KILMANNOCK 110KV SUBSTATION AND GRID CONNECTION HUMAN HEALTH AND POPULATION IMPACT ASSESSMENT

Technical Report Prepared For

Entrust Ltd. Unit 1D
Deerpark Business Centre, Oranmore,
Co. Galway

Technical Report Prepared By

Sarah Tierney,
Environmental Consultant

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Cork Office
Unit 5, ATS Building,
Carrigaline Industrial Estate,
Carrigaline, Co. Cork.
T: + 353 21 438 7400
F: + 353 21 483 4606

AWN Consulting Limited
Registered in Ireland No. 319812
Directors: F Callaghan, C Dilworth,
T Donnelly, T Hayes, D Kelly, E Porter

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1.0 INTRODUCTION

This Human Health and Population Impact Assessment has been prepared to assess the likely significant effects on human health population in respect of the Proposed Development for the construction of an electrical infrastructure installation and associated underground grid connection (UGC) on lands within the townland of Great Island measuring approximately 2.58 hectares (ha) in overall area. The installation will consist of a 110kV substation and associated ancillary development.

The report considers the current state of human health and populations within the study area, establishing a baseline understanding of the site and the potential sensitive receptors. It further highlights the susceptibilities and vulnerabilities of the local population to various health determinants. Following this, the report evaluates and identify the potential significant impacts on human health during the construction and operational phases of the Proposed Development. The report defines the required mitigation measures to reduce or eliminate significant impacts to human health and populations. The residual effects of the Proposed Development (after the implantation of mitigation measures) are defined.

This Human Health and Population Impact Assessment report was prepared by Sarah Tierney and Jonathan Gauntlett of AWN Consulting. Sarah is an Environmental Consultant with AWN Consulting and graduate member of the Institute of Environmental Management and Assessment (GradIEMA), working on projects involving EIA reports, screening and EPA licence applications for a range of developments. She holds a BA in Environmental Science (TCD) and is a member of the Environmental Sciences Association of Ireland. Jonathan is a Principal Environmental Consultant in AWN Consulting with ongoing roles in impact assessment, licensing, environmental compliance and project management. Recent projects include; EIAR and EIA Screening Reports, for strategic infrastructure development and planning applications for ICT facilities, electrical infrastructure, and gas utilities; EPA Licence applications for biopharma and the energy sector. Jonathan has over 10 years' experience in environmental compliance, planning and management of Environmental Impact Assessments, licensing, and urban planning. Jonathan has a BSocSc (Environmental Planning) and BBA (Economics) from the Waikato University in New Zealand and has experience working in the environmental consultancy, planning, and regulatory fields from Ireland, the UK and New Zealand.

2.0 METHODOLOGY

The EU (2017) *Guidance on the preparation of the Environmental Impact Assessment Report* outlines that human health is a very broad factor that is be highly project dependent. This guidance states:

> *The notion of human health should be considered in the context of the 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.*

Human health should be considered in the context of environmental pathways which may affect health such as air quality, noise, water and soil quality. All can contribute to negative effects on human health by facilitating the transport of contaminants or pollutants. An evaluation of the effects of these pathways on health, by considering the accepted standards of safety in dose, exposure or risk of air quality and noise levels for example, is considered appropriate, as these standards have been arrived at via scientific and medical research.

The EPA Guidelines (2022), notes that the transposing legislation does not require assessment of land-use planning, demographic issues or detailed socioeconomic analysis (EPA, 2022).

Furthermore, in accordance with the EPA (EPA, 2022), the assessment of impacts on population and human health should refer to the assessments of those factors under which human health effects might occur, as addressed elsewhere reports submitted with this planning application. The likely significant impacts on with Human Health and Population in regards to issues such as soils, geology and hydrogeology, water, air quality, noise and vibration, traffic and landscape are addressed in detail within the following reports:

- Site Specific Soils & Geology Report, Ciaran Reilly and Associates, 2023.
- Traffic Management Plan, Local Transport Projects Ltd, 2023.
- Air Quality Impact Assessment Report, AWN, 2023a.
- COMAH Screening Assessment Report, AWN, 2023b.
- Environmental Noise Assessment, Philip Dunbavin Acoustics Ltd, 2023.
- Landscape and Visual Appraisal, Entrust Planning and Environmental and Douglas Harman Landscape Planning, 2023.
- Site Specific Flood Risk Assessment, IE Consulting, 2023a.
- Construction Environmental Management Plan, IE Consulting, 2023b.

Where these topics are dealt with in further detail elsewhere in the planning application, the relevant reports have been cross referenced in this report to provide the Planning Authority with a context for their determination.

2.1 RELEVANT LEGISLATION AND GUIDANCE

This report has been prepared in accordance with:

- Guidelines on the Information to be Contained in Environmental Impact Assessment Reports. Environment Protection Agency (EPA, 2022)
- Health Impact Assessment Guidance. Institute of Public Health (IPH), (IPH, 2021).
- Environmental Impact Assessment of Projects: Guidance on the preparation of the Environmental Impact Assessment Report European Commission (EU, 2017)

This report follows these guidelines and will examine the health effects relevant to the Proposed Development as they relate to the relevant study area. The description of the sensitivity, magnitude and significance, outlined within this assessment are based on the Health Impact Assessment Guidance (IPH, 2021) criteria, while the probability and duration of effects are based on the definitions set out within Section 3.7 of the 'Guidelines on information to be contained in Environmental Impact Assessment Reports' (EPA, 2022).

2.2 DATA SOURCES OF INFROMATION

The following sources of information have been used in this assessment:

- 2016 Census carried out by the Central Statistics Office (CSO) 24 April 2016. Made available from https://www.cso.ie/en/
- 2022 Census results carried out by the Central Statistics Office (CSO) 03 April 2022. Made available from https://www.cso.ie/en/
- Pobal HP Deprivation Index based on 2016 Census Data (CSO) Made available from https://www.pobal.ie/
- Pobal HP Deprivation Index based on 2022 Census Data (CSO) Made available from https://www.pobal.ie/
- Google maps available from https://www.google.com/maps
- OpenStreetMap and contributors available from https://www.openstreetmap.org
- GeoHive contributors and available from https://www.geohive.ie/

2.3 STUDY AREA

There is no specific guidance available on an appropriate study area to focus the assessment of human health and populations. The research area has been established based expert judgement, the accessibility of data, and taking into consideration review of the potential for impact from the Proposed Development.

It is acknowledged that projects like the one proposed can have an impact on activity in a larger area that only the site itself. Generally, the closer to the works, the greater the potential for impacts. The most significant environmental impacts are likely to be confined within 50-150 m of the Proposed Development. Some effects from the Proposed Development, including air quality and traffic, might have a larger area of effect, and these are addressed in further detail in the corresponding expert assessments submitted with the planning application.

The project being considered, is not expected to have Regional, National or International, or Transboundary impacts on Human Health and Populations. Therefore, the Study area has been restricted to the neighbouring community (site-specific population), and wider community (local population). A general study area of 1 km from the site location is included for population statistics, while the wider area of 2.5 km from the site location has been used to inform the baseline description of the area.

In the desk-based assessment of Population Health Sensitivity the use of Electoral Divisions (ED) statistics from CSO have been utilised. Electoral Divisions are the smallest legally defined administrative areas in the state; developed with the intention of producing areas roughly equivalent in both population and "rateable value" (CSO).

The Proposed Development site is located in the Local Authority Area of Wexford County Council (WCC), and in the electoral division (ED) of Kilmokea (14080). The area selected for the consideration of baseline Human Health and demographic information has been defined as the ED containing the Proposed Development site and those within 1 km of the Proposed Development site. The ED which will be included alongside Kilmokea are Ballyhack (14067), Rathpatrick (7111) and Faithlegg (25072). Ballyhack is also located within the WCC Local Authority Area. Rathpatrick is located within the Kilkenny County Council (KCC) Local Authority Area and Faithlegg is located within the Waterford County Council (WdCC) Local Authority Area.

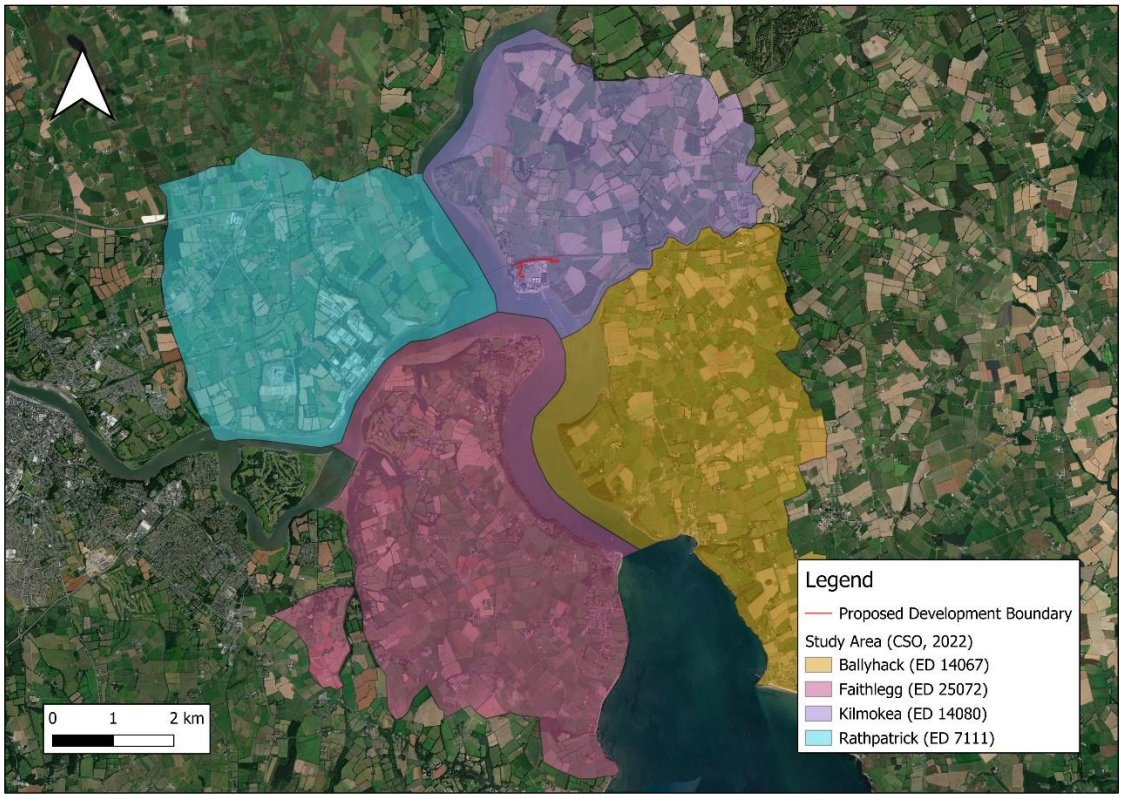

Figure 2.1 *Location of the Proposed Development within the Study Area*

2.4 POPULATION IMPACT ASSESSMENT CATEGORIES

2.4.1 Assessment Sensitivity of Population

The assessment of significance of an impact is a professional appraisal based on the sensitivity of the receptor and the magnitude of effect. Within any area, the sensitivity of individuals in a population will vary. The Health Impact Assessment Guidance (IPH, 2021) sets out conceptual model of the different components of sensitivity (Figure 2.2). It uses criteria (segments) and indicative classifications (levels) to explore, and explain, a finding of sensitivity. The conclusion may be summarised as a high, medium, low or negligible sensitivity to change.

The existing sensitivity of the receiving environment (in terms of population and human health) has been appraised for the study area with a desk-based assessment of routine demographic and health indicators, rather than the use of surveys or collection of primary data. This includes analysis of existing data (based on the availably of information) from the Central Statistics Office (CSO) and Pobal to build up a profile of the baseline population information within the study area. Topographical maps and Google maps have also been used to inform the baseline description of the area to inform the proximity of the Site to areas of economic activity, employment, community infrastructure, emergency services, tourism and recreation amenities.

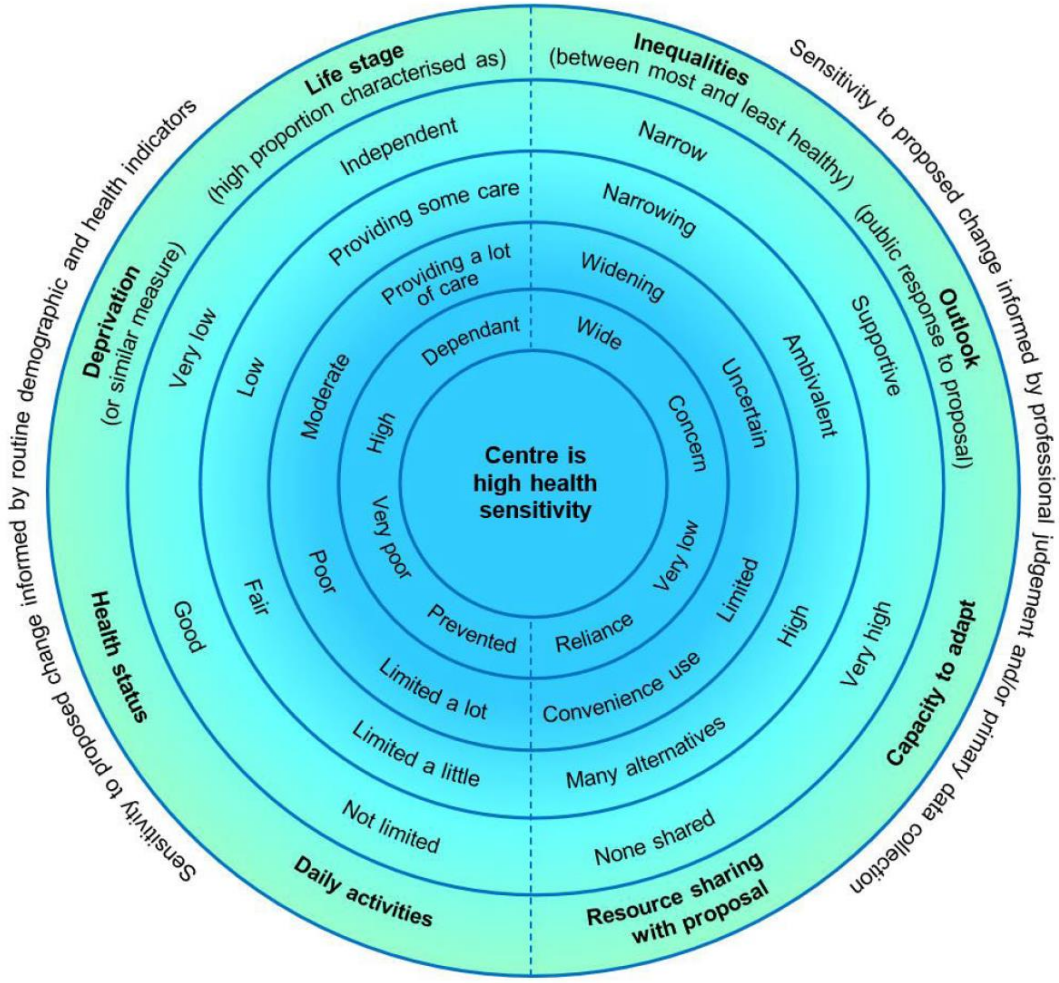

Figure 2.2 *Health Sensitivity: Conceptual Model (Source: Health Impact Assessment Guidance (IPH, 2021))*

2.4.2 Magnitude of Impact

Magnitude considers the characteristics of the change which would affect the receptor as a result of the proposal. The Health Impact Assessment Guidance (IPH, 2021) sets out a conceptual model of the different components of sensitivity (Figure 2.3). Again, this model provides different components of *magnitude*. It uses criteria (segments) and indicative classifications (levels) to explore, and explain, a finding of *magnitude*. The conclusion may be summarised as a high, medium, low or negligible magnitude of change.

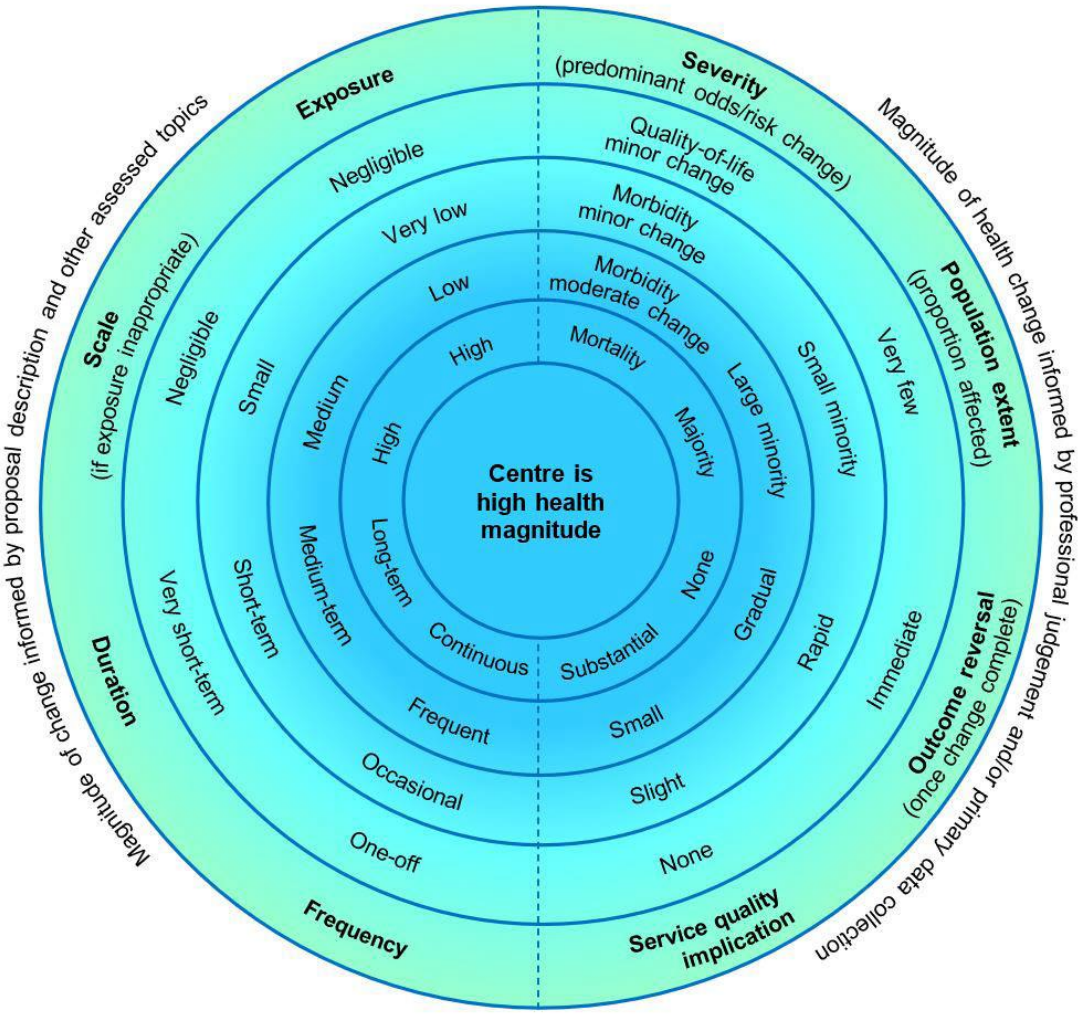

Figure 2.3 *Health Magnitude: Conceptual Model (Source: Health Impact Assessment Guidance (IPH, 2021))*

2.4.3 Significance of Effects

Significance relies on informed, expert judgement about what is important, desirable or acceptable with regards to changes triggered by the proposal in question. The assessment of the significance of effects in this assessment is a professional appraisal and has been based on the relationship between the magnitude of the effects and the sensitivity of the receptor.

The Health Impact Assessment Guidance (IPH, 2021) sets out a conceptual model of the different components of significance. It uses criteria (segments) and indicative classifications (levels) to explore, and explain, a finding that a health effect is significant or not significant.

The Health Impact Assessment Guidance (IPH, 2021) model brings together different types of evidence, e.g. scientific literature, public health priorities, regulatory standards and health policy. The model thus not only take into account a range of evidence sources, but also a diversity of professional perspectives, e.g. academics, public health practitioners, regulators and policy makers.

The model below, includes the factors of magnitude of impact and the sensitivity of receptors as determined in Section 2.4.1 and Section 2.4.2 above. This Human Health

and Population Impact Assessment typically relies on regulatory thresholds, where there would be formal monitoring by regulators, to set out the acceptability or desirability of change to population health.

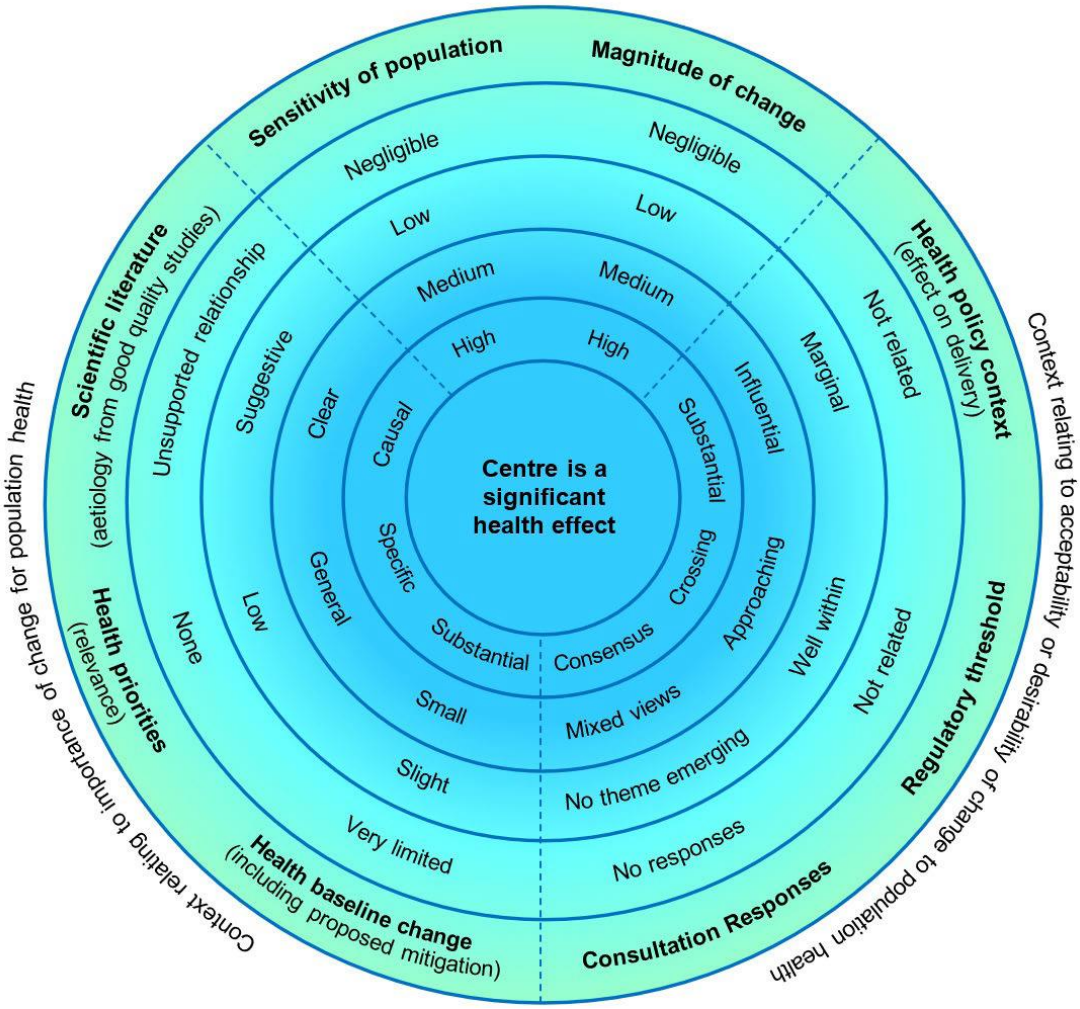

Figure 2.4 *Health Significant: Conceptual Model (Source: Health Impact Assessment Guidance (IPH, 2021))*

2.5 DIFFICULTIES ENCOUNTERED

No particular difficulties were encountered in preparing the Human Health and Population Impact Assessment.

There are uncertainties in relation to assessing impacts on individuals or communities due to the lack of individual health data and the difficulty in predicting effects, which can only be based on general guidance and assumptions.

Forecasting methods and methodology, if any, are set out within the specialist reports that this assessment relies upon.

2.6 DEVELOPMENT SITE CONTEXT

The total site boundary area for the Proposed Development is approximately 2.58 ha, which consists of greenfield lands and lands within the adjacent SSE Great Island

Power Station. The Proposed 110kV Substation occupies an area of approximately 0.3 hectares. Access to Site is from the L4033 (entrance road to Great Island Power Station) and is shared with Greenlink Interconnector convertor station, past the Siemens temporary construction compound. The total underground grid connection route is approximately 838 m.

The Proposed 110kV Substation site area is currently used as an agricultural field which is located directly east of the SSE Great Island Power Station and directly north of the Greenlink UK-Ireland Interconnector converter station which is currently under construction. The Proposed 110kV Substation site is located south of an existing rail road in a rural and sparsely populated area, while the underground cabling runs into the neighbouring SSE Great Island Power Station to connect to the existing Eirgrid Great Island 110kV Substation.

The entire proposal is located within County Wexford, although the nearest urban centre is Waterford City located approximately 8km west of the Proposed Development site. The Proposed 110kV Substation site is located c. 600m east of the L4033 local road, and approximately 5 km west of the N25 Waterford Road. The underground grid connection route will run from the Proposed 110kV Substation to the existing Great Island 110kV Eirgrid substation, passing through the neighbouring SSE Great Island Power Station lands. The proposed underground electricity grid connection is to be installed entirely within private lands.

The SSE Great Island Power Station bounds the site to the south and west, Greenlink Interconnector converter station to the south, and hedgerows bounding the site to the north and east. The 38kV substation and BESS compound (subject to a separate application (WCC Reg. Ref.: 20231294)) is located north of the site, and the future 90MW BESS compound (subject to a future separate application as advised by ABP during pre-application consultation) is located east of the site. The area immediately around the Proposed Development is predominantly rural and sparsely populated.

The Environmental Sensitivity Mapping tool (geohive.ie) and the WCC Development Plan 2022 – 2028 have been used to identify designated ecological and cultural areas within the vicinity of the site. The Proposed Development site is located outside any ecological designated areas, such as a Special Protection Areas (SPA) and National Heritage Areas (NHA). The western boundary of the Site is located c. 200m east of the River Barrow and River Nore Special Area of Conservation (SAC) and the Barrow River Estuary Proposed Natural Heritage Area (pNHA), and there is a small number of Record of Monuments and Places assets (RMP) in the vicinity of the site.

3.0 RECEIVING ENVIRONMENT

3.1 POPULATION HEALTH SENSITIVITY WITHIN THE STUDY AREA

The purpose of the population health sensitivity assessment is to identify the likely sensitivity of the local population and its capacity to absorb change. It is considered that for the purpose of this assessment that available data on: Population; Deprivation; Life Stage; and Health Status within the Study Area provides sufficient information to establish the population sensitivity and to provide the Planning Authority with a context for this assessment.

3.1.1 Population

The most recent census of population was carried out by the CSO on the 3 April 2022. The census compiles data for the whole state as well as smaller individual areas including counties, cities, towns, and electoral divisions. Taking into consideration the location of the Proposed Development, the census information on population, age profile, employment, and social class, has been analysed in relation to the development site.

Table 3.1 denotes the population change of the State and the electoral divisions which make up the study area for the census years 2016 and 2022. The Study Area has seen an overall growth in population. In particular, the population of Ballyhack grew at a rate higher than that of the Republic of Ireland (ROI). Faithlegg has seen a slight decrease in population.

Table 3.1 *Population Change at National, County and Electoral Division Level from 2016 – 2022 (Source: www.cso.ie)*

Area	Population for Census Year		% Change 2016-2022
	2016	2022	
State - Republic of Ireland	4,761,865	5,149,139	+8.1
Kilmokea	853	886	+3.9
Ballyhack	1,241	1,363	+9.8
Rathpatrick	1,095	1,121	+2.4
Faithlegg	2,152	2,115	-1.7

3.1.2 Deprivation

The Health Impact Assessment Guidance (IPH, 2021) outlines that impact assessments should consider if the population is already stressed by limited resources or high burdens as well as if groups are affected that have reduced access to financial, social and political resources. Deprivation differences between areas are indicative of social gradients, which are central to the consideration of health inequalities.

Deprivation statistics for Ireland are available from the Pobal HP Deprivation Index that shows the overall affluence and deprivation. This Index draws on data from the national Census and combines three dimensions of relative affluence and deprivation: Demographic Profile, Social Class Composition and Labour Market Situation that are measured by ten key socio-economic indicators from the Census of Population.

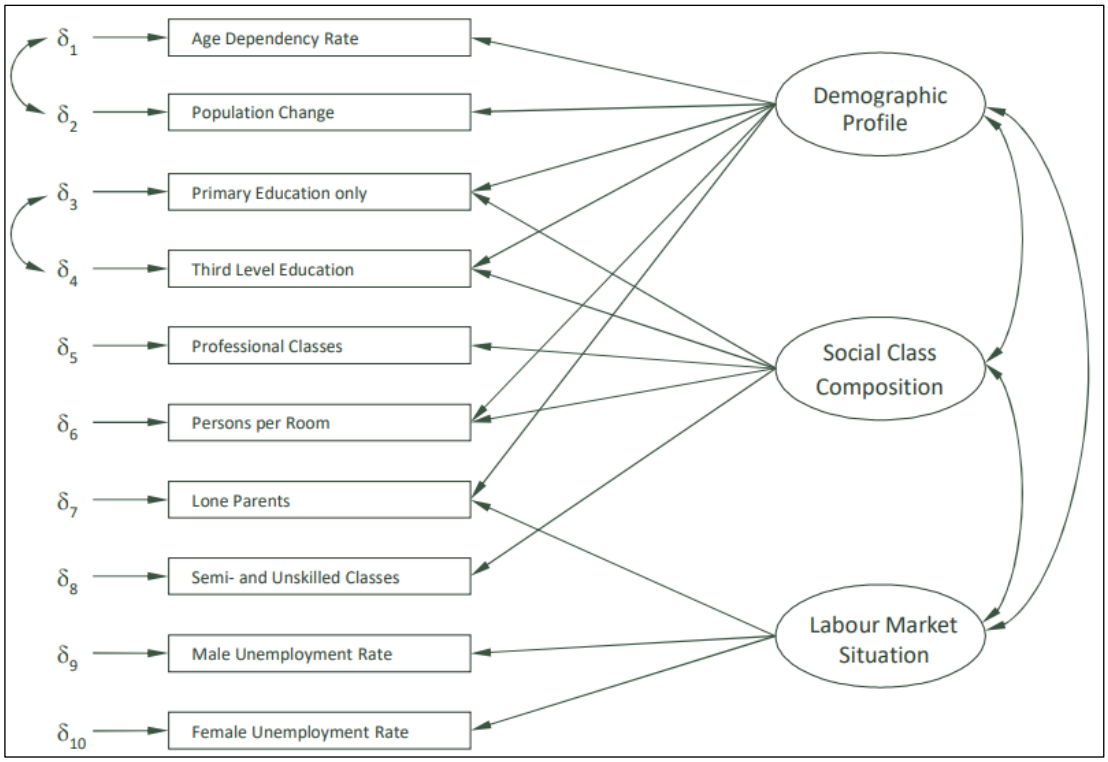

Figure 3.1 *Basic Model of the Pobal HP Deprivation Index*

The Pobal HP Deprivation Index Relative Index Score allows for the provision of descriptive labels with the scores, which are grouped by standard deviation as seen in Table 3.2 below.

In order to make a uniform assessment using the conceptual model as set out in Figure 2.2 above a relative Population Sensitivity the Deprivation Score of 'Very disadvantaged', or 'Extremely disadvantaged' would represent a high sensitivity. Conversely, a 'Extremely affluent' or 'Very affluent' would represent a very low sensitivity.

Table 3.2 *Pobal HP Index Relevant Index Score Labels (Source: Pobal HP Deprivation Index)*

Deprivation Score	Pobal HP Description	Sensitivity of Population
> 30	Extremely affluent	Very Low
20 to 30	Very affluent	Very Low
10 to 20	Affluent	Low
0 to 10	Marginally above average	Low
0 to -10	Marginally below average	Moderate
-10 to -20	Disadvantaged	Moderate
-20 to -30	Very disadvantaged	High
< -30	Extremely disadvantaged	High

The data in Table 3.3 show the Pobal HP Deprivation Index Relevant Index Scores for the Study Area based on the 2022 Census. Pobal have not released depravation scores at the national or local authority level for 2022, so the Wexford County score has been utilised for comparison here instead. These figures show for the year 2022 that and the study area is 'Disadvantaged' to 'Marginally Above Average' as compared

with Co. Wexford which is ‘‘Marginally Below Average’. This indicates a Low to Moderate Population Sensitivity (Deprivation) within the study area.

Table 3.3 *Deprivation Score within the Study Area (Pobal HP Deprivation Index, 2022 Census)*

Area	Deprivation Score	Pobal HP Description
Co. Wexford	-4.09	Marginally Below Average
Kilmokea	-10.80	Disadvantaged
Ballyhack	-4.18	Marginally Below Average
Rathpatrick	-5.47	Marginally Below Average
Faithlegg	3.19	Marginally Above Average

3.1.3 Life Stage (Age Dependency)

The Health Impact Assessment Guidance (IPH, 2021) outlines that life-course analysis is often used in public health and reflects differing health sensitivities and needs at different ages. Typically, children and older people are particularly sensitive to change, including due to being dependants. Dependents are defined for statistical purposes as people outside the normal working age of 15-64. Dependency ratios are used to give a useful indication of the age structure of a population with young (0-14) and old (65+) shown as a percentage of the population of working age (15-64).

A low dependency ratio indicates that there is a larger proportion of working population age (15–64) years as compared to young (0-14) and old (65+). Conversely, a high dependency ratio indicates that there is a larger proportion of young (0-14) and old (65+) as compared to working population age. High dependency ratio can also indicate if some groups are more likely to be at home during the day (for example, due to childcare, or retired persons) and would therefore be more likely to be impacted by a development within the area.

Age dependency ratio are available through the Pobal Online Geo-Profiling tools (https://maps.pobal.ie/) which are based on the national Census.

The age dependency ratio for the study area is shown in Table 3.4 below. From these dependency ratios we can tell that the study area is more dependent when compared with ROI as a whole. Indicating a larger ‘dependent’ population within the Study Area as compared ROI. This indicates that there is a larger proportion of non-working population within the Study Area, likely to be less mobile, and at home during the day, and would therefore be more likely to be impacted by a development within the area as compared to a less dependant population.

Table 3.4 *Age Dependency Ratio within the Study Area (Pobal Geo-Profiling, 2022 Census)*

Area	Age Dependency Ratio for Census Year	
	2016	2022
State - Republic of Ireland	52.70	53.22
Kilmokea	39.87	64.68
Ballyhack	39.71	67.03
Rathpatrick	33.23	57.44
Faithlegg	37.43	59.38

3.1.4 Health Status (General Health)

The CSO as part of the census records an overall self-reported measure of population health within Ireland. Areas with a poor health status are typically considered to be of a higher sensitivity and more susceptible to change in environmental conditions.

Table 3.5 below shows the Self-reported measure of population health within the Study Area compared to ROI. This shows the area predominately self-reports their health as 'Very Good' in-line with national trends, although to a slightly lesser degree than the ROI average, with the exception of Faithlegg.

Table 3.5 *Self-reported Measure of Population Health (CSO, 2022 Census)*

Area	% population describing their general health					
	Not Stated	Very Bad	Bad	Fair	Good	Very Good
State - Republic of Ireland	6.74%	0.32%	1.41%	8.64%	29.66%	53.23%
Kilmokea	2.37%	0.34%	1.92%	11.06%	32.62%	51.69%
Ballyhack	4.70%	0.29%	1.83%	10.86%	30.15%	52.17%
Rathpatrick	5.00%	0.36%	0.98%	9.45%	31.22%	52.99%
Faithlegg	2.55%	0.19%	1.13%	9.69%	28.18%	58.26%

3.1.5 Ability to Perform Daily Activities

People's ability to perform day-to-day activities is relevant to population sensitivity, particularly where there are changes in access to services or community amenities. Persons with disabilities can also be more susceptible to the changes in environmental conditions. The CSO as part of the census records an overall self-reported measure of persons with disabilities within Ireland.

Table 3.6 details the number of persons with a disability compared to the population as a whole. The data shows that the Study Area has a slightly higher % of Persons with a disability overall than the national average, with 1 no. ED, Rathpatrick, reporting a lower %; indicating that for persons within the area there are slightly higher restrictions on daily activity.

Table 3.6 *Persons with a Disability (CSO, 2022 Census)*

Area	Persons with a disability	Population	% Persons with a disability
State - Republic of Ireland	1,109,557	5,149,139	22%
Kilmokea	255	886	29%
Ballyhack	340	1,363	25%
Rathpatrick	234	1,121	21%
Faithlegg	480	2,115	23%

3.1.6 Summary of Population Health Sensitivity

The sensitivity of the surrounding area has been considered based on the details of the published data available from CSO and Pobal. The study area has seen a population growth between the 2016 and 2022 census, although Faithlegg ED saw a slight decrease. The Pobal HP Deprivation Index shows the area be 'Disadvantaged'

to ‘Marginally Above Average’ indicating a Low to Moderate Population Sensitivity (Deprivation) within the study area.

There is a higher age dependency ratio, therefore a large proportion of the population is outside of working age, implying a lesser degree of self-sufficiency and resilience to change. The information presented above for the study area shows, a high proportion [51.69 – 58.26%] describes their health status as ‘Very Good’ and low proportion as ‘Bad’ or ‘Very Bad’. The data shows that the study area has a slightly higher % of Persons with a disability than the national average; indicating that for persons within the area there are slightly higher restrictions on daily activity.

Taking these factors into consideration, it can be concluded that the population in the study area exhibits a relatively lower sensitivity to change, categorising it with regard to the criteria set out in Figure 2.2 as having a Medium population sensitivity.

3.2 LOCATION AND CHARACTER OF THE LOCAL ENVIRONMENT

The purpose of describing the location and character of the local environment provides useful information on the current local community and usage within the study area provide the Planning Authority, and stakeholders with context for this assessment. This includes community and social infrastructure that covers a range of services and facilities that meet local and strategic needs and contribute towards a good quality of life. In this context it includes local business, residential areas, education, health facilities, emergency services, and places of worship, and green infrastructure.

Furthermore, the baseline identifies tourism and landscape amenity within the study Area which provides an indication on current intrinsic values placed on the area for local, national and international users that may be impacted by the Proposed Development.

The local environment also includes areas of natural resources that relate to populations and human health that may be impacted by the Proposed Development, this includes economic resources, recreational and bathing waters, and drinking water resources.

While a general study area of ED’s within 1 km from the site location is included for population statistics, the wider area of 2.5 km from the site location has been used to inform the baseline description of the area.

3.2.1 Community and Social Infrastructure within the Study Area

3.2.1.1 Residential and Employment Areas

Under the Wexford County Development Plan 2022 – 2028 the entire site boundary is located in land with no designated zoning.

Due to the rural nature of the Proposed Development site and its environs, there are a limited amount of small commercial businesses scattered around the Study Area. The closest concentration of commercial facilities is located just outside the Study Area at Belview Port, located c. 3 km west of the Proposed Development. Notable facilities at Belview Port include Smartply Europe Ltd (timber panel manufacturer), BV 4 Warehouse Store All (warehouse), Southeast Port Services Limited (shipping service), Signode Ireland (packaging company) and Target Fertilisers (fertiliser wholesaler).

The closest concentration of shopping facilities are located c. 3 km to the west along the Main Street of Campile, including supermarkets, a hardware shop, a garden centre and a petrol station.

Within the Study Area there are dispersed rural residential developments in a one-off development pattern typical of the areas rural setting. The closest concentrated area of residential settlements is Cheekpoint, located c. 1.3km south of the Proposed Development, across the Barrow-Suir-Nore Estuary.

The nearest sensitive receptors to the Proposed Development site are the individual one-off residential dwellings to the north-west of the site, within a 100 - 350m range of the site boundary.

3.2.1.2 Education, Childcare, Schools

Due to the rural nature of the development, there are limited primary school facilities in the area and no secondary schools. The one primary school within the Study Area is Faithlegg National School, located c. 2.3 km south of the Proposed Development site. The closest third level institution in the area is South East Technological University Waterford, located c. 11 km south west of the site.

3.2.1.3 Healthcare Services

There are no health services within the Study Area, although Campile Health Centre is located just outside it c. 2.8 km to the east of the Proposed Development. There are no hospitals within the study area, University Hospital Waterford is located c. 6.9 km southwest of the site.

3.2.1.4 Emergency Services

The nearest Garda Station is Passage East Garda Station located c. 5 km south of the site. The nearest Fire Station is Waterford City Fire Station located c. 11 km southwest of the site.

3.2.1.5 Places of Worship

Due to the rural nature of the development, there are limited places of worship within the Study Area. The one church within the area, Horeswood Church, is located c. 2.5 km to the northwest.

3.2.1.6 Green Infrastructure, Landscape and Amenity within the Study Area

Recreational facilities within the Study Area mainly consist of outdoor parks and walking trails, including Cheekpoint Strand, playground and park (c. 1.3km south), Deer Park Forest (c. 2.4km south west) and Whitehorse walking trails and outdoor gym facilities (c. 2.2km north west). Horswood Sports Hall (c. 1.7km north east) is also located within the Study Area. There are limited facilities in the area due to the rural nature of the Proposed Development site and its surrounding environs.

In terms of landscape amenity, agricultural land and existing electrical infrastructure are the dominant elements of the landscape and visual amenity is limited. This area can be considered of low sensitivity to the Proposed Development, which is of similar character. There are no listed or scenic views, no landscape or amenity designations, no archaeological sites listed on the Sites and Monuments Record or protected trees pertaining to the site.

As detailed in the LVIA (Entrust and Douglas Harman, 2023) which is included in the planning application, an assessment of the landscape of County Wexford was undertaken by WCC, with the findings published in the Volume 7: Landscape Character Assessment of the WCC Development Plan 2022-2028 which indicates the landscape character, value, and landscape sensitivity. The Landscape Character Assessment identifies 4 Landscape Character Units (LCU) (Uplands, Lowlands, River Valleys or Coastal), within which are contained Distinctive Landscape Features, that though within the LCU's are separate entities and inherit specific landscape interest and/or visual qualities, e.g rolling hills, kettle and kame landscape, sloblands, etc.

The Proposed Development is located within the Barrow/Suir River Valley, which extends from a southerly point at Waterford Harbour northwards on the eastern bank of the River Barrow to north of New Ross. River Valley Landscapes are classed as having a Moderate to High sensitivity.

3.2.2 Tourism within the Study Area

Tourism is returning to strong growth and continues to play a hugely influential role in Irelands economic success.

The development site is located within Wexford County, with an abundance of natural assets including the 246km coastline and multitude of Blue Flag and Green Coast beaches. The Rosslare Eurosport is a key access point to the county and surrounding country. The County Wexford Tourism Strategy 2019 – 2023 outlines the potential for tourism in the county as:

> *'Wexford is the Cornerstone of Irelands Ancient East and is steeped in History, has beautiful beaches and is blessed with breath taking scenery, has great product and a committed tourism industry.'*

The development site is located adjacent to existing electrical infrastructure developments and is not located near any areas of significance or local tourism. The closest area of significance to local tourism is the Norman Way heritage route that runs along the south coast of County Wexford. Sites of note along the route nearby to the Proposed Development include Kilmokea Cross and Dunbrody Abbey and Fortified House, and associated garden and visitor centre. The Minauan Hill hiking area is located c. 1.8km south of the site. Overall, tourism is not a major industry in the immediate environs of the site.

3.2.3 Natural Resources

3.2.3.1 Geological Heritage and Economic Resources

Natural resources and land use in the study area has also been considered as they may have implications for the development of the lands. The closest active quarry, Oaklands Quarry, is located c. 6.5 km to the northeast of the Proposed Development and produces aggregates for concrete, hardcore, farm drainage, earthworks and fill.

A review of Geological Survey Ireland online maps has shown that there are 5 no. Mineral Localities within the Study Area. There is a shale deposit located c. 1.8 km west of the site. There is a cluster of 4 no. deposits of manganese, quartz and slate located c. 2.2 - 2.5km south of the site.

There are no Geological Heritage Areas within the Study Area.

3.2.3.2 Recreational Waters and Bathing Waterbodies

A review of Environmental Sensitivity Mapping online maps that includes the Register of Protected Areas (RPA) under the Water Framework Directive (WFD) has shown that there are no protected Recreational Waters or Bathing Waterbodies within the Study Area. The Newtown Stream is situated to the east of the site and flows in a southerly direction to discharge into the Barrow-Suir-Nore Estuary, there is one protected bathing waterbody in this estuary, Duncannon, which is located c. 7.8 km downstream of the Proposed Development.

3.2.3.3 Drinking Water Resources

A review of Environmental Sensitivity Mapping and Geological Survey of Ireland online maps that includes the Water Abstraction locations, and Groundwater Source Protection Areas has been undertaken. This shows no Groundwater Source Protection Areas within the Study Area. The nearest Groundwater Source Protection Area is the Glenmore PWS Public Supply Source Protection Area c. 10.1 km north of the site.

The GSI dataset for groundwater wells and springs indicates 11 no. boreholes within the Study Area, 10 of which are located in the immediate vicinity of the site. All 10 no. boreholes are listed under industrial use and associated with ESB development. The one additional borehole is located c. 2.2 km southwest of the site is listed under domestics use, however it is dated to 1899 and is unlikely to still be in use.

3.2.4 Risk of Major Accident Hazards or Disasters

The potential for a project to cause risks to human health, cultural heritage or the environment due to its vulnerability to external accidents or disasters is considered where such risks are significant, e.g. the potential effects of floods on sites with sensitive facilities. Where such risks are significant then the specific assessment of those risks in the form of a Seveso Assessment (where relevant) or Flood Risk Assessment may be required.

3.2.4.1 Landslides, Seismic Activity and Volcanic Activity

In general, risk of landslides in Ireland is considered to be low, as the country is not located in a region with high seismic activity or large mountain ranges. Landslides are more common in unconsolidated material than in bedrock, and where the sea constantly erodes the material at the base of a cliff landslides and falls lead to recession of the cliffs. Landslides have occurred in Ireland in recent years in upland peat areas due to disturbance of peat associated with construction activities. The landslide susceptibility map (GSI spatial map viewer) identifies areas which are subject to landslides and is measured from low to high. The landslide susceptibility map considers the location of landslides and what causes them (slope, soil type and the impact of the flow of water). Based on the GSI spatial map viewer, the Proposed 110kV Substation site is in an area with moderate susceptibility to landslides, with a GSI Landslide Susceptibility Classification of moderately high. The underground grid connection is located in an area with a lesser susceptibility, with a GSI Landslide Susceptibility Classification ranging from moderately low in the east to low in the west.

There are no active volcanoes in Ireland so there is no risk of volcanic activity.

In Ireland, seismic activity is recorded by the Irish National Seismic Network. The Geophysics Section of the School of Cosmic Physics, Dublin Institute for Advanced Studies, has been recording seismic events in Ireland since 1978 (www.dias.ie). This

network consists of several seismometers that are located throughout Ireland. Seismic activity and earthquake risk in Ireland are generally considered to be low. This is because Ireland is located on the western edge of the Eurasian Plate, which is a tectonic plate that is not known for its seismic activity. However, earthquakes can still occur in Ireland, although they are typically small and have little impact. There is a very low risk of seismic activity to the Proposed Development site.

The Proposed Development site is not vulnerable to landslides, seismic activity or volcanic activity. Therefore, there is no significant potential for the Proposed Development to cause risks to human health due to its vulnerability to landslides, seismic activity or volcanic activity.

3.2.4.2 Proximity to Seveso or Industrial Emissions Sites

The Seveso Directive (Directive 82/501/EEC, Directive 96/82/EC, Directive 2012/18/EU) was developed by the EU after a series of catastrophic accidents involving major industrial sites and dangerous substances. Such accidents can give rise to serious injury to people or serious damage to the environment, both on and off the site of the accident. The Chemicals Act (Control of Major Accident Hazards involving Dangerous Substances) Regulations 2015 (S.I. No. 209 of 2015) (the "COMAH Regulations"), implement the latest Seveso III Directive (2012/18/EU).

The purpose of the COMAH Regulations is to transpose the Seveso Directive into Irish law and lay down rules for the prevention of major accidents involving dangerous substances, and to seek to limit as far as possible the consequences for human health and the environment of such accidents, with the overall objective of providing a high level of protection in a consistent and effective manner.

Establishments are either lower tier establishments or upper-tier COMAH sites with above threshold quantities of dangerous substances present, and to which the provisions of the COMAH regulations apply.

The closest Notified Seveso Establishments to the Proposed Development is the Lower Tier establishment SSE Generation Ireland Ltd Great Island, the Proposed Development is located within the consultation distance of the SSE Generation Ireland establishment, the consultation area is indicated by the grey area in Figure 3.2 below.

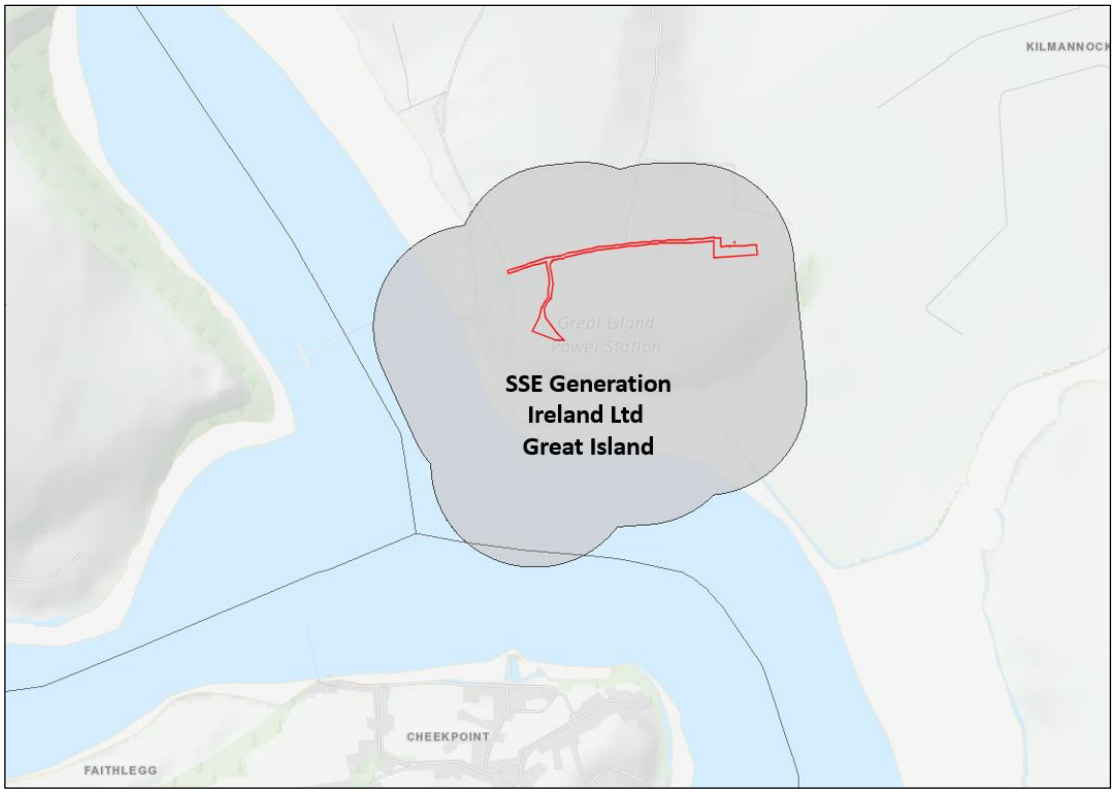

Figure 3.2 *Consultation Distances of Seveso Establishments within the Vicinity of the Proposed Development Site (indicative in red)*

The COMAH Screening Assessment (AWN, 2023b) that has been prepared for the Proposed Development and included with the planning application concludes that the Proposed Development is not a development to which the provisions of the Chemicals Act (Control of Major Accident Hazards Involving Dangerous Substances) Regulations 2015 will apply and that the Proposed Development will not increase the risk or consequence of a major accident at the SSE Generation Ireland Ltd Great Island. Therefore, there are no implications for major accidents or hazards at the Proposed Development site.

In addition to being a Seveso Establishment, the SSE Generation Ireland site (licensed under SSE Generation Ireland Limited (Great Islands)) also holds an EPA Industrial Emissions Licence for the combustion of fuels in installations with a total rated thermal input of 50 MW or more (Class 2.1: Energy). The 464MW natural gas fired Combined Cycle Gas Turbine (CCGT) power plant has a primary fuel source of natural gas directly supplied by the Bord Gáis, and has the capability to switch to distillate oil as a secondary fuel. Distillate oil is stored in bunded holding tanks on site, filled directly from boats that can operate from the SSE owned jetty.

It is important to note that the proximity of a COMAH or licensed facility does not necessarily mean that the Proposed Development will be impacted by them or vice versa. However, it is essential to consider these sites as part of the existing environment and to consider and understand the potential for cumulative impacts or other interactions with the Proposed Development at this location.

3.2.4.3 Risk of Flooding

A Site Specific Flood Risk Assessment (SSFRA) (IE Consulting, 2023a) was carried out by IE Consulting in December 2023 for the Proposed Development. The primary

potential flood risk to the proposed development site can be attributed to an extreme fluvial and/or tidal/coastal flood event in the River Barrow Estuary and/or the River Suir Estuary and/or the Campile River located 253m, 255m and 914m beyond the western, western and southern boundaries of the site respectively and/or to an extreme fluvial flood event in the Newtown Stream located 132m beyond the eastern boundary of the site. The site is not at risk of pluvial or groundwater flooding. In the context of the 'Planning System and Flood Risk Management Guidelines, DOEHLG, the site of the proposed development falls within Flood Zone 'C'. Development in this zone is appropriate from a flood risk perspective. Developments in this zone are generally not considered at risk of fluvial flooding and would not adversely affect adjacent lands and properties from a flood risk perspective. The SSFRA concludes that the development as proposed is appropriate from a flood risk perspective.

4.0 CHARACTERISTICS OF THE PROPOSED DEVELOPMENT

The proposed application to Wexford County Council (WCC) is for an electrical installation on 2.58 hectares (ha) of lands within the townland of Great Island, Co. Wexford. The purpose of the Proposed Development is to facilitate the connection of the storage of any excess energy which is generated within the national grid. The Proposed 110kV Substation is required to connect the Kilmannock 90MW BESS Compound (subject to a future separate application as advised by ABP during pre-application consultation) to the existing Eirgrid Great Island 110kV Substation to support both the import and export of the required power, to and from the national grid.

The main infrastructural elements of the development proposal include:

- The 110kV substation, measuring 0.3Ha in overall area, would be sited at ground level of 16.00m ASL and would consist of the following infrastructure: 110kV transformer; House transformer; Disconnect; Individual current and voltage transformers; Combined current/voltage transformer; Surge arrestors; Circuit breakers; Cable sealing end; 4no. lightning masts measuring 18.00m in overall height. 2no. substations (Eirgrid and IPP) would be included in the substation, each building having an overall height of 4.20m. A blastwall measuring 8.00m in overall height located on the eastern side of 110kV transformer, between transformer and IPP substation. Ancillary development to the main substation infrastructure would include palisade fencing measuring 2.60m in overall height, pole-mounted security cameras and lamp posts.
- Underground Grid Connection (UGC) installation consisting of standard ESB ducting details of the following 1 no. typical trefoil trench measuring approximately 0.82m wide and 1.31m m deep to house 3no. power ducts, 2no. communications ducts and 1 ecc duct. A precast communications chamber measuring approximately 1.30m in length, 1.03m in width and 1.20m in height will be installed outside both substations.

The proposed grid connection will be installed along private lands in the adjacent SSE Great Island Power Station site.

The construction of the 110kV substation facility shall involve excavation works and some stripping of topsoils, subsoils and vegetative cover. It is expected that this subsoil material will be inert in nature and where required will be utilised for general landscaping works within the overall site boundary. Any excess subsoil material that cannot be utilised or reused within the site shall be disposed of at suitable licenced facility. Excavated subsoil material shall be inspected by the on-site ecological supervisor.

4.1 CONSTRUCTION PHASE

The key construction phase works of note in respect of Human Health and Populations are summarised below.

- Heavy machinery, and construction vehicles will be used through the works, and result in increased traffic due to these construction vehicle.
- During site preparation and earthworks excavations will take place for building foundations, Infilling and landscaping, and for the installation of ducting for the cable installations.
- Temporary storage of construction materials will take place including aggregates, construction chemicals, fuels, oils etc.
- Construction traffic accessing the site will emit air pollutants and greenhouse gases during transport.
- Various activities are expected to take place and generate noise at the boundary of the proposed site, such as piling, footings, excavators, trenching, laying cables, etc.
- A temporary construction compound would be constructed within the site boundary for construction phase of the development, after which it would be removed.
- During construction, the site will be managed in accordance with the following safety and health regulations and guidelines which will ensure a high standard of safety both for workers on site and the general public;
    - Safety, Health and Welfare at Work (Construction) Regulations 2013 (S.I. No. 291 of 2013)
    - Safety, Health & Welfare at Work Act 2005;
    - Safety, Health and Welfare at Work (General Application) (Amendment) Regulations 2020 (S.I. No. 2/2020).

A Construction Environmental Management Plan (IE Consulting, 2023b) has been prepared by IE Consulting and will be implemented for the construction phase of the Proposed Development.

4.2 OPERATIONAL PHASE

The key operational phase aspects of note in respect of Human Health and Populations are summarised below.

- Traffic will access the site for maintenance and deliveries to and from the Proposed 110kV Substation compound.
- The electrical transformers associated with the 110kV Substation will generate noise once operational.
- The presence of a substation compound can alter the visual landscape of the area. The substation building will have a footprint of c. 180m^2 and an overall height of 4.2m.

There are no planned emissions to ground or water as part of the operational phase.

5.0 POTENTIAL IMPACTS OF THE PROPOSED DEVELOPMENT

The main potential impacts on population and human health from the Proposed Development during the construction and commissioning phases are likely to comprise the potential for spills/leaks, air emissions, noise, visual, and traffic impacts.

The baseline environment, pollution pathways, relevant mitigation measures and residual impacts have been assessed in greater detail within the corresponding specialist reports as referenced in Section 1.

A summary of the main potential impacts as they are relevant to human health criteria during construction, commissioning, operation and decommissioning of the Proposed Development is presented herein.

5.1 CONSTRUCTION PHASE

5.1.1 Potential Impacts on Businesses and Residences

There will be a ***short term, imperceptible, positive*** effect on local business with the limited presence of a very small number of construction workers using local facilities during the construction phase. It is also anticipated that the Proposed Development will have an indirect positive effect on employment in terms of construction material manufacture, maintenance contracts, equipment supply, landscaping etc. Employment opportunities create an indirect positive effect on mental health and well-being.

The main potential negative impacts on local businesses and residences associated with the Proposed Development will be in relation to air quality (dust), noise and vibration, visual impacts, and traffic. The potential impacts in relation to air quality, noise, visual impact and traffic are detailed further in the sections below.

5.1.2 Potential Impacts on Landscape, Amenity and Tourism

Entrust (2023) have prepared the Landscape and Visual Impact Assessment (LVIA) which is included with the planning application documentation. This assessment aims to satisfy the requirements of the Planning Authority and wider community with a tool to help assess the impact of the Proposed Development.

The Proposed Development has the potential to effect the landscape, local amenity and tourism during construction via:

- The introduction of new structures, access roads, machinery, materials storage, associated earthworks, car parking, lighting and hoarding.
- The removal of trees and vegetation.
- Construction activities including excavations, trenching, stockpiling.

The location of the Proposed Development is within un-zoned land, adjacent to existing electrical infrastructure, both operational and under construction. As such, the Proposed Development will have a minimal change to the existing local landscape amenity during construction. The Proposed Development will add some further visual clutter to an active construction sites in the surrounding area. Due to separation distances, there will be no impact on the local parks. The site is also well screened by existing surrounding hedgerows.

As outlined in the LVIA (Entrust and Douglas Harman, 2023) included with this application, the construction phase would not result in the loss of any notable landscape features and the site's landform would remain largely unaltered. Any nearby trees and vegetation would also remain unaffected. As such, visual and landscape impacts to the local population from landscape and visual factors will be ***negative, not significant,*** and ***short term.***

Visual impacts and amenity impacts perceived by individual persons are highly subjective and difficult to characterise however, generally, the effects would be negative since construction is an inherently, unavoidably unsightly activity thus a ***negative, not significant,*** and ***short-term effect*** would be felt on local amenity and recreational uses of the surrounding area***.***

As identified in Section 3.2.2 tourism is not a major industry in the immediate environs of the site the potential effect during construction is ***neutral, imperceptible,*** and ***short-term.***

5.1.3 Potential Impact from Land and Water Emissions on Human Health

During construction of the Proposed Development, there is a risk of accidental pollution incidences from the following sources:

- Spillage or leakage of oils and fuels stored on site;
- Spillage or leakage of oils and fuels from construction machinery or site vehicles;
- Spillage of oil or fuel from refuelling machinery on site: and
- The use of concrete and cement during pad foundation construction.

Excavation on site may encounter localised areas of contamination which will need to be excavated and disposed of appropriately to a licenced facility. Material that is exported from site, if not correctly managed or handled, could impact negatively on human beings (onsite and offsite).

There is no direct pathway to any surface waterbody due to the proposed buffer distances from the Newtown Stream. Furthermore, it is noted that there are no recorded Surface Water Drinking RPA, located downstream in the Newtown Stream or Barrow-Suir-Nore Estuary. There is one protected Bathing Waterbody located downstream in the estuary, although at a distance where any unmitigated pollutants would be diluted. Due to the distance between the stream and site boundary, lack of direct pathways and lack of sensitive receptors there is limited potential for impacts to human health and populations in respect of changes to water quality.

Therefore on this basis, in the absence of mitigation measures, the potential impacts during the construction phase on human health and populations due to changes to the hydrological environment are ***negative, not significant*** and ***short term.***

5.1.4 Potential Impact from Air Quality on Human Health

AWN Consulting have prepared an Air Quality Impact Assessment Report (AWN, 2023a) included with the application documentation. National and European statutory bodies have set limit values in ambient air for a range of air pollutants. These limit values or “Air Quality Standards” are based on the protection of the environment as well as the protection of human health. Additional factors such as natural background levels, environmental conditions and socio-economic factors are also considered in the limit values which are set. The ambient air quality standards established are designed to minimise harmful effects to health.

The key elements of construction of the Proposed Development that may give rise to emissions with potential impacts on human health from air quality and climate impacts are:

- Potential fugitive dust emissions from general site preparation and construction activities;
- Potential fugitive dust emissions from vehicles associated with construction;
- Dust emissions from the demolition/construction phase of the Proposed Development have the potential to impact human health through the release of PM_{10} and $PM_{2.5}$ emissions.
- Engine emissions from construction vehicles and machinery;
- A change in traffic flows on road associated with the Proposed Development.

As per section 3.3 of the Air Quality Impact Assessment Report (AWN, 2023a) the surrounding area is considered of low sensitivity to dust related human health impacts. There is an overall worst-case low risk of dust related human health impacts as a result of the construction of the Proposed Development. Therefore, in the absence of mitigation there is the potential for ***negative, imperceptible*** and ***short-term*** air quality impacts to human health as a result of the Proposed Development.

5.1.5 Potential Impact from Noise and Vibration on Human Health

Exposure to excessive noise is becoming recognised as a large environmental health concern. According to the 2015 European Commission report 'Noise Impacts on Health', (European Commission, 2015), the most common effects of noise on the vulnerable include:

- Annoyance
- Sleep Disturbance
- Heart and circulation problems
- Quality of Life
- Cognitive Process
- Hearing

It is acknowledged that humans are particularly sensitive to vibration stimuli and that any perception of vibration may lead to concern. In the case of road traffic, vibration is perceptible at around 0.5mm/s and may become disturbing or annoying at higher magnitudes. As all sensitive locations are at a significant distance from the construction site, it is considered that there is unlikely to be any impact in terms of vibration arising from construction activities.

Noise impacts associated with the construction phase of the Proposed Development have been considered within the Environmental Noise Assessment, Philip Dunbavin Ltd. The construction noise assessment (PDA, 2023) has been undertaken based upon typical construction activities that may take place during the project. Calculations suggest that noise levels are unlikely to exceed good practice target criteria suggested by BS5228 at the nearest receivers during construction of the Proposed Development due to the separation distances involved. Therefore, in the absence of mitigation, there is a potential at the nearest residential receptors for ***negative, not significant,*** and ***short-term*** noise impacts on human health during the construction phase.

5.1.6 Potential Impact from Traffic and Transportation on Human Health

The World Health Organisation Report 'Health Effects and Risks of Transport Systems: The Hearts Project' (World Health Organisation, 2006) states that road traffic is a major cause of adverse health effects - ranking with smoking and diet as one of the most important determinants of health in Europe. The report states;

> *"Traffic-related air pollution, noise, crashes and social effects combine to generate a wide range of negative health consequences, including increased mortality, cardiovascular, respiratory and stress-related diseases, cancer and physical injury. These affect not only transport users but also the population at large, with particular impact on vulnerable groups such as children and elderly people, cyclists and pedestrians"*

In the Department of Communications, Climate Action & Environment document *Cleaning Our Air – Public Consultation to Inform the Development of a National Clean Air Strategy* vehicle emissions are included as a key source of health impacts in Ireland (DOCCA&E, 2017).

An assessment of the additional traffic movements and temporary diversions associated with the Proposed Development during the construction phase is presented in the Traffic Management Plan by Local Transport Projects Ltd (LTP, 2023). During the construction phase there will be trips associated with the arrival and departure of construction staff, as well as the delivery of parts and construction materials.

The volume of construction traffic movement to be generated at the site is currently unknown, although the proposals are not expected to have a significant traffic impact on the public roads, particularly in the context of the larger traffic generation associated with the approved Greenlink Interconnector (ABP Reg. Ref.: ABP-308906-20). Staff vehicle movements would typically occur at the start and end of the working day and generally not coincide with the movement of large vehicles.

The potential impact in the absence of mitigation measures human beings and in particular road users will be ***negative***, ***not significant,*** and ***short term*** during the construction phase***.***

5.1.7 Potential Impacts from Major Accident Hazards and/or Natural Disasters on Population and Human Health

While there is the potential for construction-related hazards, serious risks to human health and safety on site is not envisaged. As outlined in Section 3.2.4 there is a negligible risk of external natural disasters; including landslides, seismic activity, volcanic activity and sea level rise. The potential risk of flooding on the site as also bene assessed in the Site-Specific Flood Risk Assessment (IE Consulting, 2023a) and it was concluded that the development is not at risk of flooding. Furthermore, the Proposed Development design has no potential impact on flood risk for other surrounding properties. There is no potential for significant effects in relation to external natural disasters or on site health and safety risks.

The Proposed Development will not increase the risk or consequence of a major accident at the SSE Generation Ireland Ltd Great Island, as outlined in the COMAH Screening Report (AWN, 2023b) included with this application. Therefore, the likelihood of a Seveso establishment initiating a major accident at the Proposed Development is negligible, and the likelihood of the project initiating major accident at a nearby a Seveso establishment during construction is considered negligible; therefore, as likelihood of the occurrence is low/negligible there are no likely significant effects.

The potential effect is therefore ***imperceptible***, and unlikely, respect of Major Accident Hazards or Natural Disasters on Population and Human Health during the Construction Phase of the Proposed Development.

5.2 OPERATIONAL PHASE

5.2.1 Potential Impacts on Businesses and Residences

The Proposed Development will be monitored remotely with a small number of maintenance and repair visits a year. The Proposed Development will result in a ***long term, neutral*** and ***imperceptible*** impact to local businesses and residents in the study area.

5.2.2 Potential Impacts on Landscape, Amenity and Tourism

The Proposed Development will not create any wastewater discharge which could have a potential impact on local amenities or the local population. The Proposed Development once operational will have no impact on local tourism or shopping amenities.

The siting of the Proposed Development is adjacent to existing electrical infrastructure and additional infrastructure currently undergoing construction. The Landscape and Visual Impact Assessment (Entrust and Douglas Harman, 2023) considers that the prevailing industrial appearance of the Proposed Development would be entirely characteristic to its local context. The Landscape and Visual Impact Assessment (Entrust and Douglas Harman, 2023) includes a viewpoint analysis supported by fieldwork and by ZTV (Zone of Theoretical Visibility) analysis, examined a number of viewpoints from the nearest residential dwellings to the Proposed Development. Although the introduction of additional infrastructure would sometimes appear quite noticeable from some nearby locations, in considering the heavily industrialised nature of the local landscape surrounding the site, any changes to the wider rural character of the valley would be very minimal.

As a result, it is anticipated that the development will have ***not significant*** impacts on the local population in terms of landscape and visual effects. Further discussion is presented in the Landscape and Visual Impact Assessment (Entrust and Douglas Harman, 2023) which is included in this planning application.

5.2.3 Potential Impacts from Land and Water Emissions on Human Health

Oil used in transformers and other electrical apparatus and storage of hydrocarbons could result in leakages during the operational phase and result in effects of soils, subsoils and groundwater. Hydrocarbons and petroleum products for example have the greatest risk for human health when they are in drinking water. However, there are no Groundwater Source Protection Areas or boreholes under domestic use in the immediate environs of the site. Therefore, due to the lack of a direct receptor in the absence of mitigation measures the potential impacts during the operational phase on human health and populations due to the potential for contamination of soil and groundwater are ***neutral, imperceptible*** and ***long term.***

A reduction in water quality via unmitigated pollutants entering the Newtown Stream and Barrow-Suir-Nore Estuary which has the potential to lead to negative impacts on human health and populations. Hydrocarbons and petroleum products for example have the greatest risk for human health when they are in drinking water. However, it is noted that there are no recorded Surface Water Drinking RPA, located downstream in the Newtown Stream or Barrow-Suir-Nore Estuary. There is one protected Bathing Waterbody located downstream in the estuary, although at a distance where any unmitigated pollutants would be diluted.

In the absence of mitigation measures the potential impacts during the operational stage on human health and populations due to changes to the hydrological environment are ***neutral, imperceptible*** and ***long term.***

5.2.4 Potential Impacts from Air Quality on Human Health

During operation there will be no significant emissions to atmosphere. There will be a requirement for maintenance vehicles accessing the Proposed 110kV Substation site to result in emissions of NO_2, PM_{10}/$PM_{2.5}$ and CO_2. However, due to the infrequent nature of maintenance activities and the low number of vehicles involved emissions are not predicted to be significant. As stated in the Air Quality Impact Assessment Report prepared by AWN (AWN, 2023a), a detailed air quality assessment was scoped out for the operational stage of the development as per the TII screening criteria. Operational phase impacts from air quality to human health are predicted to be ***imperceptible, neutral*** and ***long-term.***

5.2.5 Potential Impacts from Noise and Vibration on Human Health

Exposure to excessive noise is becoming recognised as a large environmental health concern. According to the 2015 European Commission report 'Noise Impacts on Health', (European Commission, 2015), the most common effects of noise on the vulnerable include;

- Annoyance
- Sleep Disturbance
- Heart and circulation problems
- Quality of Life
- Cognitive Process
- Hearing

It is acknowledged that humans are particularly sensitive to vibration stimuli and that any perception of vibration may lead to concern. In the case of road traffic, vibration is perceptible at around 0.5mm/s and may become disturbing or annoying at higher magnitudes.

Plant noise associated with the development (i.e. HVAC units, inverters, transformers and control buildings) has been assessed in the Environmental Noise Assessment (PDA, 2023) included with this planning application, in accordance with the recommendations of good practice guidance, e.g. EPA NG4, BS8233 and WHO Guidelines for community noise. The calculated noise levels meet the recommended limits of good practice guidance, due to the separation distance to the noise sensitive receivers. Impacts at the nearest noise sensitive receiver from the proposed substation would be low, and additional receivers that are further away would experience lesser impacts.

Operational phase impacts from noise and vibration to human health are predicted to be ***negative, not significant,*** and ***long-term.*** Noise impacts associated with the development have been fully considered within the Environmental Noise Assessment (PDA, 2023).

5.2.6 Potential Impacts from Traffic and Transportation on Human Health

The World Health Organisation Report 'Health Effects and Risks of Transport Systems: The Hearts Project' (World Health Organisation, 2006) states that road traffic is a major

cause of adverse health effects - ranking with smoking and diet as one of the most important determinants of health in Europe. The report states;

> *"Traffic-related air pollution, noise, crashes and social effects combine to generate a wide range of negative health consequences, including increased mortality, cardiovascular, respiratory and stress-related diseases, cancer and physical injury. These affect not only transport users but also the population at large, with particular impact on vulnerable groups such as children and elderly people, cyclists and pedestrians"*

In the Department of Communications, Climate Action & Environment document *Cleaning Our Air – Public Consultation to Inform the Development of a National Clean Air Strategy* vehicle emissions are included as a key source of health impacts in Ireland (DOCCA&E, 2017).

Once the development is operational it is anticipated that the development would be visited only a small number of times a year for maintenance purposes. These trips will be typically made by cars or small vans. No staff directly associated with the development will be based at the site.

The predicted impact of the development on human health and population will be***, neutral, imperceptible, long-term*** during the operational phase.

5.2.7 Potential Impacts from Major Accident Hazards and/or Natural Disasters on Population and Human Health

There is limited potential for effects on the receiving environment as a result of minor accidents/leaks of fuel/oils during the operational phase as no bulk fuel storage is required.

The Proposed Development will not increase the risk or consequence of a major accident at the SSE Generation Ireland Ltd Great Island, as outlined in the COMAH Screening Report (AWN, 2023b) included with this application. Therefore, the likelihood of a Seveso establishment initiating a major accident at the Proposed Development is negligible, and the likelihood of the project initiating major accident at a nearby a Seveso establishment during operation is considered negligible; therefore, as likelihood of the occurrence is low/negligible there are no likely significant effects. Once operational, the Proposed Development will form part of ESB Networks' infrastructure. ESB Networks are the licensed operators of the electricity distribution system in the Republic of Ireland. ESB Networks is responsible for building, operating, maintaining and developing the electricity network and serving all electricity customers across the country. EirGrid is a state-owned body responsible for operating the flow of power on the transmission grid. Both bodies are experienced in the management and operation of the national electricity grid, with appropriate environmental, health and safety management systems in place.

6.0 REMEDIAL, MITIGATION, AND MONITORING MEASURES

6.1 CONSTRUCTION PHASE

Any perceived nuisance impacts on the immediate local population will be short-term and temporary in nature due to the length of the construction process for the Proposed Development. The remedial and mitigation measures to address the potential effects

on population and human health from the Proposed Development have been assessed within the corresponding specialist reports.

6.1.1 Businesses and Residences

The construction contractor will establish a feedback mechanism for residents to report any concerns or issues related to construction activities. The construction contractor will engage with the community to address concerns and provide updates on mitigation efforts.

6.1.2 Landscape, Amenity and Tourism

The use of hoarding, screening, natural barriers, or landscaping will be used to shield construction activities from view where feasible. The construction activities will be planned in stages to minimise the overall footprint and duration of disruptive operations. The construction contractor will implement strict waste management practices to ensure that construction debris and materials are properly contained and disposed of, maintaining a clean and attractive environment.

6.1.3 Land and Water

The following mitigation measures will be implemented during the construction phase in order to prevent any spillages to ground of fuels and other construction chemicals and prevent any resulting to surface water and groundwater systems:

- Minimum maintenance of construction vehicles and plant will take place on site during the works, with the majority occurring offsite;
- On site re-fuelling will be undertaken using a double skinned bowser with spill kits available for accidental leakages or spillages;
- Oils and fuels will not be stored on site and will be stored in an appropriately bunded area within the temporary storage compound; and
- The plant used during construction will be regularly inspected for leaks and fitness for purpose.

The following mitigation measures regarding exposed soil and subsoil will be adopted:

- Excavated soil will be side cast and stored temporarily adjacent to excavation areas for use during reinstatement and landscaping;
- Silt fences will be installed around all temporary stockpiles and excavated areas to limit movement of entrained sediment in surface water runoff;
- In order to minimise runoff during the construction phase, works will not take place during periods of intense or prolonged rainfall (to prevent increased silt laden runoff). Drainage systems will be implemented to limit runoff effects during the construction phase;
- Bog mats will be used, as necessary, to support construction plant and machinery on soft ground, thus reducing the likelihood for soil and subsoil erosion and avoiding the formation of rutted areas. This will substantially reduce the likelihood for surface water ponding to occur; and
- Reinstatement, landscaping, and drainage control will be implemented after excavation activities.

Segregated waste storage areas will be identified within the temporary construction compound to properly store different types of construction waste, such as debris,

packaging materials, and hazardous substances. If hazardous materials are present they will be contained to prevent leaks or spills.

There will be no discharge of domestic effluent to groundwater or surface water during the construction phase. All wastewater from the construction facilities will be stored before removal off site for disposal and treatment – temporary portable toilet facilities only shall be used at the site.

An emergency plan for the construction phase to deal with accidental spillages will be contained within the Construction Environmental Management Plan. Spill kits will be available to deal with and accidental spillage in and outside the re-fuelling area.

6.1.4 Air Quality

Mitigation measures proposed to minimise the potential effects on human health in terms of air quality and climate during construction are discussed in the Air Quality report by AWN (AWN, 2023a). This includes measures regarding communications, site management, preparing and maintaining the site, operating vehicles / machinery and sustainable travel, operations, waste management, measures specific to earthworks, measures specific to construction and measures specific to trackout. The implementation of the dust control measures outlined in the report will ensure that no significant nuisance occurs at nearby sensitive receptors.

6.1.5 Noise and Vibration

Although impact to human health from noise and vibration will be imperceptible during construction, good practice mitigation measures relating to noise management have been outlined within the Environmental Noise Assessment Report (PDA, 2023), and are included in the Construction Environmental Management Plan (CEMP) (IE Consulting, 2023b) which has been prepared by IE Consulting Ltd in advance of works starting on site.

6.1.6 Traffic and Transportation

Although the vehicle trip generation is expected to be relatively low there are a number of traffic management measures that are proposed to reduce the impact during the construction period and these are outlined in the Traffic Management Plan by Local Transport Projects Ltd, including coordinated deliveries, appointment of a banksman on-site and temporary signage and barriers for the protection of pedestrians.

Traffic Management Plan will aim to minimize disruptions to local traffic flow and ensure the safety of other road users including vulnerable road users (cyclists and motorcyclists, pedestrians, earner and newly qualified drivers, and livestock).

Daily on-site and off-site inspections shall be undertaken, where receptors (including roads) are nearby, to monitor dust, record inspection results in the site inspection log. This should include regular dust soiling checks of surfaces within 100m of site boundary, with cleaning to be provided if necessary.

6.1.7 Major Accident Hazards and Disasters

There are no specific mitigation measures required in respect of Major Accident Hazards and Disasters.

6.2 OPERATIONAL PHASE

6.2.1 Businesses and Residences

Once construction and reinstatement works are completed there are no specific mitigation measures required in respect of local businesses and residences.

6.2.2 Landscape, Amenity and Tourism

To provide integration into the surrounding landscape and some long-term screening, particularly when the Proposed Development is viewed from the east (e.g. Dunbrody Abbey), native woodland is proposed along the eastern boundary, as well as native hedgerow in front of the palisade fencing that runs along the engineered slope on the northern and eastern boundaries (see the Landscape Planting Plan included with the planning application for further details).

Once construction and reinstatement works are completed there are no further specific mitigation measures required in respect of landscape, amenity and tourism.

6.2.3 Land and Water

Oil used in transformers and other electrical apparatus and storage of hydrocarbons could result in leakages during the operational phase and result in effects of soil and subsoils. The buildings where oils are to be stored will be bunded appropriately to prevent leakage of chemicals to groundwater or surface water. The bunded area will be fitted with a storm drainage system and appropriate oil interceptor.

6.2.4 Air Quality

Once construction and reinstatement works are completed there are no specific mitigation measures required in respect of air quality.

6.2.5 Noise and Vibration

Once construction and reinstatement works are completed there are no specific mitigation measures required in respect of noise and vibration.

6.2.6 Traffic and Transportation

The site is to operate on a generally unmanned basis, with a negligible number of vehicle trips anticipated to occur once the site is operational. It is not expected that any significant volumes of waste would be generated during the operation phase of the substation facility site. It should also be noted that existing vehicle flows on the L4033 by which the site will be assessed are expected to be low.

6.2.7 Major Accident Hazards and Disasters

Once construction and reinstatement works are completed there are no specific mitigation measures required in respect of Major Accident Hazards and Disasters. SSE Generation Ireland Ltd Great Island will be required to provide the site operation with details on emergency management related to their facility.

7.0 RESIDUAL IMPACTS OF THE PROPSED DEVELOPMENT

7.1 CONSTRUCTION PHASE

7.1.1 Residual Impacts on Business and Residences

Taking into account the mitigation measures outlined in Section 6 and associated reports it is predicted that there be ***neutral, imperceptible*** and ***short-term*** impact with regard to the construction phase on business and residences.

7.1.2 Residual Impacts on Landscape, Amenities and Tourism

It is predicted that there will be no residual impacts of the construction of the Proposed Development on local amenities and tourism. Impacts to the local population from landscape and visual factors will be ***negative, not significant*** and ***short term.***

7.1.3 Residual Impacts from Land and Water Emissions on Human Health

The implementation of the mitigation measures detailed in Section 6.1 will ensure that the potential impacts on human health and populations during the construction phase are adequately mitigated. The residual effect on human health and populations during the construction phase is considered to be ***neutral, imperceptible*** and ***short-term****.*

7.1.4 Residual Impacts from Air Quality on Human Health

Best practice mitigation measures are proposed for the construction phase of the Proposed Development which will focus on the pro-active control of dust and other air pollutants to minimise generation of emissions at source. The mitigation measures that will be put in place during construction of the Proposed Development will ensure that the impact of the development complies with all EU ambient air quality legislative limit values which are based on the protection of human health. Therefore, the residual effect of construction of the Proposed Development will be ***short-term, direct, negative*** and ***imperceptible*** with respect to impacts from air quality on human health.

7.1.5 Residual Impacts from Noise and Vibration on Human Health

Taking into account the good practice measures and design recommendations outlined in the Environmental Noise Assessment, there will be ***negative, imperceptible*** and ***short-term*** to human health arising from noise and vibration impact.

7.1.6 Residual Impacts from Traffic and Transportation on Human Health

Traffic movements during the construction phase have been assessed in the Transportation Management Plan submitted as part of this planning application, and as discussed in this report, there is no expected material increase in traffic that would have residual impact on the local road network. The potential impact of the development on human beings and in particular road users will be ***short term, negative*** and ***imperceptible.***

7.1.7 Residual Impacts from Major Accident Hazards and/or Natural Disasters on Population and Human Health

There are no significant potential impacts on Human Health from Major Accident Hazards and/or Natural Disasters; therefore, there are no residual impacts.

7.2 OPERATIONAL PHASE

7.2.1 Residual Impacts on Businesses and Residences

The predicted residual impacts with regard to the operational phase on business and residences is concluded to be ***long term, neutral*** and ***imperceptible.***

7.2.2 Residual Impacts on Landscape, Amenities and Tourism

It is predicted the residual impacts with regard to the operational phase on local amenities and tourism is concluded to be ***long term, neutral, imperceptible.*** It is anticipated that the development will have ***not significant*** impacts on the local population in terms of landscape and visuals.

7.2.3 Residual Impacts from Land and Water Emissions on Human Health

The implementation of the mitigation measures detailed in Section 6.2 will ensure that the potential impacts on human health and populations during the operational phase are adequately mitigated. The residual effect on human health and populations during the operational phase is considered to be ***neutral, imperceptible*** and ***long term***.

7.2.4 Residual Impacts from Air Quality on Human Health

The residual effect of the operational phase impacts associated with the Proposed Development regarding impacts from air quality on human health are predicted to be ***neutral***, ***long-term*** and ***imperceptible***.

7.2.5 Residual Impacts from Noise & Vibration on Human Health

Due to the nature of operations on site there will be no residual impact to human health arising from noise and vibration impact.

7.2.6 Residual Impacts from Traffic and Transportation on Human Health

Taking into account the conclusions of the Transport Management Plan and considering that no staff directly associated with the substation development will be based at the site, the Proposed Development will have a ***negligible*** impact on the operation of the local road network.

7.2.7 Residual Impacts from Major Accident Hazards and/or Natural Disasters on Population and Human Health

There are no significant potential impacts on Human Health from Major Accident Hazards and/or Natural Disasters; therefore, there are no residual impacts.

8.0 CUMULATIVE IMPACT ASSESSMENT

8.1 CONSTRUCTION PHASE

The implementation of mitigation measures within the reports accompanying the planning application and detailed in Section 6; as well as the compliance of adjacent development with their respective planning permissions, will ensure there will be

minimal cumulative potential for change in soil quality or the natural groundwater regime during the construction phase of the Proposed Development.

In a worst-case scenario, multiple developments in the area could be developed concurrently or overlap in the construction phase and contribute to additional impacts in terms of traffic, dust, and noise.

Contractors for the Proposed Development will be contractually required to operate in compliance with a project-specific CEMP and Construction Traffic Management Plan which will include the mitigation measures outlined in the reports accompanying the planning application. The construction phase for developments in the surrounding lands would be restricted by the same binding limits for noise, dust, and emissions to water.

The development with the greatest potential for cumulative impacts is the related 38kV substation and BESS compound, located directly north of the Proposed Development (WCC Reg. Ref.: 20231294). The mitigation detailed in the various reports submitted for the application, including the Human Health and Population Impact Assessment report, will be implemented during construction for the protection of human health, reducing the potential for cumulative impacts.

According to the IAQM guidance (2014), there is the potential for cumulative dust impacts to any nearby sensitive receptors should the construction phase of the Proposed Development coincide with the construction phase of any other permitted projects within 350 m of the site. If a simultaneous construction phase were to occur this would result in cumulative dust soiling and dust-related human health impacts associated with the proposed works localised to the works area. A review of the planned and permitted projects indicated that there were a number of developments within 350 m of the site that have the potential for cumulative construction phase impacts, the primary developments identified that are in closest proximity to the site include: Planning Ref. 20220628, and the related 38kV substation development on site Planning Ref. 20231294.

There is a low risk of dust soiling and human health impacts associated with the Proposed Development. The dust mitigation measures outlined in Section 6.1 of the Air Quality Impact Assessment (AWN, 2023) will be applied during the construction phase which will avoid significant cumulative impacts on air quality. With appropriate mitigation measures in place, the predicted cumulative impacts on air quality associated with the construction phase of the Proposed Development and the aforementioned developments are deemed ***short-term, direct, negative*** and ***imperceptible***.

8.2 OPERATIONAL PHASE

The potential cumulative impacts of the Proposed Development during the operational phase in terms of Air Emissions, Noise generation and Traffic generation in the context of the Permitted Development have been considered in the respective Air Quality Impact Assessment (AWN, 2023a), Environmental Nosie Assessment (PDA, 2023) and Traffic Management Plan (LTP, 2023). The assessments indicate that the Proposed Development is not likely to result in significant adverse impacts on Human Health either alone or in combination with any likely future projects.

There is the potential for cumulative impacts to air quality during the operational phase due to traffic associated with other existing and permitted developments within the area. The traffic data provided for the operational stage air quality assessment

considered cumulative developments. Therefore, the cumulative operational phase impact is assessed within Section 5.2.4 and was found to have a neutral impact on air quality. The cumulative operational phase impact is ***long-term, localised, direct, neutral, imperceptible*** and ***non-significant***.

The Environmental Noise Assessment (PDA, 2023) included with this planning application undertook a cumulative assessment of the Proposed Development and the concurrent proposed BESS and 38kV substation (WCC Reg. Ref.: 20231294), which is proposed within the same site boundary. The calculated noise levels meet the recommended limits of good practice guidance, due to the separation distance to the noise sensitive receivers. The impacts at the nearest noise sensitive receiver from the proposed electrical infrastructure will be low, and additional receivers that are further away will experience lesser impacts. The cumulative operational phase impact is ***not significant, negative*** and ***long-term.***

9.0 REFERENCES

Central Statistics Office. Statbank Databases (Accessed December 2023, https://www.cso.ie/en/databases/)

Central Statistics Office. Census of Population, 2016 and 2022. (Accessed December 2023, https://www.cso.ie/en/census/)

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