groups such as children, older people and people with disabilities. Therefore, the sensitivity of receptors is assessed as high.

The duration of traffic disruption from individual section closures will be short-lived. However, the close proximity of the affected roads and the density of communities in the area, as well as the presence of key services such as Malahide Station and Malahide Medical Centres, is likely to result in significant adverse effects on access for these communities. Footpaths will remain open, but pedestrians and cyclists are likely to experience some localised disruption. There are no significant impacts on bus services. The magnitude of impact on accessibility and journey patterns is assessed as medium.

The population effect is assessed as temporary, negative and significant.

Kinsealy, Portmarnock and Malahide Road (south)

Full and partial road closures and associated significant traffic and transportation impacts on local and strategic diversion routes in this area include:

- Section 14A, full closure of Malahide Road, 1-2 weeks. Temporary significant traffic impacts on Chapel Road, R124, R123, Baskin Lane, Clonshaugh Road, R106, R132, R125 and R139
- Section 14B.1, full closure of Chapel Road, 2-3 weeks. Temporary significant traffic impacts on the R124, Back Road and Kinsealy Lane; and
- Section 14B.2, full closure of R124 Drumnigh Road, 2-3 weeks. Temporary significant traffic impacts on Chapel Road, Blackwood Lane, Carrickhill Road, Station Road, Coast Road, R107, R123 and R124. Temporary significant impact on Bus Service 29

The affected routes are relied on by the local communities to access local services and facilities in Kinsealy, Portmarnock and Malahide. Affected users will include the whole community, including sensitive groups such as children, older people and people with disabilities. Therefore the sensitivity of receptors is assessed as high.

The duration of traffic disruption from individual section closures will be short-lived. However, the close proximity of the affected roads and the density of communities in the area, as well as the presence of Malahide / Portmarnock Educate Together National School and St Nicholas of Myra National School in Kinsealy, is likely to result in significant adverse effects on access for these communities. Footpaths will remain open, but pedestrians and cyclists are likely to experience some localised disruption. The traffic and transportation assessment has identified a significant impact on Bus Service 29 lasting 2-3 weeks. The magnitude of impact on accessibility and journey patterns is assessed as moderate.

The population effect is assessed as temporary, negative and significant.

Belcamp and North Dublin

Full and partial road closures and associated significant traffic and transportation impacts on local and strategic diversion routes in this area include:

- Section 14B.3, full closure of Balgriffin Park, less than 1 week. Temporary significant traffic impacts on the R123, Hole in the Wall Road and Belmayne; and
- Section 15, partial closure of R139, 16 weeks. Temporary significant traffic impact on R107 Malahide Road – Priorswood Road – Glin Road – Clonshaugh Avenue – Clonshaugh Road.

The affected routes are used by the local community as a key route through the area of Darndale and Belcamp and link to the R107/R123 to the east and the Port Tunnel Business Park area to the west. Affected users will include the whole community, including sensitive groups such as children, older people and people with disabilities. Therefore the sensitivity of receptors is assessed as high.

The traffic impacts associated with the partial closure of the R139 for 16 weeks are likely to affect journey time, in particular for access to the employment sites around the M1/M50 junction from the communities on the north side of Dublin such as Belmayne, Clarehall, Darndale and Belcamp. Footpaths will remain open, but pedestrians and cyclists are likely to experience some localised disruption. There are no significant impacts on bus services. The magnitude of impact on accessibility and journey patterns is assessed as low.

The population effect is assessed as temporary, negative and moderate (not significant).

Amenity

The construction of the proposed development will result in dust, noise and vibration, visual impacts and increases in HGVs on local roads.. The combination of environmental impacts and increased HGV traffic has the potential to affect local amenity in proximity to construction sites.

The environmental and traffic impacts identified in the relevant assessment chapters are as follows:

- The Air Quality Chapter has identified residual slight, short term negative (not significant) effects on sensitive receptors along the onshore cable route as a result of construction dust and moderate, temporary, negative (not significant) effects on sensitive receptors on Flemington Road as a result of construction traffic emissions. Sensitive air quality receptors are defined in Section 27.2.2 of the Air Quality chapter and include residential properties, hospitals, schools, care homes, hotels and B&Bs, places of worship, sports centres, shopping areas, playing fields, cyclist and outdoor locations including car parks, bus stations, including park and rides and railway stations. The residual effect is based on the application of mitigation measures set out in Section 27.6.1.1
- No significant residual noise and vibration effects have been identified as a result of construction traffic
- The Seascape, Landscape and Visual Chapter has identified residual major-moderate adverse effects on viewpoints VP48 (the R132 east of the site) & VP53 (Flemington Lane), and moderate-slight adverse effects on VP51 and VP52 (rural hinterland setting to the northwest of Balbriggan) as a result of construction activities at the grid facility
- The Traffic and Transportation Chapter has identified significant residual effects on local and strategic diversion routes along the onshore cable route. Effects of HGVs have not been individually assessed but HGVs contribute to the traffic effects. Total additional daily HGV trips per section generated by the construction works are presented in Table 24.28 and the percentage increases in HGV flows in peak hours are presented in Tables 24.29-30. The highest numbers of HGV movements are on the R132, ranging from 135 to 592 additional trips per day. However, the percentage increase on minor roads is comparable to the R132 due to the lower numbers of existing HGV trips on these roads. The largest percentage increase in HGVs is on Section 1, the single carriageway section of the R132 north of Balbriggan (+75%).

In Balbriggan, the percentage increase in HGV movements will be highest on the R132 at this location. For the estimated 12-month duration of the site preparation, civil construction and GIS building construction works, the population in northern parts of Balbriggan are likely to be aware of the presence of construction activities, a due to the combined effects of low-level construction noise (not significant), increased HGV movements and views of the construction site from the local roads and residential properties. The receptors in this area comprise residential properties of high sensitivity. The magnitude of effect on amenity in residential areas is assessed as low. The population effect is therefore assessed as temporary, negative, moderate (not significant).

As described in Section 9.3.3 of the Onshore Construction Chapter, cable trenching will be undertaken on a rolling basis, proceeding at between 30-80m/day on roads, depending on the constraints in place. Therefore, in any given location, the duration of trenching works will be temporary. Activities undertaken at the HDD contractor compounds will last approximately 4 weeks for inline HDD watercourse crossings and 8 weeks for offline HDD crossings. No significant residual noise, dust or visual effects are predicted along the onshore cable route. Where the route passes through populated areas, such as in Balbriggan, Seabury and the communities along Malahide Road, communities will experience temporary, noticeable changes in amenity in proximity to the works. The sensitivity of the population to amenity impacts is assessed as medium and the magnitude of amenity impact from construction of the onshore cable route is assessed as low. The population effect is assessed as temporary, negative, slight (not significant).

32.5.2.3 *Human Health*

Accessibility

As described in Section 32.5.2.1 above, full and partial road closures will lead to significant negative effects on access and journey patterns on parts of the onshore cable route, including Balbriggan, rural areas of Fingal, Seabury and the communities along Malahide Road.

The community of Balbriggan is assessed as having medium sensitivity due to inequalities in levels of social deprivation. Rural areas of Fingal have high sensitivity due to the lack of community facilities and services locally and dependence on the road network for access. Seabury and the communities along Malahide Road have good access to local services, low levels of social deprivation and above average levels of 'very good' and 'good' self-rated health and are therefore assessed as having low sensitivity.

Based on the IEMA criteria (Table 32.2), the magnitude of impact on accessibility is assessed as low. This is based on the temporary and short-term duration of impacts on access, and the nature of likely effects on health outcomes, comprising temporary adverse effects on quality of life. Health effects are assessed as temporary, negative, moderate (not significant) in all locations. The following sub-groups within the population are identified as being particularly vulnerable to effects on their health and wellbeing as a result of impacts on accessibility:

- Older people and people on low incomes are more likely to rely on bus services to access services and facilities. Therefore, effects on bus services may disproportionately affect these groups
- Older people and people with health problems or disabilities are likely to rely on support from family, friends and health and social services. Impacts on access and journey times may disproportionately affect this group
- Children may be affected by impacts on routes to school. Children in families on low incomes, who are less likely to own a car, are most likely to be adversely affected.

Active travel

As described in Section 32.5.2.1 above, road closures will lead to impacts on cyclists where diversions are in place. It is assumed that pedestrian access will be maintained along all sections of partial or full road closure where practicable. This will be achieved by keeping footpaths open where practicable, or by putting in place suitable diversions. Localised footpath diversions and increased traffic flows will reduce ease of access for pedestrians. The staggered approach to trenching along the onshore cable route will mean that effects in individual locations are short-term.

Increased HGV movements associated with the construction of the onshore infrastructure have the potential to impact on levels of active travel, as they reduce perceptions of comfort for these road users. The existing number of HGV movements on parts of the cable route is low and therefore the percentage increase in HGV movements is higher than the increase in overall traffic flows. Increases in peak HGV movements of more than 40% are predicted to occur in the following locations:

- R132, north of Balbriggan: +260% (AM), +312% (PM)
- R132, Balbriggan (Section 1): +75% (AM), +270% (PM)
- Harry Reynolds Road, Balbriggan (Section 2): +62% (PM)
- R132 (Sections 6 & 7): +42% (PM)
- R132 (Section 8): +42% (AM), +51% (PM)
- Spittal Hill (Section 9): +100% (PM)
- Estuary Road (Section 10.1): +44% (AM), +58% (PM)
- Estuary Road (Section 11): +53% (PM)
- R107 Malahide Road (Sections 13 & 14A): +61% & +50% (PM)
- Chapel Road / R124 / Hole in The Wall Road (Section 14B): +43% (AM), +49% (PM)

The above figures show that there will be a noticeable increase in HGV movements in the peak hours on parts of the proposed onshore cable route. In some areas the duration of increased HGV flows is likely to be short, but for the purpose of the traffic and transportation assessment a maximum duration of 24 months in all locations has been assumed. Increased HGV movements, combined with full and partial lane closures and diversions of footpaths, is considered likely to cause disruption for users of the affected routes, but is not considered likely to deter pedestrian and cyclist trips. The magnitude of impact is assessed as low.

The sensitivity of pedestrians and cyclists is considered to be high due to their vulnerability as road users, particularly for groups such as children, older people, and people with mobility or sight impairment.

The health effect resulting from impacts on active travel is assessed as negative, temporary, moderate (not significant).

Neighbourhood quality

As described in Section 32.5.2.1 above, a moderate adverse (not significant) effect on amenity has been identified in the northern areas of Balbriggan as a result of construction activities at the grid facility and increased HGV flows. Slight, adverse (not significant) amenity effects have been identified in along the onshore cable route in Balbriggan, Seabury and communities along the Malahide Road.

Based on the scale and duration of the proposed construction works and the assessment of amenity effects in Section 32.5.2.1, it is considered that changes to environmental amenity will not affect people's attachment to and enjoyment of their local environment, its perceived quality and distinctive characteristics. Therefore, this is assessed as a negligible magnitude of effect on a medium to low sensitivity population, resulting in a temporary, negative, slight (not significant) health effect.

Green space

Effects on green space have the potential to impact on health and wellbeing by reducing access to tranquil environments, interaction with nature, and the opportunities for exercise and social interaction that are provided by these spaces.

The assessment of tourism and recreation effects in the Seascape, Landscape and Visual Chapter has identified a moderate-slight, temporary, negative visual impact of the landfall HDD compound on views from the coast road and low magnitude impacts on the naturalistic and tranquil setting for beach users. Construction works at the landfall site also have the potential to impact on the use of Bremore Beach. There are a number of alternative beaches in the locality, including Tankardstown Bay and Balbriggan Beach, which will not be impacted. The coastal walking route via Bremore Beach will be closed for a short period during the construction works. This is assessed as a low magnitude impact on a medium sensitivity population, resulting in a temporary, negative, moderate (not significant) effect on health and wellbeing.

Broadmeadow Estuary Walk runs for approximately 1km along the south bank of Malahide Estuary. While the walk will remain open during the construction of the onshore cable route along Estuary Road, the proximity of the walk to the construction works will affect tranquillity and views. The duration of impacts is predicted to be up to 4 weeks; however, the construction impacts will not affect the whole route for the duration of the works. Due to the short duration of impact, this is assessed as a negligible magnitude impact on a low to medium sensitivity population, resulting in a temporary, negative, slight (not significant) health effect.

Employment

The Socio-Economics Chapter has identified a positive, short-term impact on employment and the local economy during the construction of the proposed development. This has the potential to result in employment and training opportunities for people in the study area. The effect on health and wellbeing will depend on the extent to which any employment and training opportunities are taken up by people who are currently on low incomes or unemployed, and the nature of these opportunities (e.g. skilled or unskilled roles). The magnitude of impact on earnings, training and career opportunities is therefore assessed as low. The sensitivity of the population (route-wide) is assessed as medium, resulting in a temporary, positive moderate (not significant) effect on health and wellbeing.

32.5.3 Operational Phase

32.5.3.1 Population

Accessibility and journey patterns

As outlined in the Traffic and Transportation Chapter, the operational traffic impact will not be significant. Maintenance and inspection of the transition joint bays at the landfall site and joint bays along the cable route will be required on an ad-hoc basis, or once annually. The levels of traffic generated will be minimal. The grid facility will be unmanned and operated remotely.

It is expected that one or two vehicles may attend the grid facility during normal working hours approximately once every 4 weeks. Annual maintenance activities will be undertaken, over a period of around one week and this may require up to 6 vehicles per day per compound (there are 2 compounds at the grid facility) during shifts over a 24-hour period.

It may transpire that the onshore cables may need to be repaired or replaced during the operational phase. In the unlikely event of power cable replacement, this would require an excavator to expose the joint bays at either end of the fault, plus plant/equipment to pull and feed cables between joint bays.

The magnitude of effect on accessibility and journey patterns is assessed as negligible during operation of the proposed development and the population effect is imperceptible.

Amenity

As described in the Noise Chapter, no exceedance in the noise limits is predicted under normal operating conditions at the grid facility. There will be no operational noise effects along the onshore cable route. Occasional maintenance and testing of the onshore cable will not give rise to any significant noise or vibration effects.

As described in the Air Quality Chapter, no air emissions are associated with the operation of the proposed development.

As described in the Seascape, Landscape and Visual Chapter, no significant visual effects are predicted during the operational phase.

The magnitude of impact on amenity during the operational phase of the proposed development is assessed as negligible and the population effect is imperceptible.

32.5.3.2 Human Health

Access and active travel

No potential impacts on access and active travel are identified during the operation of the proposed development. The health effect is assessed as imperceptible.

Neighbourhood quality, green space

No potential impacts on neighbourhood quality or green space are identified during the operation of the proposed development. The health effect is assessed as imperceptible.

Employment

The socio-economic assessment in the Socio-Economics Chapter has identified a positive, long-term impact on employment and the local economy during the operation of the proposed development. The estimated net number of direct and indirect full time equivalent (FTE) jobs created by the proposed development is 38 regionally and 47 across all of Ireland. While this has the potential to result in employment and training opportunities for some individuals in the study area, the magnitude of impact on earnings, training and career opportunities at population level is low. The sensitivity of the population at the regional level is assessed as medium and the health effect is therefore assessed as long-term, positive, moderate (not significant).

Economic regeneration

Wider economic benefits are predicted in the Socio-Economics Chapter, including an estimated €5,085,728 of Gross Value Added (GVA) economic impact generated per year and a commitment to provide Community Benefit Fund of approximately €4 million per annum for 20 years, established and administered in accordance with the Offshore Renewable Energy Support Scheme (ORESS) Community Benefit Fund Rulebook. An independent fund administrator will be appointed to allocate and distribute funds to communities, with the support of an appointed Community Benefit Fund committee.

The impact of the proposed development on economic growth combined with the Community Benefit Fund is assessed as a high magnitude impact on economic regeneration. The sensitivity of the population at a regional level is assessed as medium, resulting in a long-term, positive, significant health and wellbeing effect at the regional level.

Electromagnetic Fields

In terms of public exposure to electromagnetic fields (EMF), Irish Government policy is to comply with the 1998 International Commission on Non-Ionising Radiation Protection (ICNIRP) Guidelines which form the basis of the EU EMF 1999 Recommendations.

The greatest potential exposure for the population to EMF from the onshore infrastructure of the proposed development is in the closest possible proximity to the 220kV onshore cable route. These cables will be trenched predominately under local roads. An assessment of EMF exposure has been carried out for the onshore cable arrangements detailed in Volume 11: Appendix 32.1 for a person standing directly above the cable routes as a worst-case exposure scenario, with the results shown on Figure 1 of Appendix 32.1. For the majority of the cable route, a trefoil cabling arrangement will be used and the potential EMF exposure levels to a person is in the range of 5-20 micro-Teslas. Some short, localised sections of the cable route will use a flat cable arrangement and the EMF exposure levels above these would be in the range 45-60 micro-Teslas. In all circumstances therefore, the EMF levels would be comfortably below the threshold value of 100 micro-Teslas set out in the ICNIRP guidelines. No adverse impacts on human health are therefore predicted due to EMF.

High-voltage cables can also produce EMF which could potentially interfere with very sensitive domestic appliances. There is no potential for interference beyond 8m from the onshore cable route, as set out in Table 4 of Appendix 32.1. Where the as-built onshore cable route comes within 8m of residential properties, exceedances will be prevented by a combination of cable arrangements and/or shielding of the cables. This embedded mitigation would ensure there will be no adverse impacts on domestic appliances from EMF.

The effect on health and wellbeing from EMF is therefore assessed as imperceptible. Further detail of the EMF assessment is included in Appendix 32.1 of this chapter.

32.5.4 Decommissioning

Once the proposed development comes to the end of its operational life (35 years after operations commence) it will be decommissioned.

It is anticipated that the decommissioning process will involve similar activities to the construction process, however, decommissioning will be undertaken in reverse with the removal of above ground structures between the landfall site and grid facility. The Bremore substation and underground onshore cable route will not be decommissioned as these will form part of the wider National Electricity Transmission Network owned by EirGrid. The compensation substation at the grid facility and onshore export cable to the transition joint bays at the landfall site will be decommissioned and removed.

The onshore decommissioning activities will be greatly reduced in scope, will not include any excavation or groundworks and will require a smaller workforce than for the construction phase. The decommissioning plant required will be similar to that required for the construction phase of the grid facility. The workforce required will be smaller and the duration of the works will be shorter.

32.5.4.1 Population

The impact on future traffic conditions associated with decommissioning will be less than that associated with the construction due to the nature of decommissioning works. Any future impacts are expected to be a temporary change in traffic movements with no impact on traffic flow. The impact on accessibility and journey patterns during the decommissioning of the proposed development is assessed as imperceptible.

The decommissioning of above ground features will have very minor, localised impacts on air, noise, visual effects and HGVs. This is not considered to give rise to any amenity impacts. The impact on amenity during the decommissioning of the proposed development is assessed as imperceptible.

32.5.4.2 Human Health

No significant traffic and transportation, air quality, noise, visual or socio-economic impacts have been identified during the decommissioning phase. Therefore, no potential effects on human health have been identified as a result of the decommissioning of the proposed development. All health effects are assessed as imperceptible.

32.6 Mitigation and Monitoring Measures

32.6.1 Construction Phase

Mitigation measures proposed in the Air Quality, Noise and Vibration, Traffic and Transportation and the Seascape, Landscape and Visual Chapters will help to avoid or minimise adverse population and human health effects during the construction phase of the proposed development. This mitigation is embedded within the residual assessments on which the population and human health assessment is based, and includes:

- The implementation of an Onshore Construction Environmental Management Plan (CEMP) (see Appendix 9.1 in Volume 8)
- The erection of directional and information signage where paths are temporarily closed
- The provision of information to local householders and the wider community in a phased approach before construction begins and iteratively as the construction progresses via direct mail campaigns, social media alerts and frequent updates via a dedicated news section on the proposed development website (www.northirishsearray.ie)
- The on-going provision of a dedicated community liaison officer to manage community relations, be available via mobile phone and email to provide a link between the community and the developer throughout the construction phase; and
- The preparation of an emergency response plan to cover foreseeable risks

Industry-standard traffic management measures will be put in place to alleviate construction-related traffic disruption. Further details are provided in the Construction Traffic Management Plan (CTMP) which is contained within Appendix 9.1.

The construction strategy requires all contractors to comply with legislation and good industry practice with regard to the health and safety of both workers and the public. As required by regulation and legislation, a Health and Safety Plan will be prepared to address health and safety issues from the design stages through to completion of the construction and maintenance phases. This plan will be reviewed and updated as required, as the development progresses. The Project Supervisor Construction Stage will assemble the Safety File as the project progresses on site. Prior to commencement of site work, the appointed Contractor(s) will produce detailed construction method statements, work programmes and risk assessments.

No further mitigation measures are proposed in relation to population and human health in addition to the embedded mitigation measures described above.

32.6.2 Operational Phase

The overall population and human health effects of the proposed development in the operational phase will be positive and neutral. Therefore, no mitigation is proposed.

32.6.3 Decommissioning

No significant population and human health effects are identified during the decommissioning phase of the proposed development. Therefore, no mitigation is proposed.

32.7 Residual Effects

32.7.1 Construction Phase

A summary of the residual effects of the proposed development on population and human health during the construction phase are provided in Table 32.10: the likely significant residual effects are those whose significance is described as ‘Significant’ in this table.

Table 32.9 Summary of Construction Residual Effects

Assessment Topic/Receptor	Effect and Duration	Significance
Population		
Accessibility and Journey Patterns		
Balbriggan	Negative, temporary	Significant
Rural communities in Fingal	Negative, temporary	Significant
Swords	Negative, temporary	Moderate
Seabury and Malahide Road (north)	Negative, temporary	Significant
Kinsealy, Portmarnock and Malahide Road (south)	Negative, temporary	Significant
Belcamp and North Dublin	Negative, temporary	Moderate
Amenity		
Grid Facility - Balbriggan	Negative, temporary	Moderate
Onshore Cable Route – Balbriggan, Seabury, Malahide Road	Negative, temporary	Slight
Human Health		
Accessibility (general population)	Negative, temporary	Moderate
Active travel	Negative, temporary	Moderate
Neighbourhood quality	Negative, temporary	Slight
Green space (Bremore Beach and coastal road)	Negative, temporary	Moderate
Green space (Estuary Walk)	Negative, temporary	Slight
Employment	Positive, temporary	Moderate

32.7.2 Operational Phase

A summary of the potential residual effects of the proposed development on population and human health during the operational phase are provided in Table 32.11: the likely significant residual effects are those whose significance is described as ‘Significant’ in this table.

Table 32.10 Summary of Operational Residual Effects

Assessment Topic/Receptor	Effect	Significance
Population		
Accessibility	Negligible	Imperceptible
Amenity	Negligible	Imperceptible
Human Health		
Access and active travel	Negligible	Imperceptible
Neighbourhood quality, blue and green space	Negligible	Imperceptible

Assessment Topic/Receptor	Effect	Significance
Employment	Positive, long-term	Moderate
Economic regeneration	Positive, long-term	Significant
Electromagnetic fields	Negligible	Imperceptible

32.7.3 Decommissioning

No significant residual effects on population and human health are predicted in the decommissioning phase.

32.8 Transboundary Effects

Considering the nature and location of the proposed development, no likely significant transboundary effects on population and human health are predicted.

32.9 Cumulative Effects

A long list of ‘other projects’ which were deemed to be potentially relevant to be included in the cumulative impact assessment was compiled (see the Cumulative and Interrelated Effects Chapter). A screening exercise of the long list was carried out to determine whether each project has the potential to give rise to likely significant cumulative effects on population and human health when combined with the proposed development. Many of the other projects were screened out for a number of reasons including the location, scale and nature of the project. Those projects which were screened in were carried forward for assessment. The results of the assessment are presented in the Cumulative and Interrelated Effects Chapter.

During the construction phase, potential cumulative effects from Tier 3 onshore projects were identified in locations where cumulative traffic and transport impacts occur in conjunction with significant effects on accessibility and journey patterns. Due to the nature of those projects which were screened in, the assessment concluded an outcome of potentially significant, negative and temporary effect due to the significant negative cumulative traffic effects predicted.

During the operational phase, the impact of the proposed development alone on economic growth combined with the Community Benefit Fund is assessed as a high magnitude impact on economic regeneration. The sensitivity of the population at a regional level is assessed as medium, resulting in a long-term, positive, significant health and wellbeing effect at the regional level. Given that the Tier 2 Phase One projects will also be each providing a Community Benefit Fund, it is considered reasonable to assume that a cumulative positive significant (or greater) on health and well being effect at a regional level will arise.

32.10 References

Dublin City Council (2022) Dublin City Development Plan 2022-2028. December 2022

EPA (2022) Guidelines on the Information to be Contained in Environmental Impact Assessment Report. May 2022. Environmental Protection Agency, Dublin

FCC (2023) Fingal Development Plan 2023-2029. April 2023

Institute of Environmental Management and Assessment (IEMA) Guide to Determining Significance for Human Health in Environmental Impact Assessment, November 2022

Institute of Environmental Management and Assessment (IEMA) Guide to Effective Scoping of Human Health in Environmental impact Assessment, November 2022

Institute of Public Health (2021) Health Impact Assessment Guidance: A Manual.