

Greenore Port Unlimited Company

Proposed Greenore Port  
Operations and Maintenance Facilities  
at Greenore Port,  
Greenore, Co. Louth

**VOLUME II**  
ENVIRONMENTAL IMPACT ASSESSMENT REPORT



RFI Response October 2024

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# CHAPTER 1 INTRODUCTION

## VOLUME II ENVIRONMENTAL IMPACT ASSESSMENT REPORT



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# 1 Introduction

This Environmental Impact Assessment Report (EIAR) sets out the results of the environmental assessments which have been completed for the proposed development to inform the planning consent process.

This EIAR has been updated in response to the Request for Further Information (RFI) issued by Louth County Council (LCC) on 18th July 2024 in respect of the proposed development which this EIAR relates i.e. an Offshore Wind Farm Operations and Maintenance Facilities at Greenore Port, Greenore, Co. Louth (Reg. Ref. LCC 2460294). Changes to EIAR are shown in blue.

Where text has been removed it is shown as ~~striketrough~~.

The key changes are in response to Items 4 and 7 in the RFI Request and correspond to updates to the following chapters:-

RFI Item Number	EIAR Changes
Item 4	Chapter 4 – Landscape and Visual Chapter 17 Cultural Heritage: Built Heritage
Item 7	Chapter 11 – Biodiversity

One new mitigation measure is proposed and this is included in Chapter 11 and the Summary of Mitigation and Monitoring Measures in Chapter 19.

The scope of the cumulative effects (Section 1.11 and Appendix 1.1) has also been updated to reflect planning applications for offshore wind farms submitted with An Bord Pleanála in the period since the original EIAR was produced and submitted to Louth County Council on 28th May 2024. The authors of each of the assessment chapters have reviewed the updated list and considered the effects for their relevant environmental topic.

Finally, the Non-Technical summary has been updated to reflect the above.

The assessment has been completed as a statutory environment assessment. The environmental impact assessment process has been completed in line with Directive 2014/52/EU, based on the guidance presented in the Guidelines on the Information to be contained in Environmental Impact Assessment Reports (EPA 2022).

EIA is a process for anticipating the effects on the environment caused by a development. The document produced as a result is termed the EIAR. Article 1(2)(g) of the 2014 Directive (2014/52/EU) states that:

*“Environment impact assessment” means a process consisting of:*

- (i) The preparation of an environmental impact assessment report by the developer, as referred to in Article 5(1) and (2).*
- (ii) The carrying out of consultations as referred to in Article 6 and, where relevant, Article 7.*

- (iii) *The examination by the competent authority of the information presented in the environmental impact assessment report and any supplementary information provided, where necessary, by the developer in accordance with Article 5(3), and any relevant information received through the consultations under Articles 6 and 7.*
- (iv) *The reasoned conclusion by the competent authority on the significant effects of the project on the environment, taking into account the results of the examination referred to in point (iii) and, where appropriate, its own supplementary examination; and*
- (v) *The integration of the competent authority's reasoned conclusion into any of the decisions referred to in Article 8a."*

The EIAR is a presentation of the potential environmental impacts of the proposed development with a focus on significant impacts.

Chapter 1 introduces the project and described the scope and methodology of the EIA process. The consultation process which was undertaken is outlined and the competencies of the environmental assessment team are provided.

## 1.1 The Applicant

The Applicant, **Greenore Port Unlimited Company** is a wholly owned subsidiary of Doyle Shipping Group (DSG). DSG acquired Greenore Port in December 2014. Greenore Port is Ireland's only privately owned commercial port.

DSG is the largest independent provider of shipping agency services and logistics in Ireland, providing a range of marine services including importing and exporting goods, shipping agency, chartering, freight shipping, logistics, project cargo terminal management, warehousing, ship repair, tug hire and passenger ferries. The company has a dedicated workforce of over 600 people and has offices and warehouses in all the major Irish ports, including Dublin, Belfast and Foynes, and owns and operates three private port facilities: Cork Dockyard and Passage West in Cork Harbour and Greenore Port in Louth.

Greenore Port employs 41 people and provides marine and logistical support for sectors including, agricultural feed, construction, renewable energy, livestock exports and manufacturing industries.

Under previous management Greenore Port had suffered a prolonged period of sustained under investment and Greenore Port's immediate priority was to undertake works to improve the neglected infrastructure. To date, DSG have invested €20 million in Greenore Port since taking ownership and envisage further substantial investments in the future. Further details on the Applicants, the workings of Greenore Port and their future vision is contained in the **Greenore Port Vision 2024** document submitted with this application.

## 1.2 Reference to Guidelines Relevant to Discipline

This chapter has been prepared having regard to the following guidelines:

- Guidelines on the Information to be Contained in Environmental Impact Statements (Environmental Protection Agency (EPA), May 2022).
- Advice Notes on Current Practice in the Preparation of Environmental Impact Statements (EPA, 2003).
- EU Environmental Impact Assessment of Projects: Guidance on the preparation of the Environmental Impact Assessment Report (EU, 2017).
- EU Environmental Impact Assessment of Projects: Guidance on Scoping (EU, 2017).
- Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment (OPR,2018).

### 1.3 Brief Project Description

A detailed description of the project is provided in Chapter 2. To summarise, the applicant seeks permission for Operation and Maintenance (O&M) Facilities which will serve as the support base for offshore wind arrays. In general, it will comprise of landside and marine side works, with Three individual combined warehouse and office units landside and a pontoon to accommodate Crew Transfer Vessels (CTVs) marine side. To facilitate the proposed development, dredging within the nearshore and the demolition of existing port buildings and a vacant residential property is required. The proposed development will involve ancillary facilities including carparking, upgrade works to quay deck and quay wall and all associated site and development works. A ten-year permission is sought.





Figure 1.1 Site Layout (extract from Drg.No. 2100, prepared by CSEA)

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## 1.4 Proposed Development Site

### 1.4.1 The Site

The application site (c.4.88ha) is located at Greenore Port and Shore Road, Greenore, Co. Louth.

The site is generally located northwest of Greenore village and is within the Port complex. Part of the site is located on Shore Road, a vacant residential dwelling. This part of the site is to the rear of No.'s 7-15 Euston Street, with a pedestrian link to the rear of No.'s 1-7 Euston Street.

The proposed scheme is distributed over several individual plots. These plots comprise of:-

- i. **'Terrestrial Port Area'**, (c.1.9ha) which includes, a port commodity warehouse (former open hydro building), hardstanding areas, remnant wall associated with the pre-existing 'engine room', and a communications mast.
- ii. **'Nearshore Environment'** (c.2.3ha) encompassing part of Carlingford Lough and an existing caisson quay wall, known as 'Berth 3'.
- iii. **'Residential Site'** (c. 0.5ha) a greenfield site with a single-storey unoccupied residential dwelling with frontage to the R175, Shore Road. Eircode - A91DD42
- iv. **'Port Office Entrance'** (c. 0.18ha) encompassing a portion of the existing office building, known as the 'Seafarers room', hardstanding and parking area to the front of the port office with pockets of green space, that front Euston Street.

See Figure 1-2 for a general location plan of the plots identified above.

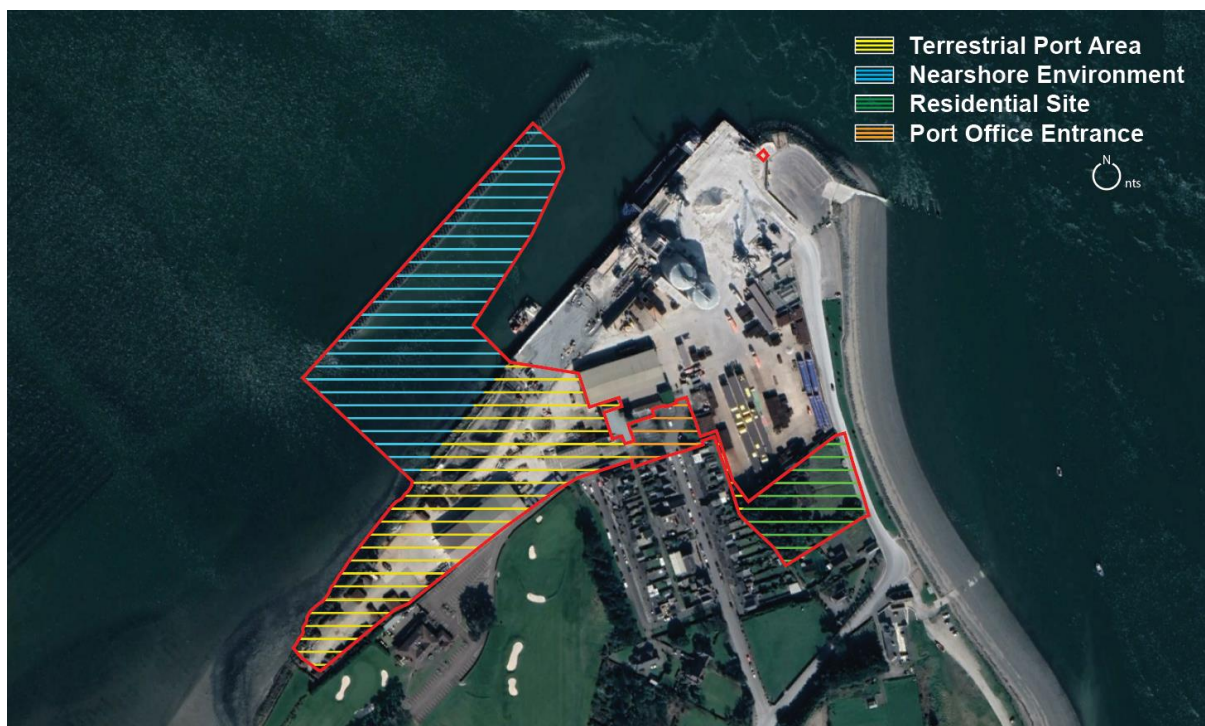


Figure 1.2 General Location Plan

### 1.4.2 Existing Structures

The subject site comprises several existing structures, the largest of which is a warehouse (1,607sqm Gross Floor Area (GFA)). This warehouse, located at the western side of the subject site, is known as the former Open Hydro building and is currently used by Greenore port for storing port commodities, c.6,000 tonnes of dry bulk goods including animal feed.

At the port office entrance, at the northern end of Euston Street, a part of the existing port office accommodation, the Sea Farer's room, is included within the application boundary.

Furthermore, a brick wall associated with the engine shed of the former Greenore Railway station and a ESB Substation and switch room are located immediately to the west of the existing port offices.

Additionally, the subject site comprises Berth 3 which consists of a number of degenerated caissons.

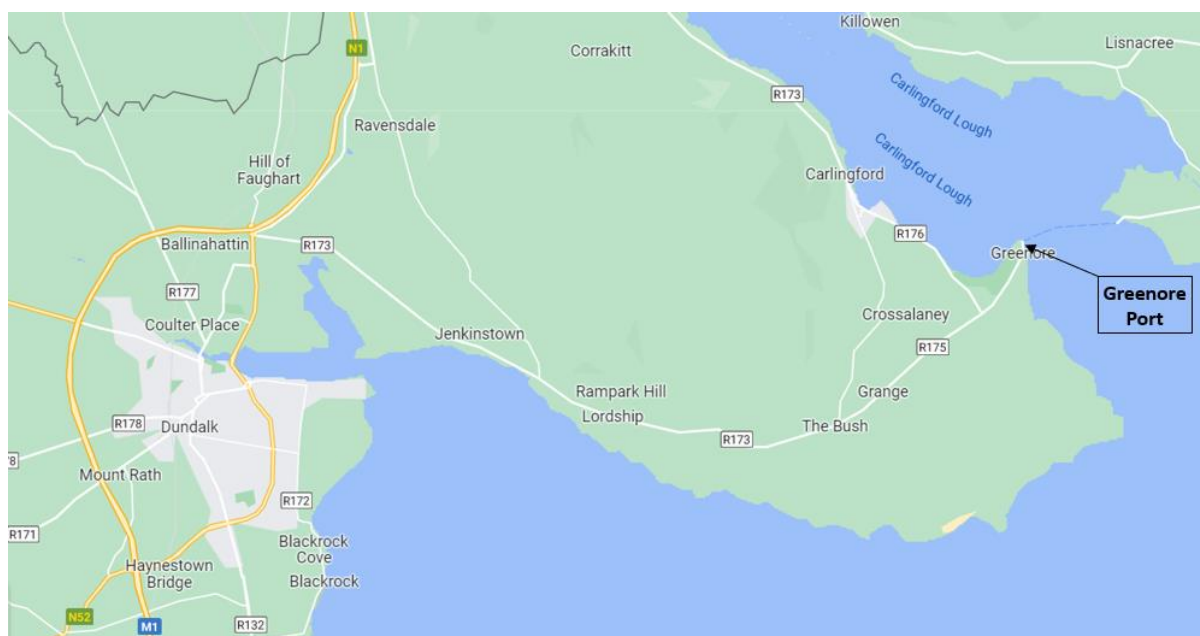
A vacant residential dwelling is located at the site on Shore Road.

The primary entrance to the site is via the former entrance to the Open Hydro building. All HGV traffic associated with the port enters and exits via the Shore Road entrance.

There is no record of any protected structure, archaeological or cultural heritage features within the application site area.

### 1.4.3 Surrounding Context

The site is situated within and immediately adjoining Greenore Port. It is bounded to the east by established harbour related development in Greenore Port; to the south and west by Greenore village and Greenore Golf Club and to the north and west by Carlingford Lough.



**Figure 1.3 Greenore Port and surrounding area (Source: Google Maps, Edited by MHP)**

#### 1.4.3.1 Greenore Port

Greenore Port is the second largest port in the County, and is Ireland's only privately owned commercial port. The original port was constructed in 1867, located on a promontory extending northwards from the Cooley Peninsula, with Carlingford Lough to the west, north and east. It provides marine and logistical support for sectors including, agricultural feed, construction, renewable energy, livestock exports and manufacturing industries. The port contains two berths with the capacity to handle c40,000 gross tonnes per annum in addition to berth 3. A ferry service across Carlingford Lough to Greencastle, Co. Down commenced in 2018 from a smaller additional berth on the promontory.

Greenore port is strategically located roughly mid-way between Dublin and Belfast at the entrance to Carlingford Lough on the eastern end of the Cooley Peninsula and is connected to the M1 motorway by 15km of uncongested R175 regional route, making the Port one of the one most easily accessible ports in the country (see Figure 2).

The Port is accessed either by Euston Street or Shore Road, with the latter providing for all HGV trips to and from the port as part of operational procedures. The application area is bounded to the south by Greenore Village and Golf Club and to the south west and east by established harbour related activity.

There are 3 no. protected structures within the wider Greenore Port landholding, as shown in Figure 4 below:

1. LHS009-001 | Watertower | An attached three-stage stone water tower, built located south of the proposed development area, built c.1840. Canted bay windows and projecting hipped porch to east elevation and a three-bay two-storey kitchen wing to the west.
2. LHS009-043 | Greenore Lighthouse | A freestanding two-stage lighthouse built in 1830 with a circular-plan and taper profile. Currently not in use, located east of the proposed development.
3. LHS009-044 | Greenore Lighthouse Keeper's House | A detached three-bay single-storey structure of which the attic was a former lighthouse keeper's dwelling - built c. 1830. Currently not in use, the structure is located east of the proposed development.

#### 1.4.3.2 Greenore Village

Greenore village is located on the eastern end of the Cooley Peninsula, at the entrance to Carlingford Lough. It is c.3.7km west of Carlingford and c.15km the M1 Dublin-Belfast Motorway. The town is situated in close proximity to the border c. 12km with Northern Ireland.

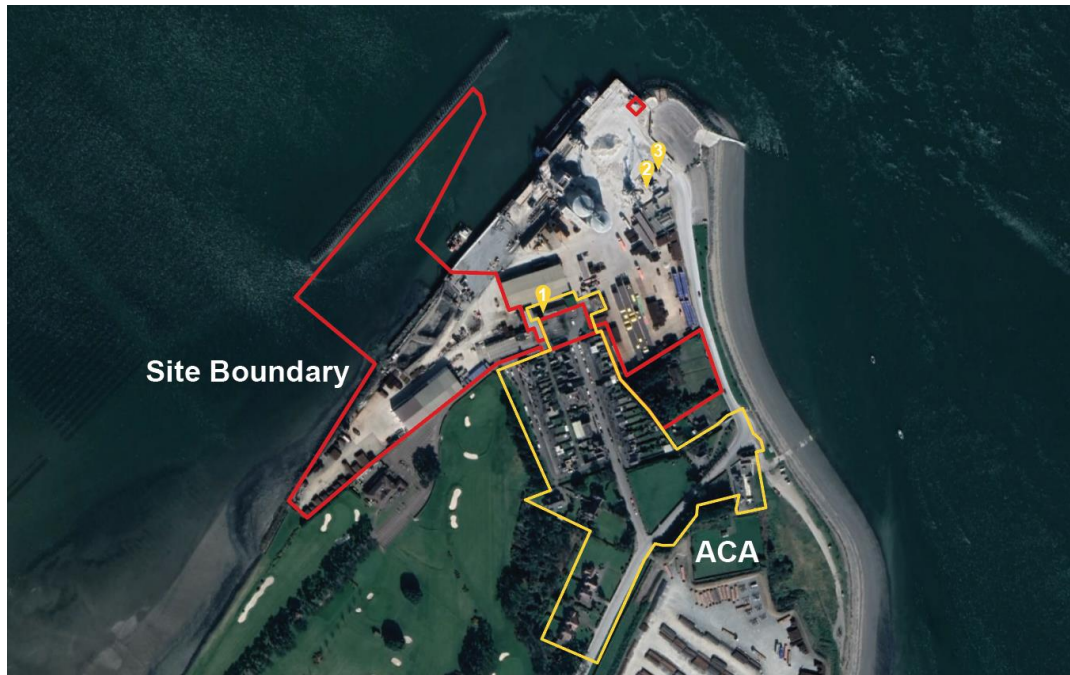
This is a planned village which was constructed in the 19<sup>th</sup> century to provide homes for dock and railway workers. The village lies to the southwest of the application area and is centred on two parallel streets - Euston Street and Anglesey Street. Euston Street comprises a terrace of 29 two-storey dwellings. It also includes a café and interiors shop in the former National School and Greenore Railway / Maritime Museum and café in the co-operative building. Anglesey Street is single sided with a terrace of 15 two storey dwellings facing south-west towards the golf club.

The population of the village and hinterland recorded in the 2022 Census is 306 persons (Source – Census 2022, Greenore Small Area). Refer to Chapter 4 for further details on population.

Further to the southeast, there is a mix of uses including industrial port areas operated by Greenore Port and commercial premises operated by Teelings and Hanlon Transport Limited. Greenore Coast

Guard. Shore Road lies to east of the village, running parallel to the village. This road provides access to Carlingford Lough Ferry and also HGV access to the Port.

The Village is designated as an Architectural Conservation Area (ACA) in the Louth County Development Plan 2021-2027 (LCDP). The ACA starts at the bungalows on the southern outskirts, and includes Euston Street, Anglesey Terrace, and the coastguard houses. Figure 1-4 illustrates the extent of the ACA relative to Greenore Port and the subject site. The application area overlaps with the ACA area at the public/private realm in front of the port office but does not include any buildings within the ACA boundary.



**Figure 1.4 Site Boundary and Surrounding Context including Greenore Architectural Conservation Area and Protected Structures (Source: Google Earth, Edited by MHP)**

#### 1.4.3.3 Greenore Golf Club

Greenore Golf Club adjoins the southern boundary of the application site, with the entrance to the golf club from Euston Street / Anglesey Terrace running parallel to the entrance to the former Open Hydro carpark.

The Golfclub is more than 125 years old, founded in 1896 by London & North Western Railway Company. Its history is intrinsically linked with the development of the Port. It is an 18 hole course, comprising a mix of links and heathland terrain.

The Clubhouse is located south west of the proposed Building A, with the golf club access road and carpark south of Buildings B and C.

#### 1.4.3.4 Carlingford Lough

The application site is bounded by Carlingford Lough to the west and north, with part of the site within the Lough.

Carlingford Lough is a designated Special Area of Conservation (SAC) and Special Protection Area (SPA) - Carlingford Shore SAC (Site code: 002306) and Carlingford Lough SPA (Site code: 004078).



Carlingford Shore SAC is designated as a SAC for Annual Vegetation of drift lines and Perennial vegetarian of stony banks. Perennial vegetarian of stone banks is associated with shingle beaches while Annual Vegetation of drift lines is normally associated with sand dune systems. However, as there are no dunes present anywhere at Carlingford, it is assumed that these two habitats occur in close association with each other.

Carlingford Lough SPA is designated for Brent Goose and Wetlands and Waterbirds.

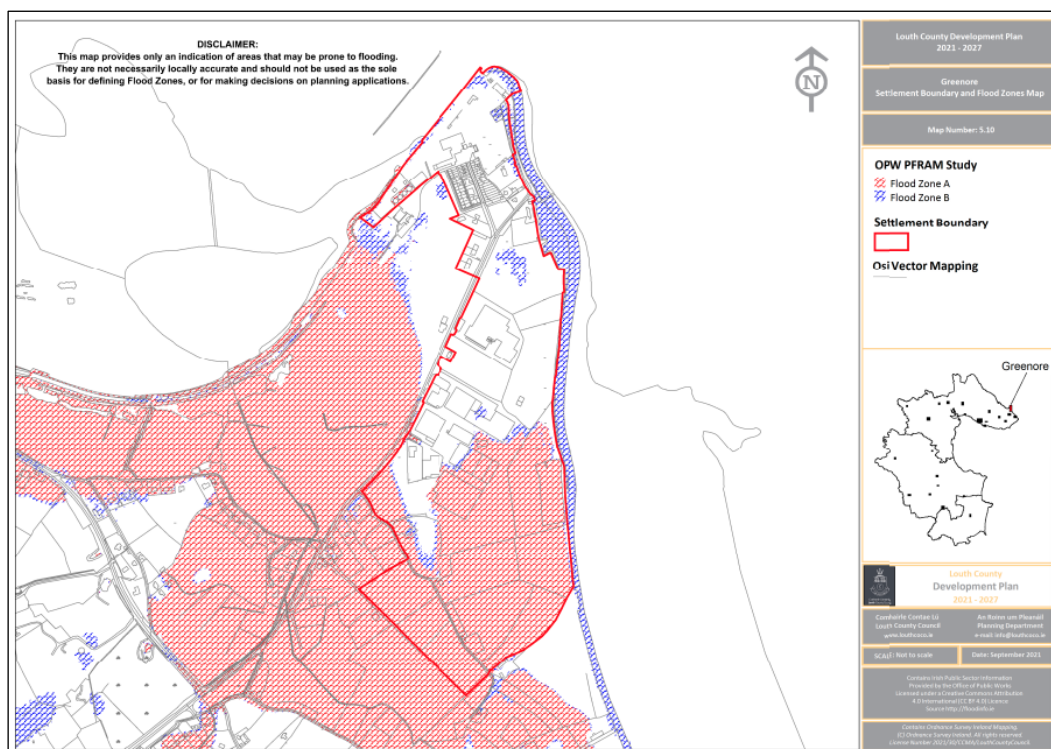
Further detail on these sites is provided in the Biodiversity chapter of this EIAR as well as the *Supporting Information for Screening for Appropriate Assessment* and *Natura Impact Statement* submitted under separate cover.

#### 1.4.4 Land Use Zoning Objective

The subject site is located within the functional area of Louth County Council and is governed by the Louth County Development Plan 2021-2027 (LCDP).

Greenore is categorized as a 'Rural Node' / Level 5 settlement in the LCDP with the settlement boundary of Greenore outlined in Map 5.10 from the LCDP (See Figure below).

There is no land use zoning objectives for the settlement of Greenore. There are no land use zonings included for any of the Level 5 settlements in the Plan.



**Figure 1.5 Greenore Settlement Boundary (Source: Map 5.10 from the LCDP 2021-2027)**

The Plan recognises the importance of ports in enabling economic growth and providing international connectivity, with specific references made to Greenore Port in both the narrative and associated policy objectives.

With regard to the role of Greenore Port, section 5.10 of the Plan provides a strong narrative on the importance of Greenore Port to the economic growth and development of the County. This narrative is supported by policy objective EE26.

Policy Objective	
EE 26	To support the development and growth of the maritime economy and balance the competing demands for available space along the coast by different users and encourage co-location and co-existence of activities and infrastructure while having regard to appropriate environmental considerations.

The guidance and policy context within Chapters 5, 9, and 13 of the Plan support the development of the Port whilst also ensuring that any development would be sensitive to the surrounding environment.

Development within the settlement boundary is subject to policy objective PO EE 27 –

Policy Objective	
EE 27	To recognise that the Port facilities at Drogheda, Greenore, Dundalk, and Clogherhead are an important economic resource and to support any improvements or expansion to these Port facilities at Drogheda, Greenore and Clogherhead and the consolidation of Dundalk Port, subject to the preparation of a Masterplan and appropriate environmental considerations.

A masterplan document has been prepared for Greenore Port and is included under separate cover within this application. This EIAR will assess the environmental considerations of the development which is the subject of this planning application.

#### 1.4.5 Study Area

In general, the study area/ Zone of Influence are defined individually for each environmental topic, according to guidance and the geographic scope of the potential impacts or of the information required to assess those impacts. Details are provided by each discipline as part of the description of baseline conditions of the site.

### 1.5 Requirement for EIAR

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

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

There is no mandatory requirement under the above provisions for an EIAR for the proposed development, however having regard to case law (refer to Section 1.11 below), this EIAR has been prepared to support the proposed application.

This EIAR has been prepared in accordance with the aforementioned legislative provisions and the following guidelines, among others, as specified in the various specialist EIAR chapters:

- Department of Housing, Planning and Local Government (DHPLG) (2018). Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment.
- DHPLG (2017). Circular letter PL 1/2017 – Advice on Administrative Provisions in Advance of Transposition.
- European Commission (EC) (1999). Guidelines for the Assessment of Indirect and Cumulative Impacts as well as Impact Interactions.
- EC (2013). Guidance on Integrating Climate Change and Biodiversity into Environmental Impact Assessment.
- EC (2017). Environmental Impact Assessment of Projects. Guidance on Scoping.
- EC (2017). Environmental Impact Assessment of Projects. Guidance on the preparation of Environmental Impact Assessment Report.
- EPA (2015). Draft Advice Notes on Current Practice in the Preparation of Environmental Impact Statements.
- EPA (2022). Guidelines on the information to be contained in Environmental Impact Assessment Reports.

## 1.6 Purpose of Environmental Impact Assessment

The objective of the Directive (Directive 2011/92/EU), as amended by Directive 2014/52/EU, is to ensure a high level of protection of the environment and human health, through the establishment of minimum requirements for environmental impact assessment (EIA), before development consent being given, of public and private developments, that are likely to have significant effects on the environment.

The 2014 Directive, for the first time, provides a definition of EIA and this is now defined by Section 171A of the Planning and Development Act, 2000 (as inserted by Regulation 16 of the 2018 Regulations).

It is defined as a process consisting of:

- a) the preparation of an EIAR by the developer;
- b) the carrying out of consultations with the public, prescribed bodies (and, where relevant, any affected Member States);
- c) the examination by the competent authority of the EIAR, any supplementary information provided, where necessary, by the developer and relevant information received through the consultation process;
- d) the reasoned conclusion of the competent authority on the significant effects of the project on the environment; and
- e) the integration of the competent authority's reasoned conclusion into any development consent decision.

The definition of EIA thus provides for a clear distinction between the process of environmental impact assessment to be carried out by the competent authority and the preparation by the developer of an EIAR.

Section 2 of the 2000 Act has been amended to define an EIAR as '*a report of the effects, if any, which proposed development, if carried out, would have on the environment and shall include the information specified in Annex IV of the Environmental Impact Assessment Directive*'.

## 1.7 Content of Environmental Impact Assessment Report

The EIAR entails a systematic analysis and assessment of the potential environmental effects of a proposed development on its receiving environment. Article 3(1) of the amended Directive prescribes a range of environmental topics that must be addressed in the EIAR, as follows:

*"The environmental impact assessment shall identify, describe and assess in an appropriate manner, in the light of each individual case, the direct and indirect significant effects of a project on the following factors":*

- a) A description of the likely significant effects of the project on the environment;
- b) A description of the features of the project and/or measures envisaged in order to avoid, prevent or reduce and, if possible, offset likely significant adverse effects on the environment;
- c) A description of the reasonable alternatives studied by the developer, which are relevant to the project and its specific characteristics and an indication of the main reasons for the options chosen, considering the effects of the project on the environment ; and
- d) A non-technical summary; and,
- e) Any additional information specified in Annex IV of the Directive/Schedule 6 to the 2001 Regulations, as amended, relevant to the specific characteristics of the project and to the environmental features likely to be affected.

As is required by Annex IV of the 2014 Directive, this EIAR addresses matters including proposed demolition works, risks to human health, major accidents/disasters, biodiversity, climate change and cumulative effects with other existing and/or approved projects.

## 1.8 Competency

It is a requirement that the EIAR must be prepared by competent experts. For the preparation of this EIAR, the Applicant engaged McCutcheon Halley Chartered Planning Consultants to direct and coordinate the preparation of the EIAR and a team of qualified specialists were engaged to prepare individual chapters, the consultant firms and lead authors are listed in the **Table 1.1**. Details of competency, qualifications, and experience of the lead author of each discipline is outlined in the individual chapters.

Various environmental specialists were commissioned to complete the specialist chapters of the EIAR, as required by Directive 2014/52/EU on the assessment of the effects of certain public and private projects on the environment:

*“Experts involved in the preparation of [EIARs] should be qualified and competent. Sufficient expertise, in the relevant field of the project concerned, is required for the purpose of its examination by the competent authorities in order to ensure that the information provided by the developer is complete and of a high level of quality”.*

### 1.8.1 Author Information and Competency

This chapter was prepared by Louise O'Leary, BA MRUP, Dip EIA Management, MIPI. Louise an Associate Director with over 18 years experience in planning and development projects including experience directing and contributing to the preparation of environmental impact assessments for a variety of projects including port lands, infrastructure and commercial i.e:-

- Waterford North Quays Reg. Ref. 19/928 – a mixed use development of a brownfield site encompassing retail, leisure, office and residential uses. The permitted development included the removal of existing quayside and wharf and the placement of a piled foundation, alongside and within an SAC. This application included an EIAR and a NIS.
- Cherrywood Infrastructure Development – various applications for the development of roads, drainage and public parks on a greenfield site of c. 300 acres. The permitted developments provided critical infrastructure to enable the development of individual plots to proceed in line with the phasing requirements of the approved SDZ Planning Scheme.

## 1.9 Format and Structure of the EIAR

This EIAR is prepared according to the 'Grouped Format Structure' as described in the Guidelines on information to be contained in Environmental Impact Statements (EPA, 2022). This means that each topic is considered as a separate section. The advantages of using this format are that it is easy to investigate a single topic and it facilitates easy cross-reference to specialist studies.

The EIAR is sub divided into 3 no. volumes as follows:

- **Volume I** Non-Technical Summary;
- **Volume II** Environmental Impact Assessment Report; and
- **Volume III** Appendices to Environmental Impact Assessment Report.

**Volume II** is presented as 18 chapters as outlined in Table 1-1.

**Table 1.1 EIAR Chapters and Contributors**

Chapter	Aspect	Significance	Lead Consultant
1	Introduction	McCutcheon Halley Planning Consultants	Louise O'Leary
2	Project Description	McCutcheon Halley Planning Consultants	Paula Galvin
3	Alternatives	McCutcheon Halley Planning Consultants	Paula Galvin
4	Population & Human Health	McCutcheon Halley Planning Consultants	Paula Galvin

Chapter	Aspect	Significance	Lead Consultant
5	Landscape & Visual	Cunnane Stratton Reynolds	Jamie Ball
6	Material Assets: Traffic & Transport	Traffic Wise	Julian Keenan
7	Material Assets: Built Services	McCarthy Browne Consulting Engineers, Clifton Scannell Emerson Associates and Belton Engineering	Joe McCarthy
8	Material Assets: Waste	AWN	Chonail Bradley
9	Land & Soils	AWN	Teri Hayes
10	Water & Hydrology	AWN	Teri Hayes
11	Biodiversity	Merc Consulting RegIntel Irish Whale and Dolphin Group	Louise Scally Breffni Martin Simon Berrow
12	Coastal Processes	RPS	Kristopher Calder
13	Noise & Vibration	AWN	Alistair Maclaurin
14	Air Quality	AWN	Jovanna Arndt
15	Climate	AWN	Jovanna Arndt
16	Cultural Heritage - Archaeological	ADCO	Niall Brady
17	Cultural Heritage - Built Heritage	7I Architects	Ferghal McNamara
18	Interactions of the Foregoing	McCutcheon Halley Planning Consultants	Paula Galvin
19	Summary of Mitigation Measures	McCutcheon Halley Planning Consultants	Paula Galvin

In addition, contributors have had regard to other relevant discipline-specific guidelines, these are noted in individual chapters of the EIAR.

## 1.10 Scoping

The purpose of scoping is to identify the information to be contained in an EIAR and the methodology to be used in gathering and assessing that information. The scope of this EIAR is informed by the requirements of the Directive 2014/52/EU and the transposing Regulations together with the Guidelines set out above. Applicants are not required to seek a formal scoping opinion.

The scope of individual assessments is informed by discipline specific guidelines and, where this is the case, they are referenced in each chapter.

Scoping requires the consideration of the nature and likely scale of the potential environmental impacts likely to arise from a proposed development or project. It is an iterative process that is ongoing throughout the development of the EIAR. The following topics, which include those stipulated in the amended Directive, have been scoped in for this assessment.

- Population and human health
- Landscape and visual



- Traffic and transportation
- Built Services
- Waste
- Land & Soils
- Water & Hydrology
- Biodiversity
- Noise and vibration
- Air quality
- Climate
- Cultural heritage, archaeology and built heritage;
- Interactions between the above-listed topics.

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## 1.11 Scope of Cumulative Effects

Directive 2014/52/EU substituted a new Annex IV into Directive 2011/92/EU. Annex IV of the EIA Directive is to be read in conjunction with article 5(1) and sets out the information to be included in an EIAR. Annex IV was transposed into national law via article 97 of the European Union (Planning and Development) (Environmental Impact Assessment) Regulations 2018 (the “2018 Regulations”) which substituted a new Schedule 6 into the Planning and Development Regulations 2000, as amended.

The Directive requires that the EIAR describes the cumulation of effects with other existing and/or approved projects.

Cumulative effects may arise from:

- “- The interaction between the various impacts within a single project;
- The interaction between all the differing existing and / or approved projects in the same areas as the proposed project.”<sup>1</sup>

In August 2018, the Department of Housing, Planning and Local Government issued *Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment*. The Guidelines summarise “cumulative effects” in the following way at page 40;

*“Effects are not to be considered in isolation but cumulatively i.e., when they are added to other effects. A single effect on its own may not be significant in terms of impact on the environment but, when considered together with other effects, may have a significant impact on the environment. Also, a single effect which may, on its own, have a significant effect, may have a reduced and insignificant impact when combined with other effects.*

Paragraph 2(e)(i)(V) of Schedule 6 (paragraph 5(e) of Annex IV) provides as follows;

*“the cumulation of effects with other **existing or approved developments, or both**, taking into account any existing environmental problems relating to areas of*

<sup>1</sup> Department of Housing, Planning and Local Government, “Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment” (August 2018), page 40.

*particular environmental importance likely to be affected or the use of natural resources.” (emphasis added).*

Accordingly, each chapter of this EIAR assesses the cumulative effect of permitted development in combination with the proposed development. A list of the projects considered is attached in Appendix 1-1.

This list has been updated to reflect planning applications for offshore wind farms submitted with An Bord Pleanála in the period since the original EIAR was produced and submitted to Louth County Council on 28th May 2024. The authors of each of the assessment chapters have reviewed the updated list and considered the effects for their relevant environmental topic.

Individually, each specialist consultant has reviewed under construction, permitted, and or under consideration development in the local area, and using their expertise they have identified projects relevant to their discipline that may interact to produce a cumulative effect. The detail of the identified projects and plans is set out within each specialist chapter of this EIAR.

While the Directive does not require a cumulative assessment of future proposals where a planning application has not been lodged, recognising the broad scope and purpose of the EIA Directive, regard is had to the judgement of *Fitzpatrick v An Bord Pleanála* [2019] IESC 23, henceforth referred to as the ‘Apple Case’.

The Supreme Court in the Apple Case held that:

- 1) An EIA must contain an assessment of the cumulative effects of future developments that form an “integral part” of the development applied for (i.e., where there is a “functional or legal interdependence” between the development applied for and the envisaged future development).

The Proposed Development for which permission is sought is the O&M facilities and the associated pontoon installation, Berth 3 works and carpark. The proposed O&M facility is intended to service offshore wind farms, which are captured under Annex II Class 3(i) EIA Project type of the EIA Directive. The question of whether EIA is required, however, is answered by reference to the nature and extent of the proposed development for which consent is sought.

The analysis of the Supreme Court in *An Taisce (Kilkenny Cheese)*<sup>2</sup> is relevant in this respect. In *Kilkenny Cheese* the case being made was that the Board had failed to assess the effects of milk production (for the cheese factory) on climate, or on water catchments adjoining the farms from which the milk would be supplied. It was argued that these were the indirect effects of the proposed factory, arising from offsite activities which were closely functionally and operationally connected to the proposed cheese factory.

The Court analysed a suite of case law dealing with the issue of functionally interdependent projects or elements of a project that should be the subject of the EIA process, and other cases where the

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<sup>2</sup> *An Taisce – The National Trust of Ireland v An Bord Pleanála* [2022] IESC 8 (‘Kilkenny Cheese’)



effects of other 'offsite' activities were deemed to be too remote and not the effects of the project for which consent was sought.

- The Court considered that an off-site construction assembly site would be subject to the EIA for the proposed development which the construction assembly site would serve.<sup>3</sup> A construction assembly site for an offshore wind farm project, for example, should be assessed as part of the EIAR for the offshore wind farm.
- The Court noted that in *O'Grianna*<sup>4</sup>, the connection of the wind farm to the grid was considered so fundamental to the purpose of developing and operating a wind farm that it could not be omitted from the EIA of the project.
- In the *Apple* case<sup>5</sup>, the Court was satisfied that the first data centre hall and its grid connection were closely interrelated and should be assessed within the EIA process, but that subsequent phases of development only had to be assessed to the extent reasonably practicable, because the first phase and grid connection could be developed and operated on an independent and stand-alone basis. Significantly, any subsequent phases of development would also be subject to EIA and cumulative impact assessment before proceeding.
- In *Kemper*<sup>6</sup> the Court was satisfied that the EIA of a wastewater treatment plant did not have to include the ultimate application of the waste biosolids to as yet unidentified lands as fertilizer. The use of biosolids for that purpose would depend on landowners coming forward to 'purchase' the fertiliser for use on their lands. That did not form part of the development for which consent was sought and was too remote to be assessed within the EIA process, save in the most general terms.
- In UK cases *Finch*<sup>7</sup> and *Greenpeace*<sup>8</sup> the Courts considered that the obligation to assess a project requires the EIA to assess the direct and indirect effects *of the project for which consent is sought*, including its operation, and not some other project for which consent is not sought. Indirect effects are less immediate than direct effects, but they are nevertheless the effects *of the project*.

This line of case law strongly establishes that the obligation to carry out EIA depends on whether the project or development for which consent is sought is a Class of project to which the Directive applies, and if so, the scope of that EIA process is linked to the development for which consent is sought (the O&M facilities, pontoon, works to Berth and the carpark), and not to some other project for which consent is not sought (the offshore wind farms).

Cumulative effects are not limited to projects, and it is necessary to also consider relevant Plans. According to the Environment Protection Agency (2020), in Ireland, key cumulative effects – where environmental receptors are at, or near, their thresholds or their capacity to assimilate more change

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<sup>3</sup> See paragraph 81 of the *Kilkenny Cheese* judgment.

<sup>4</sup> *O'Grianna v An Bord Pleanála* [2020] IEHC 601

<sup>5</sup> See *Fitzpatrick and Daly v An Bord Pleanála and Apple Distribution International*, [2019] IESC 23, [2019] 3 IR 617

<sup>6</sup> *Kemper v An Bord Pleanála* [2020] IEHC 601

<sup>7</sup> *R (Finch) v. Surrey County Council* [2020] EWHC 3566 (Admin)

<sup>8</sup> *Greenpeace Limited v. The Advocate General* [2021] CSIH 53

– include climate change; water quality, flood risk, air quality, biodiversity and landscape. For the purpose of this EIAR, the following have been considered in relation to cumulative impacts:

- **Louth County Development Plan 2021-2027** - gives spatial expression to the economic, social, housing and cultural development of the County. The Plan has a key role in protecting the environment, heritage, and amenities of the county and in mitigating against the impacts of climate change. It includes policies and objectives for all of the aspects included in this EIAR. Accordingly, this EIAR provides a narrative on the cumulative effect of the proposed development together with the Development Plan policies and objectives.
- **The Climate Action Plan, 2024** - climate change is the ultimate cumulative effect, nationally and internationally. Thresholds for greenhouse gas (GHG) emissions are being exceeded. Ireland is committed to achieving a 51% reduction in GHG emissions from 2021 to 2030, and to achieving net-zero emissions no later than 2050. Following on from Climate Action Plans 2019, 2021 and 2023, Climate Action Plan (CAP) 2024 sets out the roadmap to deliver on this climate ambition. One of the key measures of the CAP is to accelerate and increase the deployment of renewable energy to replace fossil fuels to reach the target of 80% of electricity demand from renewable energy by 2030. Therefore, the CAP sets a target of at least 5 GW of offshore wind by 2030 (and an additional 2 GW offshore wind for green hydrogen production). The cumulative effects of this Plan together with the proposed project are considered in the following chapters; Population & Human Health, Material Assets: Traffic & Transport, and Climate.
- **National Biodiversity Plan** - The Plan sets out actions through which a range of government, civil and private sectors will undertake to achieve Ireland's 'Vision for Biodiversity'. It has been developed in line with the EU and International Biodiversity strategies and policies. The cumulative effects of this Plan together with the proposed project is considered in the Biodiversity chapter.
- **Standards in the EU Air Quality Directive and 'daughter' directives** - establish the levels of air pollutants that have no significant impacts on human health or the environment. The cumulative effects of the Directive together with the proposed project is considered in the Population & Human Health Chapter and the Air Quality Chapter.

In addition, each of the specialist chapters (4 - 16) considers the cumulative effects of projects and plans relevant to the zone of influence and discipline specific factors.

## 1.12 Impact Assessment Methodology

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

The impact assessment methodology is detailed in the respect of the various environmental topics in the respective chapters herein. The assessment of impacts is based on the source-pathway-receptor model, which dictates that, for an environmental impact to occur, there must be a source, a receptor which is sensitive to the effect in question, and a pathway by which the effect can reach the receptor. Unless otherwise stated, the criteria for effect / impact characterisation are as per the EPA guidelines

(as set out in Table 1.2). The significance of an impact is determined through comparison of the character of the predicted effect to the sensitivity of the environment / receptor in question.

**Table 1.2 Impact Rating Terminology**

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

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

### 1.13 Consultation

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

Pre-planning Consultation was undertaken with Louth County Council in May 2024, at the offices of Louth County Council on May 10<sup>th</sup> and online on May 20<sup>th</sup>. The following is relevant to the environmental assessment in this EIAR:-

- Traffic, terrestrial and marine side, with terrestrial traffic to be considered for both the construction and operational phases.
- Consideration of noise and light spill from the proposed car park access pathway.
- Effects on Built Heritage and Archaeology, both terrestrial and marine side, including protected structures and the Greenore Architectural Conservation Area (ACA).
- Shellfish beds and potential impacts on aquaculture sites
- Disposal of Dredge material including identification of suitable licensed facilities
- Utilities including strategies for Foul and Surface Water Disposal
- Flood Risk and potential effects of displacement
- Ecology to consider lighting, Guillemots and swift population, sea bird habitats, other mammals and native planting
- Construction exclusion windows, related to biodiversity mitigation
- Phasing, design flexibility and duration of permission.

A consultation meeting with the National Parks and Wildlife Service (NPWS) was held on the 9<sup>th</sup> of January 2024 to scope NPWS's view regarding the proposed infrastructure being located partially

within a European Designated Site (Carlingford Shore SAC (Site code: 002306) and Carlingford Lough SPA (Site code: 004078)) and ensure the project team provides the most robust information from the outset. Feedback at this meeting is relevant for the biodiversity assessment in this EIAR.

Local Stakeholders were met in the preparation of this application including direct engagement between the applicant and / or the Design Team with the following:-

- Aquaculture and Pilot Representatives
- Greenore Golf Club
- Greenore Port Operational Management Team

The applicant hosted a community information meeting on Thursday, May 16th, 2024. The meeting's purpose was to brief the community on the proposed development. The meeting was held in Coast & Co., a café in Greenore, from 16:30 to 20:30. The applicant and design team were available to speak with people individually to explain the development and answer any questions. A suite of information was made available, including computer-generated images (CGIs) and verified photomontages so as to be as transparent as possible. The design of the three units was largely welcomed, with attendees complementing the design approach and recognising the clear intent to contribute positively to the village through the material selection and improvements at the interface with the village. There was widespread agreement that the architectural response was a significant improvement compared with the extant permission for warehousing.

Further details on these consultation events are included in the Planning Statement by McCutcheon Halley Chartered Planning Consultants, submitted with this application.

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## CHAPTER 2 DEVELOPMENT DESCRIPTION

## VOLUME II ENVIRONMENTAL IMPACT ASSESSMENT REPORT

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## 2 Development Description

It is noted that for ease of reference all changes from the original chapter are shown in blue.  
Where text has been removed it is shown as ~~strike through~~.

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### 2.1 Introduction

This chapter of the Environmental Impact Assessment Report (EIAR) sets out the proposed development and provides details in relation to the demolition, construction, and operational phases of the scheme. The content of this chapter is informed by the Design Team, and it should be read in conjunction with the submitted drawings and supporting reports.

Generally, the proposed development is to establish an Operations and Maintenance (O&M) Facility at Greenore Port that will provide twenty-four-seven, year-round support, to three individual offshore renewable energy (ORE) projects that will be owned and operated by entities separate from the applicant. These ORE projects will consist of offshore windfarms on the East Coast of Ireland. The proposed development will deliver the scheme to 'shell and core' finish and the individual wind farm operators who will occupy the buildings as tenants of the applicant, will fit the buildings out as per their individual requirements.

Operations refers to supporting the management of the offshore wind asset. It includes remote site monitoring, operation of vessels, onshore logistics, and other administrative support. Onshore logistics includes storage of small parts and equipment such as components and equipment for the maintenance and servicing of the turbines to support wind farm operations. Large component parts i.e. replacement nacelle, rotor, towers etc. will not be stored on site. The quayside and berthing areas will be used to transfer personnel, goods and supplies between the O+M facility and the offshore windfarms.

As part of the operation and maintenance of the wind turbines, both regular and unplanned maintenance will be carried out at sea. This will include general inspection, minor motor wind turbine generator repairs, minor offshore substation platforms repairs, repairs of navigation equipment, removal of marine growth and painting etc.

These activities will be carried out by technicians, using crew transfer vessels (CTVs) to access the offshore windfarms from the O&M base. Design CTV vessels are typically 12 or 24 pax (passenger). The proposed arrangement of the pontoon berthing is based on 9 no. Vessels (5 no. 24 pax vessel and 4 no. 12 pax vessels), with 2no. layby berths for 12 pax vessels on the outer (southern) side.

A 10 year permission is sought.

The following is the description of the proposed development as stated in the statutory notice that accompanies the application.

***Greenore Port Unlimited Company intend to apply for a 10-year permission for development at Greenore Port and site of dwelling house on Shore Road (A91DD42), Greenore, Co. Louth, (total site area c.4.88 hectare). The development comprising of Operation and Maintenance (O&M) Facilities will serve as the support base for future offshore wind arrays in the Irish Sea.***

The proposed development will comprise of:-

- (i) Three standalone buildings, each with a gross floor area (GFA) of 1,670 sqm, comprising 681 sqm warehouse floor space, 322 sqm office space and 667 sqm plant, welfare, storage, ancillary and circulation space per unit. The height of each unit ranges from 7.2m for the warehouse (single-storey / double-height space) to 13.5m max for the office 3-storey element. 76 car parking spaces are proposed distributed adjacent to the units including 6 no. disabled parking spaces and 15 no. electric vehicle (EV) charging spaces. Each building includes an internal bike storage room, with 20 spaces per building. Each building includes rooftop solar photovoltaic panels.
- (ii) Nearshore works including dredging of harbour sediments to -4m Chart Datum to provide navigable water depths, new quay wall (70m), a 40m anti-slip access ramp, floating pontoon for berthing crew transfer vessels (CTV's). 9 no. berths are proposed, with an additional 2 no. layby berths and a push-on / service berth adjacent to the new quay wall.
- (iii) Improvement works to the quay deck including installation of a new reinforced concrete deck with surface water management system incorporating silt traps and hydrocarbon interceptors, and berth infrastructure including bollards, fenders, ladders, lifesaving equipment, power outlets and fire hydrants.
- (iv) Surface car park at the Residential site on Shore Road comprising 135 car parking spaces, including ducting for 30 no. EV charging spaces, relocation of existing entrance on Shore Road by c.6m to the east, new boundary wall to Shore Road and a pedestrian access route from the car park through port lands to the O&M Units crossing improved public realm at top of Euston Street.
- (v) Re-instatement of former Open Hydro carpark (62 spaces) until the surface car park on Shore Road is operational.
- (vi) Upgrade to public/private realm in the foreground of the existing Greenore Port Office building, including upgrade of existing entrance to former open hydro carpark, new pedestrian gate, new feature wall entrance, removal of 6 port car parking spaces, link to new pedestrian route from surface carpark including new opening in port boundary wall, and hard and soft landscaping. Works are partially located within the Greenore Architectural Conservation Area (ACA).
- (vii) Replacement of existing 25m mast with new 40m mast to facilitate communications with CTV's while offshore.
- (viii) Demolition works to facilitate the above development including:-
  - a. The former "Open Hydro" warehouse (c. 1,607 sqm GFA);
  - b. Part of single storey office building (c.38sqm GFA) located adjacent to the entrance to former Open Hydro carpark;
  - c. ESB substation and associated switch room;
  - d. Dwelling house (c. 192sqm GFA) and boundary wall on Shore Road.
- (ix) And all associated site and development works including single storey ESB substation, above-ground fuel storage tank (c. 200m<sup>3</sup>), drainage and utilities, landscaping and boundary treatments, security fencing, lighting and signage, etc.

*There are no Protected Structures within the proposed development site. The development to be applied for is within Greenore Port's landholding within which curtilage also exists the water tower, lighthouse and lighthouse keeper's cottage which are all included in the Louth Record of Protected Structures, ref. LH009-01, LH009-043, LH009-044 respectively, all at Greenore Port, Greenore, Co. Louth.*

*A Maritime Area of Consent accompanies this planning application Ref. MAC20230003, granted on 10 April 2024 for a 45-year term.*

*A Natura Impact Statement (NIS) and Environmental Impact Assessment Report (EIAR) have been prepared in respect of the proposed development.*

## 2.2 Proposed Development

The proposed development layout is illustrated on Site Layout drawing prepared by Clifton Scannell Emerson Associates (Drawing No.'s 2100, 2101, 2102 and 2103), contained within the suite of drawings accompanying this application. The following computer-generated image identifies the key components and their location relative to the wider port activities and Greenore Village.



**Figure 2.1 Proposed General Arrangement**

A **Design Statement** prepared by McCarthy Browne Civil and Marine Consultants in conjunction with Eoghan Carr Architects and 7L Architects, is submitted with the application which explains the design principles that have been applied to the development.

The design is cognisant of the functional requirements of the future occupants i.e., operators of offshore renewable energy wind arrays, combined with an understanding of the site constraints and opportunities. The key principles that the proposed development respond to are:

**Design & Character:** To create an attractive, self-contained, and functional development with clear identity, which relates well within its context. The building should be well-designed, with attention to detail and provide clear legibility in the choice of façade material specifications.

**Functionality:** To provide a development that will meet the long-term needs of tenants for running an efficient and successful business. Clear thought must be given to optimise functionality.

**Protect Key Viewpoints:** To design the building form and elevation treatment considering key viewpoints established in the Louth County Development Plan.

**Orientation & Movement:** To ensure that the development provides a sense of arrival for visitors arriving by vehicle or on foot. Routes for HGVs, cars, cyclists, and pedestrians should be clearly segregated to avoid potential conflicts. New footpaths should link into the wider existing network, increasing amenity and connectivity.

**Quality of Interface with Protected Structures and the Greenore Architectural Conservation Area (ACA):** To create a development which enhances the quality of public realm within the ACA and does not detract from the Protected Structures that exist within the port and the wider village area.

## 2.2.1 Development Overview

An overview of the key development statistics is set out in the following Table:

**Table 2-1 Key Development Statistics**

Development Statistics		
Site Area		4.88 ha
Plot Ratio (based on Site Area of 1.9ha)		0.26:1
Site Coverage (based on Site Area of 1.9ha)		17%
Buildings		3 No.
Total GFA		5,010 sqm
GFA Per Building		1,670 sqm
Comprising of:-		
Warehouse per building	681 sqm	
Office per building	322 sqm	
Welfare, ancillary and circulation per building	667 sqm	
Building Height		7.2m - 13.5m
Car Parking		211 spaces
Comprising of:-		



Development Statistics		
On Site	76	
Surface Carpark (Residential Site, Shore Road)	135	
Car Parking (temporary re-instatement of former Open Hydro Spaces)		62
Bicycle Parking (20 spaces per building)		60
Berth 3		70m
Pontoon		220m

## 2.2.2 Demolition Works

To facilitate the development, demolition works are required. This will include the demolition of the former 'Open Hydro building', and a small portion of the port's office accommodation, an ESB substation, and an unoccupied dwelling house. The general locations of these structures are illustrated in Figure 2.2.



**Figure 2.2 General Location of Demolition Works**

### 2.2.2.1 Former Open Hydro Building

To facilitate the proposed development, it is necessary to demolish an existing warehouse, known as the former 'Open Hydro Building'. The name refers to its historic use as the technical headquarter of a tidal company which closed in 2018.

The existing building is finished in render and metal cladding and sits along the southern boundary of the port's curtilage, where it adjoins the golf course. The building's principal dimensions are 66.7 m length, 25.7m width with a maximum height of 11.1m. It has a gross floor area of 1,607sq.m.



**Figure 2.3 Former Open Hydro Building**

The former Open Hydro Building is a functional structure, used by Greenore Port to store the delivery of dry bulk commodities (c.6,000 tonnes) onsite before its onward transfer to end users (Planning Ref. 19807). It will continue to be operational during Phase 1 of the development and until its demolition is undertaken as part of the Phase 2 programme (The Phasing sequence is described in Section 2.5.1). Following its demolition, these commodities will be distributed directly from the ships to satellite storage facility or end users, reverting back to how these commodities were imported and distributed prior to the Former Open Hydro building coming into use in 2020. The pattern of HGV movements associated with removing these commodities from the port will also revert back to the pre-2020 levels.

#### 2.2.2.2 Residential Site, Shore Road

To facilitate the development of the new surface carpark, the proposed development includes the demolition of an unoccupied single storey dwelling, its outbuildings and roadside boundary wall. This house is located at the residential site on Shore Road.

A search of Louth County Council's planning search tool indicates that the house pre-dates the 1970s, with one planning entry for an extension granted in August 1970, Ref. 70347.

The house has an approx. GFA of 192sqm with a ridge height of 6.2m. The existing roadside boundary wall to be demolished is c. 1.0m in height high and c. 64.5m long.



**Figure 2.4 Vacant Dwelling at Residential Site on Shore Road**

#### 2.2.2.3 Part of Existing Port Office

The proposed development includes the demolition of c.38 sq.m of the ‘Sea Farer’s room’, part of the existing Greenore Port Office building (see Figure below). This demolition is proposed as part of the upgrade to public / private realm in the foreground of the Port Office building described in Section 2.2.2.6.

This demolition is proposed as part of the upgrade to public / private realm in the foreground of the Port Office building. The works will include revised access arrangements (vehicular, cyclist and pedestrian) to the proposed O&M facilities, and hard and soft landscaping to the public / private realm. 6 no. parking spaces in front of the Port Office Building will be removed as part of these works.



**Figure 2.5 Sea Farer’s Room, Existing Greenore Port Office**



#### 2.2.2.4 ESB Substation and Switch Room

The proposed development includes the demolition of an existing ESB substation and associated switch room. (These works were previously approved by An Bord Pleanála as part of a separate application to construct 2 new stores by the applicant - (Pl. Ref. LCC 20543 - ABP Ref 310184). This extant permission also provided for the demolition of existing structures including railway and engine room walls within the port. It is notable that these industrial heritage structures are not proposed for demolition in the proposed development which is subject of this application, with the structures not impacted by the proposal.



**Figure 2.6 Substation and Switch Room**

#### 2.2.2.5 Quay Deck

The existing external concrete pavement within the site will be taken up to facilitate the proposed development. The quay deck pavement, between the proposed buildings and the quayside highlighted in the Figure below, will also be removed and replaced with a heavy-duty reinforced concrete pavement designed to withstand 50kPa port loading. While this is not demolition, it is included in the project description as it will give rise to waste concrete and will impact on the quantum of materials arising in both demolition and construction stages.



**Figure 2.7 Location of quay wall and pavement upgrades**

### 2.2.3 Landside Development

The proposed development set out in this section are the elements of the project that will occur within the terrestrial port area.



**Figure 2.8 General location of O&M Facilities Development Area (Refer to Site Location Map and Site Layout plan for detailed drawings).**

### 2.2.3.1 Operations and Maintenance Facilities

Three standalone individual operation and maintenance (O&M) buildings (Buildings A, B and C) designed to serve the needs of three individual offshore renewable energy (ORE) projects. These buildings are combined warehouse and office units and will incorporate office accommodation, warehousing, and ancillary space (meeting rooms, canteen, welfare, and plant). They are proposed in the western extent of the port landholding. Each of the buildings shall be constructed to a shell and core finish which allows each tenant to arrange the internal space to their own specifications.

The buildings are identical in design with a gross floor area of 1,670sq.m per building, comprising 765 sqm warehouse floor space and 905 sqm office and welfare space per unit. The buildings incorporate a stepped profile ranging from 7.2m for the warehouse (single-storey / double-height space) to 13.5m max for the office 3-storey element. Changing and welfare facilities are located at ground floor level. Enclosed plant rooms are located at first and second floor level. The plant room at the third-floor level is only enclosed by the surrounding walls i.e. there is no roof enclosure.

The maximum height of each building is 13.5m. The finished floor level is 5.05mOD. The buildings are each 24.8m in width and 48.9m in length. The ground floor façade will have a black brick finish and the balance of the façade will be cladded with metal cladding panels in anthracite grey. Rooftop solar photovoltaic panels are provided.

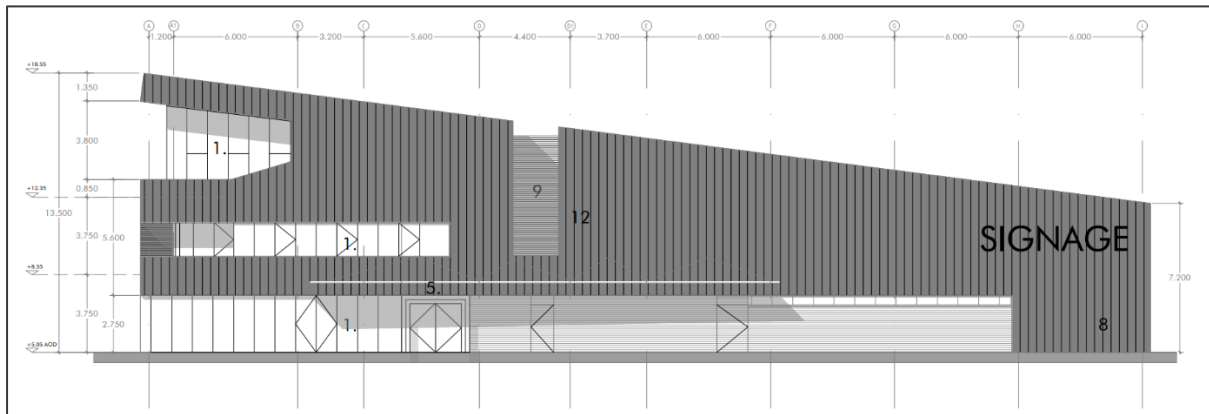


Figure 2.9 Southern Elevation of Typical OMF Building (Extract from Drg. No. GA 200 01)

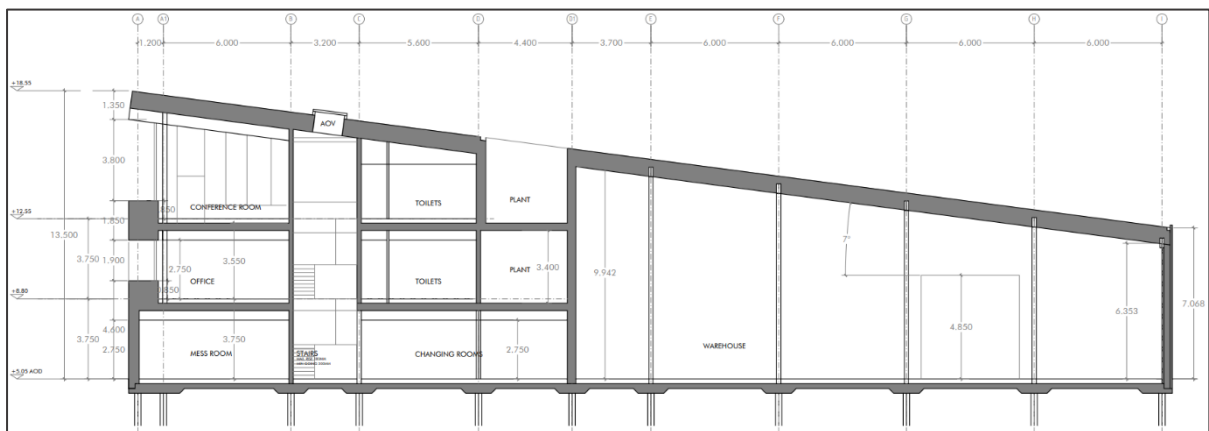


Figure 2.10 Section of Typical OMF Building (Extract from Drg. No. GA 100 01)

Each building is designed to comply with Part M of the Building Regulations so that:

- People can safely and independently approach, gain access and use the building, its facilities and its environs, and
- Elements of the building do not constitute an undue hazard for people, especially for people with vision, hearing or mobility impairments.

Belton Consulting Engineers have prepared a **Climate Action and Energy Statement** for the proposed development, submitted under separate cover. The proposed development has been designed to meet or exceed the legislative requirements for energy conservation and sustainability under TGD Part L – Conservation of Fuel and Energy in other buildings (2021) and planning requirements set out in the Louth County Development Plan 2021-2027.

Each building is designed to achieve the Nearly Zero Energy Buildings (NZEB) standard and will therefore have a very high energy performance, at least corresponding to a A2 Building Energy Rating. Solar panels will be installed on the roof.

The design of the buildings is confirmed by the project Fire Consultant as compliant with the requirements of Part B of the Building Regulations. In due course and under the separate code of the Building Regulations an application for a fire safety certificate for each of the three buildings will be submitted to the Building Control Authority.

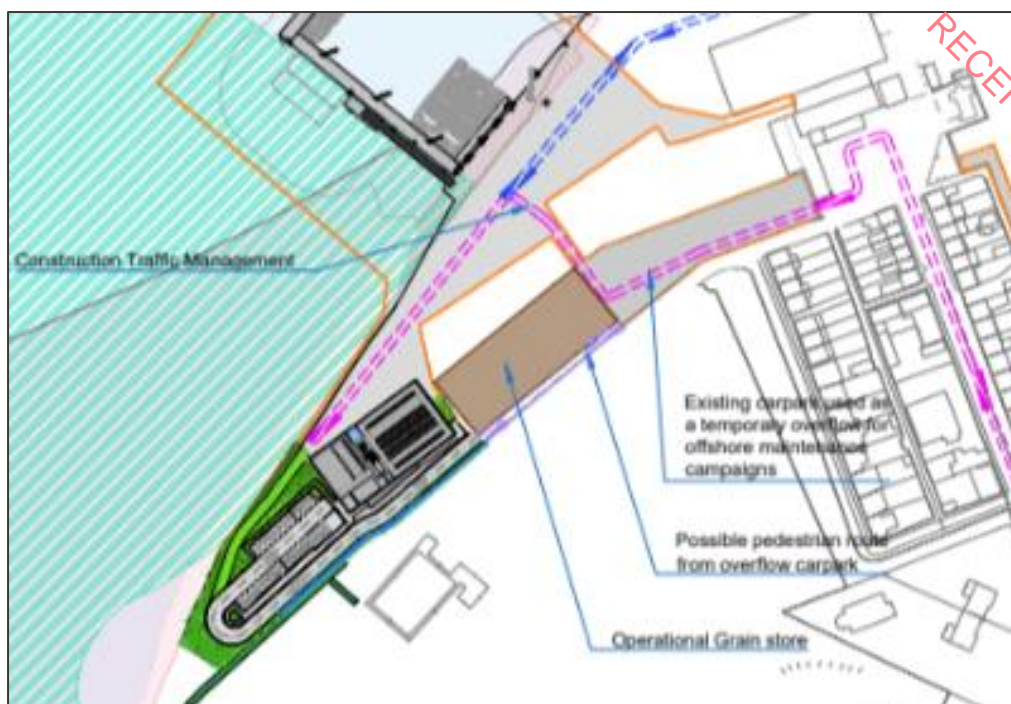
The quay deck pavement, quayside of the proposed buildings, will be upgraded. The existing pavement will be removed and replaced with a heavy-duty reinforced concrete pavement designed to withstand 50kPa port loading.

#### 2.2.3.2 Parking

Adjacent to the buildings, space is allocated for a total of 76 car parking spaces. Of the carparking proposed to serve the proposed development (76 no. spaces), 15 no. spaces will be fitted for electric vehicle charging; and 6 no. spaces will accommodate disabled parking needs. 60 no. secure cycle parking spaces are provided, with 20 spaces allocated to each of the O+M buildings. Access for vehicles and pedestrians/cyclists is via the existing entrance (that historically served the former Open Hydro building) adjacent to the Port Office Building.

The new access road along the southern boundary will not be put in place until Phase 2 (refer to Section 2.5 for Phasing Plan), following the demolition of the former Open Hydro building. In the interim, a temporary access road will be provided to the Building A carpark through port land, located to the north of the former Open Hydro building and Building A. The indicative route is shown through the landscaped area below.





**Figure 2.11 Temporary Access Route north of former Open Hydro building and Building A to carpark.**

As part of the Phase 1 development, the former Open Hydro carpark will be reinstated (62 no. spaces). This carpark is located at the eastern end of the site, bounded to the east by part of the Port Office Building (the ‘Seafarer’s Room’) and to the south by Anglesey Terrace. These parking spaces will be utilised during the construction and operational stages of Phase 1 (refer to Section 2.5) as follows:- during the Construction Phase, as a compound / parking area, and; during the Operational Phase as additional parking for Building A technicians when on site.

During Phase 2 works (i.e. the demolition of the former Open Hydro building, the construction of Buildings B and C and all associated site and development works), the former Open Hydro carpark may be used for a period as a contractors compound / parking area. When this area needs to be vacated for construction purposes, the proposed surface carpark at the residential site (Shore Road) will be used for construction parking. The technician parking will also relocate to the surface carpark when construction commences. This schedule is indicative and subject to the appointed Contractors programme and sequence of events – Refer to Section 2.5 for further details on Phasing, site compounds and construction parking.

### 2.2.3.3 Surface Carpark (Shore Road Residential Site)

A surface carpark with 135 no. car parking spaces is proposed at the residential site on Shore Road, with access from the R175 Shore Road. To facilitate this development, the existing house on site and associated outbuildings will be demolished.

Ducting is included for electric vehicles for 20% of the total spaces i.e. 30 spaces. This carpark will be primarily used by technicians servicing the ORE windfarms.

To facilitate safe access and egress to and from the carpark on to the public road (Shore Road), the existing access will be replaced with a new access approx. 6m to the east. The front boundary wall will also be replaced with ~~a new rendered and cap wall of c0.5m height by fence (1.2m in height) with a native hedge planted at the roadside which will be maintained to the same height.~~ The low wall hedge provides views from the carpark out to the sea and also facilitates sight lines.

A new pedestrian access route to the O&M facilities buildings from this carpark will be provided through Port lands (east of the laneway to the rear of properties on Euston Street) and across the foreground of the existing port office area. The section of the pedestrian route through port lands will be a secure route not accessible to members of the public. A schematic of the routing arrangement is shown below.

The existing and proposed lanes are separated by an existing boundary wall which provides visual and audio screening for the dwellings and gardens of Euston Street. The proposed new lane is separated from the port's lands by a 2.4m high stone boundary wall is secured with electronic gates at both ends to ensure restricted access and a completely separate travel path to the existing public lane.

As evident from the site lighting proposal prepared by Belton Consulting Engineers and submitted with the Application (Drawing no 2314-BCE-ZZ-ZZ-DR-E-60101), the pedestrian lane is equipped with 3 City Street lights, providing sufficient lighting levels for the entire lane. The lighting proposal was designed to specifically light the pathway and not allow light to spill into other adjacent properties. In addition, the lighting posts will be fitted with CCTV to ensure full surveillance of the lane.



**Figure 2.12 Surface Carpark and Pedestrian Access route**

As per the Phasing programme detailed in Section 2.5, the surface carpark may be used as a contractor's compound / construction parking during construction. Following demolition and site clearance works, a temporary gravel surface will be installed. Parking for Technician's will also relocate to the surface carpark when construction commences on Phase 2 works or when the former Open

hydro carpark needs to be vacated. This schedule is indicative and subject to the appointed Contractors programme and sequence of events.

#### 2.2.3.4 Communications Mast

The existing communications mast (25m mast (top = 30.06m ODM), located at the seaward end of Berth 1, is to be replaced with a 40m communications mast at the location of the decommissioned mast.

The new mast will be suitable for Greenore Port's existing operations, including lighting and CCTV, with future capacity for O+M operator equipment, to facilitate communication with CTV's whilst offshore. It is proposed in an area most likely to benefit from clearest line of sight to offshore wind farms.

An exemplar mast is an SLX5/T, self-supporting lattice tower mast from Data Structures.



**Figure 2.13 Location of Existing communications mast**



**Figure 2.14 Communications Mast**



### 2.2.3.5 Landscaping/Boundary Treatment

A **Landscape Design Statement** prepared by Cunnane Stratton Reynolds Land Planning & Design accompanies this application and provides a more detailed description of the landscape design rationale for the proposed development site.

The design concept developed to create landscaped spaces which respects the setting of the site adjoining Carlingford Lough and Greenore ACA whilst providing modern open space uses for the changing environment of the port lands.

Material finishes throughout each of the character areas have been given careful consideration and is a joint approach between the architects and the landscape architects, creating well functioning and beautiful spaces whilst respecting adjoining properties and architectural features.

There are 3 key areas to the landscaping proposals including the Terrestrial port area i.e. adjacent to the proposed O&M facilities buildings; the public / private realm spaces at the Port Office Entrance, and the new surface car park at the residential site. Each of these areas have a different character, reflecting the existing site, the proposed uses and their surrounding context.

#### Terrestrial Port Area

The proposed design aims to create a space that is usable and aesthetically pleasing for employees and visitors. A selection of materials has been chosen to link up the different spaces and allows users to easily and safely navigate through the spaces.

Planting which is appropriate for coastal locations has been proposed, including a wildflower meadow mix at the north western end of the site.

Revised landscaping proposals are proposed at the western extent of the site, in the carpark area adjoining Building A. Consideration has been given to the views available from the grounds of Greenore Golf Club, including the carpark and in particular the Members Bar and adjustments have been made to the proposed landscaping. Mature trees proposed in the original landscaping proposals have been replaced with shrubs to maintain views from the above locations across the Lough, as Members look over the port lands and back towards the entrance to Building A.

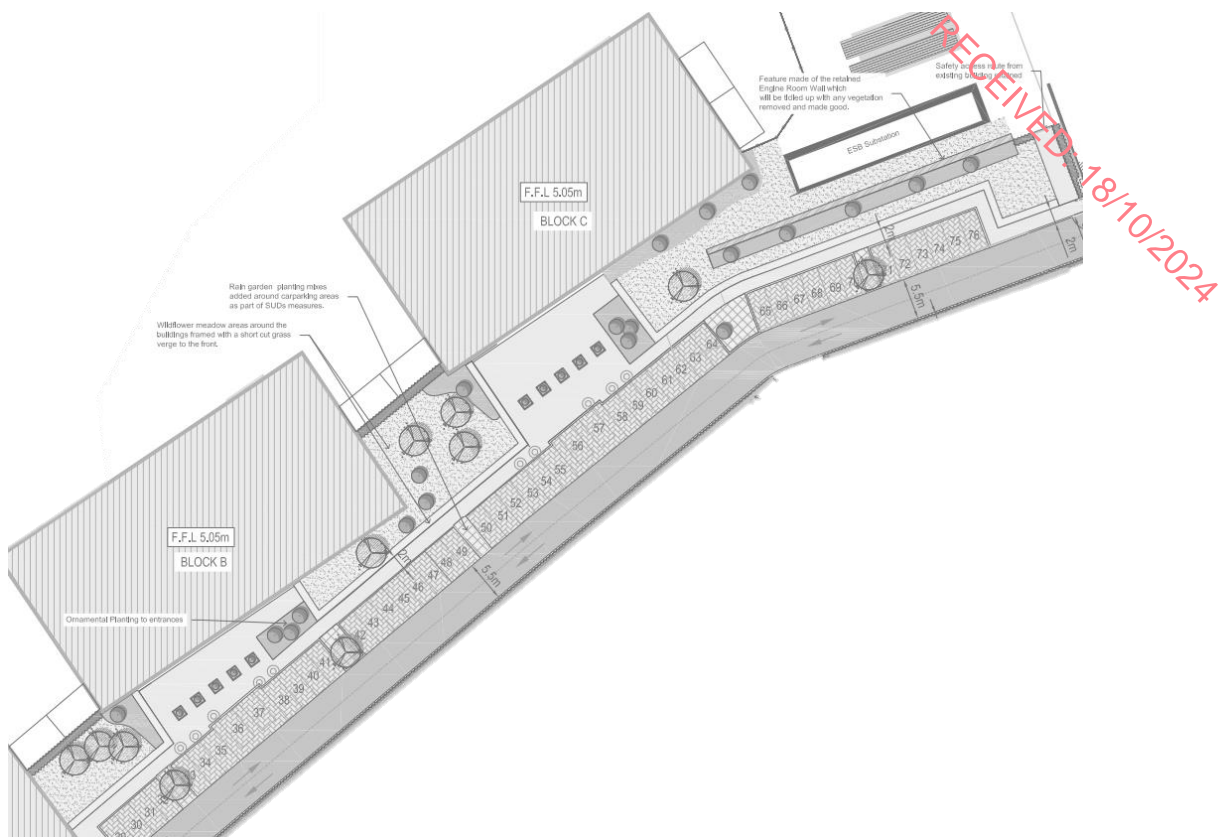


Figure 2.15 Terrestrial Port Area (Extract from Drg. No. 102-B Rev N prepared by CSR)

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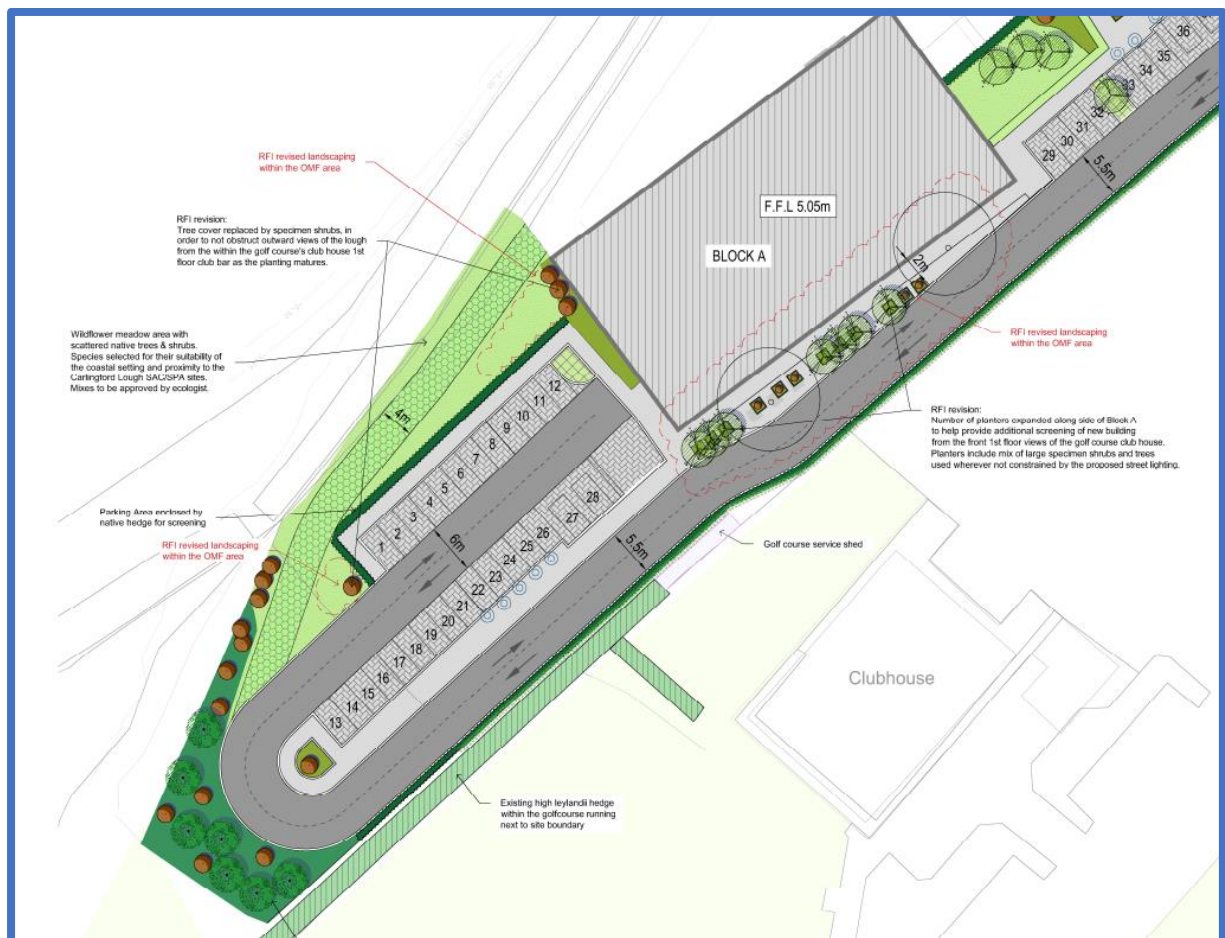


Figure 2.16 Terrestrial Port Area, Western End (Extract from Drg. No. 102-B Rev L prepared by CSR)

### **Port Office Entrance**

Works to the public / private realm in the foreground of the existing Greenore Port office building comprise of an upgrade to the public / private realm areas including revisions to existing vehicular and pedestrian access/egress to the proposed O&M Facilities, new feature entrance wall, removal of 6 no. port car parking spaces, link to new pedestrian route from surface carpark and hard and soft landscaping. These works are located within the Greenore Architectural Conservation Area (ACA).

The aim is to redesign the space to improve the character of the ACA at this point; provide a more user friendly space with pedestrian priority; and improve the existing access arrangements to the site.

The landscaping of the public/private realm was designed to maximise the opportunity for additional planting and a series of planters, containing mixed native planting will be provided to ensure a soft transition from Euston Street to the paved and landscaped area. Furthermore, mature trees and shrubs will be planted during construction to ensure an immediate visual benefit upon the completion of works.

Material finishes throughout each of the character areas and in this area in particular have been given careful consideration and is a joint approach between ECA, 7L Conservation architects and the landscape architects. The materials chosen for this area are to harmonise with the heritage village public realm but also enhance this particular part of the village.

The new site entrance which forms a book end to the port offices uses the red brick to reflect the brick used in the existing water tower. The new entrance uses brick in a contemporary way with a subtle textural feature at one side to add visual interest. The scale of the entrance adds to a sense of arrival at the site and helps with way finding at the port entrance area of the village. The resulting design has created a well functioning and beautiful space respectful of the ACA.



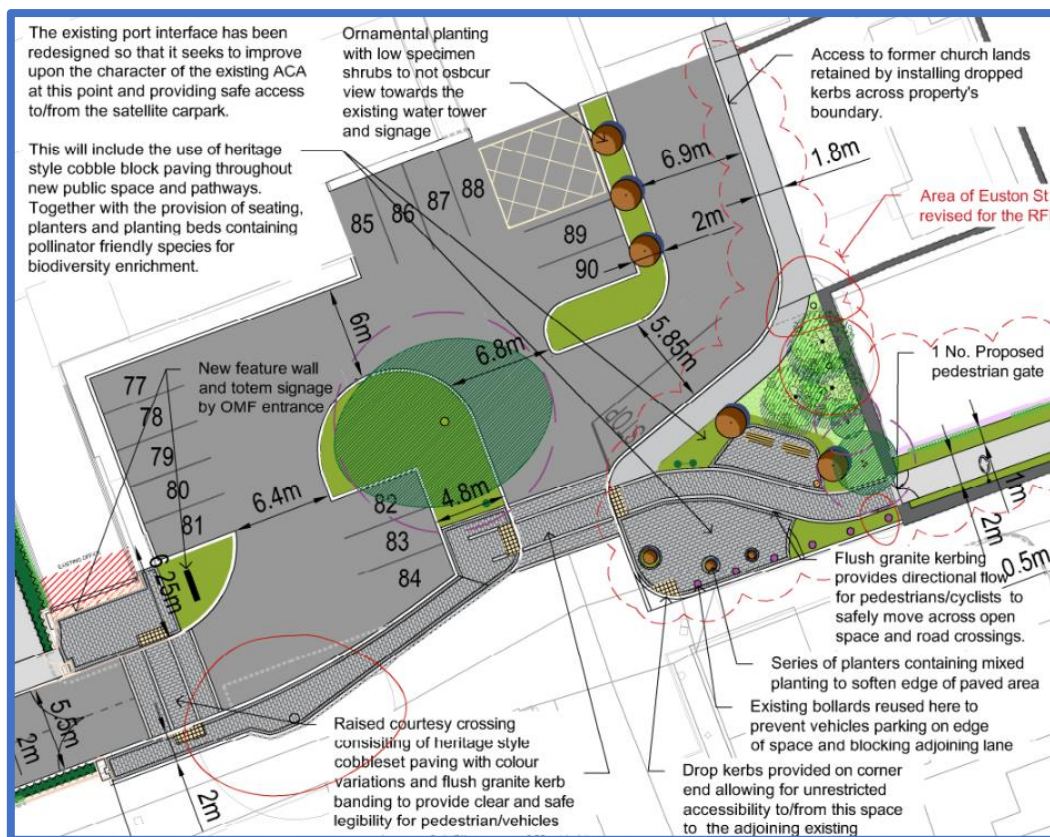
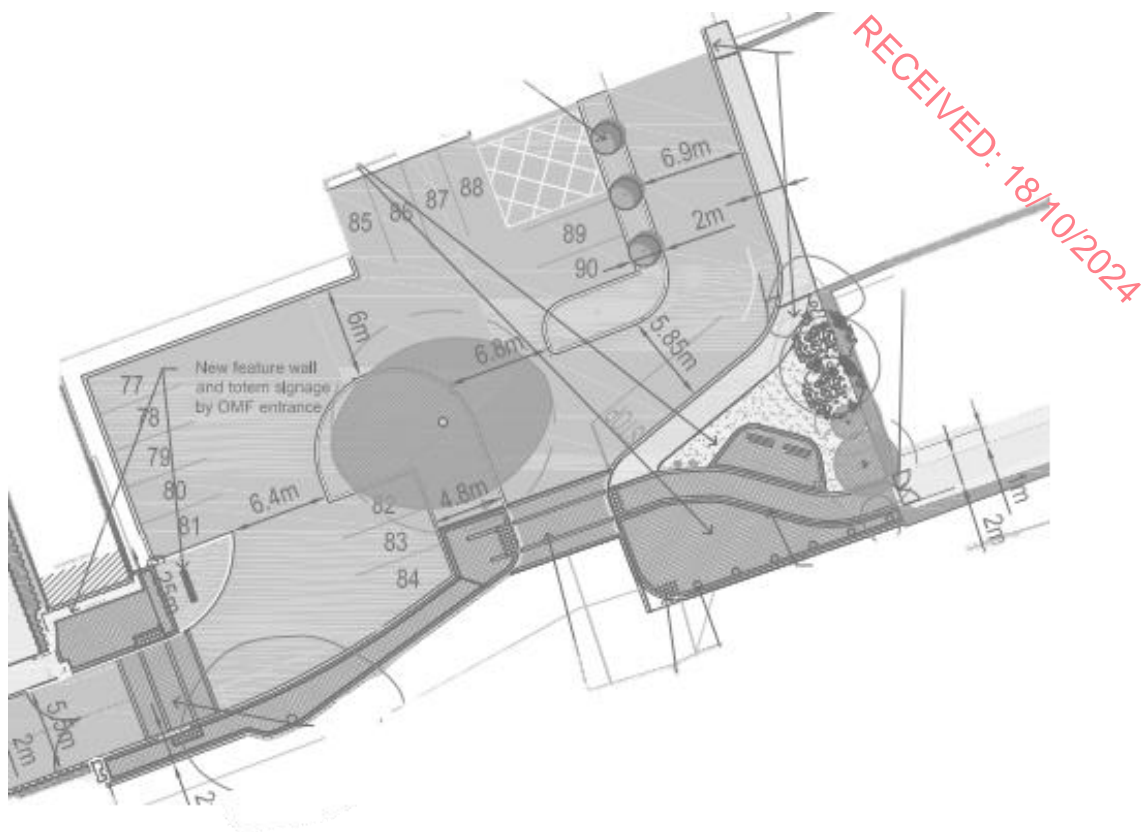


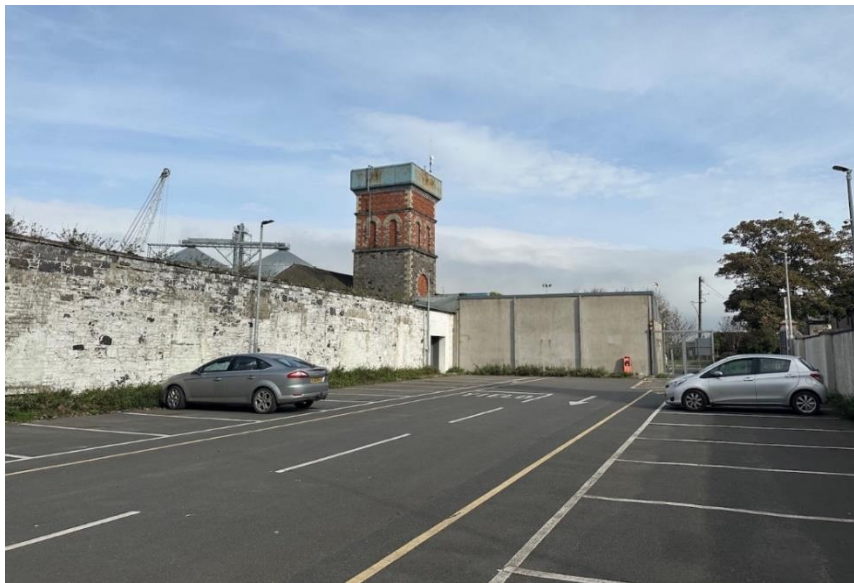
Figure 2.17 Port Office Entrance Proposals (Extract from Drg. No. 102-B Rev N prepared by CSR)





**Figure 2.18 New Feature Entrance**

Inside the proposed main entrance to the site, it is proposed conserve the existing engine room wall. The works will consist of vegetation removal, the consolidation of the existing wall using traditional lime mortar and masonry techniques, weathering including flaunching and shelter coating. These works will be carried out during spring/summer when more favourable temperatures allow.



**Figure 2.19 Existing Engine Room Wall**

Surface carpark, Shore Road

Landscaping of the proposed surface carpark will comprise of native shrubs and trees, with boundary planting to the east, west and south in particular providing enclosure and screening.

The existing stone wall to the back of the site, at the rear of the houses on Euston Street and along the property boundary with the adjoining residences will be retained and repaired. A buffer planting strip is proposed to step back the parking, thus protecting these walls from accidental damage.

Any conservation works to the historic fabric of the wall will be based on respect for the existing fabric and the least possible intervention, applying the philosophy of doing 'as little as possible and as much as necessary'. The existing opening will be retained and improved by removing the concrete blockwork and replacing it with limestone rubble piers to complement the surrounding historic stonework and topped with a squared limestone capping.

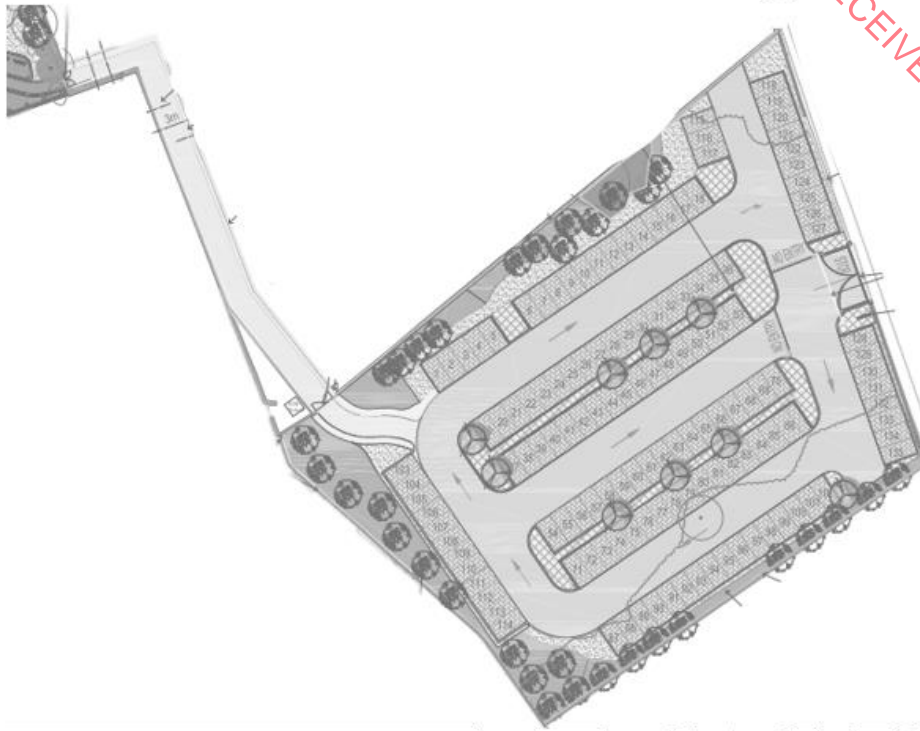
The boundary wall is a limestone rubble wall with cock & hen capping. It is to be conserved by first treating and removing encroaching vegetation. Crude and localised repairs in brick and concrete will then be removed, and then the masonry wall should be consolidated by infilling voids and gaps with suitable salvaged limestone rubble facing stones, bedded and pointed up using lime mortar.

Where further works are found to be required, all effort is to be taken to ensure that the appearance of necessary works is appropriate and in keeping with the fabric, materials and style of the surviving wall. Works will be carried out in consultation with the party owner / local authority under the professional supervision of a conservation architect to ensure that they are carried out in accordance with best conservation practice.

A concrete post and timber panel fence (1.8m high) is also proposed along the southern boundary providing screening for the adjacent housing.

~~A new boundary wall on Shore Road is proposed, at a height of 0.5metres is proposed, raised at the outer limits to match in with adjoining boundaries. This wall, finished in a white render and capped, will reflect the character of the adjoining coastal wall boundary of the port yard and the lighthouse.~~

The general landscaping design of the car park provides for extensive and mature planting, including shrubs and trees where the lighting buffer allows. A boundary fence (1.2m in height) with a native hedge planted at the roadside which will be maintained to the same height. It is proposed to commence with the construction of the fence and planting of the hedge upon completion of the demolition works of the existing residential dwelling on site in Phase One of the development. This is to allow the hedge to grow throughout the further construction phase of phase one and phase two of the development thus allowing for screening at the earliest possible stage of the development.



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**Figure 2.20 Surface Car Park Proposals including pedestrian path to Euston Street (Extract from Drg. No. 103-A Rev N prepared by CSR)**

### 2.2.3.6 Lighting

A Lighting Report and associated drawing prepared by Belton Consulting Engineers accompanies this application. Site lighting for the proposed development has been designed in consultation with the project ecologist. The lighting is designed to achieve the following objectives:-

- to provide sufficient light levels throughout to ensure safe operation of the facility,
- to minimise light spill, and,
- to minimise visual clutter.

External lighting will be provided in the car parking areas, circulation areas, at the main entrance to the O&M buildings, at waste management areas, at vehicular entrance points to the site and along the pedestrian walkways and crossings, and the crew transfer vehicle pontoon. The proposed lighting provides for the following:

- Different luminaire optics throughout the site to achieve the required lux levels whilst minimising light spill on fauna and upwards reflected light (sky glow).
- Lighting levels of less than 3 lux in bat foraging/sensitive areas.
- Glare shields are installed on all luminaires installed close to bat foraging/sensitive areas.

### 2.2.3.7 Signage

Eoghan Carr Architects has prepared a signage strategy for the development and the following information is extracted from the Design Statement and Drg. No. GA 90 01.

Backlit illuminated totems with individual illuminated letters will be erected at the entrance providing details of the occupier of each of the O&M Buildings. A second totem sign is proposed at the entrance to the proposed surface carpark on Shore Road (See Figure below). The signs will be 2.75m high, 1.5m wide and 250mm deep at the OMF entrance, and 3.2m high at the Shore Road car park entrance.

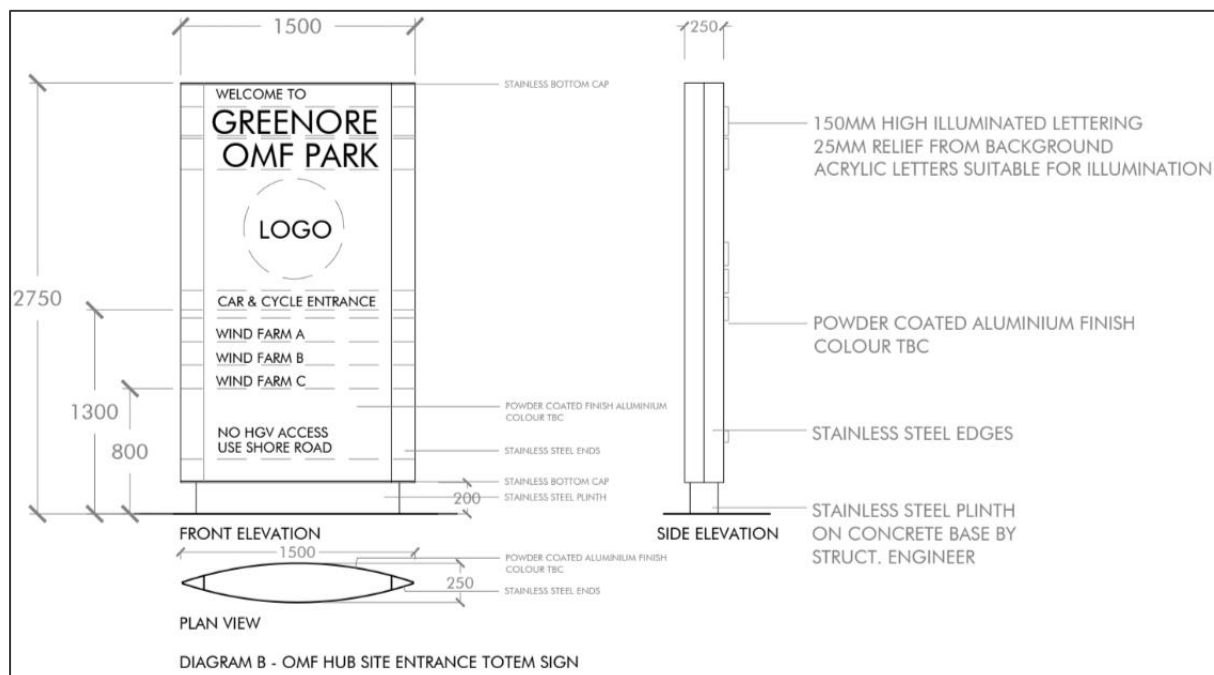
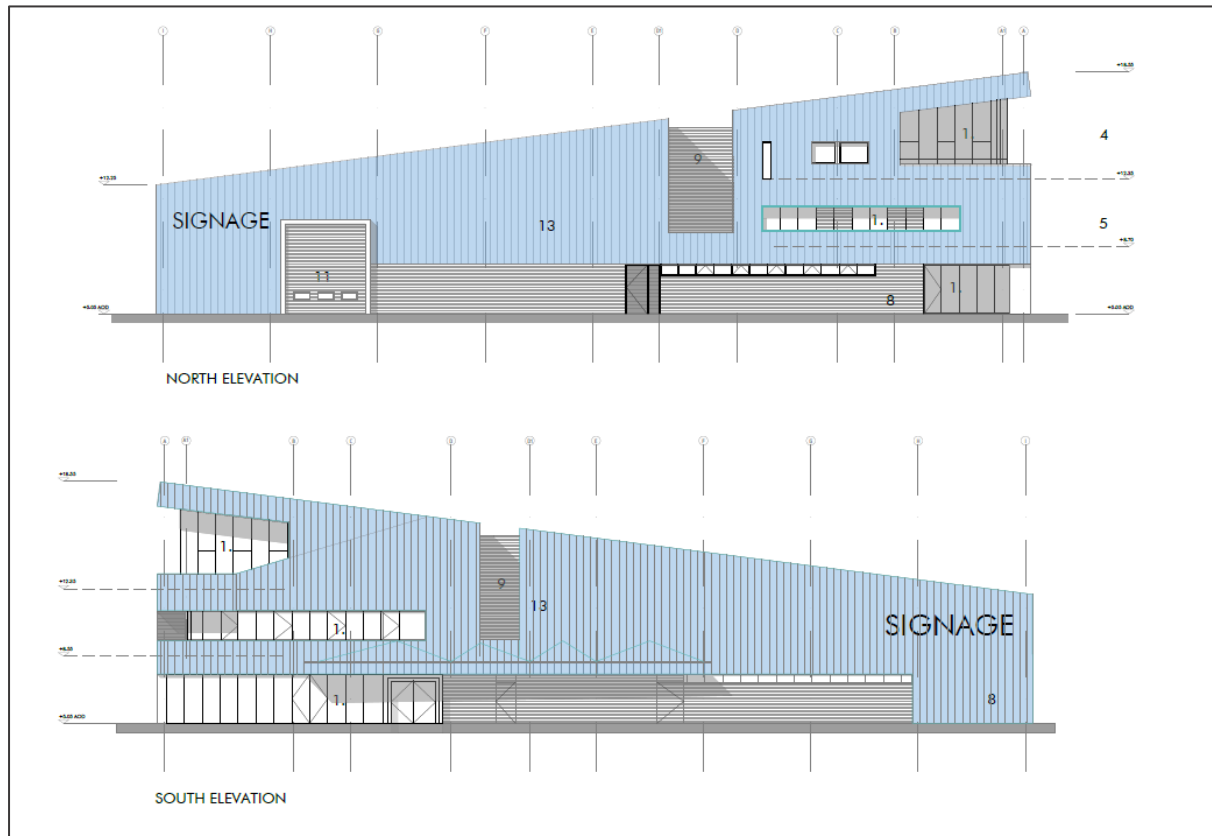


Figure 2.21 OMF Entrance (Euston Street) Totem Sign (Extract from Drg. No. GA 90 01)



External signage will be incorporated on the northern and southern elevations of each of the O&M buildings. The elevational signage will include illuminated lettering, which will be 1m in height. The illuminated lettering will be made from acrylic and fixed to the facade of each building with stainless steel fixings suitable for marine exposure. Figure 2.22 shows the proposed elevational signage. Further details of tenant signage shall be agreed with the planning authority prior to occupation of each building.



**Figure 2.22 Proposed Elevational Signage**

Other way finding signage in the form of a low level signage, directional finger signage and gate / quayside signage are proposed across the site. Details of same are provided on Drg. No. GA 90 01 prepared by ECA.

### 2.2.3.8 Ancillary Works

Site and development works associated with the proposed development include:-

#### ESB Substation

The new substation is proposed between Building C and the existing Port Office entrance, along the site's southern boundary. The dimensions of the proposed substation are c.27.76m in length, c.5m in width, with a height of c.2.84m.

The load forecast for the facility has been designed to future proof in the event that hybrid/fully electric CTV vessels are used. Hybrid vessels are operational in the UK and the electric motors reduce



CO<sub>2</sub> emissions. Advances in technology are occurring in real time and the forecast therefore has a range of 900 kVa to 1,600kVa. Vehicular access to the substation is proposed on the Northwestern elevation via Greenore Ports goods entrance.

The external walls shall be finished to blend in with the surrounding built environment. The finish will be rendered blockwork. The substation shall be fully in line with the ESB specification and requirements.

### Waste Management Areas

The total estimated waste generation for the proposed development for the main waste types, based on the AWN (see Chapter 8) waste generation model (WGM) incorporating EPA National Waste reports data, EPA National Waste Statistics Web Resource and floor use per square meter of the proposed development, presented in the Table below, and is based on the uses and areas as advised by the project developer.

**Table 2-2 Estimated Waste Generation During Operational Phase Main waste types**

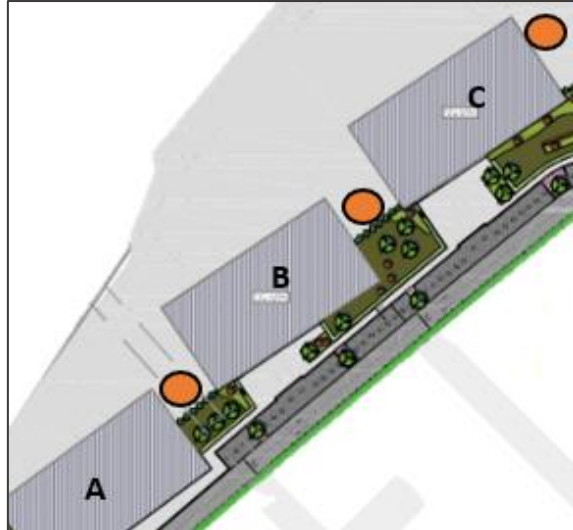
Waste Type	Waste Volume (m <sup>3</sup> / week)
Organic Waste	0.44
Confidential Paper	0.13
Glass	0.08
Dry Mixed Recyclables	9.72
Mixed Non-Recyclables	4.19
Total	14.56

The future occupants of each building shall employ suitably permitted/licenced contractors to undertake off-site management of their waste in accordance with all legal requirements. This includes the requirement that a waste contractor handler, transport and reuse/recover/recycle/dispose of waste in a manner that ensures that no adverse environmental impacts occur as a result of any of these activities.

Each O&M building has an adjacent dedicated and secure Waste Storage Area (WSA). The WSA contains segregated waste from the O&M buildings and waste returned from maintenance operations via the CTV's. Each waste receptacle is enclosed and self-bunded as required. A mixture of bespoke receptacles and standard commercial wheelie bin receptacles are provided.

Control of Substances Hazardous To Health (COSHH) stores are provided internally in the building for chemical wastes.

The surface water drainage network will collect runoff from the WSA's and discharge to the network.



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**Figure 2.23 WSA locations shown orange – refer to Site Layout Drawing for detail.**

Typical receptacles used to store and segregate waste at industrial facilities are outlined in the Table below. Supplying these receptacles meets legislative requirements.

**Table 2-3 Waste Storage and Segregation**

Area/Use	Bins and Equipment Required					
	Mixed Non Recyclables	Dry Mixed Recyclables	Cardboard & Plastic	Glass	Organic	WEEE
Type	1100L Bin(s)	1100L Bin(s)	Baler	240L Bin	240L Bin	WEEE Cage



There are numerous private contractors that provide waste collection in the Louth County Council area. All waste contractors servicing the proposed development must hold a valid waste collection permit for the specific waste types collected. All waste collected must be transported to registered/permited/licensed facilities only.

The waste receptacles will be collected directly from the WSA by the waste contractor. Refuse Collection Vehicles (RCVs) will access the buildings using the HGV port entrance located on Shore Road.

## Fuel

A fuel store with a capacity of  $\geq 200,000$  litres will be provided in a dedicated area that will be maintained and managed by Greenore Port. This quantity of proposed fuel storage is significantly below the applicable threshold of 2,500 tonnes for petroleum products and alternative fuels detailed in Part 2 of Schedule 1 of the Control of Major Accident Hazards (COMAH) Regulations 2015.

The overall volume will be stored in 1-2 bunded tanks and located in a secure area of the site to avoid accidental impact. The tanks will be fitted with overfill prevention, bund alarm and automatic shut off valves to mitigate risk of spills. Surface water will be drained from this area into the proposed network with petrol interceptors included.

CTV fueling infrastructure will be provided at the push on / service berth adjacent to the quay wall. This will be a metered facility monitored and maintained by Greenore Port. Fuel is piped underground to this facility from the fuel store, located north of the new ESB substation. This service berth is discussed in further detail in Section 2.2.3 below.

### 2.2.4 Nearshore Development

The proposed nearshore development generally comprises capital dredging, development of a pontoon to accommodate Crew Transfer Vessels (CTVs) and improvement works to the existing Berth 3 quay wall. These works will consist of the following:

- Dredging c.45,000m<sup>3</sup> of soft silty sand material and c.1,000m<sup>3</sup> of rock from the existing port berthing area to facilitate navigable access at this location.
- Improvement works to the existing Berth 3 quay wall for a 70m length. This will include a new quay wall face and upgraded deck. The new quay wall shall be a steel pile closed face wall and replace an existing caisson berthing face.
- 220m of new breakwater pontoons, 5-6m wide to accommodate crew transfer vessels (CTVs). The pontoon arrangement shall facilitate 9 no. CTV berths comprising 5 no. 24 pax vessel and 4 no. 12 pax vessels. There is also 2no. layby berths for 12 pax vessels on the outer (southern) side and a push on / service berth adjacent to the quay wall.
- A 40m anti-slip access ramp shall provide access from a newly extended quay wall.



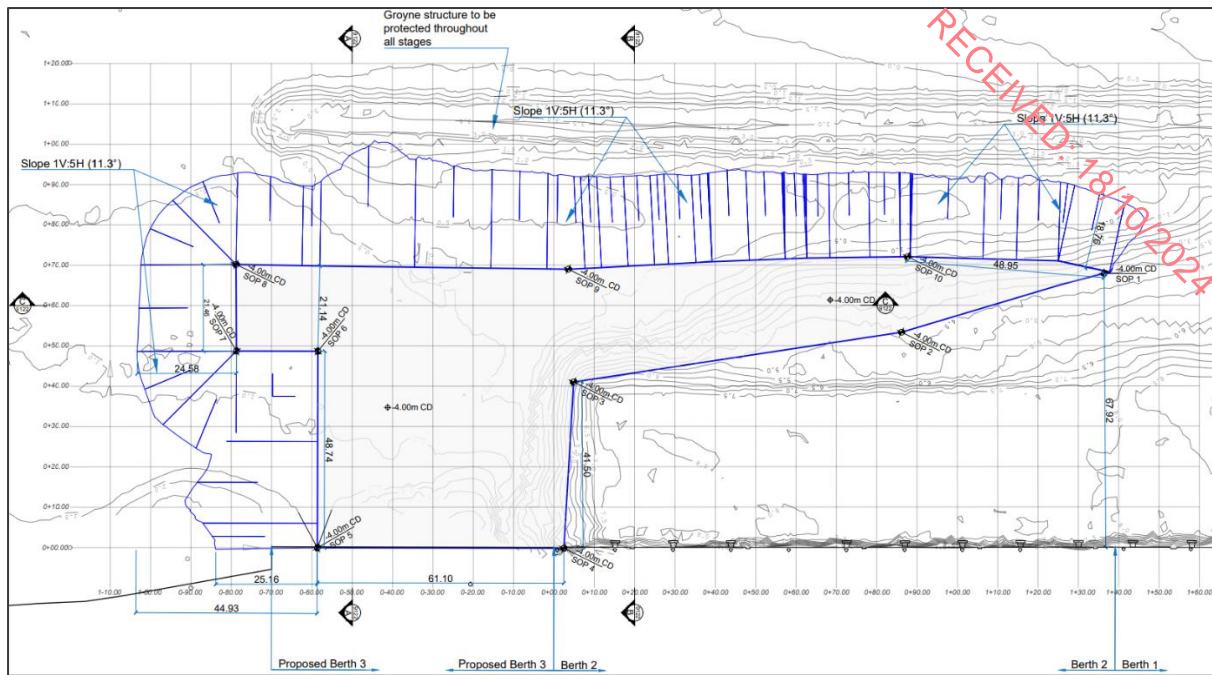
**Figure 2.24 General location of Nearshore Development Area (Refer to Site Location Map and Site Layout plan for detailed drawings).**

#### 2.2.4.1 Dredging

To facilitate navigable access and suitable berthing for the CTVs it is necessary to carry out c.46,000m<sup>3</sup> of capital dredging between the existing groyne, Berth 2 and proposed Berth 3. Refer to Figure 2-25. The depth in this dredge pocket shall be -4m OD. This depth is suitable for the proposed CTV vessels.

Ground investigations were undertaken by Gavin & Doherty Geosolutions Limited (GDG), with the results presented in the Greenore Port Geotechnical Interpretive Report (GIR) - Refer to Appendix 9.2. The dredge material will comprise of approximately 45,000m<sup>3</sup> of soft dredge arisings (gravel, silt, sand, clay) and 1,000m<sup>3</sup> of rock dredge arising, both with EWC Code 17 05 06.

The existing rock armour supporting the breakwater at the outer edge of the dredging area will be repaired / strengthened during the dredging process, where the need arises. The purpose of this breakwater is twofold, creating a safe wave environment for shipping, which will be of additional benefit to the lighter craft (CTV's) utilising the pontoon. The breakwater also creates a natural 'self-scouring' port and as a result, a regular maintenance dredging programme is not required.



**Figure 2.25 Dredge Plan (Extract from Drg. No. D9112)**

#### 2.2.4.2 Berth 3 Quay Wall & Quay Deck

The existing Berth 3 is constructed by precast infilled caissons. The proposed development would see the construction of a new quay wall over a length of 70 metres. The design of Berth 3, with a depth of -4m Chart Datum, will be for the use of the proposed O&M facilities development only and is not suitable for cargo. The design preserves the existing caissons in their current position while the existing rock armour will be removed for the extent of the upgrade.

The wall will be a combi-pile wall with a reinforced concrete capping beam, identical to the recently completed Berth 2 refurbishment works (planning ref. 17413). The new quay wall will be in line with the existing Berth 2, approximately 3m from the existing quay edge. The proposed quay wall will tie in with the existing deck level, at approximately +8.1m Chart Datum.

A 40m anti-slip access ramp shall provide access from the new Berth 3 quay deck to the pontoon – refer to Section 2.2.3.4 for details on the pontoon design.

The quay deck pavement shall be heavy-duty reinforced concrete pavement designed to withstand 50kPa port loading.

There is no requirement as part of this development to provide for helicopter access / helipad zone.

#### 2.2.4.3 CTV Berths

The proposed development includes a pontoon system providing for safe berthing for CTV's and safe access and egress for personnel.

The proposed arrangement of the pontoon berthing is based on 9 no. Vessels (5 no. 24 pax design vessel and 4 no. 12 pax design vessels), with 2no. layby berths for 12 pax design vessels on the outer (southern) side.



A 'push on' berth located next to the Berth 3 quay wall and will be used by CTV's for loading / unloading heavy parts, access to fuel and foulwater pump out.

The push on berth provides access to a 3t static crane mounted on the quayside (see Figure 2.26). The 3t crane is required for loading replacement components / plant for transfer to the offshore windfarms by CTV's.



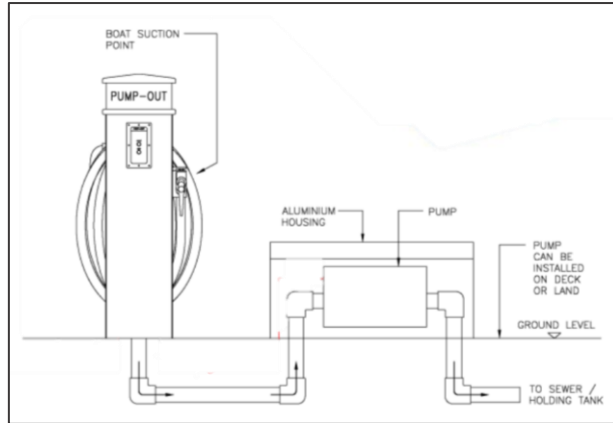
**Figure 2.26 Typical quayside cargo crane at 'push on' berth**

Fuel (diesel) is provided by means of purpose built, marine fuelling station mounted on the pontoon within a bunded housing (Figure 2.27). No fuel is stored on the pontoon and is instead piped underground to this facility from the landside fuel store. Access to the fuel pump is restricted to authorised card holders. The system is equipped with automatic cut offs and manual stops to mitigate potential for fuel spills. Emergency spill and firefighting equipment is provided on the fuel berth.



**Figure 2.27 Fuel pump**

A black/grey water pump out facility (Figure 2.28) provides pump out from CTV's to a quayside manhole. Effluent then travels by gravity to the landside foul water network.



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**Figure 2.28 Typical foul water pump out**

#### 2.2.4.4 Pontoon Design

The design of the proposed pontoon structures has been guided by a dive survey completed by ADCO and Hydraulic modelling undertaken by RPS.

220m of new breakwater pontoons, 5-6m wide will be provided to accommodate CTVs. A ca. 40m shallow gradient access ramp, with anti-slip properties, connected to the new Berth 3 quay wall cope, provides access onto a landing pontoon. This ramp provides safe access and egress for personnel in addition to providing a duct route for on pontoon services.



**Figure 2.29 Proposed Pontoon Structure**

The outer pontoons provide additional shelter to the vessels from northerly and south-westerly winds in addition to berthing facilities. These are concrete breakwater pontoons. They shall be of a high freeboard design and secured in location by vertical pile guides.

The inner pontoons (fingers) provide individual berths. These will likely be steel pontoons with the same freeboard and vertical guides. The spacing of these fingers provides some flexibility to cater for various CTV dimensions.



**Figure 2.30 Similar pontoons installed at Dublin Port**

LED lighting bollards provide safe walkway illumination of min 20 lux measured 0.5m from deck level. The lighting is cowled to avoid light pollution and mitigate any hazard to navigation. Low level lighting shall be installed on the access ramp also.

Each berth is serviced by a service bollard with access to shore power and potable water. EV charging will be provisioned where practicable for future installation.



**Figure 2.31 Typical service bollard**

A static 1t crane is located at each berth for lifting crew bags and small parts. The crane shall have suitable jib length to reach over the gunnel of work vessel and place a 1t pallet in the centre of the vessel. These shall be located on the pontoons. The number and position of arms will be dependent on the final vessel configuration.

The pontoons and fingers will be equipped with mooring bollards suitable to the final vessel configuration. Fenders/rubbing strips will be designed to avoid conflict with beltings/fender strips typical to CTV's. Safety equipment will include ladders, grab rails and emergency bollards. Emergency bollards will contain throw lines, ring buoys and fire fighting equipment. Navigation lights subject to

CIL sanction will likely include 2 nr. 4m high demountable navigation lights at either end of the outer pontoon. These are expected to be a 1nm light with 2m separation with solar power backup.

#### 2.2.4.5 Piling

It is estimated that proposed development will include a total of 34 no. tubular piles for the construction of the quay wall and the pontoons. This includes 24 piles for the Quay wall and 10 no. piles for the pontoon. The following Table sets out the number of piles for both the quay wall and the pontoon construction which are within the SAC and SPA.

**Table 2-4 Number and position of Piles**

	Total no. of Piles	No. of Piles in SAC	No. of Piles in SPA
Pontoon	10	1	2
Quay Wall	24	24	3

The methodology for installing the piles is outlined below, as per the Outline CEMP-

**Quay Wall:** The quay wall consists of a piled face and concrete beam (cope) across the top of the piles. The quay wall is tied back to a sheet piled/concrete anchor wall via steel tie rods. The remaining ground is back filled and topped with a heavy-duty concrete pavement. Each of these elements is described in further detail in the Outline CEMP.

**Breakwater Pontoon Piling;** Piling will require boring into rock, pitching and setting in place of steel piles from floating and elevated platforms. A jackup barge and crane barge will be mobilised to the site by road/sea. Rotary piling equipment will be driven onto the jackup barge at the existing berth. At each pile location the jackup barge, near high water, the barge will lower its legs to the seabed and elevate the working platform approximately 2m above the tide.

Supported by an attendant crane barge the piling plant will oscillate a temporary casing to the seabed and key into rock. It will then use a series of buckets and boring tools to progress a socket within the casing to the designed pile toe level. The attendant crane barge will then pitch the steel pile into position, its verticality supported by the temporary casing. Once checked, the annulus of the pile will be concreted to the base of the temporary casing. Once sufficiently cured, the casing will be removed, and the pile cut to the design level.

#### 2.2.5 Drainage

An **Engineering Planning Report** prepared by Clifton Scannell Emerson Associates, Consulting Engineers accompanies this application and should be referenced for a comprehensive description of the proposed surface water, foul water and water supply strategies. Further details are also provided within Chapter 7 Material Assets – Built Services of this EIAR.

Surface water, wastewater drainage and water supply for the proposed development is designed to comply with the Irish Water code of practice, standard details, policies and guidelines and the

requirements of Louth County Council. A Confirmation of Feasibility has been received from Irish Water and is included with this application, as an Appendix to the Engineering Planning Report.

#### 2.2.5.1 Wastewater

The port has an existing foul drainage network in place comprising of a foul collection tank and foul lines servicing buildings in the port. This includes an existing 150mm connection to the foul collection tank from the former Open Hydro building.

The foul collection tank is located under the floor of an existing port warehouse north of the port office and it stores foul effluent from the port and the village. The collection tank is an Uisce Eireann asset, and they are given access to the site to allow tankers enter and empty the chamber for off-site disposal to Dundalk Wastewater Treatment Plant (WWTP).

A new network of foul sewers will be installed to serve the proposed development, discharging to the existing collection tank. There will be no direct or indirect foul water discharge into Carlingford Lough. The proposed wastewater network is presented on Drawing No. 2536 prepared by CSEA.

#### 2.2.5.2 Surface Water

The port currently has an existing stormwater drainage network in place. This serves as a drainage network for both yard surface water and roof water from buildings. The system drains via gravity to a bypass separator and discharges via one existing outfall into Carlingford Lough.

The proposed surface water drainage is designed in accordance with the Greater Dublin Strategic Drainage Study (GSDSDS), Water Services Guidelines for Planning Authorities (Draft – 2018) and The SuDS Manual (CIRIA, 2015).

The proposed surface water drainage system designed for this development includes a number of Sustainable Urban Drainage Systems (SuDS) measures incorporated to reduce run-off volumes and improve run-off water quality. The design of the attenuation storage system has been carried out for the 1 in 100-year event with a 20% allowance for climate change. There are two separate drainage proposals for the proposed development, one for the O&M facility and a separate system for the Surface carpark.

### Terrestrial Port Area

The proposed surface water drainage from the O&M site will use the existing outfall into Carlingford Lough. There is existing capacity sufficient to cater for the proposed new development.

The surface catchment area will increase in comparison with the existing situation, however, for the O&M facility site, as the outfall is directly to sea, full attenuation for a 100 year return storm is not required. This is as per the Greater Dublin Strategic Drainage Study, Section 6.6, Vol.2. Instead, the principal issue is water quality not quantity. A bypass separator will be installed to intercept pollutants such as petroleum and oil before the Surface water outfalls to sea.

The proposed Stormtech Attenuation system is proposed to be installed to north of Building B. The surface water network has been designed to take account of high tides where discharge rates will be limited at the outfall. To provide for this, the design approach assumes no outfall from the site for a period of 6 hours. The attenuation storage system will comprise of underground Arch-type



attenuation storage units, i.e., stormtech systems or similar approved. The stormtech units will be fully wrapped in impermeable liner around base and sides of excavation required for the installation of the arch type units attributed to the proposed Stormtech attenuation system. The proposed wastewater network is presented on Drawing No. 2536 prepared by CSEA.

Permeable paving is proposed in all parking bay areas to promote infiltration to the groundwater where suitable. However, at locations where infiltration rate is very low, a proposed perforated pipe will convey the excess runoff back to the positive drainage network. Grasscrete will be used for in sections of the site where fire tender access is required.

#### **Residential Site, Shore Road (Surface Carpark)**

Permeable paving is proposed in all parking bay areas to promote infiltration to the groundwater where suitable. However, at locations where infiltration rate is very low, a proposed perforated pipe will convey the excess runoff back to the positive drainage network.

Surface water drainage will discharge by a series of filter drains into an underground stone-filled reservoir. This system has been designed using the results of the soakaway tests in accordance with BRE 365, 2016. These results are included in the Engineering Report by CSEA included with this application.

It is proposed to limit the surface water discharge to the equivalent  $Q_{bar}$  value to 2.13 l/s/ha in compliance with the Greater Dublin Strategic Drainage Study (GDSDS), Water Services Guidelines for Planning Authorities (Draft – 2018) and CIRIA SuDS Manual, 2015. A “Hydrobrake Optimum” (downstream of the attenuation unit) vortex flow control devices to restrict the flows to the amounts calculated.

A bypass interceptor will be installed to capture pollutants such as petroleum and oil and prevent their entry to the public drainage system or groundwater or groundwater where an infiltration system is utilised.

Surface water will discharge to the public surface water pipe on Shore Road. The proposed surface water network is presented on Drawing No. 2507 prepared by CSEA.

#### **2.2.5.3 Water Supply**

There is an existing 100mm diameter watermain parallel to the southern boundary of the site and a network of pipes at the Port Office entrance coming from Greenore village. There is also a significant watermain network within the Port serving the existing infrastructure and quayside operations.

A pre-connection enquiry (PCE) form was submitted to Irish Water which addressed the design population, and the proposed water demand applicable to the development. The average water demand for the development was calculated as 0.39 litres/sec whilst peak water demand was calculated as 1.95 litres/sec. It is proposed to use HDPE watermain size of 100mm to service the three buildings. Each proposed building will have a separate flow meter/ boundary box as per IW standards.

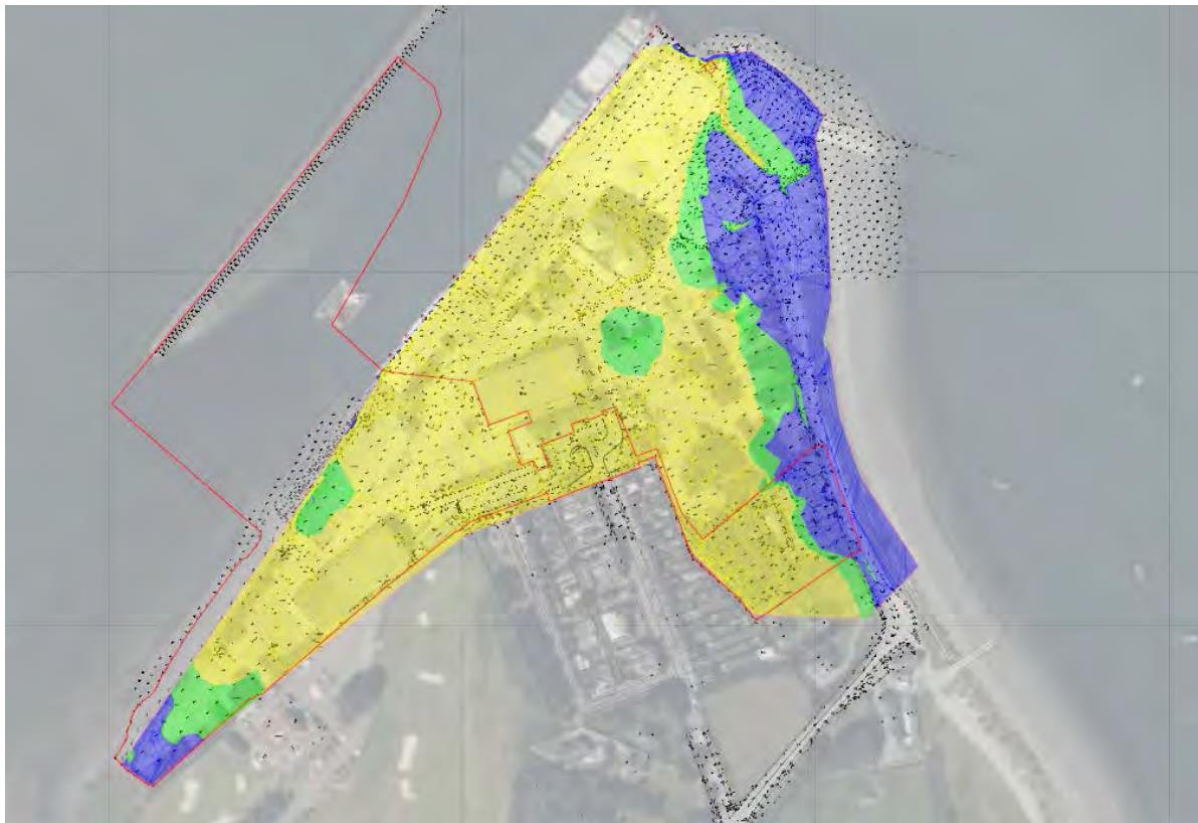
Irish Water have issued their Confirmation of Feasibility letter for the above and it is included with this application.

#### 2.2.5.4 Flooding

Coastal flooding from Carlingford Lough is the main source of flooding at the site. The site is predominantly located within flood Zones C and B. However, some elements of the proposed development fall within flood zone A, including the western extent of the terrestrial port area and the eastern extents of the Shore Rod residential site.

A Site Specific Flood Risk Assessment (SSFRA) has been carried out by McCarthy Browne and accompanies this planning application under separate cover. This SSFRA confirms the following land levels for each of the Flood Zones Areas:-

- Flood Zone A comprises lands with elevations less than +4.25M OD Malin
- Flood Zone B comprises lands with elevations between +4.25M OD Malin and +4.47m OD Malin
- Flood Zone C comprises lands with elevations greater than +4.47M OD Malin



S/N	Flood zone	Elevation reference(mOD)	Colour code
1	A	<4.25	Dark Blue
2	B	Between 4.25 and 4.47	Green
3	C	>4.47	Yellow

**Figure 2.32 Flood Zone Map (Extracted from Site Specific Flood Risk Assessment)**

The proposed development proposes to raise ground levels and finished floor levels in the areas concerned as follows:

- The O&M buildings (warehouses and offices) are to be no lower than 5.05m OD, with 5.27m OD for the substation
- All amenity spaces, storage and parking areas to be no lower than 4.25m OD Malin
- The quayside facility, although a water compatible development, is recommended to be no lower than 4.25m OD while matching the existing quay wall level.

As outlined in the SSFRA, the site does not act as a flood storage zone and the proposed development will not add any new hardstanding areas within the port. The carpark area will be constructed with permeable paving. Surface water will also be managed through design to limit discharge and avoid outfall during extreme high tide events.

## 2.3 Hours of Operation & Staffing

The O&M facility will have some level of operation 24 hours per day, seven days a week.

On a typical week day, Monday to Friday 8.00 to 18.00, there will be c. 45 persons on site per building. Cumulatively this equates to c. 135 employees when all 3 buildings are occupied. This includes office, warehouse, control room staff and technicians. A nominal figure has been included for visitors to the site. Refer to Table 2.4.

During the summer months (min. June – August), or periods of better weather, the programme of maintenance works on an Offshore Renewable Energy (ORE) facility intensifies requiring additional technicians on site daily, increasing from c.15 technicians to c. 30 technicians per building. This brings the cumulative total to c.180 staff daily.

Every 2-4 years, biennial maintenance works are undertaken. Again, these works are undertaken in the summer months (min. June – August), or periods of better weather. The nature of this work requires additional technicians on site daily, up to c.60 technicians per building. The total number of staff daily during these periods will be c.225.

Refer to Table 2.4.

The five main user types are described in further detail below.

- **Office staff** - Office staff will work during normal office hours 08:00 – 18:00, Monday to Friday. Each building will have up to 8 office staff.
- **Warehouse staff** - 2-3 staff are expected to be based in each warehouse. These staff will carry out minor maintenance on plant and equipment and ensure spare parts shelves are stocked and prepared for operations. It is expected that warehouse staff will predominantly work normal office hours, 08:00 – 18:00, Monday - Friday. 24-hour access will be required to warehouses.
- **Control room staff** - Control rooms may be manned on a 24-hour basis by 2-3 staff on a shift basis. A sophisticated SCADA (supervisory control and data acquisition) system enables the Control Room Staff to monitor the Offshore Wind Farms in real time. This provides information on the output of the wind turbine generators and all the related system parameters.
- **Technicians** – On arrival, technicians may receive a work briefing and prepare equipment for the sea. They will then change into sea going gear and assist in the transfer of small equipment and gear bags to the vessel by trolley and forklift from the warehouse. Technicians will typically work

in 12hr shifts with CTV operation approximately between 06:00 and 21:00. This will be weather and travel time dependent. Scheduling of CTV departures and arrivals will be operator dependent and controlled by Greenore Port. It is unlikely that CTV movement will occur simultaneously. It is estimated that CTV's will typically operate at 60-70% capacity with 1-2 CTVs per building (per operator) during the winter months – this equates to c. 30 technicians per facility, and cumulatively up to c. 90 technicians daily.

Annual maintenance will be programmed to avail of better weather during the summer months (minimum June to August). During these months, 2-3 CTVs per building (per operator) will operate with c. 45 technicians per facility (cumulatively c. 135 technicians) daily.

Biannual maintenance, which may occur every 2-4 years, may require additional CTV fleet. During these periods, the number of technicians required per operator is c. 60 technicians (cumulatively 180 technicians). Due to availability of resources, it is unlikely that these maintenance works will be undertaken by more than one of the operators at any one time. However for the purposes of a robust assessment, the assessments completed for this application have assumed the worst case scenario where these biennial maintenance works occur concurrently.

- **Visitors** - Due to the nature of business and operations, this will be a secure facility. The offices will have a public facing aspect, but it is not expected that general public will have any requirement to visit the offices. Visitors will be business to business clients and attendance will be infrequent. 1 parking space provided per building.

**Table 2-5 Staff Levels**

Maximum Staff Levels				
	Building A	Building B	Building C	Total
Office	8	8	8	24
Warehouse	3	3	3	9
Control Room	3	3	3	9
Technicians	30	30	30	90
Visitors	<u>1</u>	<u>1</u>	<u>1</u>	<u>3</u>
Daily Staff Levels	<b>45</b>	<b>45</b>	<b>45</b>	<b>135</b>
Staff Levels During Annual Maintenance Events (+15 technicians per building)	<b>60</b>	<b>60</b>	<b>60</b>	<b>180</b>
Staff Levels During Biannual Maintenance Events (+30 technicians for one building)	<b>75</b>	<b>75</b>	<b>75</b>	<b>225</b>

## 2.4 Demolition and Construction Phases

This application is accompanied by an Outline Construction Environmental Management Plan (CEMP) and a Resource Waste Management Plan (prepared by AWN and appended to Chapter 8). Both reports should be read in conjunction with this chapter for a comprehensive description of the construction phase.

### 2.4.1 Phasing

Table 2.5 sets out the proposed phases of development.

The current indicative phasing suggests that the project will be split over 2 phases, linked to the delivery of future ORE projects and the associated ORESS Auctions (Offshore Renewable Energy Support Scheme).

These phases are based upon the information available at this time and for the avoidance of doubt, it is not proposed or intended that the applicant / contractor(s) are bound by these proposals which may change depending on the timing and circumstances pertaining at the time of construction.

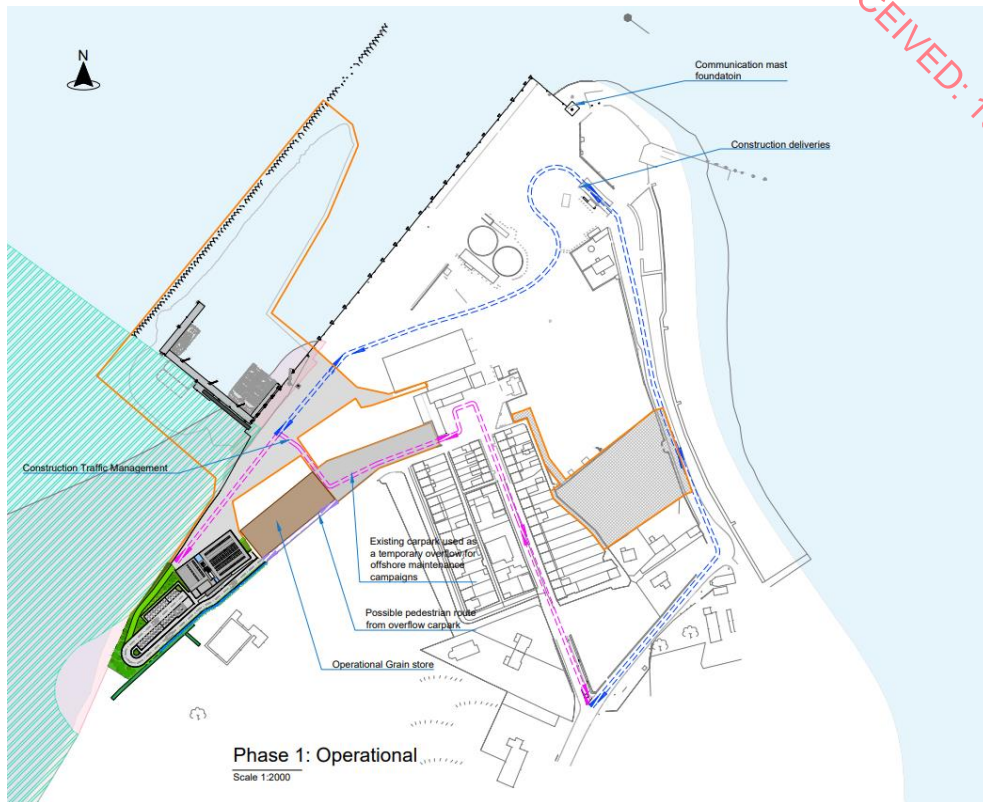
For EIA purposes, Phase 1 is assessed with current baseline. Phase 2 is assessed with Phase 1 included as part of the baseline.

**Table 2-6 Phases of Development**

Phase	Infrastructure	Duration of Works	Anticipated Completion
1	Building A and adjacent carpark (28 no. spaces), re-commissioning of 'Open Hydro' carpark spaces' (60 no. spaces); full extent of capital dredging, 70m quay wall at Berth 3, pontoon to cater for four crew transfer vessels, and the replacement of the communications mast. Associated site and development works, including drainage, lighting and landscaping related to the above elements will be completed in this phase. Demolition of dwelling house at Residential Site (Shore Road) and provision of contractor's compound / carpark with pedestrian access through port lands to the O+M site, <a href="#">roadside fence and planting of hedgerow</a> .	16 months	Q1 2026 for handover to tenant
2	Demolition of existing former Open Hydro building and ESB substation and construction of Buildings B and C, new access road including landscaping and parking areas, substation, Public / private realm upgrade at port entrance, pontoon enlarged to accommodate 5 additional berths for crew transfer vessels, surface carpark and pedestrian access. Associated site and development works, including pavement upgrade quayside of Buildings A, B and C, drainage, lighting and landscaping related to the above elements will be completed in this phase.	20 months	2029 <sup>1</sup>

<sup>1</sup> Assuming tenants secured from ORESS 2.2 auction.





**Figure 2.33 Proposed Phasing Plan Phase 1 (Extract from Drg. No. D9210, prepared by McCarthy Browne)**

The principal stages of the construction stage are;

- i. Mobilisation
- ii. Quay Wall
- iii. Nearshore Works
  - a. Dredging
  - b. Pontoon Piles
  - c. Breakwater Pontoons
- iv. Buildings
  - a. Building A
  - b. Building B
  - c. Building C
- v. Surface Carpark
- vi. Public Realm

The following is the approx. duration attached to the individual elements that will make up Phases 1 and 2:

Phase 1 Overall Timeline - 16 months

- Dredging – 2.5 months
- Quay wall – 8 months

- Pontoon – 3.5 months
- Building A – 16 months
- Demolition of vacant dwelling at Residential Site – 0.5 months
- Communications Mast -1 month
- Ancillary site and development works and landscaping

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#### **Phase 2 Overall Timeline: 20 months**

- Pontoon (part) – 5 months
- Demolition Open Hydro – 1 month
- Building B and C – 16 months
- Substation – 3.5 months
- Fuel Storage – 1 month
- Access control/fencing – 1 month
- Port Entrance upgrades – 2 months
  - Demolition of 'Sea Farer's Room' (part of port office building) – 1 week
  - Construction – 2 months
- Surface Carpark and pedestrian access – 4 months
- Demolition of ESB Substation/Switch room
- Ancillary site and development works and landscaping

### **2.4.2 Outline Construction and Environmental Management Plan**

An Outline *Construction and Environmental Management Plan* (CEMP) has been prepared by McCarthy Browne and accompanies this application. The Outline CEMP contains detail on the construction programme outlined above and construction related activities detailed in the sections below.

Assumptions have been made in the Outline CEMP based on the information available at the time of writing and for the avoidance of doubt, it is not proposed or intended that the developer / contractor is bound by these proposals which may change depending on the timing and circumstances pertaining at the time of construction.

On receipt of a grant of permission, and on appointment, the contractor(s) will update the Outline CEMP to comply with and implement the requirements of the EIAR (monitoring and mitigation), the MAC and any conditions imposed as part of the granted planning approval. The Contractors CEMP can be submitted to the Planning Authority prior to commencement.

### **2.4.3 Site Compound**

A site layout plan will be designed and implemented by the contractor. This will include contractors' compound, welfare, site parking and offices. The location of the contractor's compound will vary through the course of the development, subject to the Contractors programme and marshalling – these details will be outlined in the Contractors CEMP, to be completed post a grant of planning and upon their appointment.

For Phase 1, it is envisaged that the main compound will likely be located in part of the existing former Open Hydro carpark. When Phase 2 commences, and the former Open Hydro carpark is no longer

available, the surface carpark on Shore Road will be used. Additional temporary compounds may be made available within the port boundaries.

The compound is expected to avail of existing utilities on the site including water, electricity and foul connections. On completion of the works, all compound areas will be completed in accordance with the permitted development or returned to its former condition.

#### **2.4.4 Construction Personnel**

A peak of 70 construction workers may be on site at any one time. An average of 30 construction workers are estimated to be on site during construction phases.

#### **2.4.5 Access and Parking**

Access to the works will be in compliance with the Port's existing traffic management plan. All heavy construction traffic will avoid the village, entering and departing via the existing Port weighbridge / heavy goods entrance off Shore Road.

Sufficient parking will be made available within the contractor's compounds / applicant's lands for all workers. The location of parking will vary throughout the development, subject to the Contractors programme and marshalling – these details will be outlined in the Contractors CEMP, to be completed post a grant of planning and upon their appointment.

It is envisaged that during Phase 1, construction workers will use the former Open Hydro carpark and during Phase 2, when this is no longer available, the proposed surface carpark site will be used. A temporary gravel finish to the proposed carpark will be in place, with the pedestrian access route to the site provided.

#### **2.4.6 Marine traffic**

Greenore Port will notify Port users of works within the port and notify The Marine Survey Office as necessary. Navigation marks and lighting will be established to warn marine users of any works potentially interfering with navigation.

#### **2.4.7 Construction Hours**

Construction works, except for dredging and pile driving works, will generally be limited to the hours 0700 – 2000 Monday to Friday and 0700 – 1600 hours on Saturday. Some works have to be undertaken at low tide and their construction hours will be linked to tides (for example works associated with the pontoon construction and quay wall).

Pile driving works will be limited to 0800-1800 Monday to Friday and 0800 - 1600 hours on Saturday. It is not envisaged that works will take place on public holidays.

Dredging, due to the nature of the activity, is undertaken on a 24 hour basis to achieve the maximum production rates within tidal envelopes Dredging activities will occur for approximately 8-10 weeks.

If works are required outside of these hours, in exceptional circumstances, the planning authority will be notified in advance.

## 2.4.8 Demolitions

The extent of the demolition works are outlined in Section 2.2.1 of this Chapter.

The vacant dwelling house at the residential site on Shore Road will be demolished as part of the Phase 1 programme. This will be used as contractor's compound and parking area. When the Phase 2 works commence and the former Open Hydro carpark is no longer available, part of the Shore Road surface carpark site will be made available for staff parking for Building A (Refer to Section 2.2.2).

The former Open Hydro building will remain in situ and operational (storage of port commodities) during Phase 1, with its demolition proposed as part of the Phase 2 works.

The substation and part of the port office building will be demolished in phase 2. Part of the concrete quay deck pavement will be removed to facilitate the Phase 1 development (Building A) with the remainder being removed in Phase 2.

Material not suitable for reuse on site will be removed to licenced facilities for recycle or disposal.

## 2.4.9 Earthworks

### 2.4.9.1 Site investigations

Pre-existing near shore and terrestrial site investigation information has been studied for this development and was used to define targeted additional site investigations.

A sample of existing SI on the site is listed below.

- IGSL, September 2023
- Causeway Geotechnical, May 2020,
- Ground Investigations Ireland, March 2020
- Causeway Geotechnical, March 2019
- Ground Investigations Ireland, February 2018
- Ground Investigations Ireland, May 2015
- RPS Group (Topaz Fuel Storage Terminal), November 2011
- Glover Site Investigations, May 1999
- KT. Cullen & Co (Topaz Fuel Storage Terminal), December 1996

Additional site investigations included:

- Land based ground investigations by IGSL presented in Ground Investigation Report (Factual), November 2023
- MERC, Nearshore particle size analysis, September 2023

All site investigation data has been reviewed and presented in Ground Investigation Report by GDG, Report Nr. 23181-R-001 dated January 2024.

### 2.4.9.2 Ground Conditions

The nearshore development area of the works is described as medium dense to dense grey fine to coarse slightly silty sandy Gravel interbedded with loose to medium dense gravelly Sand. Some thick

layers of cobbles and boulders were also recorded. The stratum is underlaid by very stiff grey/brown SILT/CLAY with some gravel and occasional shells content. A strata of silty sandy Gravel overlays moderately strong grey fine grained Carboniferous Limestone. It is expected that the majority of all dredge will take place in the layers above limestone.

The land development area i.e. the developed port area includes Concrete, Made Ground and Hardcore Fill. This is followed by dense-to-dense grey fine to coarse slightly silty sandy Gravel interbedded with loose to medium dense gravelly Sand. The presence of thick layers of cobbles and boulders were also recoded within these layers. The stratum is underlaid by very stiff grey/brown SILT/CLAY with some gravel and occasional shells content over bedrock.

It is noted from pre-existing site investigations that petroleum hydrocarbons were present in a localised area of the development site. These investigations were commissioned as part of the development of an exit strategy by the lessor from the site. Recent investigations found no traces of hydrocarbons remaining but did find traces of asbestos fibres.



**Figure 2.34 Google maps extract from July 2013 showing former Topaz site outlined in blue.**

A HazWasteOnline Waste Classification Report based on 2023 IGSL sampling has confirmed sample soils in all but one as 'Non-Hazardous'. One sample (BH 04 at depth 1m) has been identified 'Hazardous' owing to the presence of asbestos fibres.

The asbestos demolition report, appended to the Outline CEMP, showed no asbestos within the former Open Hydro building, the 'Sea farer's room or the substation. Low risk asbestos has been



identified in the dwelling house. All asbestos will be removed and disposed of by a registered contractor under licence.

#### 2.4.9.3 Invasive Species

No invasive species have been observed on the site.

#### 2.4.9.4 Bulk Excavation

Bulk excavation will take place for dredge, quay wall construction, pavement upgrades, foundations and surface parking area construction. Dredging is detailed in Section 2.3.3.1. Excavated material will be stockpiled for use as engineering fill, landscaping and other uses throughout the site. The following expected excavation volumes are anticipated.

**Table 2-7 Excavation volumes**

Material type	Excavation (m3)	Backfill (m3)
Topsoil	1,925	540
Soil excavation	5,300	3,600
<b>Total</b>	<b>7,225</b>	<b>4,140</b>

#### 2.4.9.5 Pavement upgrades

The areas seaward of the proposed OMF buildings will receive a new heavy-duty pavement. To construct the pavement an excavation of approximately 500mm will be required for the extents of the new pavement structure.

A new stormwater attenuation tank will be constructed under the proposed pavement.

Areas to the landward side of the proposed OMF buildings will receive hard and soft landscaping including formation of access roads. This will require the excavation of approximately 200mm for the extent of the new surfacing.

#### 2.4.9.6 Foundations

It is anticipated that footings under the proposed buildings will be strip footing type supplemented where necessary by driven piles. This will be relevant for all buildings and substations. A new floor slab will be constructed between these footings with a FFL of 5.05m.

A concrete footing will also be required for the proposed communications mast.

#### 2.4.9.7 Piling

Arisings from bored piling will consist of rock, sands and gravels. These will be stockpiled for classification and disposal off site.

#### 2.4.9.8 Services

Trenching techniques will be employed for services installations. Where necessary, trenches will require temporary support or battering. Underground surface water tanks will be formed by open excavation, where possible.

#### 2.4.9.9 Residential Site, Shore Road (Surface Car park)

Following site clearance, including the demolition of existing unoccupied house and clearance of scrub / vegetation, bulk excavation of topsoil will take place at the proposed parking area. This soil will be stockpiled for reuse in new planted areas within the carpark and throughout the development site. Additional excavations will take place for pavement sub-base and proposed attenuation areas under the proposed pavement.

A bituminous surface will be applied to the parking area in Phase 2, with a temporary gravel / stone surface applied during Phase 1 to facilitate contractor's compound and parking.

#### 2.4.9.10 Waste

It is confirmed in the Environmental Risk Assessment and Waste Characterisation Report that the bulk of the excavated material is suitable for removal to an inert waste facility and/or a soil and stone recovery facility. Remaining materials will be disposed at non-hazardous licenced facilities. This is documented further in the Outline CEMP submitted with this application.

### 2.4.10 Nearshore Works

#### 2.4.10.1 Quay wall construction

The quay wall consists of a piled face and concrete beam (cope) across the top of the piles. The quay wall is tied back to a sheet piled/concrete anchor wall via steel tie rods. Suitable arisings will be reused in backfilling operations above the tie rod and between the quay wall and existing caissons, topped with a heavy-duty concrete pavement. Each of these elements is described in further detail in the CEMP.

#### 2.4.10.2 Dredging

Dredging will be carried out using a backhoe dredger mounted on pontoons. The dredger will deposit the dredge material into a hopper barge which will be towed to the quayside. Material will be dug out of the hopper barge by an excavator standing on the quay side and placed in a temporary bund for onward transfer to a licenced disposal facility by heavy Goods Vehicles with a carrying capacity of 20 tonnes.

The construction programme (included in the Outline CEMP by McCarthy Browne and submitted under separate cover) allocates approx. 8 -10 weeks to the dredging phase. A peak of 120 HGV movements per working day will be required to service the dredging operation. This will be timed to avoid concurrent busy periods for the port. It is estimated that a haulage contractor would dispose of the material over 12 hours per day Monday – Friday and over 6 hours on Saturdays.

#### 2.4.10.3 Pontoon Installation

Piling will require boring into rock, pitching and setting in place of steel piles from floating and elevated platforms. A jackup barge and crane barge will be mobilised to the site ~~by road/sea~~. Rotary piling equipment will be driven onto the jackup barge at the existing berth. At each pile location the jackup barge will lower its legs to the seabed and elevate the working platform above the tide.

Supported by an attendant crane barge the piling plant will oscillate a temporary casing to the seabed and key into rock. It will then use a series of bucket and boring tools to progress a socket within the casing to the designed pile toe level. The attendant crane barge will then pitch the steel pile into position, its verticality supported by the temporary casing. Once checked, the annulus of the pile will be concreted to the base of the temporary casing. Once sufficiently cured, the casing will be removed and the pile cut to the design level.

Pontoons will be manufactured off site. The pontoons will arrive in segments of up to 70t each if arriving by road. They will be lifted into the water using the harbour cranes on site and fixed in position by manual labour using workboats and small tools. The access ramp will arrive in similar fashion and be bolted in place. A team of technicians will complete the installation of fixtures and fittings including electrical cabling and service bollards.

The pontoon piling is on a phased basis. Phase 1 will cater for 4 berths + 2 layover berths. The second phase of pontoons and associated piles will coincide with the tenancy of Phase 2 (Buildings B & C).

#### 2.4.11 Plant

A list of the plant required for the proposed development is included in the Outline CEMP by McCarthy Browne, including but not limited to excavators, pile driving rig and piling plant, jackup barge and pontoon working platform, dredging barge, crane, harbour crane, rock breaker and crusher. Further details are available in the CEMP including a description of the purpose / use of each piece of plant equipment and the stage / works that the equipment will be utilised.

## 2.5 Materials Arising and Waste

### 2.5.1 Demolition Works

The following table from Chapter 8 Material Assets Waste sets out the breakdown of the materials arising from the demolition works and outlines the predicted on site reuse, recycle and disposal rates for the dredge material. If suitable, excavated material may be re-used within the development, for example it is proposed to crush up to 40% of the concrete and re use in the proposed pavement areas.

**Table 2-8 Predicted on and off-site reuse, recycle and disposal rates for demolition waste.**  
(Refer to Table 8.1 Waste)

Waste Type	Tonnes	Reuse		Recycle / Recovery		Disposal	
		%	Tonnes	%	Tonnes	%	Tonnes
Glass	10.0	0	0	85	8.5	15	1.5
Concrete, Bricks, Tiles, Ceramics	2047.2	40	818.9	55	1126.0	5	102.4
Plasterboard	3.0	0	0	80	2.4	20	0.6
Asphalts	75.0	0	0	25	18.8	75	56.3
Metals	74.7	2	1.5	90	67.3	8	6.0
Timber	2.0	10	0.2	40	0.8	50	1.0
Total	2212		821		1224		168

The selection of waste contractors and waste facilities is subject to appropriate selection criteria including proximity, competency, capacity and serviceability. The applicant has identified the following licenced and authorised sites to take the predicted waste but reserves their right to deposit at any suitably licensed facility if these sites are unavailable for use when required or a more suitably placed waste or recovery facility becomes operational in the future.

- Dundalk Landfill & Civic Waste Facility - Dundalk Town Council, Newry Road, Dundalk, Louth (Permit No. W0034-02)
- Integrated Materials Solutions Limited Partnership, Hollywood Great, Nags Head, The Naul, Dublin (Permit No. W0129-02) – Glass, Concrete, Bricks, Tiles, Ceramics, Asphalts
- Rilta Environmental Ltd, 14A1 Grants Road, Greenogue Business Park, Rathcoole, Co. Dublin (Licence No. W0185-01)
- Clashford Recovery Facilities Ltd., Naul Townland, Naul, Meath
- North City Operations Depot, St. Margaret's Road, Ballymun, Dublin 11, Dublin (Licence No. W0302-01)
- Allied Recycling, Clonmellon Industrial Estate, Clonmellon, Co. Westmeath (Permit No. WFP-WH-2022-0002-00) - Plasterboard
- Haughey Metals, Dundalk, Co. Louth (Permit no. WL-LN 09 13) – Metals

### 2.5.1 Dredging

The dredge material will comprise of soft dredge arisings (gravel, silt, sand, clay) and rock dredge arising, both with EWC Code 17 05 06. The following is an estimated breakdown of the dredge material.

**Table 2-9 Breakdown of Dredge Volumes**

Material	Volume (cubic meters)	EWC Code
Soft Dredge Arisings	45,000	17 05 06
Rock dredge arisings	1,000	17 05 06

It is envisaged that all soft dredge arisings will be removed for appropriate offsite reuse, recovery, recycling and / or disposal due to limited opportunities to re-use on site. The Environmental Risk Assessment and Waste Characterisation Report confirms that the bulk of the excavated material is suitable for removal to an inert waste facility and/or a soil and stone recovery facility. Nearby sites requiring clean fill material will be contacted to investigate reuse opportunities for clean and inert material, if required. If any of the material is to be reused on another site as by-product (and not as a waste), this will be done in accordance with Regulation 27 of the EC (Waste Directive) Regulations (2011-2020) and EPA approval will be obtained prior to moving material as a by-product.

Remaining materials will be disposed at non-hazardous licenced facilities.

There is a number of licensed, permitted and registered waste facilities to take the dredge material (EWC Code 17 05 06). The selection of waste contractors and waste facilities is subject to appropriate

selection criteria including proximity, competency, capacity and serviceability. The applicant has identified the following sites but reserves their right to deposit at any suitably licensed facility if these sites are unavailable for use when required or a more suitably placed waste or recovery facility becomes operational in the future.

- Clashford Recovery Facilities Ltd, The Naul, Co. Meath (Permit No. W0265-01)
- Integrated Materials Solutions Limited Partnership, Hollywood Great, Nags Head, The Naul, Dublin (Permit No. W0129-02)

This is documented further in the Outline CEMP by McCarthy Browne and a Construction and Demolition Waste Management Plan.

Rock will be crushed and re-used on site.

## 2.5.2 Construction

The construction of the proposed development will involve the following materials and quantities.

**Table 2-10 Construction Materials and Deliveries to Site**

Material	Unit	Volume	HGV Deliveries to Site
Piling plant			2
Drainage & ducting			3
Stone	m <sup>3</sup>	3700	444
Precast piles	t	405	20
Ready-mix concrete	m <sup>3</sup>	3100	384
Steel reinforcement**	t	415	0
External brick	m <sup>3</sup>	130	16
Insulated cladding	m <sup>2</sup>	2700	11
Roofing materials	m <sup>2</sup>	3500	17
Glazing	m <sup>2</sup>	650	12
Paving	m <sup>2</sup>	1200	3
Bitumen surfacing	m <sup>3</sup>	25	70
Internal fit out			12
Solar panelling	m <sup>2</sup>	650	40
Mechanical & electrical fittings			30
Miscellaneous			2
Total			1068

Waste materials likely to be generated during the Construction phase of the proposed development are summarised in the Table below, taken from Table 8.2 of this EIAR.



**Table 2-11 Predicted on and off-site reuse, recycle and disposal rates for construction waste.**

Waste Type	Tonnes	Reuse		Recycle/Recovery		Disposal	
		%	Tonnes	%	Tonnes	%	Tonnes
Mixed C&D	32.8	10	3.3	80	26.3	10	3.3
Timber	27.9	40	11.1	55	15.3	5	1.4
Plasterboard	9.9	30	3.0	60	6.0	10	1.0
Metals	8.0	5	0.4	90	7.2	5	0.4
Concrete	6.0	30	1.8	65	3.9	5	0.3
Other	14.9	20	3.0	60	9.0	20	3.0
<b>Total</b>	<b>99.5</b>		<b>22.6</b>		<b>67.5</b>		<b>9.4</b>

## 2.6 Health and Safety

The appointed contractor and Project Supervisor Construction Stage (PSCS) will be responsible for managing all aspects of health and safety pertaining to the construction works in line with the requirements of the Safety, Health and Welfare at Work (Construction) Regulations 2013, and other relevant Irish and EU safety legislation at all times.

## 2.7 Monitoring

### 2.7.1 Community Liaison

The appointed Main Contractor will be required to follow best practice as outlined in 'The Code of Considerate Practice'. This is an initiative set up by the construction industry in 1997. It is designed to encourage best practice, beyond statutory requirements, focusing on the community, the environment and the workforce. The Considerate Constructors Scheme experience in Ireland has been that early positive and proactive engagement with businesses and residents impacted by construction is the best approach.

### 2.7.2 Integrated Pest Management

The Main Contractor will take all necessary steps to ensure that pests - rodents, birds, insects and plants are controlled at all times.

Control measures will be undertaken prior to commencement of any works on the site. Poison where used, will comply with any relevant Health and Safety requirements and to eliminate any danger to children, household pets and other wildlife. Old and disused service pipes and voids will be removed or filled to avoid the potential for pests to infest the site.

### 2.7.3 Environmental

The monitoring proposed in Chapters 4 to 17 of this EIAR will be carried out during the demolition and construction phases. This monitoring is integrated to ensure that there will be no likely significant impact during development of the site.

A bespoke site Construction Environmental Management Plan (CEMP) will be prepared by the appointed contractor prior to work commencing on site. The main purpose of a CEMP is to provide a mechanism for implementation of the various mitigation and monitoring measures which are described in the EIAR. The CEMP demonstrates the applicant's commitment to implementing the proposed development in such a way as to avoid or minimise the potential environmental effects arising from construction activities. All personnel will be required to understand and implement the requirements of the plan.

Aspects that will be addressed within the CEMP will include but are not limited to, waste and materials management; noise and vibration; dust and air quality; traffic and vehicle management; pollution incident control; and protection of vegetation and fauna. A summary of the mitigation measures to be incorporated into the CEMP is provided in Chapter 16 of the EIAR

## 2.8 Commissioning

The testing and commissioning of services (drainage, watermain, gas, electricity) will be completed in accordance with relevant codes of practice as set out in **Chapter 7** of the EIAR.

## 2.9 Decommissioning

The design life of the scheme is greater than 60 years. The proposed development is designed to support offshore wind infrastructure in the Irish Sea, which typically has a lifespan of 25-35 years.

However, technological advances and improvements in engineering practices will potentially lead to longer operational lifespans in the future and it is generally possible to extend the lifetime of ORE infrastructure by 'repowering' (i.e. replacing wind turbines and/or foundations with those of a newer specification or design). This would enable the continued supply of renewable electricity and contribute to Ireland's renewable energy targets. The proposed OMF will support the lifetime of the offshore infrastructure and the decommissioning phase of the offshore infrastructure. If the lifespan of the offshore wind infrastructure is extended, the OMF development will continue to be used.

When (if) the offshore wind infrastructure is decommissioned, the OMF development is likely to be repurposed for an alternative port related use.

It is noted that the MAC Consent for the proposed development has a term of 45 years. A new MAC will be sought at the requisite time, and all other appropriate consents, for the nature of the development to be continued or re-purposed.

Thus, for the EIA process, the development is considered permanent, and a decommissioning phase is not considered in this report.

## 2.10 Conclusion

This chapter sets out the development parameters for the proposed development including an overview of the Architectural, Landscape and Engineering strategy. An overview of the phasing for construction has also been provided, and further information can be found in the Outline CMEP prepared by McCarthy Browne.

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## CHAPTER 3 ALTERNATIVES

## VOLUME II ENVIRONMENTAL IMPACT ASSESSMENT REPORT

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### 3 Alternatives

It is noted that for ease of reference all changes from the original chapter are shown in blue. Where text has been removed it is shown as ~~strike through~~.

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#### 3.1 Introduction

The requirement to consider alternatives within an Environmental Impact Assessment Report (EIAR) is set out in Annex IV (2) of the EIA Directive (2014/52/EU) and in Schedule 6 of the European Union (Planning and Development) (Environmental Impact Assessment) Regulations 2018 which state;

*“A description of the reasonable alternatives studied by the person or persons who prepared the EIAR, which are relevant to the proposed development and its specific characteristics, and an indication of the main reasons for the option chosen, taking into account the effects of the proposed development on the environment”.*

Reasonable alternatives may include project design proposals, location, size and scale, which are relevant to the proposed development and its specific characteristics. The Regulations require that an indication of the main reasons for selecting the preferred option, including a comparison of the environmental effects be presented in the EIAR.

The Environmental Protection Agency (2022) Guidelines on the Information to be Contained in Environmental Impact Assessment Reports states:

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

The Guidelines also state that the range of alternatives considered may include the ‘do-nothing’ alternative.

Accordingly, this chapter of the EIAR provides an outline of the main alternatives examined during the design phase. It sets out the main reasons for choosing the development as proposed, taking into account and providing a comparison on the environmental effects. The assessment of alternatives is considered under the following headings:

- i. Do Nothing Alternative
- ii. Alternative Use
- iii. Alternative Locations
- iv. Alternative Project Design
- v. Alternative Processes

Notwithstanding the above, pursuant to Section 3.4.1 of the 2022 EPA Guidelines, the consideration of alternatives also needs to be cognisant of the fact that *“in some instances some of the alternatives described below will not be applicable – e.g. there may be no relevant ‘alternative location’...”* The

Guidelines are also instructive in stating: *“Analysis of high-level or sectoral strategic alternatives cannot reasonably be expected within a project level EIAR... It should be borne in mind that the amended Directive refers to ‘reasonable alternatives... which are relevant to the proposed project and its specific characteristics’”*.

## 3.2 Consideration of Alternatives

### 3.2.1 Do Nothing Alternative

The ‘Do-nothing’ alternative is a general description of the evolution of the key environmental factors of the site and environs if the proposed project did not proceed. Each Chapter of this EIAR includes a description of the ‘Do Nothing’ alternative and should be referenced in conjunction with this Chapter.

#### 3.2.1.1 Do Nothing – Actual

Under a ‘Do-nothing’ scenario, the proposed development site would remain in its current condition, serving largely as (open) storage for the existing Greenore Port operations. However, it is anticipated that this would be short term in duration having regard to the national and regional planning policies encouraging the development of Irish ports, especially for the support and development of the forthcoming ORE industry of the Irish east coast.

Under this alternative scenario, the impacts of the proposed development would not arise; the operational and construction phase would not generate additional traffic movements on land and on sea and no additional noise pollution would impact the local residents and fauna.

The impact of this approach would be to not make efficient use of an established use at a serviced site and consequently the opportunity to generate significant employment opportunities would be lost.

Under this scenario, the potential future tenants would seek an alternative site for their operations and maintenance base. There would be no certainty with regard to the location and there would be a risk that the employment opportunities generated by this development would be permanently lost from Co. Louth.

The following Table summarises the effect of the ‘Do Nothing’ alternative described above. All of the predicted effects are determined likely to occur. It is noted that the duration of effects under this scenario are considered at least short-term (1-7 years), this reflects a reasonable timeframe for a further application for development to come forward on the site, in the absence of this subject proposal.

**Table 3.1 Do Nothing Description of Effects (Actual)**

Aspect	Quality of Effect	Significance	Context	Duration
Population & Human Health	Negative	Profound	County	Short-term
Landscape & Visual	Negative	Moderate	Local	Short-term
Material Assets: Traffic & Transport	Positive	Moderate	Local	Short-term
Material Assets: Built Services	Neutral	N/A	Local	Short-term
Material Assets: Waste	Positive	Moderate	County	Short-term
Land & Soils	Neutral	N/A	Local	Short-term
Water & Hydrology	Neutral	N/A	Local	Short-term
Biodiversity	Neutral	N/A	Local	Short-term
Coastal Processes	Neutral	N/A	Local	Short-term
Noise & Vibration	Positive	Moderate	Local	Short-term
Air Quality	Neutral - Negative	Moderate	Local	Short-term
Climate	Neutral - Negative	Moderate	Local	Short-term
Cultural Heritage: Archaeology	Neutral	N/A	Local	Short-term
Cultural Heritage: Built Heritage	Neutral	N/A	Local	Short-term

In conclusion, the 'Do-Nothing' scenario is an inappropriate and unsustainable alternative that would result in the inefficient use of a strategically located and serviced existing port. The 'Do-Nothing' scenario would prevent the delivery of the strategic planning objectives for the area. With the mitigation measures proposed in this EIAR and having regard to the findings that no significant effects on the environment are expected with such measures in place, the comparative environmental effects are not considered sufficient to rule out the proposed development.

### 3.2.1.2 Do Nothing – Extant Permissions

There are two extant planning permissions at Greenore Port for the extension and modification of an existing Warehouse (LCC Planning Ref 20268/ABP Ref 307862) and a new Warehouse (LCC Planning Ref Planning Ref 20543/ABP Ref 310184). As these are valid permissions the respective developments must be considered as a possible scenario under the 'Do Nothing' Scenario.

Under this alternative scenario, the impacts of the proposed development would not occur since only one of the developments can be implemented. The implementation of either of the extant permissions would equally generate additional traffic movements and noise pollution during the construction and operational phase which would impact the local residents and fauna.

The development of either extant permission would likely generate additional jobs but at a small scale and significant employment opportunities for the rural community in Louth would be lost.

From a visual perspective, the development of either of the two extant permissions would have a negative impact on the visual amenity of Greenore village due to the design, height, façade materiality, general massing and lack of landscaping – Refer to Figure 3-1.

Equally to the Actual Do-Nothing scenario, the potential future tenants would have to seek an alternative site for their operations and maintenance base. There would be no certainty with regard

to the location and there would be a risk that the employment opportunities generated by this development would be permanently lost from Co. Louth.

Table 3.2 summarises the effect of the 'Do Nothing' alternative described above. All of the predicted effects are determined to be likely to occur. It is noted that the duration of effects under this scenario are considered at least short-term (1-7 years), this reflects a reasonable timeframe for a further application for development to come forward on the site, in the absence of this subject proposal.



**Figure 3-1 Comparison of Extant Permission Reg Ref 20268 (ABP Ref. 307862-20) and proposed development**

**Table 3.2 Do Nothing Description of Effects (Extant Permission)**

Aspect	Quality of Effect	Significance	Context	Duration
Population & Human Health	Negative	Profound	County	Short-term
Landscape & Visual	Negative	Moderate	Local	Short-term
Material Assets: Traffic & Transport	Neutral	Moderate	Local	Short-term
Material Assets: Built Services	Neutral	N/A	Local	Short-term
Material Assets: Waste	Negative	Moderate	County	Short-term
Land & Soils	Negative	Moderate	Local	Short-term
Water & Hydrology	Negative	Moderate	Local	Short-term
Biodiversity	Negative	Moderate	Local	Short-term
Coastal Processes	Neutral	N/A	Local	Short-term
Noise & Vibration	Negative	Moderate	Local	Short-term
Air Quality	Positive	Slight	Local	Short-term
Climate	Negative	Moderate	Local	Short-term
Cultural Heritage: Archaeology	Neutral	N/A	Local	Short-term
Cultural Heritage: Built Heritage	Negative	Moderate	County	Short-term

In conclusion, the scenario of implementing the extant permission is an intensified use and visually intrusive development at the subject site but in keeping with the development of a strategically located and serviced existing port. This development did not require the preparation of an EIAR, therefore mitigation is limited to standard measures which will have its implications for the effects on various environmental effects.

### 3.2.2 Alternative Locations

The proposed development can, by nature of the requirement for quayside facilities and berthing for vessels, only be developed at port locations.

Ports serve as indispensable hubs in the ongoing expansion of offshore wind energy sector and the energy transition. They fulfil key functions in construction, operations & maintenance (O&M). To offer these services, ports must invest substantially in infrastructure enhancements and expansions. While this presents a challenge, it also offers a unique opportunity for ports to actively contribute to the energy transition and grow sustainable business paths.

The development of ports for the land uses proposed has been identified at a national scale in Government's *Offshore Renewable Energy Future Framework Policy* (2024). The role of the port and O&M Facilities is clearly identified in the as one of the components of an ORE system.

#### *"f) Ports*

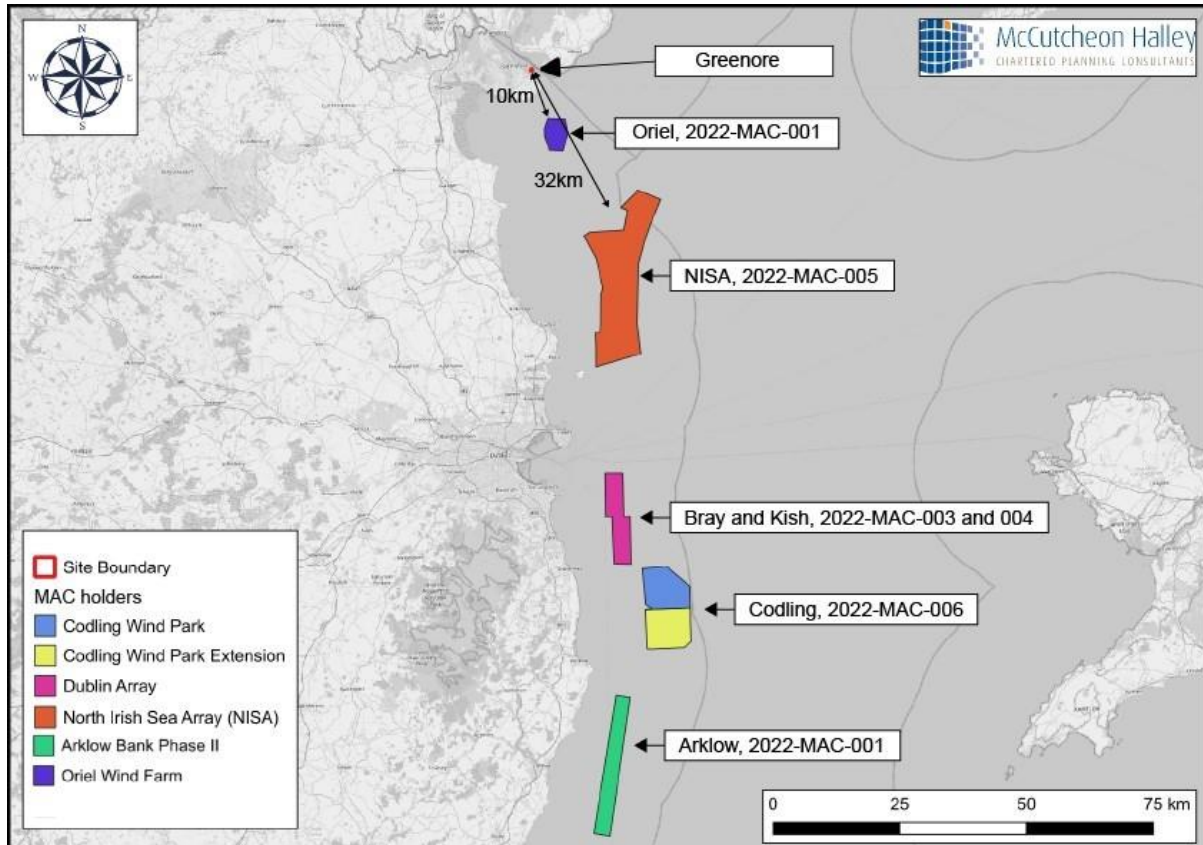
***Port facilities are required during various project stages including installation, operations and maintenance, and decommissioning. Distinct infrastructures are required depending on the technology, particularly in the case of fixed bottom compared to floating wind. Extensive resources are required to build, store, repair, and tow out machinery to project sites. This will***



include **physical space and buildings to carry out activities both in onshore facilities and in offshore wet storage, access to various vessels, and proximity to other components of the supply chain.**"

(Emphasis Added. Source: Offshore Renewable Energy Future Framework Policy Statement, Page 14)

Greenore Port is ideally placed to provide this critical operations and maintenance service for planned wind farms off the East Coast including the following locations which already have the benefit of a MAC and or have been successful during the first ORESS Auction in June 2023<sup>1</sup>.



**Figure 3-2 MAC Areas for Offshore Windfarm projects off the Irish East Coast**

The proposed development will be developed by the applicant, Greenore Port and leased out to future ORE operators, such as those identified in Figure 3-2.

Location alternatives within the site boundary are considered in the alternative design section 3.2.4.

<sup>1</sup> In June 2023, the first ORESS Auction took place. Any project that had previously been awarded a MAC was eligible to partake in this Auction, known as ORESS 1. Four projects were successful, three on the east coast including North Irish Sea Array, Dublin Array, Codling Wind Park and Sceirde Rocks off the coast of Galway. The successful projects will now proceed to planning. Projects which were unsuccessful in the ORESS 1 auction, who already hold a MAC, can compete in the future ORESS auctions, or proceed on basis of securing Corporate Power Purchase Agreement similar to the agreements that many existing onshore windfarms operate under.

### 3.2.3 Alternative Uses

The primary determinant of suitable uses is established in the site's zoning. Under the Louth County Development Plan 2021 – 2027, the site is identified within the Settlement Boundary for Greenore. There are no land use zonings for the site or the wider village area. Greenore is categorised as a 'Rural Node' / Level 5 settlement in the LCDP. It is also within Rural Policy Zone 2 area which is an "Area under strong urban influence."

The guidance and policy context within Chapters 5, 9, and 13 of the Plan support the development of the Port whilst also ensuring that any development would be sensitive to the surrounding environment. Development at Greenore Pot is subject to Policy Objective **PO EE 27**:

*"To recognise that the Port facilities at Drogheda, Greenore, Dundalk, and Clogherhead are an important economic resource and to **support any improvements or expansion to these Port facilities** at Drogheda, Greenore and Clogherhead and the consolidation of Dundalk Port, subject to the preparation of a Masterplan and appropriate environmental considerations."(emp. added)*

In the absence of zoning for the site and having regard to PO EE 27, there are no potential alternative land use scenarios for the proposed development site that are not related to the improvement/expansion of a port facility.

### 3.2.4 Alternative Design

This section describes the main alternatives examined during the design phase and sets out the main reasons for choosing the proposed design.

The project team have undertaken extensive consultations with potential future tenants to understand their requirements for an Operations and Maintenance Facility. Based on these discussions and input, three different layouts and development concepts have been prepared and assessed from a commercial and environmental perspective. Furthermore, the design evolved during the design phase in response to input and advice from the EIA team, results of consultation with Louth County Council at pre-planning stage and feedback from public consultation.

The following sections first summarise the proposed design and then describe the alternative designs considered and the main reasons for choosing the proposed design.

#### 3.2.4.1 Option 1 – Separate Warehouse and Office Units for 3 Operators

In Layout Option 1, it is proposed to situate all building units at the quay side in the southwestern part of the port lands. The layout provides for 3 no separate units for 3 separate Operators. Each OMF Unit consist of one office and one warehouse building which are arranged next to each other, comprising an overall GFA of c. 2,000sqm for each unit. The office and warehouse units are accessed via a new proposed access road along the southern boundary of the site and ancillary parking is provided at each unit with additional 135 parking spaces at Shore Road. Access from the Shore Road Car park is proposed via the existing pedestrian lane at the back of the houses along Euston Street. The proposed pontoon infrastructure is located at the quayside south of berth two and extends into the near shore area up to the existing groyne.

Table 3.3 Development Breakdown Option 1

Overall Development Breakdown	
No. of Potential Operators	3
Offices	Three separate units with circa. 1,200sqm of office space each
Warehousing/workshops	Three separate warehouse units of circa. 800sqm each
Parking	65 spaces adjacent to Quay serving each Office Warehouse unit. 135 spaces within satellite parking area circa 100m to closest unit via pedestrian route to rear of housing on Euston Street.
Pontoons	10 CTV berths



Figure 3-3 Site Layout Option 1



**Figure 3-4 CGI Option 1**

#### 3.2.4.2 Option 2 – Warehouse and Office Facilities separated but each for 4+ Operators

Layout Option 2 was designed to provide for separated office and warehouse facilities to be shared by future tenants.

The option comprises one warehouse building, located at the quay, incorporating the existing Open Hydro Warehouse with extensions to both sides of the building, providing for overall c. 3,200sqm warehouse space to be used by 4 or more possible tenants. The warehouse is accessed by a new access road running north of the building with parking provided at both ends of the warehouse. Partly between the proposed OMF warehouse and the existing port office entrance and the majority of parking at the southwestern side of the new warehouse. Additional 135 parking spaces are provided at Shore Road with access to the warehouse and HQ office via the existing pedestrian lane at the back of the houses along Euston Street.

Office space is provided in the form of one Headquarter Office building located at the so called “Horsefield”, a green field located at the junction of Euston Street and Shore Road at the south of the core village. The office was designed as one building with c. 4,400sqm to be shared by all future tenants.

The proposed main pontoon infrastructure is located quayside south of berth two, extending c. 96m into the near shore area up to the existing groyne. Depending on the number of future tenants, additional satellite pontoon berths for CTV arrival could be provided between berth one of Greenore Port and the Ferry terminal, on the east side of Greenore Point (see Figure 3-7).



**Table 3.4 Development Breakdown Option 2**

Overall Development Breakdown	
<b>No. of Potential Operators</b>	4+
<b>Offices</b>	Standalone building with circa.4,400sq.m of office floorspace
<b>Warehousing/workshops</b>	Single large internally divided warehouse unit of circa. 3,200sq.m in total.
<b>Parking</b>	135 spaces adjacent to Quay and 135 spaces within satellite parking area circa 100m from closest unit and 50m from Office facility via pedestrian route to rear of housing on Euston Street.
<b>Pontoons</b>	12 at O&M site, up to 10 satellite berths between berth 1 and the ferry terminal.



**Figure 3-5 Site Layout Option 2**



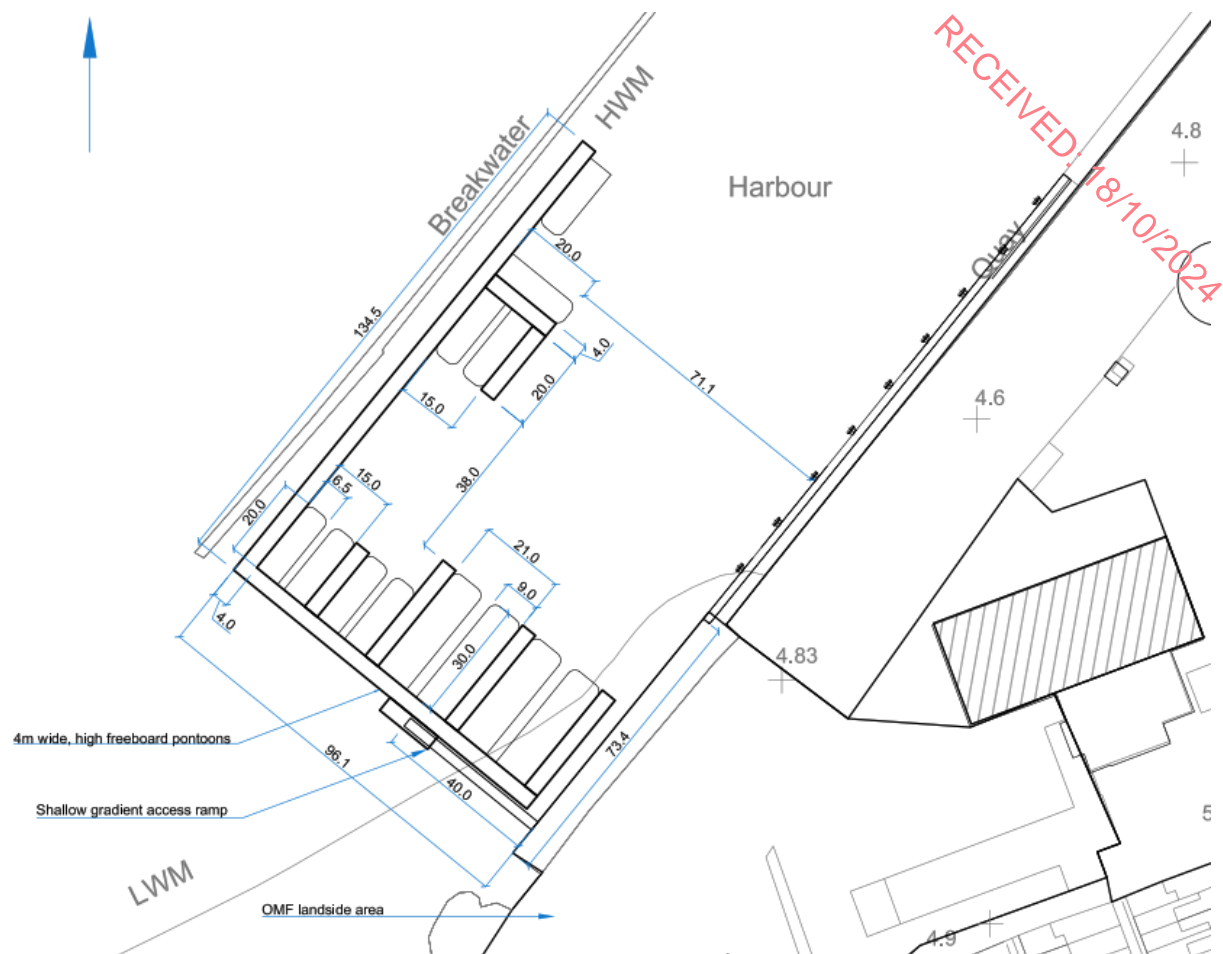


Figure 3-6 Pontoon Design Option 2



Figure 3-7 CGI Option 2

### 3.2.4.3 Option 3 – Combined Office and Warehouse Buildings for each Operator (selected option)

The layout of Option 3 (the selected option) provides for one combined office and warehouse unit for each of 3 future tenants.

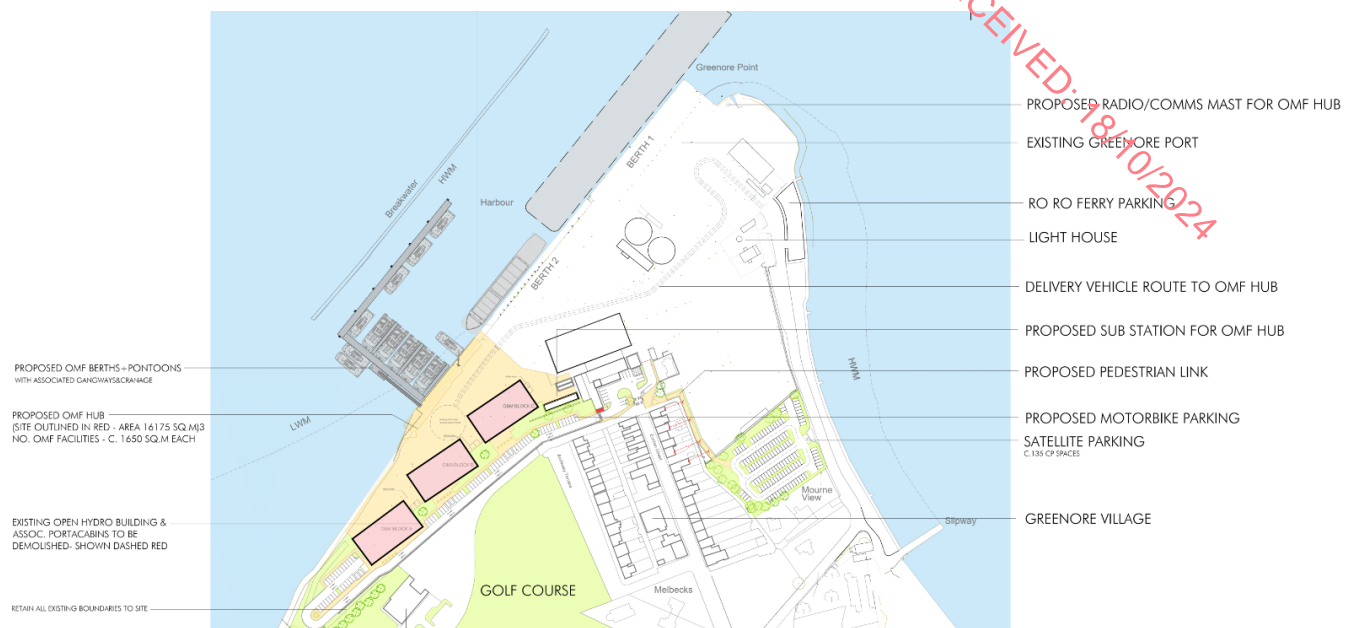
The units are located on the quay and were designed as the most compact buildings, which blend into the landscape thanks to its carefully selected materiality. The setting of the buildings was determined by the least visual impact to the surrounding sensitive receptors and maximum distance from Carlingford Lough. The units are accessed from a new access road proposed along the southern boundary of the site with ancillary parking for each of the units and additional 135 parking spaces at Shore Road with access to the facilities via a new pedestrian link through the port lands.

The proposed main pontoon infrastructure is located quayside south of berth two, extending c. 83m into the near shore area, leaving a distance of c. 17 m to the existing groyne. The pontoon provides for 9 CTV berths with 2 potential layover berths.

Layout option 3 went through a number of alternative design iterations to arrive at the final version as presented. The proposed OMF building location were originally located closer to the western boundary of the site and closer to the quay. However, to reduce the visual impact for the Golf Course, the buildings were shifted further northwest, and for environmental reasons away from Carlingford Lough towards the southern site boundary. Separation distances are nevertheless provided with excess, as the new access road provides for a larger separation as with the existing Open Hydro Building or the extant permissions. The final iteration of Option 3 also included enhancements to the public/private realm at the port office entrance, including the new feature entrance wall and materials matching and supporting the value of the ACA.

**Table 3.5 Development Breakdown Option 3**

Overall Development Breakdown	
<b>No. of Potential Operators</b>	3
<b>Offices</b>	Three separate units combining office and warehouse in one shell with circa. 900 sqm of office space and ancillary welfare and plant facilities each.
<b>Warehousing/workshops</b>	Three separate units combining office and warehouse in one shell with circa. 760sqm warehouse space each.
<b>Parking</b>	76 spaces adjacent to Quay and 135 spaces within satellite parking area circa 100m to closest unit via pedestrian route through the Port's lands.
<b>Pontoons</b>	9 + 2 Layover Berths



**Figure 3-8 Site Layout Option 3**



**Figure 3-9 CGI Option 3**

### 3.2.4.4 Assessment of Options

#### 3.2.4.4.1 Design and Visual Impact

Option 3, compared to Options 1 and 2 is considered to provide the least intrusive visual appearance of the 3 options. Since office and warehouse functions are combined under one roof and the buildings are aligned in orientation with significant gaps between the buildings, the overall design integrates



best into the landscape, appearing less puzzled, and allowing views from the village through the buildings towards the Mourne Mountains instead of blocking it entirely (Options 1 and 2).

While Option 2 provides for a landmark building at the southern entrance to the village, the massing of the proposed warehouse, compared to the more compressed and fragmented design of Options 1 and 3 is considered to appear intrusive and overbearing for the village and Golf Course.

#### 3.2.4.4.2 Traffic and Transport

The nature of the proposed development would generate a significant amount of additional jobs at the development site and would therefore generate additional traffic of employees travelling to work. All Options proposed car parking in the same locations at Shore Road and at the quayside. It is therefore considered traffic flows for all options would be similar.

It is to note, that Option 2 would provide for a larger facility providing space for 4 tenants compared to Options 1 and 3 with 3 facilities. It is therefore considered, that Option 2 would generate more additional traffic during construction and operational phase.

#### 3.2.4.4.3 Built Services

All considered Options have additional infrastructure requirements. Since Option 2 provides for a larger facility the requirements are potentially more comprehensive than compared to Option 1 and 3.

#### 3.2.4.4.4 Noise & Vibration

All Options require demolition works, the construction of new buildings and surfaces, pontoon infrastructure, and dredging which will generate Noise and Vibration. However, in Option 1 and 3 the majority of works are located within the operation boundary of the existing port at the quay, whereas Option 3 also includes a significant amount of the construction works for the new office building south of the Greenore village. Therefore, the location of noise and vibration generation would be wider, and potentially more sensitive receptors could be impacted.

Options 1 and 2 propose to facilitate access between the surface car park at shore road and the OMF office and warehouse facilities via an existing pedestrian lane at the back of the houses along Euston Street. Whereas Option 3 provides the access via a dedicated lane through the port lands, separate from the existing lane. It therefore reduces the noise impacts of employees traveling from the car park to the OMF site on the residential properties at Euston Street and also reduces the impact of overseeing of these properties.

#### 3.2.4.4.5 Water and Hydrology

All Options include the construction of marine side infrastructure (quay wall and pontoons). However, as Option 2 proposes an additional satellite pontoon infrastructure, the impact of Options 1 and 3 are likely smaller due to a smaller pontoon size adjacent to the existing port operations at Berth 1 and 2. Furthermore, the location of option 2 is located at a greenfield site which is considered having an impact on surface water percolation and would put additional pressure on local surface water sewage systems and add to the local risk for flooding.

#### 3.2.4.4.6 Soils

All Options include dredging and earthworks for the construction of the proposed development. Additionally, all Options propose and additional car park at a vacant residential site at Shore Road.

In Options 1 and 3 all OMF buildings are located at the quay side within the existing port operations boundary. The main development area is currently used for (open) storage and the development of the proposed OMF facility would provide for a much cleaner use at this part of the port lands with significant importance for the energy transformation of the country.

In addition to the quay side, Option 3 requires the inclusion of the so called “Horsefield” at the Junction Shore Road/Euston Street which is currently a greenfield site. The land requirement is therefore higher as for Options 1 and 3 and requires additional sealing of surfaces.

#### 3.2.4.4.7 Waste

All Options require dredging and the demolition of a single vacant dwelling on a site at Shore Road to facilitate the provision of additional surface carparking. Furthermore, all options require the demolition of the existing ESB Substation and associated switch room to provide for an upgraded substation.

Options 1 and 3 require the demolition of the existing Open Hydro Warehouse on site to facilitate the proposed development, whereas Option 2 proposed to retain the warehouse and implement extensions to the facades in the northeast and southwest. Generally, the retention and upgrading of existing buildings provides for the more sustainable development compared to a demolition. However, considering option 3, the warehouse would require extensions to both sides. Nevertheless, to facilitate these development works, a large quantum of the structure would have to be demolished to allow for seamless merging of the existing and proposed extensions.

During the construction and operation of the facilities it is considered likely that Option 2 would generate a higher volume of waste due to its larger size.

#### 3.2.4.4.8 Biodiversity

It is considered that the potential impacts of options 1 and 3 on biodiversity are identical due to the similar massing and location of the proposal, while Option 2 would require additional land and nearshore to be included in the development and therefore have a potentially more significant impact on biodiversity.

#### 3.2.4.4.9 Air Quality and Climate

All options provide the development of significant new infrastructure. However, all options would be built to a modern NZEB standard so it is considered the impact of either would not significantly differ.

#### 3.2.4.4.10 Cultural Heritage

Option 1 and 2 require the demolition of the industrial heritage structures including the engine room wall of the historical railway station on site. Option 3 is designed to include the historical wall into the landscaping proposals. The heritage value of the wall is not impacted by Option 3 and is safeguarded for the future.

Furthermore, the proposed office building in Option 2 is located within the Greenore ACA. This building is of modern design, and it could negatively effect the existing heritage value of the village that is protected under the ACA.



#### 3.2.4.4.11 Summary

Option 3 was chosen over the other options 1 and 2 due to the fact that it concerns the least possible impact on the environment when compared to Options 1 and 2. This option has a number of environmental benefits when compared to the other alternatives considered. More specifically:

- It will result in the least possible visual impact to the local residents and amenities due to the compact building form of the proposed units and the careful design of the materiality.
- Least impact on the heritage of Greenore Village and safeguarding of heritage features for the future.
- The proposed pedestrian access link from the surface car park at Shore Road is an improved design to avoid noise and overseeing impacts on local residents of shore road.

A detailed description of the proposed development as per Option 3 is provided in Chapter 2 of this EIAR.

### 3.2.5 Alternative Processes

This is commercial office and warehouse development and therefore the consideration of alternative processes to be considered relates to the methods of construction to be used in the development.

The alternatives have been considered and the Outline Construction Environmental Management Plan (CEMP) details the construction processes likely to be employed and which have been assumed for the purposes of this EIAR.

#### 3.2.5.1 Disposal of Dredge Material

To facilitate navigable access and suitable berthing for the CTVs it is necessary to carry out dredging between the existing groyne, Berth 2, and proposed Berth 3. The declared depth of this dredge pocket is -4m CD, resulting in dredge material of c.45,000m<sup>3</sup> soft dredge (gravel, silt, sand, clay) and c1,000m<sup>3</sup> rock arisings.

Processing on land or dump at sea were considered as options for the dredge material.

If processed on land the material may be classed as by-product under Regulation 27 (By-products), as amended, of S.I. No. 323/2020 - European Union (Waste Directive) Regulations 2011-2020, (Previously Article 27 of the European Communities (Waste Directive)). The material may therefore achieve a higher ranking in the Waste Hierarchy (Prevention > Re-use > Recycling > Recovery > Disposal) as per EU Waste Framework Directive, (2008/98/EC). Disposal via dump at sea was therefore excluded from consideration in this application.

#### 3.2.5.2 Helicopter Use

Consideration was given to whether the installation of a helipad, which would allow technicians to fly to the ORE site by helicopter, and drone transport would be a feasible addition to the sea transfer with crew transfer vessels. However, this option was ruled out as it is not essential for future tenants.

### 3.3 Difficulties Encountered

There were no difficulties encountered in the preparation of the alternatives assessment for the proposed development.

### 3.4 Proposed Preferred Alternative

On the basis of the foregoing, it is considered that all reasonable alternatives to the project are considered, and no alternatives have been overlooked which would significantly reduce or further minimise environmental effects.

The multidisciplinary design and EIAR team have placed respecting the existing environment and achieving environmental enhancements at the centre of the design development process.

This chapter demonstrates that the proposed preferred alternative performs better than other alternatives considered. The preferred alternative protects and enhances biodiversity locally, ensures safety in accessing and navigating the site, mitigates the visual impact of the proposed development through the application of a high-quality architectural response, enhances employment opportunities and contributes to climate change mitigation efforts.

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## **CHAPTER 4**

### **POPULATION & HUMAN HEALTH**

## **VOLUME II**

### **ENVIRONMENTAL IMPACT ASSESSMENT REPORT**

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## 4 Population & Human Health

It is noted that for ease of reference all changes from the original chapter are shown in blue.  
Where text has been removed it is shown as ~~strike through~~.

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### 4.1 Introduction

According to the European Commission's Environmental Impact Assessment of Projects: Guidance on the Preparation of the Environmental Impact Assessment Report (2017), 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 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. In addition, these would concern the commissioning, operation, and decommissioning of a Project in relation to workers on the Project and surrounding population."*

The Environmental Protection Agency (EPA) Guidelines on the Information to be contained in Environmental Impact Assessment Reports (2022) advise that *"in an EIAR, 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 in this EIAR e.g. under the environmental factors of air, water, soil etc."*

This chapter addresses the likely significant environmental impacts of the proposed development on population and human health. It is noted that other chapters of the EIAR also deal with likely significant environmental effects on population and human health arising from Landscape & visual (Chapter 5), Material Assets – Traffic & Transport (Chapter 6), Water & Hydrology (Chapter 10), Noise & Vibration (Chapter 13), Air Quality (Chapter 14) and Climate (Chapter 15), and the risk of major accidents and/or disasters and those chapters should be referenced in conjunction with this chapter of the EIAR.

### 4.2 Expertise & Qualifications

This chapter was prepared by Paula Galvin of McCutcheon Halley Chartered Planning Consultants. Paula holds an MSc in Spatial Planning, a BA in Geography, a Diploma in Environmental Impact Assessment (EIA) Management and a Diploma in Planning and Environmental Law. She has practised as both a planning and environmental consultant for over 15 years and has directed the preparation of Environmental Impact Assessment Reports (EIARs) for a range of development types including residential, commercial, industrial and renewable energy.

### 4.3 Proposed Development

A full description of the proposed development is provided in **Chapter 2** of this EIAR. The following is a summary of the proposed works:

**Greenore Port Unlimited Company** intend to apply for a 10-year permission for development at Greenore Port and at 'Barbara's Field' (A91DD42), Shore Road, Greenore, Co. Louth, (total site area c.4.88 hectare).

The development will provide for Operations and Maintenance (O&M) Facilities serving as a support base for future offshore windfarm projects. In general, it will comprise of terrestrial (landside) and nearshore works, with three standalone buildings incorporating office, warehouse and ancillary space landside and a pontoon to accommodate Crew Transfer Vessels (CTVs) marine side. To facilitate the proposed development, dredging within the nearshore and the demolition of existing port buildings and a vacant residential property is required.

The Operations and Maintenance Facilities (OMF) will provide twenty-four-seven, year-round support, to three individual offshore renewable energy (ORE) projects that will be owned and operated by entities separate from the applicant. These ORE projects will consist of offshore windfarms on the East Coast of Ireland.

Three standalone operation and maintenance buildings incorporating office, warehouse and ancillary space (canteen, welfare, plant, cycle parking etc.) are proposed within the 'terrestrial port' area. Each building has a gross floor area of c.1,670 sq.m and a maximum height of 13.5m.

A new quay wall will be developed at Berth 3 (70m length). This will include a new quay wall face and upgraded deck. A pontoon will be constructed to accommodate crew transfer vessels (CTVs), for use by the operators to travel out to the offshore windfarms. The CTV's will be accessed via an access ramp connected to the quay wall and deck. Approx 45,000m<sup>3</sup> of material will be dredged to facilitate navigable access at this location, and it will be disposed of on land. Where rock is encountered (estimate max of 1,000m<sup>3</sup>), it will be reused on site.

Adjacent to the buildings, space is allocated for 76 car parking spaces, with a further 135 spaces proposed in the surface carpark at the 'Residential Site' on Shore Road. The existing carpark associated with the former Open Hydro building (60 spaces) will be used during the construction phase and Phase 1 of the development.

Pedestrian and motor vehicle access is via the existing entrance beside the Port's office, which served the previous Open Hydro development. Heavy goods vehicles will access the buildings via the Port's existing heavy goods entrance on Shore Road (R175). Pedestrian access from the surface carpark to the OMF buildings will be provided along a new pedestrian route within the Port's landholding.

To facilitate the development, demolition works are required, including the former Open Hydro building, an ESB substation, a small portion of the Port's office accommodation and the vacant dwelling at the 'residential site' on Shore Road.

Improvement works to the public / private realm in the foreground of the existing Greenore Port office building will comprise of an enhancement to existing road and pathways to facilitate improved pedestrian and vehicular access to the proposed O&M Facilities, a new feature entrance wall, removal of 6 no. port car parking spaces, link to new pedestrian route from the new Shore Road carpark and hard and soft landscaping. These works are located within the Greenore Architectural Conservation Area (ACA). The aim is to redesign the space to improve the character of the ACA at this point; provide a more user friendly space with pedestrian priority; and improve the existing access arrangements to

the site. Inside the proposed main entrance to the site, it is proposed to integrate the existing engine shed wall and include this as a feature within the landscape design.

Ancillary development will include the installation of drainage infrastructure, landscaping, lighting, signage, boundary treatments, rooftop solar photovoltaic panels, an ESB substation, a communications mast, a bunded fuel storage tank and waste management areas etc.

The infrastructure described above will likely be delivered over two phases. However, this could extend to three phases, or the sequence of the works may vary,, depending on the delivery of future ORE projects and the associated Offshore Renewable Energy Auctions.

The proposed scheme is distributed over several individual plots, as shown in Figure 4.1.

## 4.4 Methodology

### 4.4.1 Site Visit

To inform this assessment, the application area and surrounds were visited on several occasions between 2022 and 2024. The purpose of the site walkover was to identify the characteristics of the subject land and surrounding area to appraise the likely and significant potential impact upon human receptors. Ordnance Survey maps and aerial photography were also examined to assist in this process.

### 4.4.2 Relevant Legislation & Guidance

This chapter has been prepared having regard to the legislation and guidance outlined in Chapter 1 of this EIAR. The impact assessment section follows the terminology (where applicable) used in the *Guidelines on the Information to be Contained in Environmental Impact Assessment Reports* (EPA, 2022), as set out in **Chapter 1** of this EIAR.

Publications and other data sources consulted include:

- National Planning Framework, Ireland 2040 – Our Plan (Government of Ireland, 2018)
- National Marine Planning Framework 2021
- Offshore Renewable Energy Future Framework Policy Statement 2024
- National Ports Policy 2013
- Climate Action Plan 2024
- Our Rural Future – Rural Development Policy 2021-2025
- Action Plan for Jobs (2012-2022)
- Eastern and Midlands Regional Authority Regional Spatial and Economic Strategy 2019-2031;
- Louth County Development Plan 2021-2027;
- Louth County Council website
- Employment Density Guide (3rd Edition) prepared by Bilfinger GVA and the Homes and Communities Agency (November 2015);
- Central Statistics Office (CSO) website [www.cso.ie](http://www.cso.ie);
- GeoDirectory-GeoFindIT App;
- Pobal website <https://maps.pobal.ie/>; and
- Health and Safety Authority website <https://hsa.ie>;

- Tusla Child and Family Agency Website <https://www.tusla.ie/>

Additionally, reports prepared by McCutcheon Halley Planning Consultants included with this application under separate cover were consulted, as follows:

- Planning Statement (McCutcheon Halley Chartered Planning Consultants)
- Greenore Port Masterplan 2024 (McCutcheon Halley Chartered Planning Consultants)

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#### 4.4.3 Site Surveys

A site survey was undertaken on 13<sup>th</sup> October 2023 and a full walkover of the site was undertaken. The application site and surroundings were visited to examine the receiving environment insofar as people and communities are concerned and in particular to identify the people most likely to be affected by the project.

#### 4.4.4 Consultation

Pre-planning Consultation was undertaken with Louth County Council in May 2024, at the offices of Louth County Council on May 10<sup>th</sup> and online on May 20<sup>th</sup>.

The applicant held a public open day on May 16<sup>th</sup> where members of the public were invited to attend at a local café in the village of Greenore. Details of the proposed development were displayed on the walls. Members of the Design, Environmental and Ecology Teams were in attendance with the applicant to meet with visitors and discuss the project.

Local Stakeholders were also met in the preparation of this application including direct engagement between the applicant and / or the Design Team with representatives from the following stakeholders:-

- Aquaculture Farm Operators
- Greenore Golf Club
- Lough Users
- Greenore Port Operational Management Team

### 4.5 Difficulties Encountered

There were no significant difficulties encountered in compiling the information contained in this chapter.

### 4.6 Baseline Environment

#### 4.6.1 The Site

The proposed scheme is distributed over several individual plots, including:-

- **‘Terrestrial Port Area’**, (c.1.9ha) including a port commodity warehouse (former Open Hydro building), hardstanding areas, remnant wall associated with the pre-existing ‘engine room’, and a communications mast.

- **‘Nearshore Environment’** (c.2.3ha) encompassing part of Carlingford Lough and an existing caisson quay wall, known as ‘Berth 3’.
- **‘Residential Site’** (c. 0.5ha) a greenfield site with a single-storey unoccupied residential dwelling with frontage to the R175, Shore Road.
- **‘Port Office Entrance’** (c. 0.18ha) encompassing a portion of the existing office building, known as the ‘Seafarers room’, hardstanding and parking area to the front of the port office with pockets of green space, that front Euston Street.



**Figure 4-1 General Location Plan**

The site is situated within and immediately adjoining Greenore Port. It is bounded to the east by established harbour related development in Greenore Port; to the south and west by Greenore village and Greenore Golf Club and to the north and west by Carlingford Lough.

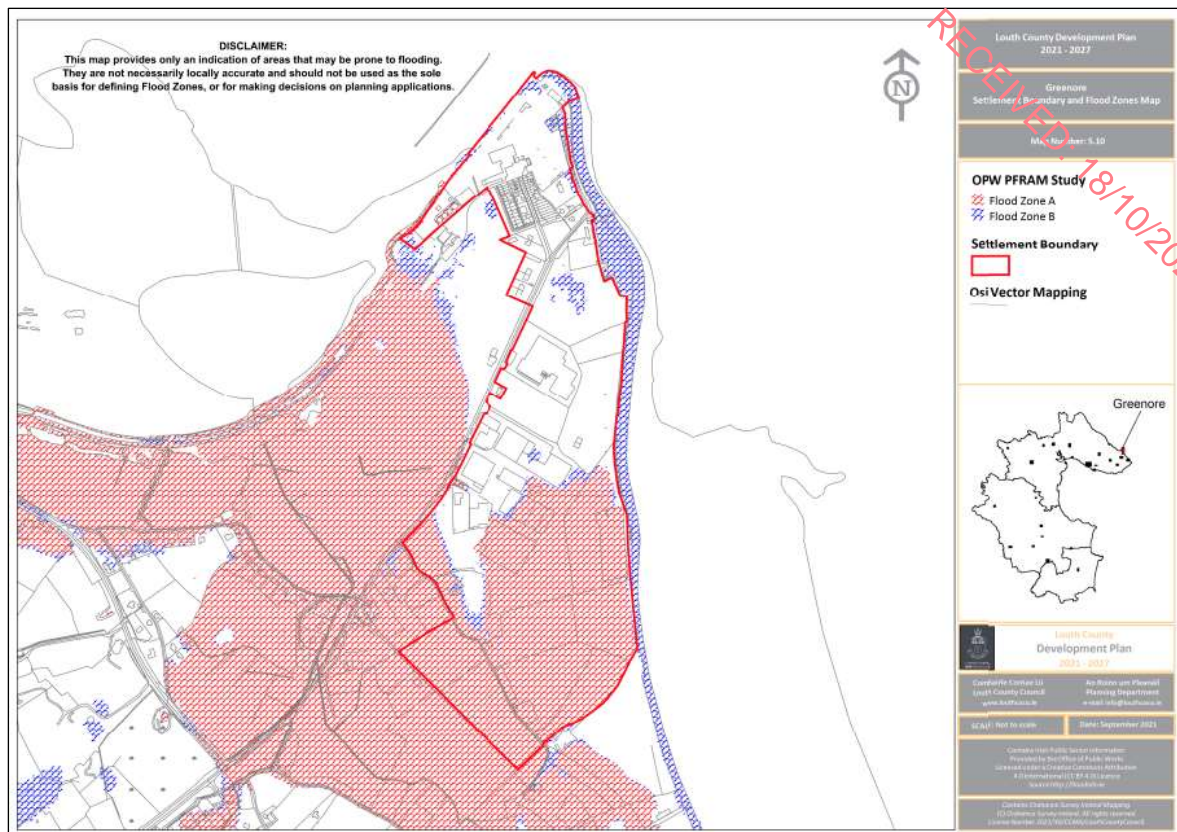
#### 4.6.2 Land Use Zoning and Development Objectives

Under the Louth County Development Plan 2021 – 2027 (LCDP), the site is identified within the Settlement Boundary for Greenore. There are no land use zonings for the site or the wider village area.

Greenore is categorized as a ‘Rural Node’ / Level 5 settlement in the LCDP. It is also within Rural Policy Zone 2 area which is an “Area under strong urban influence.”

See Figure below.





**Figure 4-2 Greenore Settlement Boundary (Source: Map 5.10 from the LCDP 2021-2027)**

The Plan recognises the importance of ports in enabling economic growth and providing international connectivity, with specific references made to Greenore Port in both the narrative and associated policy objectives.

With regard to the role of Greenore Port, section 5.10 of the Plan provides a strong narrative on the importance of Greenore Port to the economic growth and development of the County. This narrative is supported by policy objective EE26.

Policy Objective	
<b>EE 26</b>	To support the development and growth of the maritime economy and balance the competing demands for available space along the coast by different users and encourage co-location and co-existence of activities and infrastructure while having regard to appropriate environmental considerations.

The guidance and policy context within Chapters 5, 9, and 13 of the Plan support the development of the Port whilst also ensuring that any development would be sensitive to the surrounding environment.

Development within the settlement boundary is subject to policy objective PO EE 27 –

Policy Objective	
<b>EE 27</b>	To recognise that the Port facilities at Drogheda, Greenore, Dundalk, and Clogherhead are an important economic resource and to support any improvements or expansion to these Port facilities at Drogheda, Greenore and Clogherhead and the consolidation of Dundalk Port, subject to the preparation of a Masterplan and appropriate environmental considerations.

Greenore Village is designated as an Architectural Conservation Area (ACA). This designation extends to include the public / private realm in front of the Port office building but does not include the terrestrial port area or the residential site on Shore Road – See Figure below.



**Figure 4-3 Greenore ACA (Source: LCDP 2021-2027, Google Map, Edited by MHP)**

#### **4.6.3 Existing and Surrounding Environment**

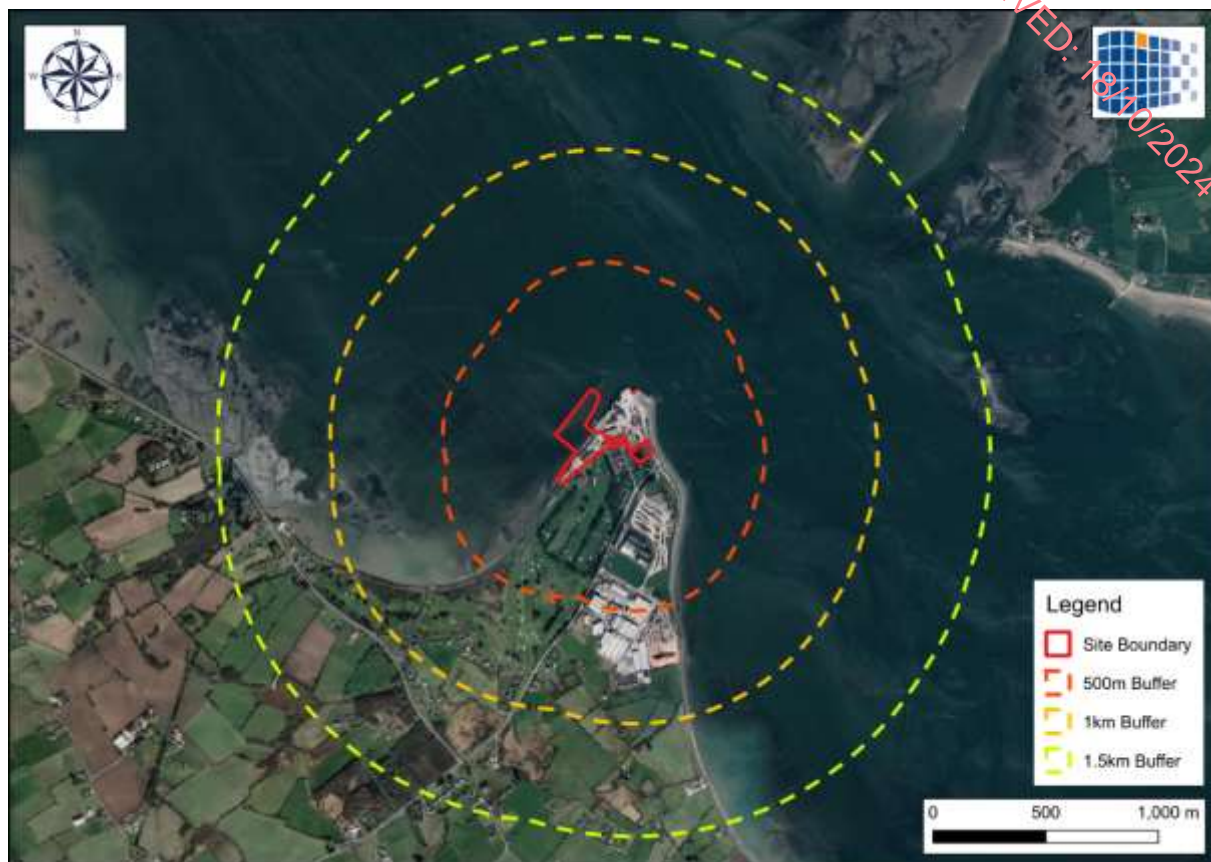
Site context is described in detail in Chapter 1 of this EIAR. The following summary describes the existing and surrounding context relevant to this chapter.

Land uses in the vicinity of the site comprise a mix of industrial, commercial, residential, tourism and agricultural uses.

Greenore Port is the second largest port in the County, and is Ireland's only privately owned commercial port. It provides marine and logistical support for sectors including, agricultural feed, construction, renewable energy, livestock exports and manufacturing industries.

It is the only deep-water port on the east coast outside of Dublin Port. The port provides a range of services including general cargo handling, pilotage and customs. Today, the main commodities handled at the Port are bulk animal feed, fertiliser, coal, steel, timber and general cargo. There are 2 no. active berths - the outer berth (Berth 1), which accommodates vessels up to 200m, and the inner berth (Berth 2), which accommodates vessels up to 110m. It can handle ships of up to 200m length, 32m beam, 8.5m draught and 60,000 tonnes deadweight. Prominent structures within the wider port

include mobile cranes and a gantry crane ranging between c. 34m to 60m as well as numerous storage buildings.



**Figure 4-4 Site Location Map and surrounding Context (Source: Google Map, Edited by MHP)**

Adjoining the main application site area to the south is an existing golf course – Greenore Golf Club. Greenore Gold Club is more than 125 years old, founded in 1896 and its history is intrinsically linked with the development of the Port. It is an 18 hole course, comprising a mix of links and heathland terrain. The clubhouse facility is located at the south western end of the site, proximate to the proposed Building A.

Greenore Village is located at the eastern end of the terrestrial port area and south of the port office entrance / new entrance. The village comprises two residential streets including Euston Street and Anglesey Terrace. There are approximately 42 dwellings on these streets, and 2 no. café buildings, with one including a railway / maritime museum on Euston Street.

The main application site, comprising the terrestrial port area, nearshore environment is bounded to the north/northwest by Carlingford Lough. This site is east of an existing oyster farm of Carlingford Oyster Company.

The 'residential site' is bounded to the north by existing Port lands, to the east by Shore Road. Lands to the west comprise of the rear gardens of houses along Euston Street, with an unmanaged pedestrian lane separating the site and the housing. The southern boundary comprises of a mix of unmanaged hedging / planting, with two dwellings beyond.



Further to the southeast, the Greenore Coast Guard is located c. 0.3km away from the subject site. The Teeling warehouse and storage facility are located at approx. 0.4km southeast of the Site, with Hanlon Transport Limited depot further south.



**Figure 4-5 Site Location and surrounding context (Source: Bing Map, Edited by MHP)**

#### **4.6.4 Study Area**

For the purpose of this assessment, the Study Area was chosen based on the designated Electoral Division (ED) Areas within 5km radius of the application site. There are no guidelines which stipulate the zone of influence of the study area. Professional judgement is used and the rationale for selecting this radius is based on the need to understand the capacity of the existing demographic and employment profile in the local area.

There are 3 no. EDs within this zone of influence and the application area are located in the 'Greenore' ED, 'Carlingford' ED and 'Rathcor' ED, as shown in the Figure below.

The Study Area is largely rural, but includes the settlements of Greenore and Carlingford.



**Figure 4-6 Study Area and ED Area (Source: Google Maps, Edited by MHP)**

#### 4.6.4.1 Population

According to Census 2022 results, the study area population is 4,954 no. people, see Table below. This represents a 4.1% (195 people) increase in population in the period between 2016 and 2022; this is slightly lower than the growth rate in Louth County in the same period (6.9%).

**Table 4-1 Population 2011-2022 with % change (Source: CSO)**

Census	2011	2016	2022	16-22 % increase
Ireland	4,588,252	4,761,865	5,149,139	8.1%
Louth	122,897	128,884	139,703	6.9%
Study Area	4,322	4,759	4,954	4.1%

Of the Study Area population, 80% (3,470 persons) live within the settlements of Greenore and Carlingford (1,250 persons and 2,220 persons respectively). The remainder of the study area population is rural.

The age profile of the population within the study area is an important parameter as it provides a good insight into the potential labour force, amenities and other facilities and future housing demand (See Table below).

Regarding the Census 2022, there were 123 people aged 50+ (35.8%) in the study area, which is slightly higher than the rate in County Louth (32.3%). Older people in the study area (aged 65+) totalled 807



persons (16.3%), which is broadly consistent with County Louth (14.2%). At a more local level, the population aged 65+ in Greenore ED represented 17.5% of the population (390 persons). This is higher than the study area and the county.

The average age of those residing in the study area was 39 years, slightly higher than County Louth (38.2 years) and relatively similar with the State with 38.8 years, respectively in 2022.

**Table 4-2 Population by Age Cohort (Source: CSO 2022)**

Age Cohorts	Louth		Study Area	
	Population	Percentage	Population	Percentage
0-4 years	8,260	4.9%	279	5.6%
5-9 years	9,848	5.0%	353	7.1%
10-14 years	10,986	5.1%	426	8.6%
15-19 years	9,974	5.1%	352	7.1%
20-24 years	8,394	7.7%	275	5.6%
25-29 years	7,219	10.0%	195	3.9%
30-34 years	8,468	10.0%	219	4.4%
35-39 years	9,998	8.7%	335	6.8%
40-44 years	11,126	7.8%	397	8.0%
45-49 years	10,325	6.4%	349	7.0%
50-54 years	9,794	5.9%	370	7.5%
55-59 years	8,333	5.3%	307	6.2%
60-64 years	7,080	4.7%	290	5.9%
65-69 years	6,078	3.9%	261	5.3%
70-74 years	5,155	3.3%	224	4.5%
75-79 years	4,074	2.6%	149	3.0%
80-84 years	2,550	1.8%	97	2.0%
85+ years	2,041	1.9%	76	1.5%
Total	<b>139,703</b>	<b>100.0%</b>	<b>4954</b>	<b>100.0%</b>

#### 4.6.4.2 Household

The State and County average household size was 2.74<sup>1</sup>. Within the study area, there are 1,688 households where the household size was somewhat larger at 2.93 (see Table below).

**Table 4-3 Household (Source: CSO 2022)**

Study Area	Total Population	Total Households	Average Household Sizes
Study Area	4,954	1,688	2.93
Louth	139,703	49,424	2.83
State	5,149,139	1,841,152	2.74

<sup>1</sup> Average household size is calculated by the number of persons in private households and number of private households.

#### 4.6.4.3 Deprivation Index

The Pobal Deprivation Index is Ireland's most widely used social gradient metric, which scores areas in terms of affluence or disadvantage. The index uses information from Ireland's census, such as employment, age profile and educational attainment, to calculate this score. The map below shows the level of affluence and deprivation at the Small Area level, according to the Pobal HP Relative Deprivation Index. Scores range from -35 (Extremely Disadvantaged) to +35 (Extremely Affluent). The overall score for Louth County following the 2022 Census was 1.51. The Study Area varies recorded similar levels, ranging from 1.51 for Greenore ED ('Marginally Above Average') to -1.42 for Carlingford ED and -1.49 for Rathcor ED, 'Marginally Below Average'.



**Figure 4-7 Pobal HP Deprivation Indices 2022 – Electoral Division (Source: Pobal & Google Map, Edited by MHP)**

#### 4.6.4.4 Education

The level of educational attainment for the study area population and the County is shown in the Table below. Census 2022 recorded 3,287 no. persons aged 15 years and over within the study area. Of those respondents, 16.9% (557 persons) had completed lower secondary and 18.6% had completed upper secondary school. A further 30.1% in the Study area have attained a tertiary-level qualification, which is slightly higher than the County level (28.3%).

**Table 4-4 Education Status (Aged 15+ )in Study Area & County Louth (Source: CSO, 2022)**

Education Level (Aged 15+)	Study Area	%	Louth County	%
No formal education	78	2.4%	2,940	3.3%
Primary education	207	6.3%	7,873	8.8%
Lower secondary	557	16.9%	13,699	15.2%
Upper secondary	611	18.6%	16,686	18.6%
Technical or vocational qualification	268	8.2%	7,255	8.1%
Advanced certificate/Completed apprenticeship	222	6.8%	5,125	5.7%
Higher certificate	182	5.5%	5,064	5.6%
Ordinary bachelor degree or national diploma	282	8.6%	7,090	7.9%
Honours bachelor degree, professional qualification or both	395	12.0%	10,490	11.7%
Postgraduate diploma or degree	279	8.5%	7,296	8.1%
Doctorate(Ph.D) or higher	33	1.0%	565	0.6%
Not stated	173	5.3%	5,807	6.5%
Total	3,287	100.0%	89,890	100.0%

#### 4.6.4.5 Employment

The daytime population includes everybody who indicated they worked or studied in the area, along with persons in that area who do not work or study (and so are there during the day). Together, this data would have provided further insight into existing employment opportunities in the area, showing clusters of employment.

The majority of the population within the study area are within the working age cohort (15-64 years), being 54% of the population. The table below shows that economic activity of the residential population in the study area is broadly in line with the county and the state average.

**Table 4-5 Population aged 15 years and over by principal economic status (Source: CSO)**

Economic Status	Study Area	%	Louth County	%	State	%
At work	2,090	54%	59,140	53%	2,320,297	56%
Looking for first regular job	27	1%	1,265	1%	34,526	1%
Short term unemployed	53	1%	2,157	2%	176,276	4%
Long term unemployed	105	3%	3,820	3%		
Student	434	11%	12,583	11%	459,275	11%
Looking after home/family	316	8%	7,888	7%	272,318	7%
Retired	683	18%	17,245	16%	657,790	16%
Unable to work due to permanent sickness or disability	164	4%	5,740	5%	189,308	5%
Other	24	1%	771	1%	27,062	1%

Economic Status	Study Area	%	Louth County	%	State	%
Total	3,896	100%	110,609	100%	4,136,852	100%

Census 2022 also indicates data for persons at work or unemployed by occupation (see Table below). The data reveals the main occupations in the study area were Professional Occupations (16.5%) and Skilled Trades Occupations (15.4%), followed by Associated Professional and Technical occupations (11.4%) and Administrative and Secretarial Occupations (10.4%). With County Louth, these were also the main occupation types, with 17.2% recorded in Professional Occupations, 12.1% in Skilled Trades Occupations and 10.3% for Associated Professional and Technical Occupations.

**Table 4-6 Occupation in Study Area and County Louth (Source: CSO 2022)**

Occupations	Study Area	%	Louth County	%
Managers, Directors and Senior Officials	200	8.9%	4,709	7.2%
Professional Occupations	372	16.5%	11,188	17.2%
Associate Professional and Technical Occupations	256	11.4%	6,729	10.3%
Administrative and Secretarial Occupations	234	10.4%	6,093	9.4%
Skilled Trades Occupations	346	15.4%	7,874	12.1%
Caring, Leisure and Other Service Occupations	185	8.2%	5,614	8.6%
Sales and Customer Service Occupations	116	5.2%	5,074	7.8%
Process, Plant and Machine Operatives	177	7.9%	4,973	7.6%
Elementary Occupations	183	8.1%	5,699	8.8%
Not stated	179	8.0%	7,164	11.0%
Total	2,248	100.0%	65,117	100.0%

A breakdown of CSO data for persons at work by industry is provided in the Table below. The largest proportion of persons at work are employed in 'Commerce and trade' in the study area (22.4%), followed by 'Professional services' (21.7%) and 'Transport and communications' (12.1%). The largest proportion of the County is 'Commerce and trade' and 'Professional service' (both 25.3%).

**Table 4-7 Persons at work by industry in Study Area and County Louth (Source: CSO 2022)**

Industry	Study Area	%	Louth County	%
Agriculture, forestry and fishing	86	4.1%	1,194	2.0%
Building and construction	144	6.9%	3,454	5.8%
Manufacturing industries	216	10.3%	7,076	12.0%
Commerce and trade	468	22.4%	14,939	25.3%
Transport and communications	253	12.1%	4,812	8.1%
Public administration	117	5.6%	3,226	5.5%
Professional services	453	21.7%	14,962	25.3%
Other	353	16.9%	9,477	16.0%
Total	2090	100.0%	59,140	100.0%

According to CSO published data, approximately 63% of locals work in Dundalk, followed by approx. 27% in Dublin City and suburbs, Counties Dublin & Meath, and approx. 8% in Drogheda, County Louth & Meath (see Tables below).

**Table 4-8 Place of work from Study Area**

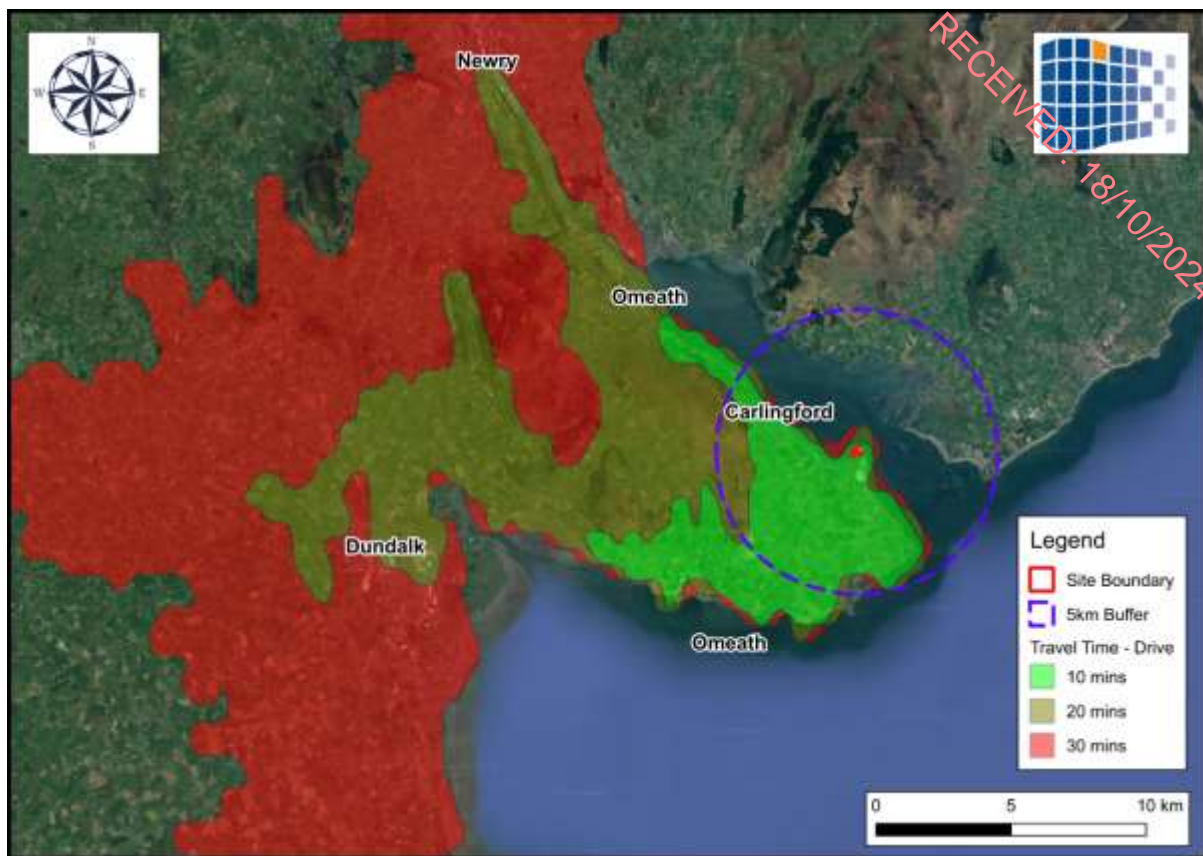
Place of work	People	%
Dublin city and suburbs, Counties Dublin & Meath	154	28%
Drogheda, Counties Louth & Meath	47	8%
Dundalk, Co. Louth	357	64%
Total	558	100%

In addition, the average journey time of persons at work in Louth is 28.9 minutes, and approximately 53.9% of the total working population travels to work within a journey time below 30 minutes, as shown below.

**Table 4-9 Travelling time of person at work in Co. Louth (Source: CSO 2022)**

Travelling time of persons at work	People	%
Journey time < 15 mins	13,993	26.3%
Journey time 15 mins - < 30 mins	14,647	27.6%
Journey time 30 mins - < 45 mins	7,948	15.0%
Journey time 45 mins - < 60 mins	3,026	5.7%
Journey time 60 mins and over	7,418	14.0%
Journey time not stated	6,089	11.5%
Total	53,121	100%
Average	= 28.9 mins	





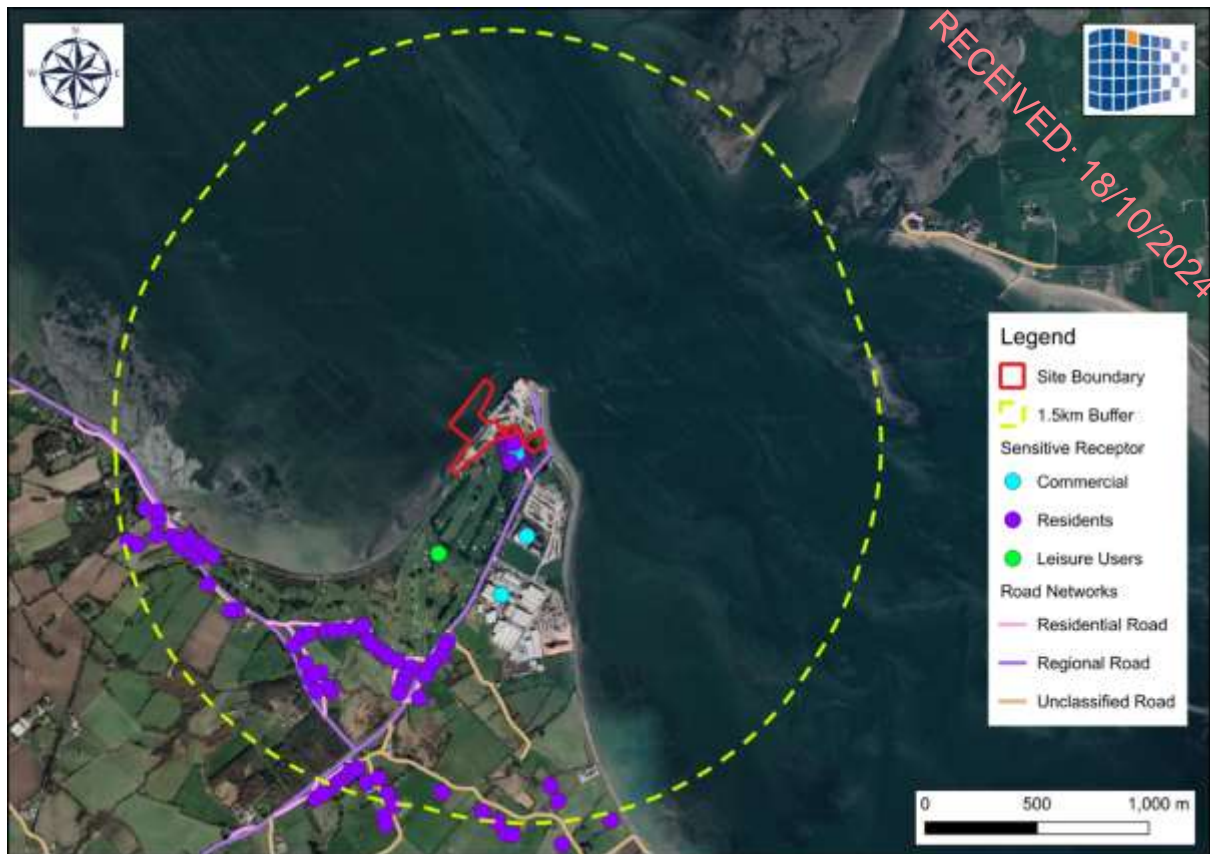
**Figure 4-8 Travel Time Map by Driving (Source: Google Map, Edited by MHP)**

#### 4.6.5 Sensitive Receptors

The EPA Advice Notes (2015) identify receptors as neighbouring landowners, local communities and other parties which are likely to be directly affected by the project.

The site is a brownfield site, and includes a vacant residential dwelling. For the purpose of this Chapter, the primary sensitive receptors are the communities and properties identified in the following sections. They comprise receptors from the following categories:

- i. Existing Residential;
- ii. Existing Commercial;
- iii. Social, Community and Leisure users; and
- iv. Users of the public road network surrounding the site



**Figure 9: Sensitive Receptor Map (Source: Google Map, edited by MHP)**

#### 4.6.5.1 Village Residents

Greenore village is adjacent to the existing port. There are three rows of residential dwellings, with c.42 dwellings located along Euston Street and Anglesey Terrace. Dwellings on Euston Street comprise c. 18 dwellings on the eastern side and 9 on the western side, interspersed with some commercial premises. There are 15 dwellings on Anglesey Terrace broken into 3 blocks.



**Figure 4-10 Euston Street (top) and Anglesey Terrace (underneath)**

The main settlement within the wider context is Carlingford, which is approx. 2.6km west of the site and has a population of c.1,528 (Census 2022).

#### 4.6.5.2 Shore Road Residents

There are a number of dwellings on Shore Road, to the south of the 'Residential site', and adjacent to the Coast Guard station which are identified as receptors as they are likely to be affected during the construction phase and also the operation of the Carpark on Shore Road.

#### 4.6.5.3 Other Residents

There are other residents in the Village located at the southern end of Euston Street and Anglesey Terrace and on the R175 approach which are identified as receptors.

#### 4.6.5.4 Greenore Golf Club

Greenore Gold Club is a neighbouring landowner, sharing a boundary with the terrestrial port site. The clubhouse facility is located at the south western end of the site, proximate to the proposed Building A.

#### 4.6.5.5 Greenore Commercial Port and Other Pilots / Lough Users

Greenore Port is an active commercial port and the Lough is used by many other pilots for both commercial and recreational uses. As part of the design process, the applicant engaged and consulted extensively with a range of relevant stakeholders including local pilots for the lough and the existing port operational team. A vessel simulation modelling exercise was undertaken to ensure the



configuration of the maritime development and proposed vessels did not negatively interact with existing operations.



**Figure 4-11 Existing view of Greenore Port**

#### 4.6.5.6 Other Commercial & Industrial Premises

There are 2 cafés along Euston Street, one which includes a lifestyle shop and the other a railway / maritime museum. Both are, located on Euston Street.

Beyond this there are a number of established industrial / warehousing premises located on Shore Road, on the approach to Euston Street. These include Teelings Whiskey and Hanlon Transport Ltd.

#### 4.6.5.7 Aquaculture Activity

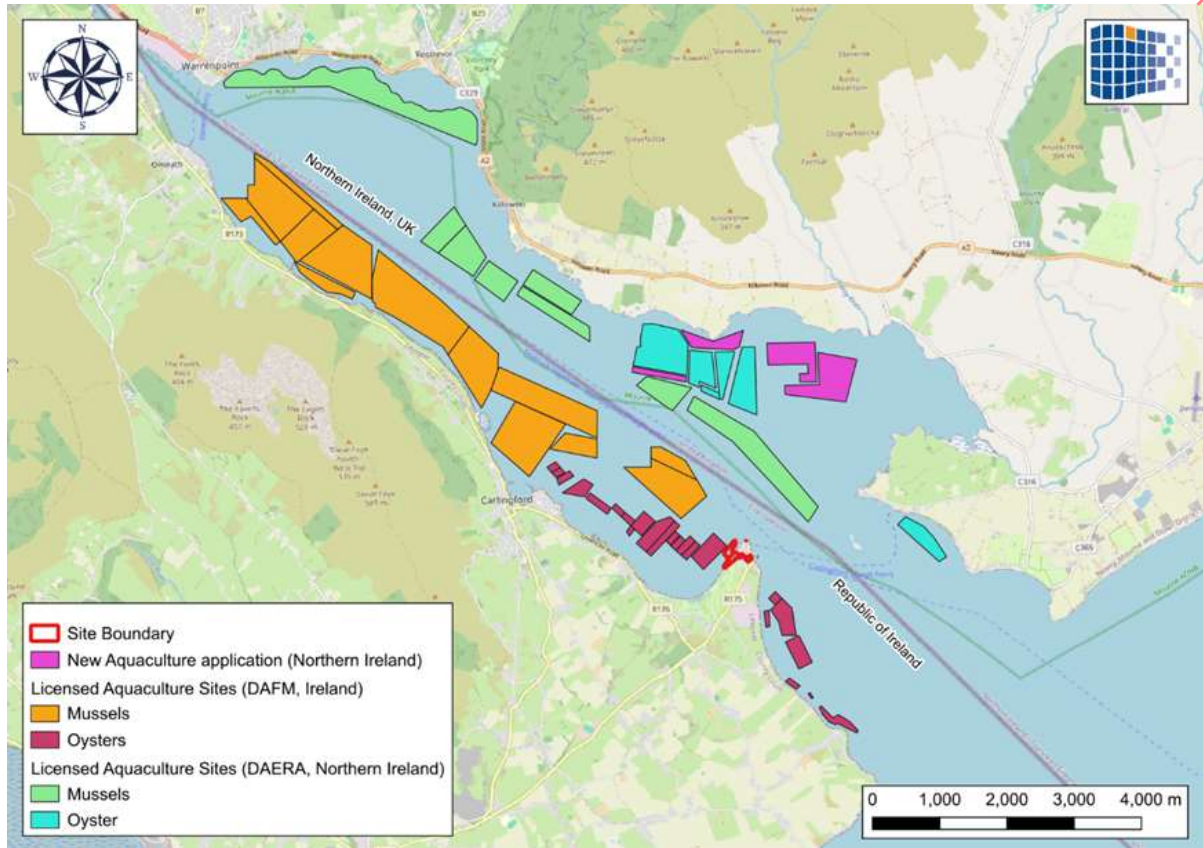
Aquaculture includes the culture or farming of fish, aquatic invertebrates, aquatic plants or any aquatic form of food suitable for the nutrition of fish. The vast majority of aquaculture activity takes place in the nearshore environment. Carlingford Lough is an important area for production of bottom (sub-tidally) grown mussels (*Mytilus edulis*) as well as Pacific oysters (*Crassostrea gigas*), the latter being grown on off-bottom trestles on the intertidal foreshore. Farming activity takes place within both the Northern Ireland and Republic of Ireland jurisdictions and agreement between both administrations has facilitated aquaculture licensing by Department of Agriculture, Food and Marine and the Department of Agriculture, Environment and Rural Affairs (NI).

Both mussels and oysters are produced to serve domestic as well as export markets and are destined for fresh markets; while some proportion of both mussel and oyster production also enters the processing / value added sector within Ireland for domestic and export consumption.

There are several aquaculture sites located in Carlingford Lough. In the Republic of Ireland sector of the lough, there are licensed aquaculture sites immediately adjacent to Greenore port. Pacific oyster culture takes place on the intertidal foreshore within 100m of the proposed project site, to the east.

Bottom mussel culture takes place approximately 500m east of the port area and extends for much of the southern side of the lough.

In the Northern Ireland sector, there are bottom mussel as well as oyster culture sites to the north of Greenore port and the proposed project area, on the northern side of the navigable channel. The closest of these is circa 950m directly opposite the project area, where mussels are cultured on the seabed.



**Figure 4-12 Aquaculture Licenses Carlingford Lough**

#### 4.6.5.8 Carlingford Lough Ferry (Greenore – Greencastle)

The Carlingford Lough ferry route between Greenore and Greencastle departs / arrives from Greenore, with the ferry slip located at the Greenore Point. The ferry accommodates a range of vehicle types, including cars, vans, camper vans, caravans, minibuses, and coaches. The service departs hourly from each terminal throughout the year and every half hour during summer.

#### 4.6.5.9 Tourism activities

There are several tourism activities in the area. These are considered collectively as a sensitive receptor.



**Table 4-10 Tourism Activities in Carlingford & Greenore**

Activities	Description	Distance
Greenore Victorian Railway Village	This is the village south adjacent to the site	Adjacent to the Site
Greenore Golf Club	The course is a superb 18-hole flat semi-links, with a good mix of traditional links and heathland terrain, set in beautiful surroundings with splendid views of Carlingford Lough, Slieve Foy and the Mourne mountains.	Adjacent to the Site
Cooley Peninsula Scenic Drive	It is an area of diverse landscape and spectacular scenery. Bounded by Carlingford Lough and Dundalk Bay, it covers an area of roughly 60 square miles of mountain ranges, flat fertile plains, wide valleys, forests and long beaches. The peninsula's previous occupants left an assortment of relics for us to ponder and wonder at including neolithic tombs, ringforts, castles, early Christian sites, medieval buildings and more. Refer to Figure below.	Various Routes and the closest location is at the Port.
Carlingford Oyster Festival	Offering a four day fun-filled festival for the whole family is packed with traditional children's activities including Magic Show, Face Painting, the ever popular Teddy Bear's Picnic, Free Kayaking in the Harbour, Children's Funfair & Bouncing Castles.	Various Locations and the closest location is 1.2km southwest of the Site.
Carlingford Adventure	Carlingford Adventure Centre provides visitors with over 30 fun filled outdoor activities on Carlingford Lough and the slopes of Slieve Foye. The Carlingford Adventure Centre is situated on Tholsel Street in the heart of Medieval Carlingford and just a short distance from their Water Sports Centre on the harbour and the Outdoor Adventure Arena on the side of Slieve Foye Mountain.	3.3km west of the Site.
Carlingford Bird Watching	"Most of Louth's best birdwatching sites are situated on the coast. Carlingford in Louth offers exactly that for your bird watching interests. Focusing on Carlingford Lough and travel southwards via Dundalk harbour, Lurgangreen and Clogherhead to the Boyne estuary. The headlands are all good for migrants in spring and autumn, while the sea bays and wetlands are best in winter, when sea ducks, dabbling ducks, waders and gulls are most common." - Breffni Martin, BirdWatch Ireland."	Various Locations and the closest location is at the Port.
Trail and Scenic Routes	The Cooley Peninsula has more than 10 Loop Walks, where the featured walks no. 10 Carlingfor Sli na Slainte is the loop walk towards Greenore Port.	Various Route and the closest route ist 800m south of the Site.
Carlingford Lough	Carlingford Lough provides an array of recreational activities to cater to the preferences of visitors. Boating activities are prevalent throughout Carlingford Lough, encompassing a spectrum from dinghy and yacht racing to cruising, sailing, and powerboat training. The area boasts ample moorings and boating facilities, accessible at Rostrevor, Warrenpoint, Greencastle, and The Albert Basin (the primary water-based recreation resource in Newry). Carlingford Marina, situated just west of Carlingford, offers a 300-berth marina, boatyard, café, and eight self-catering apartments. Within the town, Carlingford Sailing Club is established, while the Carlingford Sail Training Centre maintains floating moorings outside the harbour. In Killowen, County Down (NI), the yacht club	0 – 10km from the subject site

Activities	Description	Distance
	<p>features a clubhouse, boat storage, and a slipway, having also hosted significant sailing events</p> <p>Carlingford Lough hosts 10 designated access points to the "Southeast Coast Canoe Trail" which stretches more than 50 nautical miles along the southeast coast of Northern Ireland into County Louth in the Republic</p> <p>Numerous water sports and adventure centres line the lough's shores, including Carlingford Adventure Centre, Rostrevor Swimming and Boating Club, and East Coast Adventure Centre, which operates a Watersports Centre from Warrenpoint Baths under lease from Newry, Mourne, and Down District Council</p>	

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Figure 4-13 Carlingford and Cooley Peninsula Scenic Drive Map (Source: Carlingford & Cooley Peninsula.ie)

#### 4.6.6 Human Health

The consideration of potential impacts on human health is examined separately in Chapters 5 – 12 of this EIAR. Where relevant, each of these chapters identify the sensitive receptors of greatest interest to their respective topics and in the case of Air Quality, Noise and Traffic, this includes the populations living in residential locations in close proximity to construction or operational activities are identified as sensitive receptors.

## 4.7 The 'Do Nothing' Scenario

Under a 'Do-nothing' scenario, the existing port would likely continue as its current use. The existing area would remain operational for the purposes of port use. Any intensification of activities will be controlled by the port's existing health and safety procedures and no negative impacts are predicted in relation to land based activities and the effect would be neutral.

There are two extant planning permissions at Greenore Port for the extension and modification of an existing Warehouse (LCC Planning Ref 20268/ABP Ref 307862) and a new Warehouse (LCC Planning Ref 20543/ABP Ref 310184). As these are valid permissions the respective developments must be considered as a possible scenario under the 'Do Nothing' Scenario.

The development of either extant planning permission is considered to result in increasing port activity as the port could accommodate larger volumes of bulk goods, in line with the permissions approved.

In the event that the proposed development does not proceed, an opportunity to develop the port as a flagship Headquarter facility supporting the Offshore renewable energy industry combined with diversification of port uses and providing a 'cleaner' future for the port is missed.

## 4.8 Potential Significant Effects

This section describes the environmental effects that are likely to arise during the construction and operation of the proposed development. **Section 4.9** sets out the mitigation measures required to alleviate identified effects.

Potential Impacts are considered under the following headings in line with the Guidelines set out in section 4.4:

- Marine and Land Use
- Population
- Employment and Economic Activity
- Residential Amenity and Community Facilities
- Human Health & Safety
- Local Amenity + Tourism

All other environmental aspects relating to the human environment which could have an adverse effect on the local population such as soils, geology & hydrogeology, water and ecology have been addressed in the relevant chapters of this EIAR.

### 4.8.1 Demolition & Construction Phase

The potential impacts of the proposal during the demolition and construction phase of the development are outlined below.

#### 4.8.1.1 Marine and Land Use

The proposed development is an upgrade to an existing operational port. During both the construction and operational phases, the development site would not result in a change of marine / land use at this location. Additionally, given that the proposed development represents a 'lighter' port activity than

the existing operations, the surrounding amenities will not be significantly impacted by the proposed development.

There will be no severance of land, loss of rights of way, nearshore access, or amenities as a result of the proposed development. Development at this site also aligns with the National Planning Framework (NPF) policy objective (NPO 11), which seeks to favour development that can encourage more people and generate more jobs and activity within existing cities, towns and villages. The impact is likely and will have a permanent significant positive effect that will achieve local and wider county, regional and national objectives.

The impact associated with the upgrade during the Construction Phase shall be **minor, neutral, local, and short-term**.

It is not anticipated that there will be an impact on settlement patterns as a result of the construction phase of the proposal. It is anticipated that of the projected 70 construction staff, they will not generate a temporary increase in population locally and thus settlement patterns during this period, as employees will travel to site from their existing place of residence. The likely impact on settlement patterns is thus **neutral**.

#### 4.8.1.2 Population

It is estimated that during peak construction in construction phases 1 and 2, there will be approximately 70 no. people employed. Phase 1 will take approximately 16 months to complete and phase 2 approximately 20 months. It is not anticipated that this will generate a temporary increase in population locally during this period as employees will travel to the site from their existing place of residence.

No significant impact on population in this regard is identified and the likely impact on the population is thus **neutral**.

#### 4.8.1.3 Employment & Economy

A key characteristic of the proposed development in terms of its potential economic impact relates to its capital value. The construction phase will provide a boost for the local construction sector in terms of employment generation and capital spend on materials and construction labour costs. It is expected that during peak activities (approximately 70 no. people will be working directly on the construction site), capital spend on materials and construction labour costs, and it will generate additional spending in the local economy (including local cafes) as a consequence of the presence of construction staff during the construction phase.

The construction staff will comprise of managerial, technical, skilled and unskilled workers. As far as practicable local labour will be employed.

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

The overall predicted impacts associated with the construction phase on the working population and local economy are **likely** and will have a **positive, temporary/short-term, not significant** effect.

#### 4.8.1.4 Residential Amenity and Community Facilities

The anticipated likely significant effects in the absence of mitigation on residential amenities and community facilities including Greenore Golf Club relate to disruption due to increased construction traffic movements on the local road network, noise, dust and visual impact arising from plant and construction activities (e.g. cranes, hoarding etc) necessary to complete the development.

The construction phase will cause a certain amount of loss of amenity, disruption, nuisance and inconvenience to the local community, particularly the receptors closest to the development i.e. the Village and Shore Road Residents and Greenore Golf Club.

Potential effects on human health arising during the construction phase of the project relate generally to quality of life including air quality, climate, noise, water and hydrology, waste, potential disruption of services and the risk of major accidents/disasters.

The level of disturbance and impacts are predicted to be commensurate with the normal disturbance associated with the construction industry where a site is efficiently and properly managed having regard to neighbouring activities.

In the absence of mitigation, the anticipated impact on residential amenity would be **local** and of **temporary to short-term** duration with a **moderate** significance.

#### 4.8.1.5 Human Health & Safety

During the demolition and construction phase, health & Safety risks will arise from construction activities, including operation of plant and machinery. A construction related accident could pose a potential health and safety risk to construction workers, port employees or visitors to the port site. Construction safety will therefore be closely controlled by the Contractor and implementation of construction safety arrangements.

Furthermore, the Applicant is an experienced port operator who has managed many construction phases in the past, and during this period no major accidents or fatalities have occurred. The construction site cannot be freely accessed by members of the public and unauthorised access would be considered trespassing on private property.

On this basis, risk of health and safety related accidents are **unlikely** during the demolition and construction phase of the proposed development, no significant impacts on population and human health are identified. With best practice health & safety procedures in place, construction activities will have a **negligible, neutral, short-term** impact on health and safety.

Measures to address such human health considerations will be mitigated through the implementation of a Contractor's Construction and Environmental Management Plan (CEMP) and will be subject to Regulations and the relevant Health and Safety codes.

This EIAR also deals with the potential effects on human health during the construction phase, including the more specific topics of air, traffic, water, and noise.



#### 4.8.1.6 Local Amenity and Tourism

Given that construction of the marine infrastructure of the proposed development is scheduled during the winter and limited to the immediate port environs, recreational users of Carlingford Lough are unlikely to experience disruptions. The CTV operators' adherence to robust safety management procedures will ensure safe operations, thereby minimising any adverse effects on recreational users.

The construction of the proposed development including the dredging campaign could lead to increased sedimentation rates and contamination/pollution of the water body. In the absence of mitigation, the anticipated impact on the local shellfish aquaculture industry would be negative, local and of temporary to short-term duration with a moderate significance.

As set out before, the construction of the proposed development will not have an impact on the operation of the existing ferry, heritage value of the village, surrounding landscape and sea scape.

No significant impact on tourism associated with the Construction Phase is identified.

### 4.8.2 Operational Phase

The potential impacts of the proposal during the operational phase of the development are outlined below:

#### 4.8.2.1 Marine and Land Use

The proposed development is an addition to an existing operational port. During both the construction and operational phases, the development site would not result in a change of land use at this location. Additionally, given that the proposed development represents a 'lighter' port activity than the existing operations, the surrounding amenities will not be significantly impacted by the proposed development.

The impact associated with the upgrade during the Construction Phase shall be **minor, neutral, local, and short-term**.

The proposed development will contribute to the establishment of appropriate enterprise and employment uses at the established and strategically well located Greenore Port.

It will deliver the construction of 3 new warehouse and ancillary office space with a cumulative gross floor area (GFA) of 5010 sq.m. The design of the building incorporates energy efficiency measures that will ensure the occupied spaces (offices) meet the requirements of Near Zero Energy Building (NZEB) regulations set out in TGD Part L 2021. High standards of architectural design, in tandem with a comprehensive landscape strategy has sought to ensure the best use of land, and ensure the development makes a positive contribution to this attractive port setting.

It is anticipated that delivery of a high-quality commercial development in a highly landscaped setting at this location will result in **a likely significant positive impact** with a **permanent** duration.

#### 4.8.2.2 Population

The proposed development will generate up to 225 new jobs. It is not anticipated that this will generate any marked increase in population locally, as it is envisaged that employees will likely travel to the site from their existing place of residence. The likely impact on the population is thus neutral.

The demographic trends of the study area are provided in Sections 4.5.6-4.5.12 above. The proposed development will provide a positive long-term impact in terms of providing additional employment.

#### 4.8.2.3 Employment & Economy

The proposed development will support continued sustainable economic growth and quality jobs for the region, consistent with the objectives of the Regional Spatial and Economic Strategy (RSES) for the Eastern and Midland Region and the Louth County Development Plan 2021 – 2027.

The proposed Operations and Maintenance Facility will provide for up to 225 new jobs in a future proof and sustainable industry, thus creates high quality work opportunities for the local and regional population, the majority of which are in the working age cohort.

Development of this new facility will also support ambitions for planned longer term growth in Ireland and there should thus be an indirect positive effect on population and employment generation.

The employment generated by the proposed development will contribute to the professional and skilled trades and engineering jobs in the locality. The overall effect on employment locally and regionally is moderately positive and permanent.

The employees will generate additional spending within the area which will likely have a local permanent moderate positive impact on local economic activity generated through the multiplier effect.

The impact of the operational phase will at least extend to County Louth in terms of the requirement for labour, goods and services. The effect is **likely** and will be **permanently significantly positive**.

The daytime increase in working population is likely to have a **permanent moderate positive effect** on local retail services providers, due to the presence of employees on site and the increased expenditure on convenience goods.

#### 4.8.2.4 Residential Amenity and Community Facilities

The operation of the proposed development has limited capacity to impact on residential amenities and community facilities.

Included in the design of the proposed development, consideration was given to the location and route of the pedestrian access from the Shoe Road carpark to the proposed buildings. This was routed through existing port lands, as opposed to an existing lane at the rear of Euston Street, to provide a separation between the pedestrian route and the existing residences, and reducing possible effects of noise or lighting spill.

Visual, traffic, noise and dust effects are considered in Chapters 5, 6, 13 and 14 respectively. These chapters conclude that there will be no significant effects on residential amenities or community facilities attributed to the operational phase.

#### 4.8.2.5 Human Health & Safety

##### Port Operations

The main health and safety risks during the operational phase of the proposed redevelopment arise from the operation of plant and machinery.

Health and Safety activities for port operations are guided by national Health & Safety legislation. The occupants will appoint a safety officer who will be responsible for ensuring compliance with these safety procedures.

The project design has taken cognisance of necessary health and safety requirement for port operations and has minimised any increased health and safety risk associated with the development. In addition, the Port's existing Health & Safety procedures will be reviewed to take account of the increased operations at this location. Consequently, increased port operations will have **negligible, neutral** permanent impact on health and safety.

The risk of accidents / unplanned events is addressed through the Building Regulations (Fire Safety) and is therefore addressed through primary mitigation in the design process. Residual risks of fire and road traffic accidents will be managed by emergency services as per their standard procedures.

Measures to address such human health considerations will be subject to Regulations and the relevant Health and Safety codes.

The potential for effects on human health during the operational phase is also dealt with in this EIAR under the more specific topics by which they might be caused including air, traffic, water and noise.

#### Sea & Road Traffic

There is a potential enhanced risk of accidents related to the increase in road and sea freight traffic. The design of the proposed redevelopment and implementation of existing road and sea traffic management operational procedures will ensure that increased traffic has no negative impact on health and safety.

Consequently, in relation to sea and road traffic, the operational phase of the proposed redevelopment will have a **negligible, neutral** permanent impact on health and safety

#### 4.8.2.6 Local Amenity and Tourism

No significant impact on tourism associated with the Operational Phase is identified.

As set out above, the proposed development will not have an impact on the operation of the existing ferry, heritage value of the village, surrounding landscape and sea scape and will continue to attract people to visit the area.

During the operational stage collisions of CTV with other commercial or recreational lough users pose safety hazards to health and safety, vessels, and infrastructure. Accidents resulting from such collisions could lead to injuries, damage to property, and environmental consequences. The Navigation Impact Assessment confirms that the proposed CTV construction and operation at Greenore is unlikely to result in collisions, the effect is therefor is **negligible, negative** and **permanent**.

The presence of a new pontoon and port activities might introduce invasive alien species from vessels to the area and may cause spillage or other forms of pollution which could affect the local shellfish aquaculture. The Risk Assessment for shellfish aquaculture prepared with regard to the proposed development identifies these potential impacts as unlikely thus the impact on tourism and the local amenity is **negligible, neutral** and **permanent**.

The proposal provides for a flagship landside development that is critical for the support of the offshore renewable energy industry. Therefore, it will provide for a much cleaner use of port lands.

There is also a growing potential for tourism and education within the perimeter of offshore wind farm areas. Offshore renewable energy developers are typically willing to provide opportunities to show their farms to the public which can be expected to be facilitated from the OMF port at Greenore.

Overall the Operational Phase will have a **long-term, slight, positive** impact on tourism both **locally** and **nationally**.

#### 4.8.3 Cumulative Effects

Potential cumulative impacts may arise from the proposed development at Greenore Port when combined with other existing and/or approved projects. In accordance with the European Commission Guidance on the preparation of the Environmental Impact Assessment Report (2017) and EPA Guidelines on the Information to be contained in Environmental Impact Assessment Reports (2022).

A review of relevant, large scale, recent planning applications was conducted in order to identify sites with the potential for cumulative impacts. Planned and approved projects and plans with the potential for cumulative impacts have been identified in Appendix 1.1 Cumulative Assessment - Projects and Plans. There are several developments in the vicinity of the study area comprising residential, commercial and infrastructure schemes. Extant permissions of the port are not relevant for this section as it's not feasible to implement previously granted developments in combination with the subject scheme.

A number of minor developments have been granted permission within the surrounding area, these are typically associated with extensions or alterations to single buildings.

Larger developments require a construction management plan to mitigate effects of the construction phases. Subject to adherence to measures contained in the individual plans, the cumulative effect is likely, short term and not significant.

The additional projects included in the updated List of Cumulative Projects appended to Chapter 1, i.e. the proposed ORE developments in the Irish Sea were considered and no additional cumulative effects arising from these projects were identified.

#### 4.8.4 Summary

The following Table summarises the identified likely significant effects during the construction phase of the proposed development before mitigation measures are applied.

**Table 4-11 Summary of Demolition and Construction Phase Likely Significant Effects in the absence of mitigation**

Likely Significant Effect	Quality	Significance	Extent	Probability	Duration	Type
Construction Employees contributing to local economy	Positive	Moderate	Local/National	Likely	Short-term	Direct
Economic opportunities associated with the supply of construction materials and provision of services	Positive	Moderate	Local/National	Likely	Short-term	Direct
Disruption due to increased construction traffic movements on the local road network	Negative	Moderate	Local	Likely	Short-term	Direct
Construction Effects on human health	Negative	Moderate	Local	Likely	Temporary	Direct
Visual Impact	Neutral adverse	Not Significant – Significant	Local	Likely	Medium-term	Not applicable



The following Table summarises the identified likely significant effects during the operational phase of the proposed development before mitigation measures are applied.

**Table 4-12 Summary of Operational Phase Likely Significant Effects in the absence of mitigation**

Likely Significant Effect	Quality	Significance	Extent	Probability	Duration	Type
Employees contributing to local economy	Positive	Moderate	Local/National	Likely	Medium-term	Direct
Creation of additional Jobs in a rural environment	Positive	Significant	Local	Likely	Permanent	Direct
Delivery of a high-quality commercial development	Positive	Significant	Local	Likely	Permanent	Direct

## 4.9 Mitigation

### 4.9.1 Incorporated Design Mitigation

The proposed development complies with the Building Regulations which provide for the safety and welfare of people in and about buildings. The Building Regulations cover matters such as structure, fire safety, sound, ventilation, conservation of fuel and energy, and access, all of which safeguard users of the buildings and the health of occupants. The design also incorporates the principles of universal design and the requirements of Part M of the Building Regulations so that the development will be readily accessible to all, regardless of age, ability or disability.

The integration of energy efficient measures into the design will provide for a healthy work environment for employees, less dependence on fossil fuels and associated improved air quality. The inclusion of landscaping elements and a highly accessible layout of the scheme including segregated and safety improved pedestrian walkways will provide for a high quality work place for future employees and the enhancements of the public realm and design of the overall layout will improve the setting of the wider village.

### 4.9.2 Demolition & Construction Phase Mitigation

The following mitigation measures are recommended:

- **Construction and Environmental Management Plan (CEMP):** The appointed contractor(s) will update the Outline CEMP submitted with the application and submit to Louth County Council prior to the commencement of development.
  - The CEMP will comply with all appropriate legal and best practice guidance for construction sites.

- The purpose of a CEMP is to provide a mechanism for the implementation of the various mitigation measures which are described in this EIAR and to incorporate relevant conditions attached to a grant of permission. The CEMP requires that these measures will be checked, maintained to ensure adequate environmental protection. The CEMP also requires that records will be kept and reviewed as required to by the project team and that the records will be available on site for review by the planning authority.
- All construction personnel will be required to understand and implement the requirements of the Contractor's CEMP and shall be required to comply with all legal requirements and best practice guidance for construction sites.
- All mitigation and monitoring measures included in the Summary of Mitigation and Monitoring Measures in Chapter 19 of this EIAR will be included in the CEMP and adhered to.
- **Community Liaison Officer:** The contractor will appoint a liaison officer to ensure that any issues from the local community are dealt with promptly and efficiently during construction. These details will be included in the contractor's CEMP.
- **Construction Working Hours,** except for dredging and pile driving works, will generally be limited to the hours 0700 – 2000 Monday to Friday and 0700 – 1600 hours on Saturday. Some works have to be undertaken at low tide and their construction hours will be linked to tides (for example works associated with the pontoon construction and quay wall).
  - Pile driving works will be limited to 0800-1800 Monday to Friday and 0800 - 1600 hours on Saturday. It is not envisaged that works will take place on public holidays.
  - Dredging, due to the nature of the activity, is undertaken on a 24 hour basis to achieve the maximum production rates within tidal envelopes Dredging activities will occur for approximately 8-10 weeks.
  - If works are required outside of these hours, in exceptional circumstances, the planning authority will be notified in advance
- Project supervisors for the construction phase (PSCS) will be appointed in accordance with the Health, Safety and Welfare at Work (Construction Regulations) 2013, and a Preliminary Health and Safety Plan will be formulated during the detailed design stage which will address health and safety issues from the design stages, through to the completion of the construction phase.
- The Resource Waste Management Plan (RWMP) will be updated by the Contractor, as necessary, as per mitigation outlined in Chapter 8.
- **Aquaculture Protection:** All suitable and appropriate mitigation measures included in Table 4 of the Risk Assessment for Shellfish Aquaculture, given below, are recommended to be deployed during the dredging works and included in the Contractor(s) CEMP.

Source	Available range of mitigations
Dredging: local resuspension of sediments and increased sedimentation rates on intertidal / subtidal foreshore.	<ul style="list-style-type: none"> <li>• Planning of excavation to avail of minimal tidal dispersion effects</li> <li>• Use of closing backhoe bucket, in areas of soft sediment, to minimise spillage</li> <li>• Avoidance of side-casting of excavate prior to barge loading</li> <li>• Deployment of turbidity monitoring and recording buoys with automated real time alarms</li> <li>• Deployment of buoy mounted oxygen monitoring and recording sensors with automated real time alarms</li> <li>• Aerial monitoring of sediment dispersion/dredging plume conducted by drone surveillance once per week on peak flood and ebb when dredging.</li> <li>• Management of unloading/transshipment to avoid spillage</li> <li>• All suitable and appropriate mitigations to be included in the <b>Construction Environmental Management Plan</b></li> </ul>
Dredging: Transport of sediments, particularly of finer fractions, and release of contaminants to other areas, resulting in an increase in contaminant levels, most notably TBT/DBT	<ul style="list-style-type: none"> <li>• Use of closing backhoe bucket, in areas of soft sediment, to minimise spillage</li> <li>• Planning of excavation to avail of minimal tidal dispersion effects</li> <li>• Avoidance of side-casting of excavate prior to barge loading</li> <li>• Deployment of turbidity monitoring and recording buoys with automated real time alarms</li> <li>• Aerial monitoring of sediment dispersion/dredging plume conducted by drone surveillance once per week on peak flood and ebb when dredging.</li> <li>• Management of unloading/transshipment to avoid spillage</li> <li>• All suitable and appropriate mitigations to be included in the <b>Construction Environmental Management Plan</b></li> </ul>
Dredging: release of nutrients, consumption of oxygen resulting in reduced oxygen saturation of the water body	<ul style="list-style-type: none"> <li>• Planning of excavation to avail of minimal tidal dispersion effects</li> <li>• Use of closing backhoe bucket, in areas of soft sediment, to minimise spillage</li> <li>• Avoidance of side-casting of excavate prior to barge loading</li> <li>• Deployment of turbidity monitoring and recording buoys with automated real time alarms</li> <li>• Deployment of buoy mounted oxygen monitoring and recording sensors with automated real time alarms</li> <li>• Aerial monitoring of sediment dispersion/dredging plume conducted by drone surveillance once per week on peak flood and ebb when dredging.</li> <li>• Management of unloading/transshipment to avoid spillage</li> <li>• All suitable and appropriate mitigations to be included in the <b>Construction Environmental Management Plan</b></li> </ul>
Dredging and installation of quay wall extension and floating pontoons: contamination/pollution of water body by hydrocarbons/liquid contaminants	<p>Prepare protocol for the management of hydrocarbons and cement.</p> <p>For cement, specifically this should detail measures to:</p> <ul style="list-style-type: none"> <li>• Assess where any wastewater associated with the use of cement will run and the most appropriate way to dispose of it.</li> <li>• Ensure that appropriate measures are in place to avoid the potential for the run-off of cement into the marine area. Further ensure there is no potential for the run-off of cement into stormwater drains or that drains and gutters in the vicinity have been blocked off.</li> <li>• Use spill mats to contain any spills</li> <li>• Use sandbags or diversion booms to direct the any run-off to an appropriate safe location away from marine areas.</li> <li>• Set up a designated Washdown Area away from marine areas or with potential to run-off to it.</li> <li>• Ensure proper management in the event of an accidental spill.</li> </ul> <p>For hydrocarbons, mitigations should require:</p> <ul style="list-style-type: none"> <li>• All hydrocarbons to be stored in bunded containers at least 20m away from marine areas.</li> <li>• All plant and machinery and vessels should be regularly checked for leaks (fuel, oil and coolant).</li> </ul>

	<ul style="list-style-type: none"> <li>• Drip trays will be used underneath any mobile plant and drums whilst in use on site.</li> <li>• All machinery and vessels to have an on-board spill kit.</li> <li>• A hydrocarbon oil boom to be available at all times onsite in the event of it needing to be deployed.</li> <li>• If required, generators to be on a hydrocarbon mat at all times.</li> </ul>
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### 4.9.3 Operational Phase Mitigation

The proposed development is designed to modern standards that incorporate measures that reduce risks to and enhance amenity in terms of population and human health. The impact assessment section did not identify likely significant environmental impacts on population and human health arising from the operational phase of the proposed development. Accordingly, other than the mitigation measures outlined by others in this EIAR relating to human health, no further mitigation measures are proposed with respect to population and human health.

## 4.10 Residual Impact Assessment

It is anticipated that the proposed development will realise significant positive overall economic benefits for the local community and the wider local area.

Strict adherence to the mitigation measures recommended in this EIAR will ensure that there will be no negative residual impacts or effects on Population and Human Health from the construction and operation of the proposed scheme. Indeed, the delivery of this high quality commercial development at this site will realise a likely **significant positive** effect of **permanent** duration for the local area.

## 4.11 Worst Case Scenario

The worst-case scenario on population and human health is considered to be the risk of an accident during the construction phase. According to the Health and Safety Authority<sup>2</sup>, in 2023 there were 11 fatal accidents recorded equivalent to 26% of the total fatal work-related incidents. In 2022, 7 fatal accidents occurred in construction equivalent to approx. 25% of the total fatal work-related incidents. This represents an increase from the number recorded the year previous.

The HSA has undertaken a range of activities in regulation, education, accreditation and enforcement to reduce incidents on construction sites. The appointed contractor is required to comply with all relevant Health and Safety legislation and the risk of a fatality is deemed unlikely.

This worst-case scenario is considered **unlikely**, and the significance of the effect is **indeterminable**.

<sup>2</sup> Available via: [https://www.hsa.ie/eng/topics/statistics/annual\\_review\\_of\\_workplace\\_injury\\_illness\\_and\\_fatality\\_statistics/annual-review-of-workplace-injuries-illnesses-and-fatalities-2021-2022.pdf](https://www.hsa.ie/eng/topics/statistics/annual_review_of_workplace_injury_illness_and_fatality_statistics/annual-review-of-workplace-injuries-illnesses-and-fatalities-2021-2022.pdf); and [https://www.hsa.ie/eng/news\\_events\\_media/news/press\\_releases\\_2024/health\\_and\\_safety\\_authority\\_reports\\_43\\_work-related\\_fatalities\\_in\\_2023.html](https://www.hsa.ie/eng/news_events_media/news/press_releases_2024/health_and_safety_authority_reports_43_work-related_fatalities_in_2023.html)

## 4.12 Interactions

Please see **Chapter 18** of this EIAR for details on Interactions.

During the construction phase, the following aspects have potential to interact with population and human health:

- **Landscape and Visual** - Construction processes, plant and hoarding used during the construction phase may give rise to visual impacts..
- **Material Assets – Traffic & Transport:** Increased construction traffic movements on the local road network during the construction phase may give rise to noise, dust, and road safety impacts.
- **Material Assets – Built Services:** Excavation during the construction phase may give rise to risks to human health as a result of any excavation work in areas where built services exist through coming into contact with live electricity lines or damaging watermains.
- **Noise & Vibration:** There is potential for effects on human health associated with noise and vibration during the construction phase which may impact upon residential amenity.
- **Air Quality:** There is potential for impact on human health from dust associated with construction activities and thus impacting air quality.

The potential impact on human health arising from these interactions have been considered within the relevant discipline and mitigation measures outlined where required. With mitigation measures in place, no significant permanent residual negative impacts will occur.

During the operational phase, the following aspects have potential to interact with population and human health:

- **Landscape & Visual:** The landscape plan will impact on the quality of the private and public open spaces, which could impact on people's health and well-being.
- **Material Assets: Traffic and Transport:** Traffic flows towards the site has the potential to create safety risks for pedestrians and cyclists.
- **Air Quality:** Energy efficient design within the proposed development may give rise to reduced electricity consumption by future tenants, potentially decreasing dependence on fossil fuels for energy generation, resulting in improved air quality. There is potential for impact on human health from a deterioration in air quality associated with emissions from vehicles.
- **Climate:** Energy efficient design within the proposed development may give rise to reduced electricity consumption by future residents, potentially decreasing dependence on fossil fuels for energy generation, resulting in significant CO<sub>2</sub> savings.

The potential significant impacts on human health arising from these interactions have been considered within the relevant discipline and mitigation measures outlined where required. With mitigation measures in place, no significant permanent residual negative impacts will occur.



#### 4.13 Monitoring

Measures to avoid negative impacts on Population and Human Health are largely integrated into the design and layout of the proposed development. Compliance with the design and layout will be a condition of any permitted development.

No specific monitoring is proposed in relation to this section. Monitoring of standard construction mitigation measures as outlined in this EIAR will be undertaken by the appointed contractor.

#### 4.14 Conclusion

This chapter has reviewed and analysed the potential and the predicted impacts of the proposed development with regards to Population and Human Health. These impacts have been considered for both the construction and operational phases of the proposed development. The cumulative impact of the proposed development and surrounding developments have also been considered.

Provided all mitigation measures as set out in this chapter, there are no significant adverse effects with respect to socio-economic factors, land use, or the amenity value potential of the area predicted.

Issues which may cause risks and hazards during the construction and operational phase of the development are given due consideration. All necessary mitigation measures will be put in place to ensure the health and safety of all site personnel and neighbouring properties. All other environmental aspects relating to the human environment which could have an adverse effect on the local population such as soils, geology & hydrogeology, water and ecology have been addressed in the relevant chapters of this EIAR.

#### 4.15 References and Sources

- National Planning Framework, Ireland 2040 – Ireland 2040 – Our Plan (Government of Ireland 2018)
- Eastern and Midland Regional Spatial and Economic Strategy 2019-2031
- Louth County Development Plan 2021 – 2027
- Guidelines on the Information to be Contained in Environmental Impact Assessment Reports (2022)
- Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment (August 2018)
- Central Statistics Office (CSO) website [www.cso.ie](http://www.cso.ie)
- Employment Density Guide (3rd Edition) prepared by Bilfinger GVA and the Homes and Communities Agency (November 2015)
- Louth County Council ([www.louthcoco.ie](http://www.louthcoco.ie))
- Health and authority website <https://hsa.ie>
- Tusla Child and Family Agency Website <https://www.tusla.ie/>

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## CHAPTER 5 LANDSCAPE & VISUAL

## VOLUME II ENVIRONMENTAL IMPACT ASSESSMENT REPORT

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## 5 Landscape and Visual

It is noted that for ease of reference all changes from the original chapter are shown in blue.  
Where text has been removed it is shown as ~~strike through~~.

RECEIVED: 18/10/2024

### 5.1 Introduction

This Landscape and Visual Impact Assessment (LVIA) was prepared by Cunnane Stratton Reynolds and was informed by a visit to the site and receiving environment in August 2023, as well as related desktop research before and after the site visit. This assessment is in accordance with the methodology prescribed in the Guidelines for Landscape and Visual Impact Assessment, 3rd edition, 2013 (GLVIA), published by the UK Landscape Institute and the Institute for Environmental Management and Assessment.

The report identifies and discusses the likely landscape and visual impacts in relation to the proposed development over a 4.88-hectare site area at Greenore Port, Greenore, Co. Louth. A full description of the proposed development is set out in Chapter 2 of this EIAR.

### 5.2 Expertise & Qualifications

This chapter of the EIAR has been prepared by Ronan Finnegan, Chartered Landscape Architect, PGDip LA (Leeds Met) 2008, CMLI, of Cunnane Stratton Reynolds, with oversight by Jamie Ball, Senior Landscape Architect, BA Landscape Architecture (University of Gloucestershire), 1998; MILI, of Cunnane Stratton Reynolds. Both with extensive experience in the design and analysis of landscape and the impacts of change, and the preparation of assessments for inclusion in EIARs.

### 5.3 Proposed Development

The key elements of the proposed development of consideration in landscape and visual matters are listed below. Further details of the proposed development can be found within Chapter 2 of this EIAR and the various supporting plans.

- Three standalone operation and maintenance buildings incorporating office, warehouse and ancillary space with each building having a gross floor area of c.1,670 sq.m and a maximum height of 13.5m.
- A new quay wall of 70m and platoon accommodate crew transfer vessels (CTVs) to/from the offshore windfarms. The works requires dredging approx 45,000m<sup>3</sup> of material to facilitate navigable access at this location.
- Adjacent to the buildings, space is allocated for 76 car parking spaces, with a further 135 spaces proposed in the surface carpark at the 'Residential Site' on Shore Road.
- Pedestrian and motor vehicle access is via the existing entrance beside the Port's office, which served the previous Open Hydro development. Heavy goods vehicles will access the buildings via the Port's existing heavy goods entrance on Shore Road (R175). Pedestrian access from the surface carpark to the OMF buildings will be provided along a new pedestrian route within the Port's landholding.

- To facilitate the development, demolition works are required, including the former Open Hydro building, an ESB substation, a small portion of the Port's office accommodation and the vacant dwelling at the 'residential site' on Shore Road.
- Improvement works to the public / private realm in the foreground of the existing Greenore Port office building will comprise of an enhancement to existing road and pathways to facilitate improved pedestrian and vehicular access to the proposed O&M Facilities, a new feature entrance wall, removal of 6 no. port car parking spaces, link to new pedestrian route from the new Shore Road carpark and hard and soft landscaping. These works are located within the Greenore Architectural Conservation Area (ACA).
- Ancillary development will include the installation of drainage infrastructure, landscaping, lighting, signage, boundary treatments, rooftop solar photovoltaic panels, an ESB substation, a communications mast, a bunded fuel storage tank and waste management areas etc.
- The infrastructure described above will likely be delivered over two phases. However, this could extend to three phases, or the sequence of the works may vary, depending on the delivery of future ORE projects and the associated Offshore Renewable Energy Auctions.

## 5.4 Methodology

### 5.4.1 Definition of Landscape

Ireland is a signatory to the European Landscape Convention (ELC). The ELC defines landscape as 'an area, as perceived by people, whose character is the result of the action and interaction of natural and/or human factors' (Council of Europe, 2000). This definition is important in that it expands beyond the idea that landscape is only a matter of aesthetics and visual amenity. It encourages a focus on landscape as a resource in its own right; a shared resource providing a complex range of cultural, environmental, and economic benefits to individuals and society.

It is also important to note that this definition of landscape applies not only to all types of rural landscape, marine and coastal landscapes (seascapes) but also to the landscape of villages, towns and cities (Section 2.5, LI, IEMA, 2013).

### 5.4.2 Guidance

The Guidelines for Landscape and Visual Impact Assessment 2013 (abbreviated to GLVIA 2013) notes that as a cultural resource, the landscape functions as the setting for our day-to-day lives, also providing opportunities for recreational and aesthetic enjoyment and inspiration. It contributes to the sense of place experienced by individuals and communities and provides a link to the past as a record of historic socio-economic and environmental conditions. As an environmental resource, the landscape provides habitat for fauna and flora. It receives, stores, conveys, and cleans water, and vegetation in the landscape stores carbon and produces oxygen. As an economic resource, the landscape provides the raw materials and space for the production of food, materials (e.g. timber, aggregates) and energy (e.g. carbon-based fuels, wind, solar), living space and for recreation and tourism activities.

The GLVIA (2013) notes that landscape is not unchanging. Many different pressures have progressively altered familiar landscapes over time and will continue to do so in the future, creating new landscapes. For example, within the receiving environment, the environs of the proposed development have altered over the last thousand years, from wilderness to agriculture and settlement or townscape.

Many of the drivers for change arise from the requirement for development to meet the needs of a growing population and economy. The concept of sustainable development recognises that change must and will occur to meet the needs of the present, but that it should not compromise the ability of future generations to meet their needs. This involves finding an appropriate balance between economic, social and environmental forces and values.

The reversibility of change is also described as an important consideration. If change must occur to meet a current need, can it be reversed to return the resource (in this case, the landscape) to its previous state to allow for development or management for future needs? Climate change is one of the major factors likely to bring about future change in the landscape, and it is accepted to be the most serious long-term threat to the natural environment, as well as economic activity (particularly primary production) and society. The need for climate change mitigation and adaptation, which includes the management of water and more extreme weather and rainfall patterns, is part of this.

#### 5.4.2.1 Key Guidance Documents

Landscape and Visual Impact Assessment (LVIA) is a tool used to identify and assess the significance of and the effects of change resulting from development on both the landscape as an environmental resource in its own right and on people's views and visual amenity. The methodology for assessment of the landscape and visual effects is informed by the following key guidance documents, namely:

- *Guidelines for Landscape and Visual Impact Assessment*, 3rd Edition, Landscape Institute and the Institute of Environmental Management and Assessment (2013) (hereafter referred to as the GLVIA 2013).
- *Guidelines on the Information to be Contained in Environmental Impact Statements*. (EPA, 2022)

This guidance is authored by the Landscape Institute in the UK and the IEMA, which contains a network of members in Ireland, the UK and wider, internationally. The guidance was prepared within the parameters of relevant EU directives at the time and is updated, where necessary, by Landscape Institute bulletins online. The GLVIA 2013 is used internationally and is the industry standard for LVIA in Ireland.

The EPA guidance (2022) refers to the use of topic specific guidance and specifically references the GLVIA 2013 in relation to professional judgement. It recognises (at para 3.72) that:

*"Some uncertainty is unavoidable in EIA, especially about matters that involve an element of judgement, such as assigning a level of significance to an effect. Such judgements should be explicit and substantiated rather than presented as objective fact. This is best done using agreed referable approaches, e.g. the Guidelines on Landscape and Visual Impacts Assessment provide guidance on what constitutes a severe visual effect".*

#### 5.4.2.2 Other Policy Documents

References are also made to the '*Landscape and Landscape Assessment – Consultation Draft of Guidelines for Planning Authorities*' document, published in 2000 by the Department of Environment, Heritage and Local Government. Other documents referred to include the Louth County Development Plan 2021-2027 and the accompanying Louth Landscape Character Assessment.

#### 5.4.2.3 Landscape and Visual Assessment Process

The GLVIA 2013 outlines the assessment process, which combines judgements on the *sensitivity* of the resource, and the *magnitude* of the change as a result of the proposed development. These are then combined to reach an assessment of the significance of the effect.

Another key distinction to make is that in the GLVIA methodology, a distinction is made between landscape effects and the visual effects of a proposed development.

'Landscape' results from the interplay between the physical, natural and cultural components of our surroundings. Different combinations of these elements and their spatial distribution create distinctive character of landscape in different places. 'Landscape character assessment' is the method used in LVIA to describe landscape, and by which to understand the potential effects of a development on the landscape as 'a resource'. Character is not just about the physical elements and features that make up a landscape, but also embraces the aesthetic, perceptual and experiential aspects of landscape that make a place distinctive.

Views and 'visual amenity' refer to the interrelationship between people and the landscape. The GLVIA 2013 prescribes that effects on views and visual amenity should be assessed separately from landscape, although the two topics are inherently linked. Visual assessment is concerned with changes that arise in the composition of available views, the response of people to these changes and the overall effects on the area's visual amenity.

##### *Establishment of Baseline*

The process set out in the GLVIA 2013 and in the EPA (2022) involves the preparation of the baseline or receiving environment characteristics. This includes two stages, which are a desk based study and a site visit/field study. These allow the assessor to establish the existing receiving environment and key landscape and visual characteristics and their sensitivities.

##### The desk based study includes:

- Review of preliminary proposals and identification of preliminary study area
- Review of current County Development Plan within the study area, to identify relevant national and local designations and policies. This may include designations such as scenic routes, protected views and other landscape designations including any Landscape Character Assessments.
- Other information that may be consulted include aerial imagery, OSI Discovery series mapping, historic (6-inch and 25 inch) mapping and CORINE Landcover Maps (2018).

A site visit is then carried out to review and/or confirm the findings of the desk-based study and provide a more detailed description of the landscape and visual character of the study area. Based on

both the desk study and site visit, the assessor identifies landscape and visual receptors and their relative sensitivity. The site visit was carried out in August 2023.

#### *Assessment of Effects:*

Once the baseline is established, and the proposed development drawings and descriptions reviewed, the assessment process commences.

#### *Use of 'Impact and 'Effect*

Section 1.16 of the GLVIA (referring to the EIA Directive), advises that the terms 'impact' and effect' should be clearly distinguished and consistently used in the preparation of an LVIA.

'Impact' is defined as the action being taken. In the case of the proposed development, the impact would include the construction of the proposed buildings and associated boundaries and external areas, including the surface car park on Shore Road, among other features.

'Effect' is defined as the change or changes resulting from those actions, e.g. a change in landscape character, or changes to the composition, character and quality of views in the receiving environment. This report focusses on these effects.

#### *Methodology for Landscape Assessment*

In Section 5.8 of this Chapter, the landscape effects of the proposed development are assessed. The nature and scale of changes to the landscape elements and characteristics are identified, and the consequential effect on landscape character and value are discussed. Trends of change in the landscape are taken into account. The assessment of the significance of the effects takes account of the sensitivity of the landscape resource and the magnitude of change to the landscape, which resulted from the proposed development.

Definitions and descriptions of sensitivity, magnitude of change and quality and longevity of effects are derived from the GLVIA 2013. The GLVIA 2013 does not set out specific definitions of descriptions used but contains widely used principles and case studies / examples that are intended to inform a professional's methodology, supported by their experience and judgements in relation to landscape and landscape change. These descriptions expand and complement the EPA guidelines as intended, in relation to topic-specific guidance.

#### Sensitivity of the Landscape

Sensitivity is a combination of landscape value as well as the susceptibility of the landscape to change:

- Landscape values can be identified by the presence of landscape designations or policies, which indicate particular values, either on a national or local level. In addition, a number of criteria are used to assess the value of a landscape. These are described further below, in Section 5.6.
- Landscape susceptibility is defined in the GLVIA as, "*the ability of the landscape receptor to accommodate the proposed development without undue consequences for the maintenance of the baseline scenario and/or the achievement of landscape planning policies and strategies.*" Susceptibility is a function of its land use, landscape patterns and scale, visual



enclosure and distribution of visual receptors, scope for mitigation, and the value placed on the landscape. Susceptibility also relates to the type of development; a landscape may be highly susceptible to certain types of development but have a low susceptibility to other types of development.

With regard to landscape effects, a proposed development has the potential to improve the environment as well as damage it. In certain situations, there might be policy encouraging a type of change in the landscape, and a particular development may achieve this.

Landscape Sensitivity ranges from Low to Very High as outlined in Table 5-1, below.

**Table 5-1 Categories of Landscape Sensitivity**

<b>Sensitivity</b>	<b>Description</b>
Very High	Areas where the landscape exhibits a very strong, positive character with valued elements, features and characteristics that combine to give an experience of unity, richness and harmony. The character of the landscape is such that its capacity for accommodating change in the form of development is very low. These attributes are recognised in landscape policy or designations as being of national or international value and the principal management objective for the area is protection of the existing character from change
High	Areas where the landscape exhibits strong, positive character with valued elements, features and characteristics. The character of the landscape is such that it has limited/low capacity for accommodating change in the form of development. These attributes are recognised in landscape policy or designations as being of national, regional or county value and the principal management objective for the area is conservation of the existing character.
Medium	Areas where the landscape has certain valued elements, features or characteristics but where the character is mixed or not particularly strong. The character of the landscape is such that there is some capacity for change in the form of development. These areas may be recognised in landscape policy at local or county level and the principal management objective may be to consolidate landscape character or facilitate appropriate, necessary change
Low	Areas where the landscape has few valued elements, features or characteristics and the character is weak. The character of the landscape is such that it has capacity for change; where development would make no significant change or would make a positive change. Such landscapes are generally unrecognised in policy and where the principal management objective is to facilitate change through development, repair, restoration or enhancement.
Negligible	Areas where the landscape exhibits negative character, with no valued elements, features or characteristics. The character of the landscape is such that its capacity for accommodating change is high; where development would make no significant change or would make a positive change. Such landscapes include derelict industrial lands or extraction sites, as well as sites or areas that are designated for a particular type of development. The principal management objective for the area is to facilitate change in the landscape through development, repair or restoration.

### Magnitude of Landscape Change

The magnitude of change is a factor of the scale, extent and degree of change imposed on the landscape with reference to its key elements, features and characteristics (also known as 'landscape receptors'). For the purpose of assessment, five categories are used to classify the landscape sensitivity of the receiving environment, from Very High sensitivity to Negligible. (These categories are defined in Table 5-2, below):

**Table 5-2 Magnitude of Landscape Change**

Magnitude of Change	Description
Very High	Change that is large in extent, resulting in the loss of or major alteration to key elements, features or characteristics of the landscape and/or introduction of large elements considered totally uncharacteristic in the context. Such development results in fundamental change in the character of the landscape.
High	Change that is moderate to large in extent, resulting in alteration or compromise to key elements, features or characteristics, and/or introduction of large elements considered uncharacteristic in the context. Such development results in a moderate to large change to the character of the landscape.
Medium	Change that is moderate in extent, resulting in partial loss or alteration to key elements, features or characteristics of the landscape, and/or introduction of elements that may be prominent but not necessarily uncharacteristic in the context. Such development results in moderate change to the character of the landscape.
Low	Change that is limited in extent, resulting in minor alteration to key elements, features or characteristics of the landscape, and/or introduction of elements that are not uncharacteristic in the context. Such development results in minor change to the character of the landscape.
Negligible	Change that is very limited in extent, resulting in no alteration to key elements, features or characteristics of the landscape, and/or introduction of elements that are characteristic in the context. Such development results in minimal change to the character of the landscape.

### *Methodology for Visual Assessment*

In Section 5.8 of this chapter, the visual effects of the proposed development are assessed. Visual assessment considers the sensitivity of the viewers (i.e. groups of people) and the magnitude of the changes to the composition and character of views. The assessment is made for a number of viewpoints selected to represent the range of visual receptors in the receiving environment. The significance of the visual effects experienced at these locations is assessed by measuring the visual receptor sensitivity against the magnitude of change to the view resulting from the proposed development.

### Sensitivity of the Visual Receptor

Visual receptor sensitivity is a function of two main considerations:

- *Susceptibility of the visual receptor to change.* This depends on the occupation or activity of the people experiencing the view, and the extent to which their attention or interest is

focused on the views or visual amenity they experience at that location. Visual receptors most susceptible to change include residents at home, people engaged in outdoor recreation focused on the landscape (e.g. trail users), and visitors to heritage or other attractions and places of community congregation where the setting contributes to the experience. Visual receptors less susceptible to change include travellers on road, rail and other transport routes (unless on recognised scenic routes which would be more susceptible), people engaged in outdoor recreation or sports where the surrounding landscape does not influence the experience, and people in their place of work or shopping where the setting does not influence their experience.

- *Value attached to the view.* This depends to a large extent on the subjective opinion of the visual receptor but also on factors such as policy and designations (e.g. scenic routes, protected views), or the view or setting being associated with a heritage asset, visitor attraction or having some other cultural status (e.g. by appearing in arts).

For the purpose of assessment, five categories are used to classify visual receptor sensitivity. These categories range from Very High to Negligible and are described in Table 5.3.

**Table 5-3 Categories of Visual Receptor Sensitivity**

Sensitivity	Description
Very High	Viewers at iconic viewpoints - towards or from a landscape feature or area - that are recognised in policy or otherwise regarded as being of very high value or national value. This may also include residential viewers whose primary view is of very high value.
High	Viewers at viewpoints that are recognised in policy or otherwise designated as being of high value, or viewpoints that are highly valued by people that experience them regularly (such as views from houses or outdoor recreation features) and are valued by the local community. This would include tourist attractions, and heritage features of regional or county value, and viewers travelling on scenic routes.
Medium	Viewers at viewpoints representing people travelling at slow or moderate speed through or past the affected landscape in cars or on public transport, where they are partly but not entirely focused on the landscape, or where the landscape has some valued views. The views are generally not designated, but which include panoramic views or views judged to be of some scenic quality, which demonstrate some sense of naturalness, tranquillity or some rare element in the view.
Low	Viewers at viewpoints reflecting people involved in activities not focused on the landscape e.g. people at their place of work or engaged in similar activities such as shopping, etc. The view may present an attractive backdrop to these activities but there is no evidence that the view is valued, or that it is regarded as an important element of these activities. Viewers travelling at high speeds (e.g. motorways) may also be considered of low susceptibility.
Negligible	Viewpoints reflecting people involved in activities not focused on the landscape e.g. people at their place of work or engaged in similar activities, such as shopping, where the view has no relevance or is of poor quality and not valued.

### *Magnitude of Change to the view*

Classification of the magnitude of change takes into account the size or scale of the intrusion of the proposed development into the view, relative to the other elements and features in the composition (i.e. its relative visual dominance), the degree to which it contrasts or integrates with the other elements and the general character of the view, and the way in which the change will be experienced (e.g. in full view, partial or peripheral, or glimpses). It also takes into account the geographical extent of the change, the duration and the reversibility of the visual effects.

Five categories are used to classify magnitude of change to a view. These range from Very High to Negligible and are defined in Table 5.4, below.

**Table 5-4 Magnitude of Visual Change**

<b>Magnitude of Change</b>	<b>Description</b>
Very High	Full or extensive intrusion of the development in the view, or partial intrusion that obstructs highly valued features or characteristics, or the introduction of elements that are completely out of character in the context, to the extent that the development becomes dominant in the composition and defines the character of the view and the visual amenity.
High	Extensive intrusion of the development in the view, or partial intrusion that obstructs valued features, or introduction of elements that may be considered uncharacteristic in the context, to the extent that the development becomes co-dominant with other elements in the composition and affects the character of the view and the visual amenity.
Medium	Partial intrusion of the development in the view, or introduction of elements that may be prominent but not necessarily uncharacteristic in the context, resulting in change to the composition but not necessarily the character of the view or the visual amenity.
Low	Minor intrusion of the development into the view, or introduction of elements that are not uncharacteristic in the context, resulting in minor alteration to the composition and character of the view but no change to visual amenity.
Negligible	Barely discernible intrusion of the development into the view, or introduction of elements that are characteristic in the context, resulting in slight change to the composition of the view and no change in visual amenity.

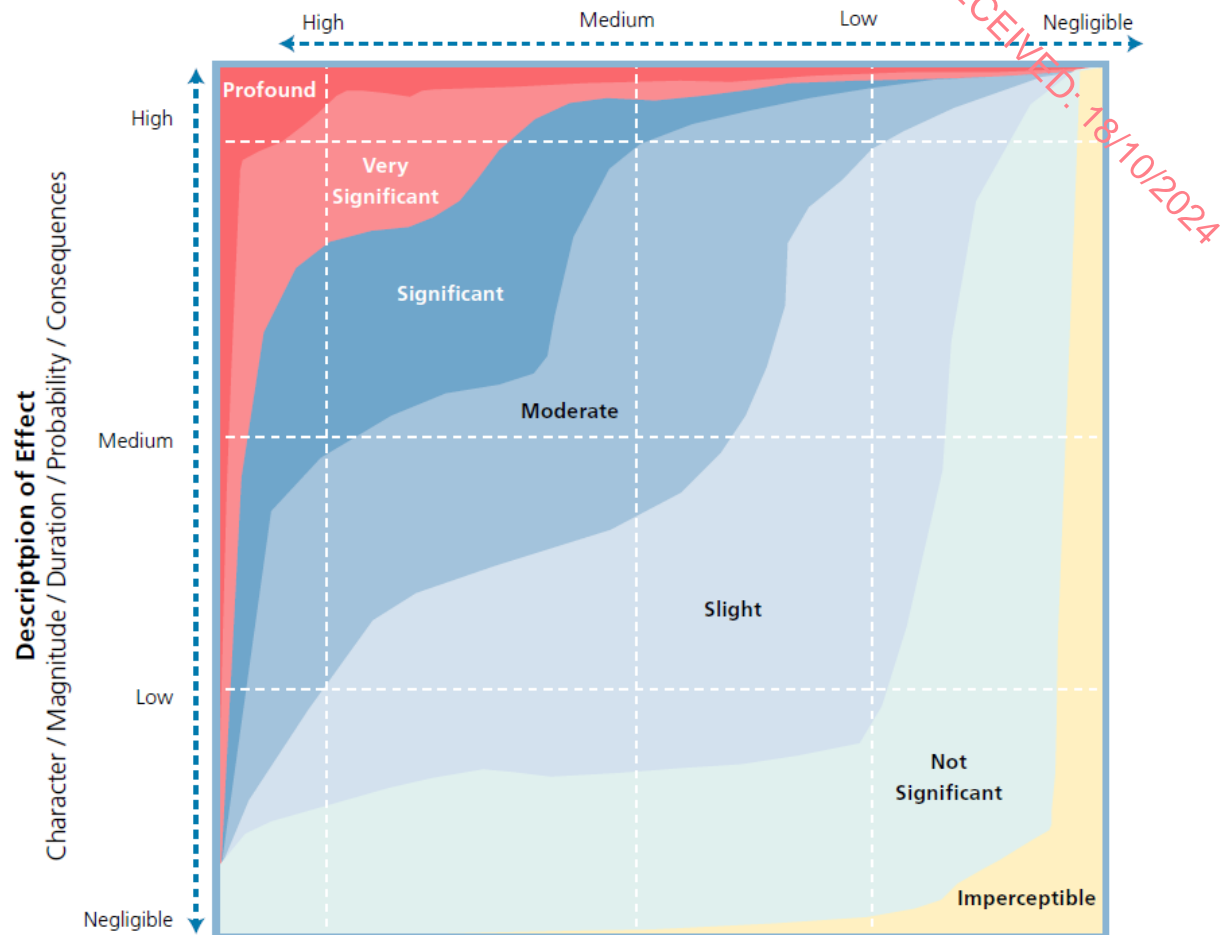
In this case, a number of tools are used to assist in the assessment of visual effects. These include Photomontages, which are produced from selected viewpoints. Initial viewpoints for photomontages are selected during the desk study with the exact location confirmed in the field during the site visit. The completed photomontages are also used to assist in the assessment of visual effects.

### *Significance of Effects*

In order to classify the significance of landscape and visual effects, the predicted magnitude of change is measured against the sensitivity of the landscape/viewpoint. The definitions used by the EPA (2022) provide a useful scale to describe the significance of the effects.

There are seven classifications of significance, namely: (1) imperceptible, (2) not significant, (3) slight, (4) moderate, (5) significant, (6) very significant, (7) profound. Please refer to the Figure below.

**Table 5-5 Significance of Effect (Source: EPA 2022)**



Please note that the above graphic is a guideline only, and an element of professional judgment is also applied. The assessor also uses professional judgement informed by their expertise, experience and common sense, to arrive at a classification of significance that is reasonable and justifiable. As the GLVIA 3<sup>rd</sup> Edition recognises (at para 2.23):

*“...professional judgement is a very important part of LVIA. While there is scope for quantitative measurement of some relatively objective matters, much of the assessment must rely on qualitative judgements.”*

#### *Quality and Timescale*

In accordance with the EPA (2022), the predicted impacts are also classified as beneficial, neutral, or adverse.

*“This is not an absolute exercise; in particular, visual receptors’ attitudes to development, and thus their response to the impact of a proposed development, will vary. However, the methodology applied is designed to provide robust justification for the conclusions drawn.”*

These qualitative definitions are included in Table 5.6, below.



**Table 5-6 Quality of Effect****(Source: CSR based on GLVIA 2013)**

Definition of quality of effects	
Adverse/negative	Scheme at variance with landform, scale, pattern. Would degrade, diminish or destroy the integrity of valued features, elements or their setting or cause the quality of the landscape (townscape) view to be diminished;
Neutral	Scheme complements (or does not detract from) the scale, landform and pattern of the landscape (townscape)/view and maintains landscape quality;
Beneficial /positive	Improves landscape (townscape)/view quality and character, fits with the scale, landform and pattern and enables the restoration of valued characteristic features or repairs / removes damage caused by existing land uses.

In accordance with the EPA (2022), Impacts/effects are also categorised according to their longevity or timescale as in Table 5-7 below:

**Table 5-7 Duration of Effect****(Source: EPA 2022)**

Definition of duration of effects	
Duration	Description
Temporary	Effects lasting one year or less
Short Term	Effects lasting one to seven years
Medium Term	Effects lasting seven to fifteen years
Long Term	Effects lasting fifteen to sixty years
Permanent	Effects lasting over sixty years

## 5.5 Difficulties Encountered

No difficulties were encountered in compiling the required information for this chapter.

## 5.6 Baseline Environment

### 5.6.1 Study Area

According to Section 5.2 of the Guidelines for Landscape and Visual Impact Assessment (3rd Edition 2013):

*“The study area should include the site itself and the full extent of the wider landscape around it, which the proposed development may influence in a significant manner.”*

The extent of a study area for an LVIA mainly derives from the nature of the site and wider landscape, in tandem with the specifics of the proposed development. In this instance, while there is a low capacity for significant impacts to arise beyond 2km from the site, a 4km study area has been selected, out of an abundance of caution. However, an emphasis will be placed on receptors within 2km of the site, as these are more/most likely to have the capacity to experience significant visual effects.

It should not be inferred that the proposed development is unlikely to be visible from any location beyond the study area, but, more importantly, that the proposed development is unlikely to influence such receptors in a significant manner.



**Figure 5-1 Study area (4km) - blue circle with site boundary – red line.**

## 5.6.2 Planning Policy Context

### 5.6.2.1 Louth County Development Plan 2021-2027

The Louth County Development Plan 2021-2027 (hereafter referred to as the CDP) contains a range of policies relevant to establishing the landscape and visual values and sensitivities for the site and site environs, as set out below.

Chapter 8 of the CDP pertains to 'Natural Heritage, Biodiversity and Green Infrastructure.' Relevant Policies of Chapter 8 of the CDP are as follows:

**NBG 23** - *'To ensure the preservation of the uniqueness of a landscape character type by having regard to its character, value and objectives in accordance with national policy and guidelines and the Louth Landscape Character Assessment and by ensuring that new development meets high standards of siting and design and does not unduly damage or detract from the character of a landscape or natural environment.'*

**NBG 24** - *'To ensure development reflects and, where possible, reinforces the distinctiveness and sense of place of the landscape character types including the retention of important features or characteristics, taking into account the various elements, which contribute to their distinctiveness such as scenic quality, habitats, settlement pattern, historic heritage and land use.'*

**NBG 25** - *'Where appropriate, require that landscape and visual impact assessments prepared by suitably qualified professionals be submitted with development applications, which may have significant impact on landscape character areas, especially in highly sensitive areas.'*

**NBG 26** - *'To explore the designation of Landscape Conservation Areas as appropriate, in conjunction with the relevant Government Department and stakeholders to protect specific important landscapes and particularly in respect of Carlingford Mountain SAC.'*

Section of 8.11 of the CDP pertains to 'Trees, Woodlands and Hedgerows.' It states:

*'Trees and in particular groups of trees can represent an important component of the local landscape and townscape, the setting of buildings and the means of providing successful integration of new development into the landscape. Development can, if not sensitively designed, sited and constructed, result in the loss or damage of trees. Thus, it is desirable that existing trees be considered in the formulation and assessment of development proposals.'*

**NBG 34** - *'To increase native tree coverage in the County to also act as carbon sinks by promoting the planting of suitable native trees and hedgerows along public roads, residential streets, parks and other areas of open space.'*

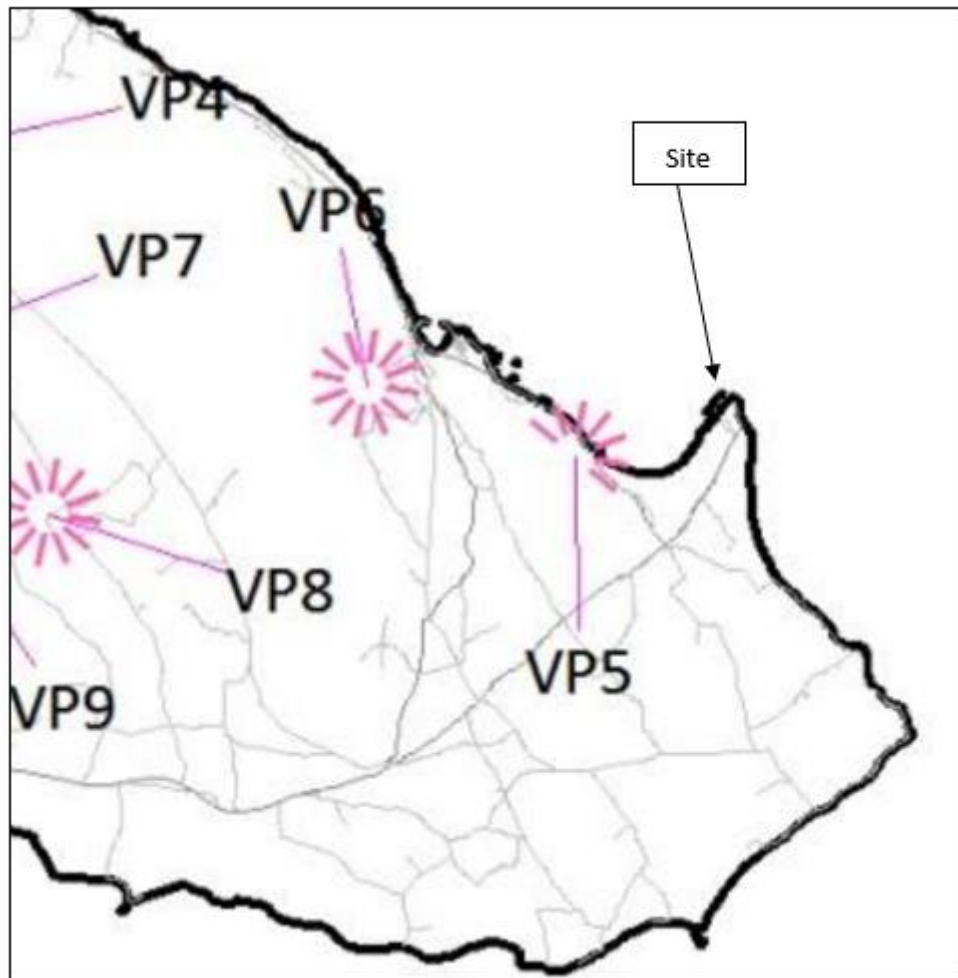
#### Scenic Designations:

Section 8.12.3 of the CDP pertains to 'Views and Prospects of Special Amenity Value.'

*'Louth has many areas of high quality landscape particularly along the coast, the river valleys and its upland areas. As a result, the County boasts many vantage points from which views and prospects of great natural beauty are available. The scenery and landscapes of the County*

are of enormous amenity value to tourists and residents alike, contributing to quality of life and constituting a valuable economic asset. The protection of this asset is therefore of importance in developing the potential of the County.

*'The challenge is to manage the landscape, so any change is positive in its effects thereby ensuring that the landscape is protected. There is a need therefore to preserve views and prospects for the enjoyment of future generations. It is not proposed that this should prohibit development, but rather, where development is permitted that it should not hinder or obstruct these views and prospects and be designed and located to minimise impact.'*



**Figure 5-2 Extract of Map 'County Louth View & Prospects'. Page 6 of Appendix 7 of the CDP.**

There is one protected viewpoint/prospect within the study area, which is more than 1.3km west/southwest of the site. This is 'VP5 Carlingford Lough', as set out in Figure 5-3. Table 1 of Appendix 7 of the CDP states that the direction of the designated view from VP5 is:

*'Viewpoint is along a section of the main road on the Greenore Road (R173) between Carlingford and Greenore.'*

The description of the view is:

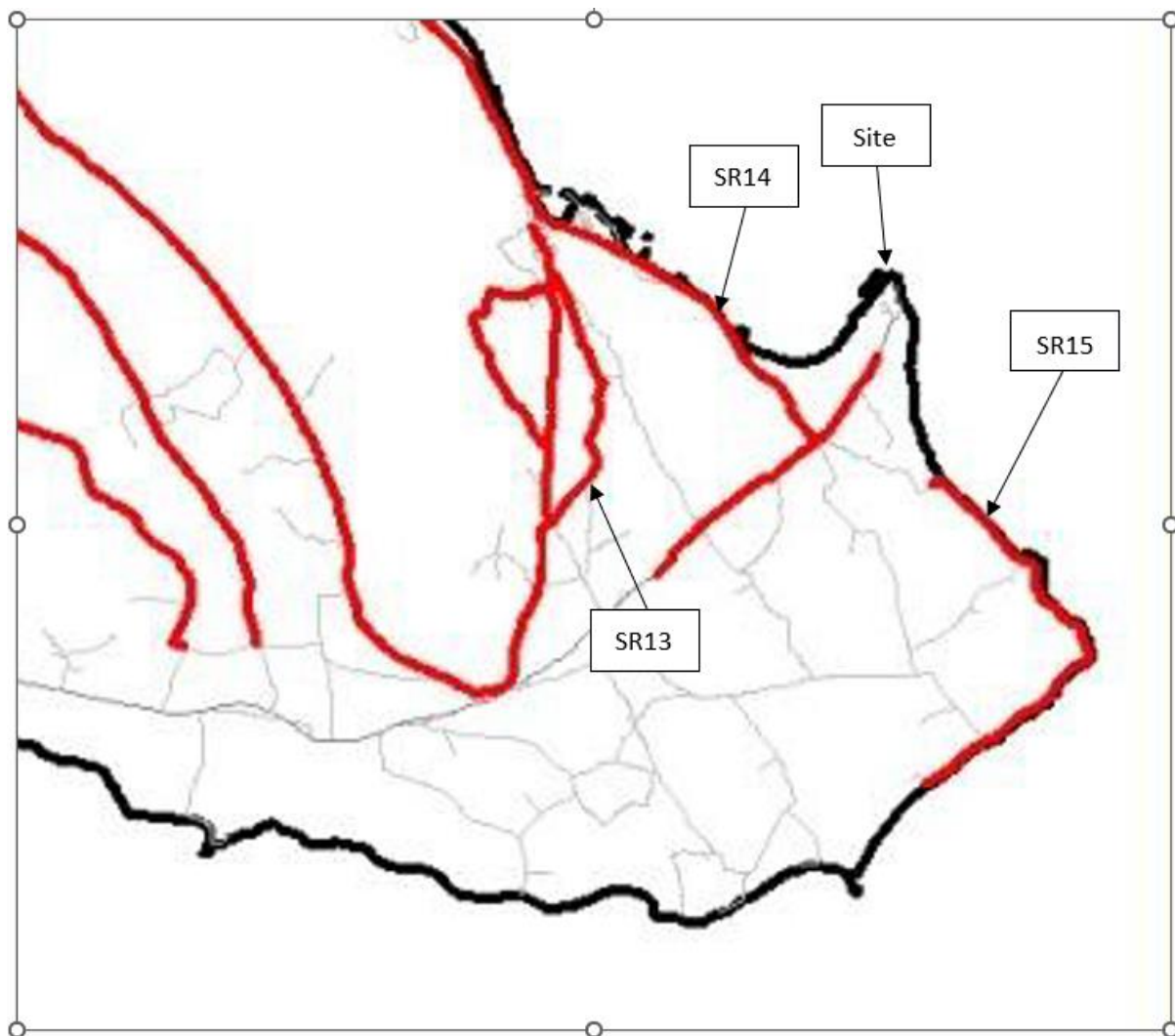


*'Views north of Carlingford in the middle distance and with the setting of Slieve Foye to the rear. In the foreland across Carlingford Lough, views of the Mourne Mountains in Northern Ireland.'*

**NGB 38** - *'Protect and sustain the established appearance and character of views and prospects ... that contribute to the distinctive quality of the landscape, from inappropriate development.'*

Section 8.13 of the CDP pertains to 'Scenic Routes'. It states that:

*'Louth is fortunate to have many areas of high quality landscape especially along the coast, upland areas and river valleys...Applications for development must carefully consider the siting, design and landscaping of the proposed development to ensure that there are no significant alterations to the character of the area. Any development proposals, which would interfere with or adversely affect these Scenic Routes, will not be permitted.'*



**Figure 5-3** Extract of 'Map 8.20: Scenic Routes, County Louth Dand Dundalk' from the Louth CDP



According to Table 8.19: Scenic Routes, County Louth and Dundalk, there are three designated scenic routes in the study area, which are set out in Figure 5-3, above. All of these remain more than 500m from the site, and are as follows:

- SR13 - Bush-Carlingford incl. Commons
- SR14 - Greenore-Carlingford- Omeath
- SR15 - Coast Road-Whitestown-Ballagan-Ballytrasna

**NBG 40** - *'To prohibit inappropriate development which would interfere with or adversely affect the Scenic Routes as identified in Table 8.19 and illustrated on Map 8.20.'*

It is worth noting that there are no Areas of Outstanding Natural Beauty (AONB) or Areas of High Scenic Quality (AHSQ) within the study area.

#### Landscape Character Area:

The CDP highlights a matrix of factors contributing to a 'Landscape Character Area' (LCA), as follows:

- Landscape Quality
- Scenic Quality
- Rarity
- Conservation Interests
- Wilderness
- Recreational Opportunity
- Cultural Association
- Tranquillity
- Stakeholder Representative

This classification is based on the Louth Landscape Character Assessment (Louth County Council, 2002), which details the landscape assessment of the Landscape Character Area. However, it is worth noting that the Louth Landscape Character Assessment was completed more than 20 years ago, while the Co. Louth landscape, and its character, has continued to evolve since; much as it has done for millennia.

The study area falls within the 'Cooley Lowlands & Coastal Area' LCA, as detailed later in this section. Of the four levels of importance attributed to Landscape Characters Areas within the Louth CDP, the 'Cooley Lowlands & Coastal Area' LCA is deemed to be of 'Local' importance (i.e. the lowest of the four categories).

The key characteristics of this LCA are listed as:

- *'A dramatic gentle sloping landform from the base of the Carlingford and Slieve na Gloch mountains to the sea.*
- *Predominantly agricultural land with well-defined hedgerows and small field patterns, which sustain the biodiversity of the area.*
- *Main settlements at Greenore and Gyles Quay, with a number of very small centres.*
- *Isolated housing is scattered throughout the many narrow country roads.*
- *Regional route 173 links Dundalk with the peninsula with Greenore, Carlingford,*

Omeath and further on to Newry.

- Rich in archaeological items.
- Extensive views of both Cooley and Mourne Mountains and across Dundalk Bay.
- Prominence of quarrying in the area.'

This LCA's is described as having:

*'...relatively flat and slopes gradually to the sea to the north, east and south, in contrast to the Carlingford Mountains, which rise steeply to the rear. At Cooley Point there are some sheer faces onto the shore. The major route through the area is regional route 173 which offers panoramic views of the Carlingford and Mourne Mountains with its rugged coastline, when travelling towards Greenore.'*

**Landcover & landform** - *'Crop growing and particularly potatoes are the main agricultural activity with some areas given over to grazing and silage production. A shelter belt of Scots Pine at Greenore Golf Club is a landscape feature, which is visible from a wide area and only threatened by its maturity and possible loss of regeneration. The shoreline is principally stony with rock outcrops and has 3 small sandy beaches ... Being practically surrounded by the sea, surface water is discharged to the sea by means of small water courses.'*

**Human Intervention** - *'Greenore is a 19th century village established with the railway line (no longer in existence) to serve the natural port and hotel and provide a connection right along Carlingford Lough to Newry. The old hotel is now very dilapidated and used as offices by the port authorities. The significance of this coastline for leisure facilities has been recognised for some time ...*

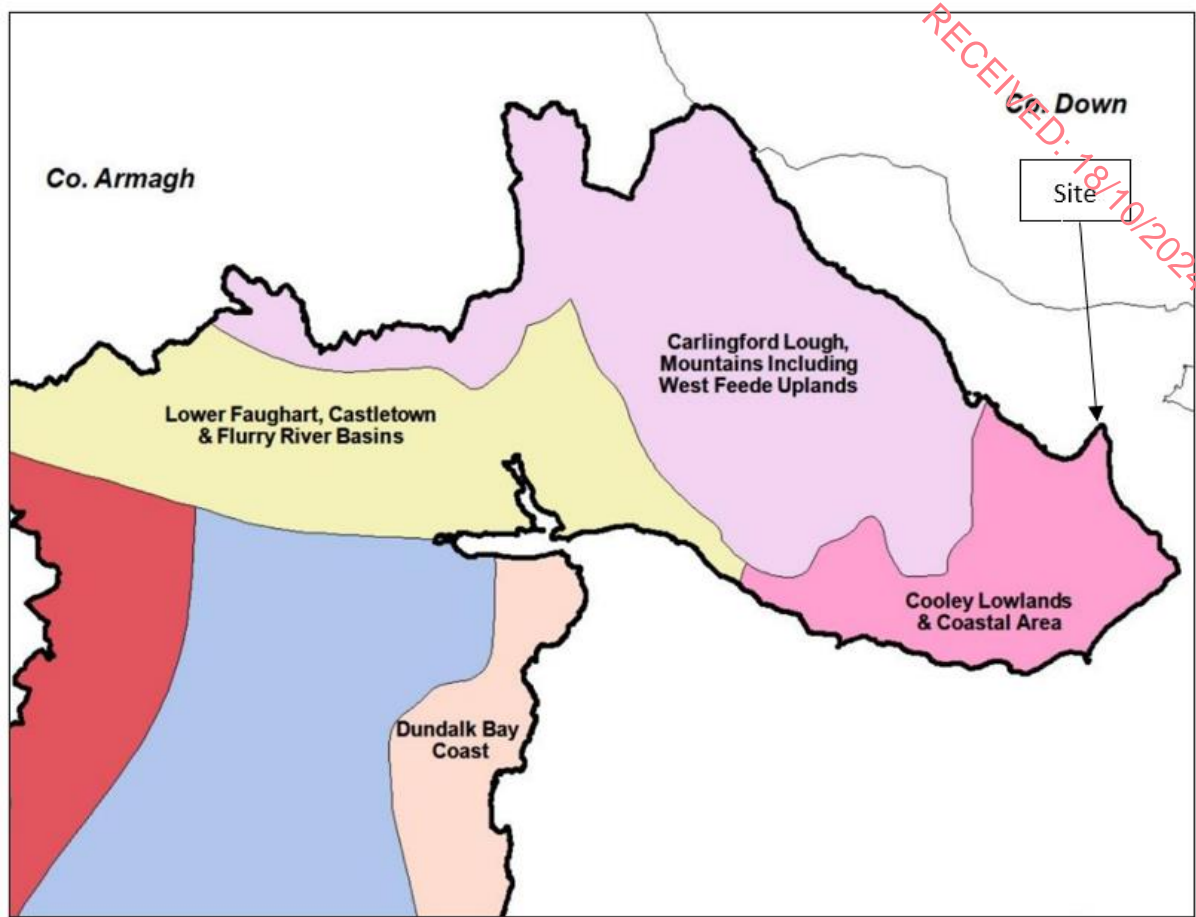
*'Field patterns are small and complex in the main, with well-maintained hedgerows of thorn and bramble with dotted trees of ash, sycamore and elder. In many cases, these hedgerows conceal a bank or loose stone wall. Nearer the coast the hedgerows are less pronounced.*

*'Isolated housing is very evident in this area with most of the new housing located along the class 1 and class 2 county roads. Apart from Greenore and Giles Quay eight other Category II Development Centres have been listed in the Development Plan.'*

**Landscape Sensitivity** - *'The agricultural landscape in this area is very robust due to the presence of strong hedgerows, which help to occlude the number of isolated houses in the area. On this account, interference with the existing walls and hedgerow patterns would serve to degrade the landscape.*

*'Along the designated scenic routes in the Development Plan the introduction of further isolated housing would not be sustainable, and it should instead be located within the listed Development Centres in the area...'*

It is worth noting that no sensitivity is attributed to this LCA, nor any of the other LCAs, in the Louth Landscape Character Assessment. In addition, there is no Local Area Plan (LAP) that pertains to Greenore.



**Figure 5-4 Extract of County Louth Landscape Character Area map. (Source: Louth CDP 2021-2027 Map 8.5 Landscape Character Area)**

Greenore Architectural Conservation Area (ACA):

According to Section 9.6.1:

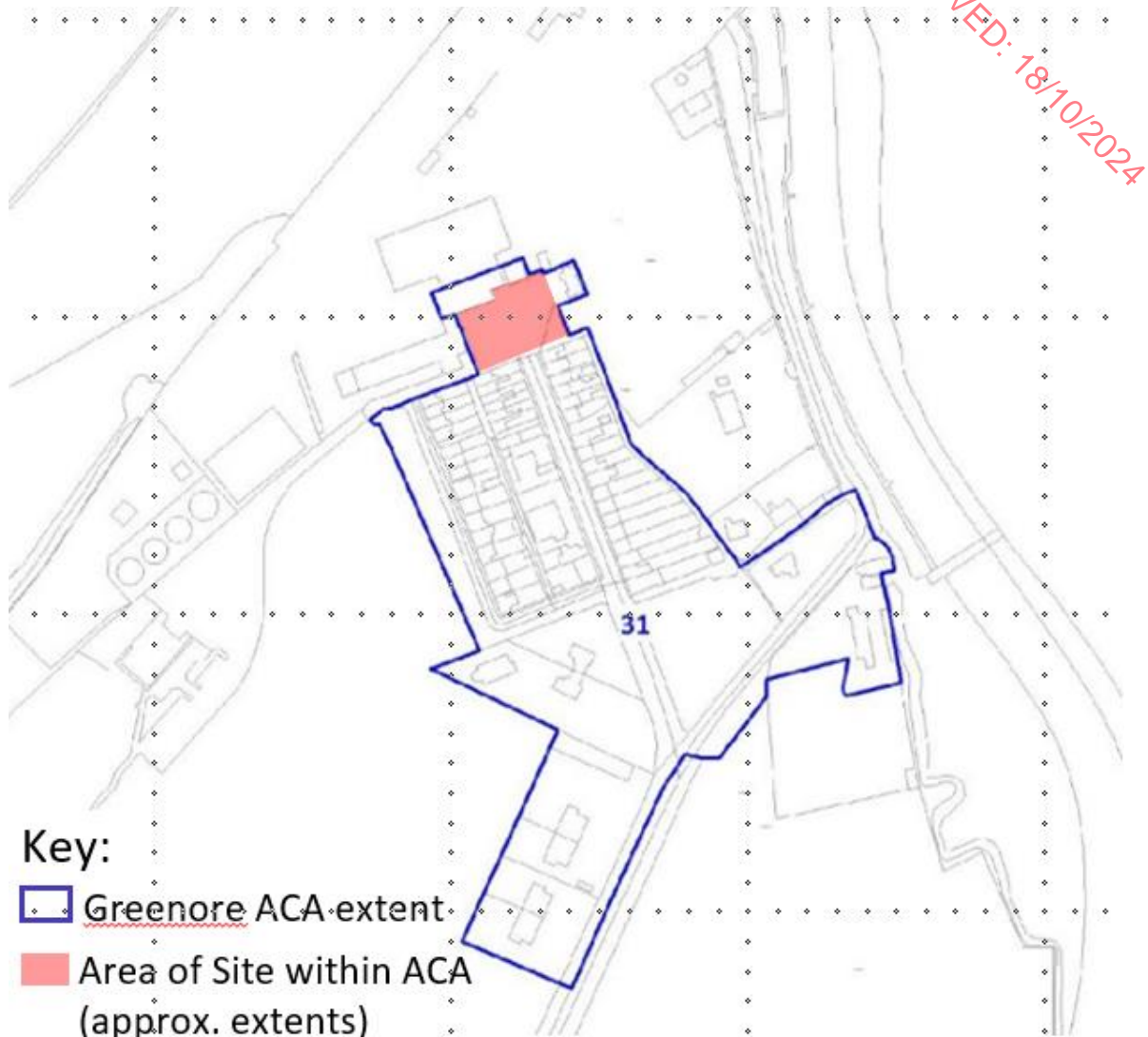
*'An Architectural Conservation Area (ACA) is a place, area, group of structures or townscape that is of special architectural, historical, archaeological, artistic, cultural, scientific, social or technical interest or contributes to the appreciation of protected structures...*

*'Hence the need to protect elements such as public realm, planting, traditional settlement patterns and building materials, by controlling the nature of alterations and new development.*

*'The protected status of an ACA applies to the exteriors and the streetscape, and any works which would materially affect its character requires planning permission. However, the designation of an area as an ACA is not intended to bring excessive restrictions on development but rather to be a positive influence, to ensure that new development makes a positive contribution to an area that has been identified as being of significant importance. Changes to the buildings or the public realm, signage and public infrastructure can alter the character of an ACA and need to be assessed for the possible impact on its character.'*

A small area of the site falls within the northern end of the Greenore ACA including the revised access arrangements to the site in front of the port offices, as indicated in Figure 5-5 below. Effects on the

ACA and built heritage in general will be considered in Chapter 17 Cultural Heritage -Built Heritage of this EIAR.



**Figure 5-5 Extract of County Louth Architectural Conservation Map – Greenore ACA (Source: Louth CDP 2021-2027 Map 31)**

#### 5.6.2.2 Natura 2000 Designations

Two Natura 2000 Designations are within the vicinity of the site (i.e. they do not align or enter to within the site): Carlingford Shore SAC (Site code 002306) and Carlingford Lough SPA (Site code 004078). However, the site enters into one Natura 2000 Designation, which is Carlingford Lough Proposed NHA (Site code NH452). Effects on these sites will be considered in Chapter 12 - Biodiversity.

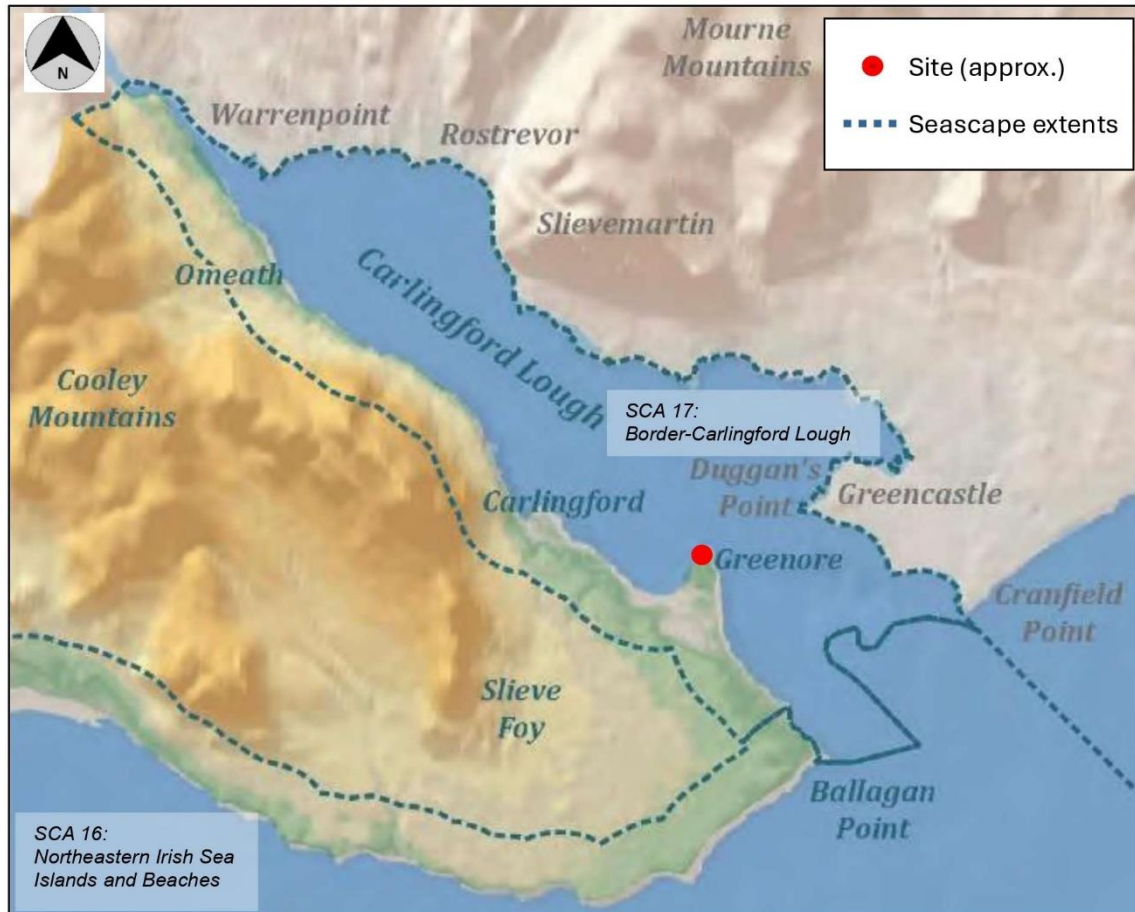
#### 5.6.2.3 Regional Seascape Assessment

A study of Ireland's Seascapes was produced in 2020 by the Marine Institute to gain a better understanding of Ireland's coastline, following on from the well-established Landscape Character Assessment process and in keeping with the aims of the European Landscape Convention and the All-Ireland Landscape Strategy 2015-2025. The study's seascape definition is derived from studies of the



English seascape by Natural England (2012): “an area of sea, coastline and land, as perceived by people, whose character results from the actions and interactions of land with sea, by natural and/or human factors.”

The study area falls within the Seascape Character Area No. 17 -Border SCA-Carlingford Lough and small portion of the neighbouring SCA 16 – Northeastern Irish Sea Islands and Beaches to southwest of Ballaghan Point.



**Figure 5-6 Extract of RSA Border-Carlingford Lough SCA 17 Map. (Source: Marine Institute)**

According to the Regional Seascape Assessment the key attributes of the SCA 17 are described as following.

*Key characteristics:*

- A very distinctive and fine example of a glacial fjord (sea lough) that has long offered a haven from the choppy waters of the Irish Sea, where the changeable weather particularly in the northern part of the sea is well known.
- Where sheltered inlets are present, these are frequently wooded which contribute to an attractive and diverse landscape and seascape interface.
- A busy and active SCA, the Newry River/Newry Canal empties into the lough at the head of Carlingford Lough and links the lough to Newry, in Co. Armagh.



- *Shellfish beds are numerous close to the shoreline of the lough with oysters, mussels and razor clams cultivated.*
- *Greenore and Warrenpoint are principal ports, in addition to freight and bulk cargo, a scenic ferry from Greenore, Co. Louth to Greencastle, Co. Down.*
- *The presence of marinas, jetties and water based infrastructure reflect popularity of the SCA.*
- *The undeveloped headlands provide a more tranquil character.*

#### *Perceptual Influences:*

##### *Views and Vistas*

- *An active and busy seascape area, the long history of settlement and interaction of intertidal, sea and sloping mountains create a diverse seascape*
- *Although a relatively small SCA, the scale of the lough helps to create a more expansive scale and the backdrop of mountains and frequently wooded shorelines and slopes creates a highly scenic SCA.*
- *Long views across the Irish Sea particularly pronounced at the headlands of the lough are a key visual characteristic.*
- *Similarly from the elevated slopes of the Cooley and Mourne Mountains long views over the lough are key characteristics.*
- *At local level the interplay of smaller headlands and shoreline infrastructure adds visual interest and can shorten views along the shoreline*
- *Notable sea and landmark features include the Haulbowline Lighthouse separating Counties Louth and Down, Robert Ross Monument (Northern Ireland), King John's Castle at the shoreline of Carlingford Town and*
- *Lighting 5 - A necklace of settlements and the shoreline road present as glowing light along the shoreline.*

##### *Sense of Place*

- *The predominant character is expansive, but the area retains a very distinctive lough character, being framed by land on three sides.*

##### *Sounds and Smells*

- *At low tide, summer smells of seaweed and mudflats occur particularly around the exposed mudflats.*

#### **5.6.2.4 Key implications of Planning Policy Context**

In terms of potential landscape & visual issues pertaining to the site and the study area, the key implications of the aforementioned Planning Policy Context (see Section 5.6.2.1, above) entail:

- *Louth CDP policy NBG 23, '... that new development meets high standards of siting and design and does not unduly damage or detract from the character of a landscape...'*
- *While there are four different scenic designations within the study area, all remain more than 500m from the site. There is one protected viewpoint/prospect within the study area (i.e. 'VP5 Carlingford Lough') and three designated scenic routes (SR13, SR14 & SR15). In summary, the*

proposed development must not interfere with or adversely affect these scenic designations and/or must protect/sustain the established appearance and character of views/ prospects.

- Part of the proposed development falls within the northern edge of the Greenore ACA by the port offices area and end of Euston Street interface, any development within or nearby Greenore ACA needs to not detract from the unique character of the ACA.
- The study area falls within the 'Cooley Lowlands & Coastal Area' Landscape Character Area (LCA). Of the four levels of importance attributed to Landscape Characters Areas within the Louth CDP, this LCA is deemed to have the lowest importance. However, no sensitivity is attributed to this LCA, nor any of the other LCAs, in the Landscape Character Assessment.
- The site enters into one Natura 2000 Designation and is in the vicinity of two others.
- The Regional Seascape Assessment has not been considered within the Louth CDP. Most of the study area falls within the Seascape Character Area No. 17 - Border SCA-Carlingford Lough seascape study which covers the lower slopes of the Cooley Mountain and Carlingford Lough. No sensitivity is attributed to this SCA.

### 5.6.3 Landscape Baseline

#### 5.6.3.1 Site location and context

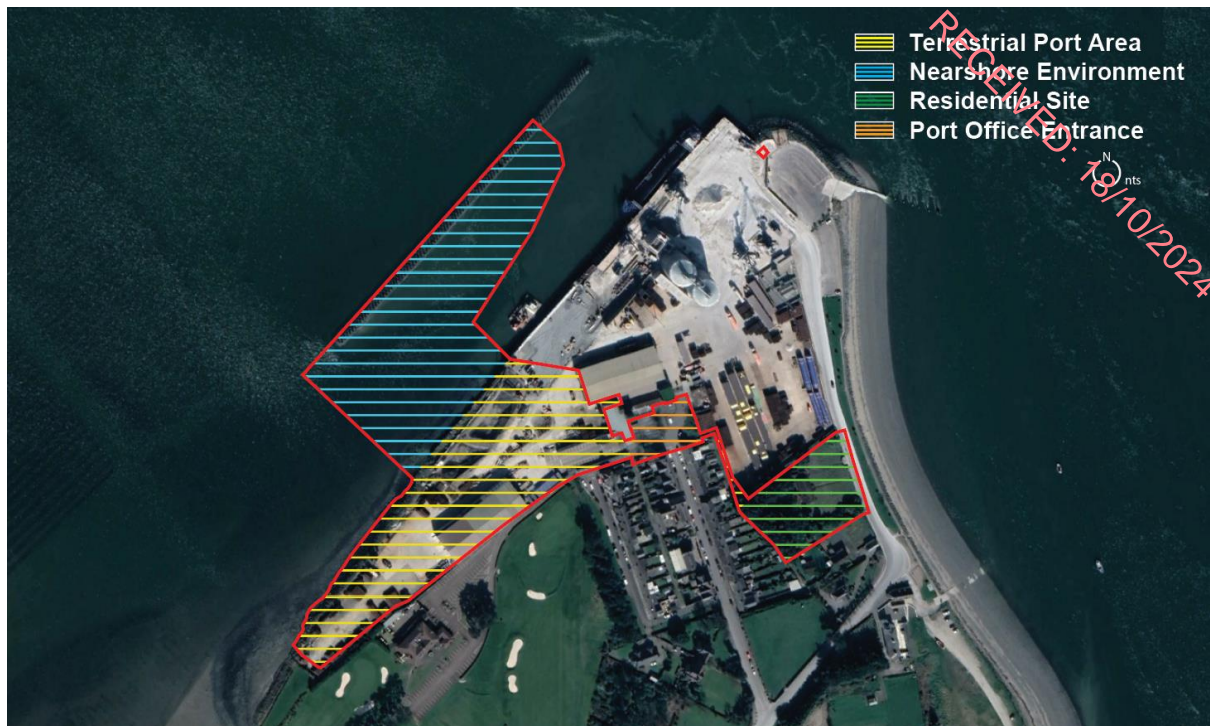
The site is located within Greenore Port and at 'Barabara's Field, Shore Road, Greenore Village, County Louth. The site has been divided into four individual plots which have been described in Chapter 2 of this EIAR to include:

1. 'Terrestrial Port Area', (c.1.9ha) which includes, a port commodity warehouse (former Open Hydro building), hardstanding areas, remnant wall associated with the pre-existing 'engine room', and a communications mast.
2. 'Nearshore Environment' (c.2.3ha) encompassing part of Carlingford Lough and an existing caisson quay wall, known as 'Berth 3'.
3. 'Residential Site' (c. 0.5ha) a greenfield site with a single-storey unoccupied residential dwelling with frontage to the R175, Shore Road.
4. 'Port Office Entrance' (c. 0.18ha) encompassing a portion of the existing office building, known as the 'Seafarers room', hardstanding and parking area to the front of the port office with pockets of green space, that front Euston Street.

In direct vicinity of the site is the small village of Greenore, Greenore Golf Club and the shoreline of Carlingford Lough. The port has been in operation since the 19<sup>th</sup> Century, it is understood that Greenore is the only privately owned port in Ireland.

On a broader scale, the site is set on the north coast of Co. Louth, along the southern shoreline of Carlingford Lough. Unusual for a study area, it consists of areas of both the UK (i.e. Co. Down) and the Republic of Ireland (i.e. Co. Louth), with Carlingford Lough separating the two.

An overview of the immediate and wider site location/context is set out in Figure 5-7 & 5-8, below.



**Figure 5-7 The Site's development area and its immediate context**



**Figure 5-8 The wider site location and context (Source: Google Earth 2021 capture)**

#### 5.6.3.2 Landform - Topography and drainage

While most of the wider Carlingford Peninsula is characterised by the Cooley Mountains, which reach over 500m AOD, the study area is characterised by lower-lying terrain (i.e. less than 100m AOD), either aligning or in the broader vicinity of Carlingford Lough. This is also the case with the study area terrain



north of Strangford Lough, within Co. Down, where the foothills of the Mourne Mountains lie several kilometres beyond the study area. In the far western fringe of the study area, the foothills of the Cooleys emerge, though remain less than 200m AOD.

In terms of watercourses and/or drainage patterns, Carlingford Lough is by far the largest and most apparent, being over 3km wide in places (see Figure 5-9 and 5-10, below). Along its southern shoreline, it is largely stony with some rocky outcrops within the Lough. Within the study area, a series of streams feed into the Lough, but there are no larger rivers present, with the exception of White Water River, in Co. Down, that enters into the north-eastern edge of the study area.



**Figure 5-9 View of Greenore Port with the Cooley Mountains, with Carlingford Lough to the north.**



**Figure 5-10 View of Carlingford Lough towards Greenore, from Carlingford town.**

### 5.6.3.3 Landcover & Land use

Unusual for its scale, the site is made up of a considerable degree of diversity in its land use and context. Some units of the site are quite fragmented and entail a distinct mixture of land/sea cover and uses.

The northern areas of the site consist of a terrestrial port area that includes areas of hardstanding, a remnant wall associated with a pre-existing engine room, a warehouse, an ESB substation, and a communications mast. To the immediate north of this terrestrial port area is Carlingford Lough, the nearshore environment, where an approx. 70m long caisson quay wall runs parallel to the dock (please refer to Figures 5-11 and 5-12, below).



**Figure 5-11 View of Greenore Port next to weighbridge**



**Figure 5-12 View of Greenore Port pier and nearshore.**

To the immediate north of Greenore village centre is the port office entrance area, that consists of a port office building and a hardstanding parking area to the front of the port office with a small amount of green space (please refer to Figure 5-13 and 5-14, below). Of which these hardstanding and soft landscape areas of this part of the site fall within the northern end of Greenore Architectural Conservation Area (ACA).





**Figure 5-13 View of Greenore Port office area looking west in direction of golf course**

**Figure 5-14 View of Greenore Port office area look north with view of the water towers**

In the southeast of the site is a vacant residential site on Shore Road, known locally as ‘Barbara’s Field’. It consists of a single-storey unoccupied residential dwelling with its former garden. This former garden contains some mature shrubs and individual trees mostly located up along its southern and northern boundaries and a large area of grass. A group of trees previously along the western boundary have been felled recently due to health and safety grounds. This part of the site shares road frontage to the R175 (see Figures 5-15 and 5-16, below). and a new access route connecting the residential site to the Port Office Entrance area through the existing port yard lands.



**Figure 5-15 View of the residential site as viewed from the R175 Shore Road**

**Figure 5-16 View from within the site looking beyond its western boundary onto the rear of houses along Euston Street.**

To the immediate south of the site’s port area is Greenore Golf Club. This large, picturesque golf course is backdropped by the Cooleys and/or the Mourne and aligns Carlingford Lough. It has a generous degree of tall Scots Pine trees about the course. The club was founded in 1896, with its entrance located along the western edge of Greenore village (see Figure 5-17, below).



**Figure 5-17 View of Greenore Golf Course, with the Greenore Port infrastructure discernible in the background, backdropped by the Mourne Mountains in Co. Down.**

Outside the site and Greenore, and to either side of Carlingford Lough, land is overwhelmingly agricultural, with well-defined and well-maintained hedgerows where ash, sycamore and elder are apparent.

#### 5.6.3.4 Settlement pattern, cultural heritage, and transport

The closest settlement to the site is Greenore. Constructed from 1863 to 1873, the village was established with a former railway line (no longer in existence) to serve the port and newly constructed hotel. The village was chiefly constructed to house employees (and their families) working at Greenore Port or the then Dundalk, Newry & Greenore Railway, which was permanently closed in 1951. Notably, prior to the 1860s, there was no known settlement at this location, of any size.

Untypical for an Irish village, the village is laid out across two straight, parallel streets, with near-uniform, Victorian two-storey stone terraces present on stretches of these roads, as well as more distinct/less-austere 2-3 storey brick-and-cut stone commercial buildings, also dating to that period. These two Victorian streetscapes run along Euston Street (i.e. effectively the main street of the village) and Anglesey Terrace, along the western fringe of the village, and constitute the heart of the Greenore Architectural Conservation Area.





**Figure 5-18 View of Euston Street looking southwards**



**Figure 5-19 View of Euston Street looking towards the old Co-op and school buildings**

In the western fringe of the study area is Carlingford. With a population of over 1000 residents, it is the largest settlement in the study area and considered to be the main town on the Cooley Peninsula. It is located approx. 3km west of the site and has been settled since at least the 12<sup>th</sup> Century. The town centre has several remnants of its original Medieval layout, with the extensive ruins of King John's Castle originally dating to the 13<sup>th</sup> Century, and several other historic buildings and structures present that are several hundred years old. Elsewhere in the study area, there is linear residential development present along numerous roads, particularly third class roads closer to the coastline.

North of the Lough, within Co. Down, there is notable linear residential development at and near Greencastle, as well as a vast mobile home/caravan park at Cranfield Beach, on the eastern fringe of the study area.

In terms of transport connections, there are three regional roads (R173, R175 and R176) within the study area, with the R175 running to Greenore Port main entrance that is adjacent to the popular Greenore-Greencastle car & pedestrian ferry. Lastly, the corridor of the former Dundalk, Newry & Greenore Rail line is evident in several locations within the study area.

#### 5.6.3.5 Summary of Key Landscape Characteristics & Values

- The site is located within four plots located within Greenore Port, its nearshore and a former residence on Shore Road which are in the direct vicinity of the village centre of Greenore, Greenore Golf Club, on the southern shores of Carlingford Lough.
- The study area covers areas of Carlingford Lough, northeast Co. Louth and southeast Co. Down.
- The study area is characterised by lower-lying terrain (i.e. less than 100m AOD), either aligning or in the broader vicinity of Carlingford Lough.
- The site is made up of a considerable degree of diversity in its land use and context. Some units of the site are quite fragmented and entail a distinct mixture of land/sea cover and uses.

- Untypical for an Irish village, Greenore village was only first constructed approx. 150 years ago, laid out across two straight, parallel Victorian streets, which today form the heart of the Greenore Architectural Conservation Area (ACA).
- The R175 runs to Greenore Port HGV entrance, adjacent to the popular Greenore-Greencastle car & pedestrian ferry.

## 5.7 The 'Do Nothing' Scenario

Were the proposed development not to proceed there is the potential that the previously granted planning permissions for an extension and modification of existing warehouse, LCC Planning Ref 20268, ABP Ref 307862 and additional warehouses, LCC Planning Ref Planning ref 20543, ABP Ref 310184 could be developed out in order to secure continued economic growth for the port business.

These approved changes would result in alternations to the existing large sheds present on site in height and further extensions to it under planning ref: 20268 while the later planning ref 20543 include the previous alternation plus significant addition of other industrial sheds across currently open land within the port directly north of Anglesey Terrace.

If the above approved developments were built, this would lead to a significant increased presence of industrial warehousing within the port's lands. This would result in adverse changes to the immediate area landscape/townscape characteristics, including that of the adjoining Greenore village ACA, due to the increased number and scaling of sheds close to the port boundary as well as indirect effects of increased traffic, noise, lighting etc that could affect the local residential amenity.

Similarly, these approved developments-built form would be clearly visible peering above the port's existing boundary walls and through the proposed new southern boundary fence line to replace a section of this wall. The closeness of these new structures to the port's boundary and their continuous elevation will mean they would be potentially very visible from the immediate area and would constrict inward views of the port and from some locations reduce the visibility of the western water tower. The greatest adverse visual effects potentially occurring upon those immediate visual receptors within the village include nearby residents along Anglesey Terrace and the adjoining golf course users. There will also be some varied distance views possible from the wider coastal landscape along the western and northern shores of Carlingford Lough.

## 5.8 Predicted Landscape Effects

### 5.8.1 Landscape Sensitivity

In terms of planning policy context, crucially, the site and its surrounds are within:

- LCA 20 – 'Cooley Lowlands & Coastal Area' LCA (Landscape Character Area).
- Border SCA-Carlingford Lough (Seascape Area)
- Greenore ACA

Neither the Louth County Council Landscape Character Assessment nor the Regional Seascape Character Assessment has assigned any sensitivity level to the assessed landscapes. However, the

wider landscape is influenced by the setting of Carlingford Lough, Cooley Peninsula and the Mourne Mountains. Broadly, these areas will have High landscape sensitivity with some lesser Medium sensitivity areas. On the far western end of the study area is Louth County Councils' designated Areas of High Scenic Quality and Area of Outstanding Natural Beauty, which will have High to Very High landscape Sensitivity.

The site and the receiving environment were described in Section 5.6.3. The site is split over four areas (Terrestrial Port Area, Nearshore Environment, Residential Site and Port Office Entrance) with each area having its own distinct character. Much of the site falls within the existing working port although the site's setting is greatly influenced by its proximity to Carlingford Lough and Greenore Village ACA.

Although the port is largely a modern functioning port and associated infrastructure, it contains some historic elements relating to the former railway of which the site will contain the retained engine room wall. While the surrounding Greenore village's unique characteristics as a purpose-built settlement for the port and railway are recognised by its designated as a Louth County Council ACA. This ACA includes many of the houses along Euston Street, Anglesey Terrace and other larger houses on the village's edge being designated as protected structures.

A small portion of the site falls within the northern end of the ACA but includes the port office's area of modern car parking surface and small green space, rather than any historic elements of the ACA. This area is bound by the port's two distinct water towers to the north and the surrounding historic streets. The Barabara's field area of the site is not in the ACA, but the ACA's houses on Euston Street are directly to the west. The residential site includes some landscape features including few individual trees and mature shrubs along its southern and northeastern boundary.

Therefore, the landscape sensitivity of the receiving environment is classified as ranging between High to Low. Given the prominence of the active, modern port and nearby historical setting of the ACA, the site will have a '**Medium**' sensitivity. In accordance with Table 5-1, this is defined as:

*"Areas where the landscape has certain valued elements, features or characteristics but where the character is mixed or not particularly strong. The character of the landscape is such that there is some capacity for change in the form of development. These areas may be recognised in landscape policy at local or county level and the principal management objective may be to consolidate landscape character or facilitate appropriate, necessary change"*

### 5.8.2 Demolition Phase

The demolition works will require the removal of some buildings and vegetation clearance from the site, which are considered collectively as part of the overall site works occurring under the construction phase below.

### 5.8.3 Construction Phase

Construction Stage will be programmed over 2 phases with Phase 1 to run for 16 months and Phase 2 19 months, resulting in ongoing infrastructure, building and related works over the two phases of work. In addition, The proposed development will require the removal of the former open hydro building and residences in Barbara' field.



Vegetation clearance will include removal of 6 trees (5 removed to accommodate the site works and 1 due to poor health) through the site, of which 4 are located around the port office area and the remaining two along with mature shrubs and grass cover to be removed within the residential site on Shore Road. Of these trees, six are of moderate quality and one of poor quality as determined by the arborist assessment that accompanies this application.

The landscape sensitivity is described in Section 5.8.1 above (i.e. Medium). The **magnitude of change** will be '**High**'. The likely landscape effect will be of '**Moderate**' significance at Construction Stage

Qualitatively, construction stage will be generally 'adverse' (in accordance with Table 5.6) and 'medium term' in nature for the overall works phase although completion of individual phases includes build outs occurring within 'short-term' period (in accordance with Table 5.7).

#### 5.8.4 Operational Phase

The main operational stage landscape impacts pertain to the effects on landscape/townscape character any proposed development may have. The site is in proximity to Greenore ACA residential neighbour and the village's golf course.

The impact of the proposed development is the change of the site from the existing port facilities to further diversification of port-related facilities, primarily in the form of three OMF buildings and a pontoon for the associated marine service vessels. It also entails a new surface carpark to the east of the village, as well as a mix of hard/soft landscape design to help integrate the new built structures into the receiving environment.

The initial loss of trees and other vegetation will be more than compensated through the design's placement of new trees, hedgerows, climbers, shrubs and perennial and grasses through the site's open spaces, including around the new buildings and car parking. The selection of planting includes a mix of native and non-native pollinator friendly planting suited to the coastal environment, which will not only provide visual amenity but will also provide net biodiversity gains.

The landscape design of the new surface car park area has been designed so that even in times when it is not in use it retains a high-quality landscape similar in the character to that proposed across wider site. Screening will also be provided in the form of native shrubs and trees along the boundary edges to help reduce inwards views of the carpark from nearby residences.

In summary, the 'Magnitude of Change' will be **Medium**. In accordance with Table 5-2, this is defined as *'Change that is moderate in extent, resulting in partial loss or alteration to key elements, features or characteristics of the landscape, and/or introduction of elements that may be prominent but not necessarily uncharacteristic in the context. Such development results in moderate change to the character of the landscape.'*

Thus, the effect will be of '**Moderate**' Significance.

Qualitatively, the landscape effect will be 'Neutral' in the Short, Medium and Long Term. In accordance with Table 5-6, this is defined as *'Scheme complements the scale, landform and pattern of the landscape(townscape)/view and maintains landscape quality.'* In terms of duration of effect, this will be 'permanent' (i.e. effect lasting over sixty years)

### 5.8.5 Cumulative Effects

A review of other proposed or approved applications was undertaken as part of this assessment, as appended to Chapter 1 of this EIAR. In conclusion, the proposed development is not expected to have any significant cumulative landscape effects.

### 5.8.6 Summary

The following Table summarises the identified likely significant effects during the construction phase of the proposed development before mitigation measures are applied.

**Table 5-8 Summary of Construction Phase Likely Significant Effects in the absence of mitigation**

Likely Effect	Significant	Quality	Significance	Extent	Probability	Duration	Type
Change of existing landscape to include a construction site and associated works occurring over two phases.		Adverse	Moderate	Local	Likely	Short Term	Worst Case

The following Table summarises the identified likely significant effects during the operational phase of the proposed development before mitigation measures are applied.

**Table 5-9 Summary of Operational Phase Likely Significant Effects in the absence of mitigation**

Likely Significant Effect	Quality	Significance	Extent	Probability	Duration	Type
Changes to the building/structure layouts and landscaping within the Terrestrial port lands, Nearshore environments, residential site and port office entrance	Neutral	Moderate	Local	Likely	Permanent	Worst Case

Viewpoint	Location	Sensitivity	Magnitude of Change	Operational Stage Significance, Quality & Duration	Cumulative Effects
1	Shore Road	Medium	Medium	Moderate, Neutral, Permanent	None
2	Euston St No.1	High	Medium	Moderate-Significant, Beneficial, Permanent	None
3	Euston St No.17	High	Negligible	Not Significant, Neutral, Permanent	None
4	Anglesey Terrace No.11	High	Medium	Significant, Positive, Permanent	None

Viewpoint	Location	Sensitivity	Magnitude of Change	Operational Stage Significance, Quality & Duration	Cumulative Effects
5	Anglesey Terrace No. 1	High	Medium	Moderate, Positive, Permanent	None
6	Golf Club (First Floor of Clubhouse)	Medium	High	Moderate, Adverse, Permanent	None
7	Golf Club (Clubhouse Bar)	Medium	High	Moderate, Adverse, Permanent	None
8	Golf Club (Hole T12)	High-Medium	Low	Moderate-Slight, Adverse, Permanent	None
9	R175 Greenore to Dundalk Road	High	No Change	None, Neutral, Permanent	None
10	L70654	High	Low-Negligible	Slight, Neutral, Permanent	None
11	R176 Greenore to Carlingford Coast Road	High	Negligible	Not Significant, Neutral, Permanent	None
12	Ghan Road	High	Negligible	Not Significant, Neutral, Permanent	None
13	Ballytrasna Road	High	No Change	None, Neutral, Permanent	None
14	Greencastle Pier Road No.125	High	Negligible	Not Significant, Neutral, Permanent	None
15	Kilowen Road No. 182	High	Negligible	Not Significant, Neutral, Permanent	None

## 5.9 Predicted Visual Effects

### 5.9.1 Zone of Visual Influence and Potential Visual Receptors

Based on the landscape & visual characteristics, values and sensitivities of the study area, 15 No. representative viewpoints were selected from a range of distance, angles and contexts in order to assess the predicated visual effects. These are scheduled and mapped below. These views include residences, recreational users and visitors located within the villages of Greenore and Carlingford and across the Cooley Peninsulas as well more distant receptors views from across Carlingford Lough by Greencastle Pier, County Down, Northern Ireland. In addition, there are views located within Greenore ACA and a long designated scenic routes, as outlined in the schedule below.

Existing photographs and verified photomontages are provided by Pivotal Animations, provided as a standalone document with this application.

The assessed viewpoints are shown on Figure 5-20, below, and are listed in Table 5-10, below. A sensitivity rating has been ascribed to each visual receptor, in accordance with the definitions provided in Table 5-3, with a rationale for the sensitivity rating provided under the description of each

existing view. The potential impact of the various phases of the proposed development upon these receptors' existing views are assessed in Sections 5.9.3 & 5.9.4, below.

**Table 5-10 Viewpoint Locations**

Viewpoint Number	Viewpoint Description	Distance and Direction from the nearest site boundary	Rationale for selection
1	Shore Road	13.5m east	Representing walkers on coastal path and ferry users.
2	Euston St No.1	2.50m south	Representing local residential receptors and views from ACA.
3	Euston St No.17	126m south	Representing local residential receptors and views from ACA.
4	Anglesey Terrace No.11	40m southeast	Representing local residential receptors and views from ACA.
5	Anglesey Terrace No. 1	120m southeast	Representing local residential receptors and views from ACA.
6	Golf Club (First Floor of Clubhouse)	33m south	Representing recreational users within golf course.
7	Golf Club (Clubhouse Bar)	20m south	Representing recreational users within golf course.
8	Golf Club (Hole T12)	57m south	Representing recreational users within golf course.
9	R175 Greenore to Dundalk Road	630m south	Representing road users views from start of LCC designated scenic route
10	L70654	800m southwest	Representing recreational users within golf course, local residential receptors and view
11	R176 Greenore to Carlingford Coast Road	1.35km west	Representing road users views from start of LCC designated scenic route No. R14 and Views and Prospects No.5
12	Ghan Road	2.56km west	Representing local residents
13	Ballytrasna Road	1.79km south	Representing road users views from start of LCC designated scenic route No.15
14	Greencastle Pier Road No.125	1.88km northeast	Representing tourist spot and local residents
15	Kilowen Road No. 182	3.85km north	Representing views from designated Mourne Coastal scenic route



**Figure 5-20 Extract of Viewpoint Location Map with inset of nearest viewpoints within Greenore village. Please see the full viewpoint figure version within the photomontage booklet that accompanies this application for details. (Source: Pivotal Animations 2024).**

### 5.9.2 Demolition Effects on Visual Receptors

The demolition works will occur across the two phases of works. With the single dwelling on the residential site removed in phase 1 stage and replaced by a temporary construction area and later developed into the proposed carparking area in phase 2. Around the port area, the demolition of some existing buildings will occur later on during Phase 2, with the removal of the former Open Hydro building, substation and part of the port office building. However, as this work will run concurrently with the proposed development's other construction site work, any likely visual effects of this phase are considered collectively with the construction effects.

### 5.9.3 Construction Effects on Visual Receptors

The construction phase will occur over two phases. As with most construction stages, there is likely to be negative visual impacts associated with the construction works, over a phased basis, for this development, owing to the building processes required to construct the proposed development.



Effects on visual receptors at construction stage will, by their nature, be adverse in nature, varying in magnitude and significance. Due to the split nature of the site, it is possible that some receptors will experience direct views of the site works within the main site area, but not within the Shore Road carpark area, and vice versa. Some ground level views of works within the main site will also be reduced by the existing retained boundary wall and port office buildings.

All effects on visual receptors resulting from the construction stage are expected to occur across 2 phases within a planning 10 year period, given the relatively short period of each phase are therefore considered short term in nature (in accordance with Table 5-7).

#### 5.9.4 Operational Visual Effects

Viewpoint 1: Shore Road	
<b>Existing</b>	<p>The existing view is located on the public footpath directly opposite the site. The captured view is split between 1A looking west and south-westwards and 1B looking west and northwards. The view is representative of walkers on the short coast path stretching between the carparks by the coast guard station and ferry. As all vehicular ferry users must also pass this section of road, this view is also representative of ferry users.</p> <p>The view is looking across the road to the former residence and its open overgrown grounds, with some mature trees and shrubs scattered on its garden boundaries. Beyond the house are the rear of the houses of Euston Street. Views northwards looking over the site's boundary into the port and its various elements and some historic features include the old lighthouse and water towers. In the background are the Slieve Foye and Mourne Mountains. Views towards the site's southern end are obscured by its mature shrubs and low trees, with adjacent properties and the coastguard house visible further back, by the bend in the road.</p> <p>The key views, and leading sources of visual amenity, from this location are looking out across Carlingford Lough and towards the Mourne Mountain, with the viewer facing away from the site.</p>
<b>Sensitivity</b>	<b>Medium</b>
Visual Impacts and Effects	
<b>Operational Phase</b>	<p>Phase 1:</p> <p>Following the demolition and full removal of the former residence and associated garden planting/greenery, the site will consist of a bare, but temporary, gravel carparking/construction area. <del>The northern boundary wall will be painted white washed with a low security fencing attached on top while a timber panel fence will align the southern site boundary.</del></p>

	<p>Along the eastern boundary of the site, temporary security fencing/hoarding will obscure all views into the site from the Shore Road. Outside the temporary hoarding, a black, iron, five-bar railing fence will be located. Between this fence and the hoarding, a mixed-native hedgerow will be planted. An entrance way into the site is at the centre of the eastern site boundary, between the railings.</p> <p>Phase 2:</p> <p>Once the construction of the proposed development is completed, the proposed carpark will be clearly visible. The pre-existing entrances to the site will be removed, with a wider vehicular entrance centred upon the site boundary. The low, concrete road-facing boundary wall of the former residence will be replaced <del>with a white and more contemporary low wall that is compatible with the Port's white boundary walls, to the immediate north of the site, as well as residences to the south of the site</del> by the aforementioned iron railing fence, with a maturing mixed species hedge planted behind it. The site's new low, dark gates and signage will also align the eastern boundary.</p> <p>Within the site, a modest-sized contemporary carpark will be visible, while modestly scaled, contemporary lighting will be located through the car park. The hard surfaces and boundary edges of the car park will be softened by the mix of suitable, soft landscaping measures that will assist with visual amenity within the site. <del>An additional 'thickening out' of the outer boundaries of the site with more trees and native shrub screening will help reduce views of the port yard from neighbouring residences.</del> Upon semi-maturation, the proposed treelines along the southern and western site boundaries, and part of the northeast site boundary, will assist in partly screening views from residences to the south and west of the site of the car park elements as well as some port infrastructure to the north and northeast of this section of the site.</p> <p>10 years post-construction:</p> <p>The mixed-species native hedgerow along the eastern boundary will be maintained at 1.2m max height, in order to maintain sightlines for vehicles exiting the car park, as well as pedestrians along the adjacent pathway. However, the proposed trees within the site will have matured more, to help screen views into the site, as well as views from neighbouring residences toward the port infrastructure.</p> <p>It is worth noting that the remainder of the proposed development in other sections of the site is not likely to be visible from this point. Furthermore, receptors are likely to be focused on the compelling sources of inherent visual amenity at this location, which is towards Carlingford Lough and the Mourne Mountains, and not in the direction of the site.</p>		
	<table> <tr> <td><i>Magnitude of Change</i></td><td><b>Medium</b></td></tr> </table>	<i>Magnitude of Change</i>	<b>Medium</b>
<i>Magnitude of Change</i>	<b>Medium</b>		

	Significance of Effects	Moderate
	Quality	Neutral
	Duration	Permanent
Cumulative Effects	<p>There are no other permitted developments of note that would be visible in tandem with the proposed development from this location.</p> <p>Thus, there will be no significant cumulative visual effects associated with the proposed development.</p>	
Viewpoint 2: Euston Street No.1		
Existing	<p>The existing view is located within Greenore ACA at the northern end of Euston Street opposite the port offices and associated parking. The view is split between 2A looking west and north-westwards and 2B looking east and north-eastwards.</p> <p>The foreground view looking west/northwest contains elements of the car park and port office buildings with the western water tower dominating the view. Beyond are partial views of other elements within the port, including crane, former open hydro building, and temporary metal stockpiles. In the background are Cooley Mountains and Slieve Foye.</p> <p>The northeast view is more contained by the active working port's mix of historic and modern buildings and structures in the middle ground including the distinct ivy-covered eastern water tower and two large silos. In the foreground is the small open space while against the background is a very limited view of the Mourne Mountains.</p>	
Sensitivity	High	
Visual Impacts and Effects		
Operational Phase	<p>Phase 1:</p> <p>No change is expected in this view, for this stage of the proposed development will be screened by the existing port buildings, including the former open hydro building, which will remain intact during this phase.</p> <p>Phase 2:</p> <p>Upon completion, changes to view (2A) will include notable changes around the front of the port office car park because of the proposed realignment and new pedestrian access. The change will include the loss of one existing tree and some low shrubbery to the front of the existing carpark. The widened necessary loss in <a href="#">vegetation of the two trees and shrubbery</a> will be compensated with a large new specimen tree located within the newly planted up widened central bed. In the foreground there will be notable visually improvements to the streetscape around</p>	

	<p>the port offices carpark area, including the use of heritage cobble paving that's reflective of the ACA material palette.</p> <p>Further back within the view the existing gated entrance to the former open hydro building will be enhanced with a new feature wall with brick relief, gates, signage and planting. In the background the former Open Hydro building will be replaced by two new distant buildings contained (within the site's western area). The two new buildings will marginally reduce existing views of the Cooley hillside. Through the gateway will be views of the southern profile of the old engine room wall which forms a feature of the proposed development.</p> <p>For view 2B, there will be notable visible improvements to the existing small public realm/port boundary area implemented through the proposed development design. This will include a redesign of the existing space with a high-quality paving scheme including heritage cobble paving and bands of granite kerbing to guide users along with relocating some existing street furniture elements to create a larger and more functional space. <i>Three large ornate planters will be located in the foreground, which will serve to visually soften this area of paving. Behind the proposed seating area, it will be planted up with shrubs and an additional tree.</i></p> <p>Some slight alternations to the east boundary wall include for the new walkway allowing minor views into the adjoining port yard and alternations of the small group of trees, with loss of three trees, but will be suitably replaced to maintain tree cover here.</p> <p>Overall, the proposed development, through its use of high-quality materials and planting, is likely to enhance the existing visual interaction at this junction between the street edges and the port area on the northern end of Greenore ACA.</p>	
	Magnitude of Change	Medium
	Significance of Effects	Moderate-Significant
	Quality	Beneficial
	Duration	Permanent
Cumulative Effects	<p>There are no other permitted developments of note that would be visible in tandem with the proposed development from this location.</p> <p>Thus, there will be no significant cumulative visual effects associated with the proposed development.</p>	
Viewpoint 3: Euston Street No.17		
Existing	<p>The existing view is from the opposite end of the same street as Viewpoint 2 and is within the ACA. The view is enclosed on either side by the street's distinct row of Victorian houses, which are characteristics of Greenore ACA. The former national</p>	

	<p>school and co-op buildings are visible halfway along the street on the left side of the image.</p> <p>The only part of the site visible is a small area of the public / private realm in front of the port's building and its eastern water tower at the far end of the street. Peering above these buildings is a ship and its crane, while the Mourne Mountains are visible in the background.</p>	
<b>Sensitivity</b>	<b>High</b>	
<b>Visual Impacts and Effects</b>		
<b>Operational Phase</b>	Phase 1:	
	Not visible from this point due to views contained by the housing either side of the street.	
	Phase 2 only:	
	The proposed development would be barely visible from this location. The only change will be distant, intermittent views of the streetscape enhancements at the end of the street. No other part of the proposed development will be visible.	
	<i>Magnitude of Change</i>	<b>Negligible</b>
	<i>Significance of Effects</i>	<b>Not Significant</b>
	<i>Quality</i>	<b>Neutral</b>
	<i>Duration</i>	<b>Permanent</b>
<b>Cumulative Effects</b>	<p>There are no other permitted developments of note that would be visible in tandem with the proposed development from this location.</p> <p>Thus, there will be no significant cumulative visual effects associated with the proposed development.</p>	
<b>Viewpoint 4: Anglesey Terrace No.11</b>		
<b>Existing</b>	<p>This view is from the northern end of Anglesey Terrace within, but by the west edge of, Greenore ACA. The captured view is split between 4A looking westwards and 4B looking northwards.</p> <p>4A - This western view looks across the street, past four Scots Pine trees and into Greenore golf course with partial views of the Cooley mountains and Slieve Foye in the background. The presence of the site's large, industrial, former open hydro building, in the mid-distance, partially obscures views of these hills. The site's boundary wall is clearly visible, although softened by climbers growing up the wall</p>	



	<p>(on the golf course side), with some temporary metal stockpiles within the site slightly peering above this wall.</p> <p>4B - The northern facing view looks along the street towards the site in the mid-distance, where its various elements including the temporary metal stockpiles, old engine room wall, mobile crane and former open hydro building are clearly visible peering above the high boundary wall. These elements add distinct working industrial elements to this view. Beyond these elements are partial/glimpsed views of Slieve Foye and the Mourne Mountains in the background.</p>
<b>Sensitivity</b>	<b>High</b>
<b>Visual Impacts and Effects</b>	
<b>Operational Phase</b>	<p><u>View 4A</u></p> <p>Phase 1:</p> <p>View will contain the most western of the proposed OMF buildings, which will be visible in the mid-distance from this location. Little can be discerned about this building other than it will be a dark-toned, light industrial building of modest scale, and of similar height to the former open hydro building. Its location will fractionally decrease views of the distant hills.</p> <p>Phase 2:</p> <p>On completion, the proposed development will be largely visible, having replaced the former open hydro building. It will add a more dark-toned, contemporary and high-end, light industrial built design to the existing industrial context visible in the mid-distance from this location.</p> <p>These buildings will be set further back into the site than the existing former open hydro building. Numerous proposed and suitable trees to the south of these buildings will help to marginally reduce the visual presence of the proposed buildings. The setting of the second building and its roofline, lower than the open hydro roofline, will help improve views to the summit of Slieve Foye than were currently visibly from Anglesey Terrace.</p> <p><u>View 4B:</u></p> <p>Phase 1:</p> <p>There will be no change to the existing view from this northwards angle.</p> <p>Phase 2:</p> <p>On completion, the proposed buildings are clearly visible with the most eastern building (building c) extending further right (east) than the former open hydro building. As above, these buildings are set back from the boundary into the site,</p>

	<p>instil a more high-end, light industrial built design to the viewing context and will permit greater views of the peak of Slieve Foye from this Anglesey Terrace.</p> <p>The existing engine room wall will be retained as a feature within the proposed development and will no longer be obscured by temporary material stockpiles. The retained existing boundary wall will, overtime, be softened by the proposed climbers and help blend with the section of wall in the adjoining golf course.</p> <p>Overall, on completion, the visual changes across the full extent of this viewpoint will consist of the replacement of one building with three new more high-end, contemporary buildings of a similar scale. There will be some variations to the outward visibility of the hillside in the background along with some enhancement of the site's existing internal historic elements.</p> <p>Overall, while having a notable visual presence within the vista, the proposed development will serve to enhance the visual amenity of the setting.</p>	
	Magnitude of Change	Medium
	Significance of Effects	Significant
	Quality	Positive
	Duration	Permanent
Cumulative Effects	<p>There are no other permitted developments of note that would be visible in tandem with the proposed development from this location.</p> <p>Thus, there will be no significant cumulative visual effects associated with the proposed development.</p>	
Viewpoint 5: Anglesey Terrace No. 1		
Existing	<p>The existing view is from the southern end of the same street as viewpoint No. 4 and is just within Greenore ACA. Again, the view is split between 5A – looking west-north westwards and 5B- looking northwards.</p> <p>5A- Looks directly across into the golf course, with its distinct tree lines and the golf clubhouse, which are backdropped by the Cooley Mountains and Slieve Foye. In the view's middle ground is the former open hydro building, lighting and temporary metal stockpile visible within the site peering above its boundary wall. This adds an industrial character to the otherwise semi-rural view.</p> <p>5B- The view contains a mix of Victorian era housing style and open space on the western edge of the village. At the northern end of the street are the site's boundary wall and its taller engine room wall, which blocks views of the lowest slopes of the Mourne Mountains, which are set against the background. The crane within the site and centre of this view is a mobile crane.</p>	

Sensitivity	High	
Visual Impacts and Effects		
Operational Phase	<u>View 5A:</u>	
	Phase 1:	
	At this stage, the view will contain the proposed development's western most building (Building A) visible immediately left (west) of the former open hydro building and partially behind the golf course clubhouse. This will result in a slight increase of industrial structures in the view, as well as marginal reduction in visual amenity of the lower slopes of the mountain in the background.	
	Phase 2:	
	Upon completion, the view will contain all three new buildings, with some partially hidden by the foreground trees on the edge of the golf course, of similar nature to the existing former open hydro building being replaced. The buildings are set back further from the golf course's green boundary wall, which will help to further reduce their prominence, while there will be a slight improvement to the visibility of the eastern side of the mountain.	
	<u>View 5B:</u>	
	Phase 1:	
	No change	
	Phase 2:	
	On completion, the eastern end of the OMF (Building C) will be visibly extending further to the right than the existing former open hydro building. It will increase the prominence of the industrial elements within this view but within the context of the port. Its location will slightly reduce the southern profile of the Mourne Mountain within the existing view. The view of the existing engine room will remain as a feature of the development.	
	As with the previous viewpoint, the overall visual change across the extent of this viewpoint will be of three buildings within the port, whose built form is broken up in places by the existing/proposed tree cover. There will be some minor variation to the views of the background hills and enhancement of the engine room wall.	
	Magnitude of Change	Medium
	Significance of Effects	Moderate
	Quality	Positive

	Duration	Permanent
Cumulative Effects	There are no other permitted developments of note that would be visible in tandem with the proposed development from this location.  Thus, there will be no significant cumulative visual effects associated with the proposed development.	
Viewpoint 6: Golf Club (First Floor of Clubhouse)		
Existing	This existing view is taken from an internal space of a private premises which is not typically recorded under LVIA perspective.  The outward view from first floor of the golf's clubhouse allows for elevated views looking down onto the adjoining site and views of its various elements including the temporary metal stockpiles, modern former open hydro building and silos, mobile cranes along with the port's historical elements including the engine room wall and western water tower. To the left of the Open hydro building there are clear views across Carlingford Lough to the Mourne Mountains in the background. There are also partial views of the house along Anglesey Terrace through the golf courses boundary trees.	
Sensitivity	Medium	
Visual Impacts and Effects		
Operational Phase	Phase 1:  The proposed development's western most OMF building (Building A) will be clearly visible in this view alongside the former open hydro building. The new building's location means it will fully screen out the former views across the yard to Carlingford Lough and the Mourne Mountains.  Phase 2:  Upon completion the southern profiles of the three proposed buildings will be clearly visible along with the proposed street elements and soft landscaping to the front of these buildings. The buildings retain a continuation of industrial buildings being visible from this viewpoint. The OMFs eastern profile tapers slightly lower than the existing building. While the engine room wall and other historic elements remain clearly visible.	
	Magnitude of Change	High
	Significance of Effects	Moderate
	Quality	Adverse

	Duration	Permanent
Cumulative Effects	<p>There are no other permitted developments of note that would be visible in tandem with the proposed development from this location.</p> <p>Thus, there will be no significant cumulative visual effects associated with the proposed development.</p> <p>In summary, there is no change to the significance, quality and duration of the effect from that originally concluded in this application (i.e. prior to this RFI response).</p>	
Viewpoint 7: Golf Club (Clubhouse Bar)		
Existing	<p>This existing view is taken from an internal space of a private premises which is not typically recorded under LVIA perspective.</p> <p>This elevated view is from the first floor to the rear of the golf clubhouse's bar area, where views aren't looking out across the golf course but down into the golf course's service yard immediate beyond which is the western end of the site within Greenore port hardstanding area with some temporary metal stockpiling. The key views being of Carlingford Lough framed by the mountains of the Cooleys, Mournes and Ring of Gullion.</p> <p>Receptors sensitivity: Medium, as temporary views of golf course users visiting the bar, where the main outward views from the bar are towards activity on the golf course which is not contained within this view.</p>	
Sensitivity	Medium	
Visual Impacts and Effects		
Operational Phase	<p>Phase 1:</p> <p>The proposed development western most OMF building (Building A) will be clearly visible along with the hard and soft landscaping around this end of the site. The location of the building will obscure views of the Mourne Mountains while views of the lough and hills on its southern end will remain largely unaltered.</p> <p>Phase 2:</p> <p>The view will be largely the same as Phase 1, due to the viewpoint views looking directly onto the far western end of the site.</p>	
	Magnitude of Change	High
	Significance of Effects	Moderate
	Quality	Adverse



	Duration	Permanent
Cumulative Effects	<p>There are no other permitted developments of note that would be visible in tandem with the proposed development from this location.</p> <p>Thus, there will be no significant cumulative visual effects associated with the proposed development.</p> <p>In summary, there is no change to the significance, quality and duration of the effect from that originally concluded in this application (i.e. prior to this RFI response).</p>	
Viewpoint 8: Golf Club (Hole T12)		
Existing	<p>This existing view is taken from an exterior space of a private premises which is not typically recorded under LVIA perspective.</p> <p>The existing view looks back to the hole and golf clubhouse. Where views of the site and port are largely hidden by the golf course's dense leylandii boundary hedge. There are partial views of the former open hydro warehouse and western water tower either side of the golfclub house. While there are other port elements, including lighting, mobile crane and material either above the hedge or through gaps low down. The peaks of the Mourne Mountains are slightly visible in the background peering over the hedge and also to the left (west) of the hedge along with Carlingford Lough</p>	
Sensitivity	High-Medium	
Visual Impacts and Effects		
Operational Phase	<p>Phase 1:</p> <p>The view will contain the proposed development western building (Building A) above the existing boundary hedge and next to the golf course clubhouse. Due to its scale it will be more prominent of the two buildings. The new building partially screens views of one of the Mourne Mountains and existing northern profile of the former open hydro building.</p> <p>Phase 2:</p> <p>Upon completion, the view will be very similar as phase 1 except that the small portion of the former open hydro building previously visible is replaced by the adjoining new building of Building B.</p>	
	Magnitude of Change	Low
	Significance of Effects	Moderate- Slight
	Quality	Adverse

	Duration	Permanent
Cumulative Effects	There are no other permitted developments of note that would be visible in tandem with the proposed development from this location.  Thus, there will be no significant cumulative visual effects associated with the proposed development.	
Viewpoint 9: R175 Greenore to Dundalk Road (beginning of SR14)		
Existing	The view is from the main road as one approaches Greenore Village by the start of LCC Scenic Route No. 14. The main view is looking directly across the road into the golf course. Although its line of pine trees on the boundary partial block views of the Mourne Mountains in the distance. The extent of view towards the right side of the road are less appealing with it dominated by the large warehouse sheds, partially screened by the line of trees on the roadside. The existing site and port lands are screened by the intervening vegetation within the golf course.	
Sensitivity	High	
Visual Impacts and Effects		
Operational Phase	Phase 1:  The proposed development, Building A, is not visible from this point, so no change to the existing view,  Phase 2:  Upon completion, the proposed development is not visible from this point, so no change to the existing view,	
	Magnitude of Change	No Change
	Significance of Effects	None
	Quality	Neutral
	Duration	Permanent
	Cumulative Effects	There are no other permitted developments of note that would be visible in tandem with the proposed development from this location.  Thus, there will be no significant cumulative visual effects associated with the proposed development.
Viewpoint 10: L70654		
Existing	The existing view is from a local road opposite some houses, and which provides open views across the adjacent golf course and beyond towards Greenore village in	

	the middle ground and the Mourne Mountains in the background. The port's existing sheds, silos, mobile crane and shipping are visible as are the large warehousing at the other end of Greenore. While much of the housing within the village is screened by the trees within the golf course with some houses along the northern end of Anglesey Terrace partially visible.	
Sensitivity	High	
Visual Impacts and Effects		
Operational Phase	Phase 1:  The proposed development's western building (Building A) will be visible directly next to the former open hydro building, reducing the visibility of the front of this building Overall the new build will be a minor element within the wider views of the mountains in the background which remain unaltered.	
	Phase 2:  Upon Completion, all three OMF buildings will be visible grouped together along with the upper portion of the new lighting and trees within the site peering above the golf course boundary hedge. As before the collection of buildings will be a minor element within the wider view.	
	Magnitude of Change	Low-Negligible
	Significance of Effects	Slight
	Quality	Neutral
	Duration	Permanent
Cumulative Effects	There are no other permitted developments of note that would be visible in tandem with the proposed development from this location.  Thus, there will be no significant cumulative visual effects associated with the proposed development.	
Viewpoint 11: R176 Greenore to Carlingford Coast Road		
Existing	The existing view represents views from LCC scenic route No. R14 and Prosect No.5. A break in the roadside vegetation provides open views across Carlingford Lough in the direction of the site and existing elements within Greenore port. Here the ships berthing, and the tall vertical forms of the silos and mobile cranes are the most visually prominent structures within the port from this point. The long line of mature trees within the golf course screens out most views of the village's houses. While directly right of these trees is the area of large warehousing by the southern edge of the village. Against the background in the distance are the Mourne Mountains.	

<b>Sensitivity</b>	<b>High</b>	
<b>Visual Impacts and Effects</b>		
<b>Operational Phase</b>	Phase 1:  Views will include the new western building (Building A) next to the former open hydro and backdropped by the trees along the golf course end. This direction of view also allows for views of the ports northern end where the new platoon and service marine vessels will be visible.	
	Phase 2:  Upon completion, all three new buildings (Buildings A-C) will be clearly visible with the replacement of the former open hydro building. Very slight alternation of the view of the western water tower with the addition of Building C in front of it.	
	There will also be an increase of marine service vessels and activity around the port by the new pontoon when all three buildings are fully operational.	
	<i>Magnitude of Change</i>	<b>Negligible</b>
	<i>Significance of Effects</i>	<b>Not Significant</b>
	<i>Quality</i>	<b>Neutral</b>
<i>Duration</i>	<b>Permanent</b>	
<b>Cumulative Effects</b>	There are no other permitted developments of note that would be visible in tandem with the proposed development from this location.  Thus, there will be no significant cumulative visual effects associated with the proposed development.	
<b>Viewpoint 12: Ghan Road</b>		
<b>Existing</b>	The existing view is located at a small layby which has a viewing telescope and seating for visitors. It is very similar to the previous viewpoint 11 where the main site and various existing elements around Greenore Port lands and other industrial warehousing on the edge of the village are clearly visible in the centre of the view but located further away from Viewpoint 11, by approx. 1.2km. Allowing greater views of Carlingford Lough and Mourne Mountains and its foothills.	
<b>Sensitivity</b>	<b>High</b>	
<b>Visual Impacts and Effects</b>		
	Phase 1:	

<b>Operational Phase</b>	This view of the proposed development will be very similar to that experienced from Viewpoint 11 above but from further away, by approx. 1.2km, where by the proposed developments are only slightly discernible in the wider view.	
	Phase 2:	
	Once completion, views again will be similar to Viewpoint 11 and as outlined for phase 1 are reduced by the distance to being only slightly discernible from this point.	
	Magnitude of Change	Negligible
	Significance of Effects	Not Significant
	Quality	Neutral
	Duration	Permanent
<b>Cumulative Effects</b>	There are no other permitted developments of note that would be visible in tandem with the proposed development from this location.	
	Thus, there will be no significant cumulative visual effects associated with the proposed development.	
<b>Viewpoint 13: Ballytrasna Road – LCC Scenic Route No.15</b>		
<b>Existing</b>	The existing view from roadside next to beach, allows expansive open views across Carlingford Lough towards the prominent outline of the Mourne Mountain in the background.	
	Beyond the open beach foreshore in the middle of the view, to left of the image (west), are clear views of the continuous line of large warehousing on the southern end of Greenore village together with the upper portions of Greenore Port's the tallest elements including the silos and mobile cranes. These elements add a distinct industrialise element which detracts from this rich seascape. The sheds and tree lines help screen views of the site from this point.	
<b>Sensitivity</b>	High	
<b>Visual Impacts and Effects</b>		
<b>Operational Phase</b>	Phase 1:	
	The proposed development is not visible from this point due to the intervening screening by the warehousing at the end of the village.	
	Phase 2:	
	Upon completion, the proposed development is not visible from this point due to the intervening screening by the warehousing at the end of the village.	



	Magnitude of Change	No Change
	Significance of Effects	None
	Quality	Neutral
	Duration	Permanent
Cumulative Effects	<p>There are no other permitted developments of note that would be visible in tandem with the proposed development from this location.</p> <p>Thus, there will be no significant cumulative visual effects associated with the proposed development.</p>	
Viewpoint 14: Greencastle Pier Road No.125		
Existing	<p>The existing view is one of a distance view from across the opposite side of Carlingford Lough within Northern Ireland by Greencastle beach looking back across the lough in the direction of Greenore. Where the various elements within Greenore Port are clearly visible including the existing sea break and some of the port's western end, partially hided by the docked ship, which both fall within the site's main area. Also visible to the left of the port (south) is the house and grounds at the residenital site on Shore Road which forms the site's proposed carpark lands. Also clearly visible are the warehousing on the edge of the village. While the wider view contains other built elements within Carlingford village and surrounding rural landscape which are all backdropped by the outline of the Cooley mountains and Slieve Foye.</p>	
Sensitivity	High	
Visual Impacts and Effects		
Operational Phase	<p>Phase1:</p> <p>At this stage the former house at the residential site will have been removed and replaced by a contractors compound / carpark. Allowing for greater views of the rear of house off Euston Street, There will be barely discernible views of the roofline of Building A peering above the existing former open hydro building.</p> <p>Phase 2:</p> <p>Once completion, views will include the final car park with a range of tree planting. Looking across to the main site there will be barely discernible views of the rooflines of all three proposed buildings (Buildings A-C) peering above the existing built structures within the ports lands.</p>	

	The proposed development would be barely visible from this location. The roofs of some OMF buildings may be faintly discernible from this location. However, even noticed, the proposed development will not detract from the limited inherent visual amenity.	
	Magnitude of Change	Negligible
	Significance of Effects	Not Significant
	Quality	Neutral
	Duration	Permanent
Cumulative Effects	There are no other permitted developments of note that would be visible in tandem with the proposed development from this location.  Thus, there will be no significant cumulative visual effects associated with the proposed development.	
Viewpoint 15: Kilowen Road No. 182		
Existing	The existing view is the furthest viewpoint from the site at approx. 3.85km away and similarly located on the northern end of Carlingford Lough along a layby off the main road which forms part of the Mourne Coastal Route scenic route. At this distance the various elements of Greenore Port while still distinguishable on the opposite end of Carlingford Lough, are a minor element within the expansive view dominated by Slieve Foye further to the right (north) of view. The same extent of the site, as per the earlier viewpoint no. 14, is visible including the portside end of the main site and lands at Barabara's Field.	
Sensitivity	High	
Visual Impacts and Effects		
Operational Phase	Phase 1:  The main view will be looking towards the port's northern end where there will be views of new OMF building (Building A) located directly right (west) of the former open hydro plant and also the new pontoon with marine service vessels. Changes around the residential site on Shore Road will be less discernible.  Phase 2:  Once completed, all three proposed OMF buildings will be visible, having replaced the former open hydro building, along with the new pontoon and additional marine service vessels which are visible next to the pontoon. The proposed height of the OMF buildings ensure they are well backdropped by the higher lands and dp not protrude against the skyline as is the case for other existing elements in the port. At	

	this stage the overflow car parking will be operational, but similarly will be less discernible than the other above elements of the proposed development.	
	<i>Magnitude of Change</i>	<b>Negligible</b>
	<i>Significance of Effects</i>	<b>Not Significant</b>
	<i>Quality</i>	<b>Neutral</b>
	<i>Duration</i>	<b>Permanent</b>
<b>Cumulative Effects</b>	<p>There are no other permitted developments of note that would be visible in tandem with the proposed development from this location.</p> <p>Thus, there will be no significant cumulative visual effects associated with the proposed development.</p>	

## 5.10 Potential Significant Effects

### 5.10.1 Demolition Phase

The landscape and visual effects were assessed under Section 5.8 and 5.9 above. It found that there are no potential significant landscape and visual effects during the demolition phase.

### 5.10.2 Construction Phase

The landscape and visual effects were assessed under Section 5.8 and 5.9 above. It found that there are no potential significant landscape and visual effects during the construction phase.

### 5.10.3 Operational Phase

The landscape and visual effects were assessed under Section 5.8 and 5.9 above. It found that there are no potential significant landscape effects during the operational phase.

Once fully completed out and operational the proposed development will not have any significant effects on most of the assessed viewpoints above. Only viewpoints 2 and 4 will have **moderate-significant or significant effects**, both of which having **positive** changes to the receptors existing views as result of the material changes occurring around the port as part of the proposed development's layout.

Regardless of the proposed development, the recent approved planning applications for an approved extension and modification of existing Warehouse (LCC Planning Ref 20268, ABP Ref 307862) and new warehouse (LCC Planning Ref Planning ref 20543, ABP Ref 310184) have set out acceptable levels of visual changes , deemed appropriate by LCC and ABP planning authorities, upon the same assessed receptors when looking towards any future developments within the port were they to proceed.

The visual changes of the proposed development once completed will in places be notable more visually pleasing upon the assessed affected receptors views than in comparison to the already

approved visual changes for the above approved developments. Due in part to their broken up built form, set back of buildings from boundary wall and high-quality design. Also, this application's proposed development improvements along the interface of the port and the north end of Euston Street will have notable beneficial/positive visual effects by the northern end of the ACA.

#### 5.10.4 Cumulative Effects

A review of other planning applications within the study area including the mix of application types and scale as appended to Chapter 1 of this EIAR. However, there are no applications, pending or approved but not yet constructed which could be considered to have the potential for any notable cumulative landscape or visual effects with the proposed development.

Therefore, there are no significant for cumulative landscape and visual effects at the time of this assessment and not are considered any further in this assessment.

Similarly, there are no potential cumulative landscape or visual effects with the port's developments already approved but not constructed (new warehousing (LCC Planning Ref Planning ref 20543, ABP Ref 310184) and extension of the existing former open hydro building (LCC Planning Ref Planning ref 20543, ABP Ref 310184) as it is deemed not feasible to build the proposed development with either of these extant permissions.

Please note that the additional projects listed in the updated Cumulative Projects List appended to Chapter 1 (i.e. the proposed ORE developments in the Irish Sea) were considered, and no additional cumulative effects from these projects were identified.

### 5.11 Mitigation

#### 5.11.1 Incorporated Design Mitigation

The proposed design through its evolution has placed a great emphasis on integrating the proposed development into the receiving landscape through respecting and enhancing the existing character of the port lands and surrounding Greenore ACA. These measures include:

- The careful design and placement of building to create new elevations, features and focal points in the views available. While offset from the historic structures within the port so to not impact on their visibility.
- The softening of the setting and framing of the elevations with the proposed planting mixes including trees, specimen shrubs and hedgerow to reduce the visual mass of the new building, soften and integrate the development over time from various viewpoints, as identified in the assessment, thereby minimising the visual impacts and generally enhancing the current outlook for many viewpoints. As outlined in the set of landscape masterplans which accompanies this application.
- Tree and shrub planting to help break up the carparking areas throughout the site and implementation of suitable SUD planting in the carparks.

- The design of the public realm scheme at the end of Euston Street to a high standard and seamless integration of the Port end off Euston Street and surrounding streetscape within Greenore ACA.
- The design has considered the movement of vehicles, cyclists and pedestrians within the site and surrounding area and improves upon the existing access to minimise disruption. Proposed pedestrian routes through the site will have strong legibility by using contrasting paving materials.
- Integration of the proposed planting will all other proposed services so that these services don't affect the new planting and existing vegetations long term growth and maintenance.

### 5.11.2 Demolition Phase Mitigation

The proposed demolition works to occur within the site, as a form of construction, will follow similar mitigation as outlined below in the construction works phase.

### 5.11.3 Construction Phase Mitigation

During the construction for all phases there will be a change to the landscape and there will be adverse visual impacts for residents and visitors to the areas adjacent to the site associated with construction activity.

The remedial measures proposed revolve around the implementation of appropriate site management procedures as part of the CEMP to help minimise disturbance to landscape and visual receptors. These measures will include: the likes of the control of site lighting, storage of materials, placement of compounds, delivery of materials, car parking, agreed working hours etc. Visual impact during the construction phase will be mitigated somewhat through appropriate site management measures and work practices to ensure the site is kept tidy, dust is kept to a minimum, and that public areas are kept free from building material and site rubbish. Any temporary lighting will be directed down and away from the residences and will only be switched on only when necessary to ensure works can be safely carried out.

The construction traffic route has been designed so that site traffic/deliveries will run via Shore Road to ensure minimal disturbance to residences within the core of the village during the works.

The retained trees along the boundaries will be protected by installation of fencing in accordance with BS5837:2012: Trees in Relation to Construction around the root protection areas (RPAs) as per the arborists Arboricultural Impact Assessment (AIA) report.

Site hoarding will be appropriately scaled, finished and maintained for the period of construction of each section of the works as appropriate. To reduce the potential negative impacts during the construction phase, good site management and housekeeping practices will be adhered to. The visual impact of the site compound and scaffolding visible during the construction phase are of a temporary nature only and therefore require no remedial action other than as stated above.

Adverse impacts both during construction will be short-lived and superseded by the completed new development.



#### 5.11.4 Operational Phase Mitigation

While the proposed development is to occur in three phases the landscape and visual mitigation will be similar through these phases and being fully implemented at the end of the three phases completed construction phase.

These measures will include:

Lighting has been designed to minimise the potential for light spillage into the surrounding area through the use of suitable directional lighting centred to fall within the site. The lighting will be only on as required to provide safe access through the site during operations and for security cover of the site.

Traffic – The site layout has been designed, for each phase, so that there is adequate levels of parking within the site lands to accommodate employees vehicles of the OMFs and those of the existing Port operations so that no parking will occur within the surrounding streets. So to minimise disturbance to local residents and character of the ACA.

Maintenance- The proposed landscape, which will be fully implemented by the end of Phase 2, consists of robust planting species specifically selected to cope with the harsh coastal environment so to minimise the risk of planting failures. The proposed and existing planting will be maintained through the operation phase to ensure the new planting becomes established and matures over time to help integrate the site's proposed built elements into the landscape and also soften and screen views of these new structures from receptors in the surrounding areas identified in this assessment as per the intentions of the landscape masterplan proposals.

### 5.12 Residual Impact Assessment

As covered in Section 5.8, there are no significant residual landscape effects associated with the proposal. The highest landscape effect will be of 'Moderate' significance at Construction Stage, and of 'Moderate' significance at Operational Stage.

As covered in Section 5.9, there are a range of visual effects, from No Change to the existing view through to Significant effects. The phased nature of the proposed development means these effects range between temporary to permanent duration across the site lands. However, only those deemed as Moderate-Significant or Significant occur within very close proximity to the site as experienced from Viewpoint 2 at the northern end of Euston Street and Viewpoints 4 and 5 on Anglesey Terrace.

In light of the development lands recent planning history approvals and planning policy for the county ports, development of this site would appear to be inevitable. It is considered likely that any proposed viable portside development is likely to give rise to landscape & visual effects of a similar, if not higher, nature. While the intensification of land use in the site is a change that cannot be wholly mitigated, this application's proposed layout reflects a higher quality design than that of previous recent proposals for the port. This is likely to result in an overall beneficial effect locally and to the wider area.

### 5.13 Risk of Major Accidents or Disasters

It is expected that the risk of any major accidents or disasters on landscape and visual receptors can be averted by the implementation of a robust Construction Environmental Management Plan (CEMP) and appointment of an experienced competent contractor to undertake the construction works.

Where an accident to occur during the construction or operational phase, such as a contamination event in the form of a leakage this could cause damage to the aquatic environment of Carlingford Lough. Another potential event during the construction phase could be a biosecurity breach whereby invasive species (plant and insects) and diseased plant material are brought on site during the landscaping works.

Such events could have a localised direct or indirect impact on the characteristics of the seascape of the SCA17 – Border SCA-Carlingford Lough including that of altering the human activity on the local shore or lough, e.g. loss of oyster farming or reduced level of recreational sailing, and of the sensitive habitats of its ecological designations (see Chapter – 11 Biodiversity for details), e.g. decline of bird activity visibly present around the lough.

### 5.14 Worst Case Scenario

Would occur if the proposed development was not fully implemented as per the proposed site layout plans, including that of the proposed landscaping across the site.

### 5.15 Interactions

The potential for interactions with Biodiversity to occur will largely be beneficial effects as a result of implementing the proposed landscape masterplan, which includes measures to increase the level of beneficial planting across the existing site with a range of species include native species and pollinator rich species in keeping with the All-Ireland Pollinator Plan. Some minor loss of trees includes 6 no. that are required to be removed due to accommodate the Proposed Development plus 1 no. due to poor health. However, new tree coverage will compensate any losses. The proposed mix of planting species to be used and installation of the planting site will include collaborating with the project ecologist to ensure this new landscaping doesn't negatively impact the highly sensitive Carlingford Lough SAC and SPA. Please refer to Chapter 11- Biodiversity.

The potential for interaction with Traffic & Transport will be indirect effects upon the landscape character and visual amenity as result of changes to existing traffic levels within the immediate surroundings during the decommissioning, construction, and operational phases. Positive effects are likely to occur with the emphasis through the design which will improve the flow of traffic off Euston Street and around the existing port buildings and OFM buildings. While the high level of car park provisions ensures a concentration of parking within the site so to not impact on the existing residence parking along the surrounding streets and streetscape character within the ACA. Similarly, the flow of pedestrian/cyclist through the site will be improved access as well to the small amenity space from off Euston Street. Please refer to Chapter 6 – Material Assets -Traffic & Transport.

The potential interaction with Land and Soils will occur during the demolition and construction phases with movement of material through/off the site and its temporary storage on site. There will be opportunities to reuse the soil lifted from the residential site for the new carpark surface and transport it to those areas of the main site which are currently hardstanding and lacking the depth and quality of soil needed for the various proposed planting areas, thus helping to reduce the need to import soil from an outside source. Please refer to Chapter 9 - Land and Soils.

## 5.16 Monitoring

The landscape mitigation and enhancement measures are incorporated into the proposed development's landscape masterplan, see this application's accompanying landscape plans and design report.

The masterplan proposals include a range of hard and soft landscaping. The soft landscape measures include the retainment of existing trees, and planting of grasses, wildflowers, climbers, shrubs, hedges, and trees. The successful establishment of the proposed planting will be key to helping to fully integrate the Proposed Development's built structures into the surrounding landscape and provide a visual buffering of the Proposed Development's built elements from surrounding visual receptors. The mitigating effects of which have been considered when determining the predicted landscape and visual effects in the assessment above.

The appointed landscape contractor will undertake inspection of planting to ensure the planting becomes established over the initial years and that any failed planting is duly replaced.

## 5.17 Summary of Mitigation and Monitoring

The mitigation measures proposed will seek to reduce any potential significant effects on the landscape and visual receptors. Key measures include: installation of trees, shrubs, hedging to help break up the built forms of the new buildings and of the lines of vehicles within the carpark areas.

Monitoring will be achieved through implementing a landscape management and maintenance plan to ensure the proposed planting becomes fully established overtime.

The following Table summarises the Construction Phase mitigation and monitoring measures.

**Table 5-11 Summary of Construction Phase Mitigation and Monitoring**

Likely Significant Effect	Mitigation	Monitoring
Potential for disturbance of the local landscape and to local residences, golf course users, visitors as a result of the construction works.	Implementation of CEMP including controlling site lighting through use of directional lighting and only when needed, storage of materials/site compound, car parking working hours etc. Controlling site traffic/deliveries of goods by using shore road route.	Construction works activities will be controlled and monitored daily by the site manager or other appointed personnel.

Likely Significant Effect	Mitigation	Monitoring
<b>Potential for damage to existing retained trees within the site</b>	Installation of tree protection fencing and no dig areas within the root protection area. All works to be in accordance with BS5837:2012: Trees in Relation to Construction around the root protection areas (RPAs) as per the arborists Arboricultural Impact Assessment (AIA) report.	Any construction site works to be carried out within the vicinity of existing trees to be monitored on site by the project arborist.

The following Table summarises the Operational Phase mitigation and monitoring measures.

**Table 5-12 Summary of Operational Phase Mitigation and Monitoring**

Likely Significant Effect	Mitigation	Monitoring
<b>Introduction of the proposed development's new building structure/layouts and associated traffic/personnel.</b>	The landscape scheme consists of robust planting suited to the coastal landscape which will help integrate the site's proposed built elements into the landscape and also soften and screen views of these new structures from receptors in the surrounding areas.	The appointed landscape contractor will undertake inspection of planting to ensure the planting becomes established over the initial years and that any failed planting is duly replaced.

## 5.18 Conclusion

This Chapter of the EIAR has assessed the landscape and visual effects of the proposed development at Greenore Port, which is one of four ports within County Louth. The importance of the need to support the sustainable growth and expansion of the county's port is recognised through planning policy in the LCDP. The subject lands recent planning history includes approval by Louth County Council and An Bord Pleanála for warehousing type developments which are deemed acceptable for this area by both planning authorities.

The proposed design reflects a considered form and materiality of development that is sensitive to its unique context of the active port and Greenore ACA and which contributes positively to local place-making.

### *Landscape*

The proposed development will be located within the existing working Greenore port lands and on the lands of an uninhabited residence. A small portion of the site falls within the northern end of the Greenore ACA, which has been designated for its rich architectural heritage directly linked to the founding of the Greenore port and former railway line. Most of the proposed development is located within the main port lands and through the proposed design is systematic to the setting of the port and ACA with the retention of the old engine room wall and not affecting other heritage elements outside of the site. The main changes will occur across large areas on the western end of the port and

its northern shoreline. There will be some limited impact on vegetation including the loss of 6 trees (1 due to poor health) and some ornamental shrub/grass cover to accommodate the works.

The proposals are supported by a broad range of hard/soft landscape measures to help mitigate for the integration of the proposed scheme into the receiving landscape. This includes compensating for any losses of vegetation with additional tree planting and mixes of vegetation cover that help enrich the existing biodiversity of the site.

The proposed landscaping and concepts are indicated on the set of Landscape Masterplans (see Dwg 22396-2-101, 102A, 102B, and 103) and within the Landscape Design Report which accompany this application

Overall, the proposed development once completed will have **Moderate** significance of effects and **neutral quality permanent** on the landscape receptors,

#### *Visual*

The above assessment has considered the potential views of the proposed development across its various phases from a range of visual receptors located through the study area.

The greatest potential for visual changes will occur to those receptors located within the immediate vicinity of the port which includes both residential and recreational receptors. While further away the changes become less perceptible when viewed amongst the backdrop of other port elements and wider landscape.

Key changes include the removal of the existing former open hydro building and storage yard area and replacement with the three new buildings and associated landscaping. Views of the former engine room wall will be retained, having been previously approved for removal by other recent applications. There will also be enhancement of the existing interface between the existing port offices and Euston Street, improving the visual character of this part of the ACA. While there will be some localised visual changes around the residential site on Shore Road.

Overall, changes to the existing receptors views of the port as a result of the addition of the proposed development will result in significance effects ranging between **No Change to Significant, permanent**, with some of them being of **beneficial/positive quality**.

#### *Summary*

The proposed development is of a high-quality design that seeks to sit within the sensitive surroundings of Greenore ACA and limit its impacts including on landscape and visual receptors identified in this report. This application will replace the other already recent LCC and ABP approved but not constructed developments within the main port lands whose designed built forms are considered to have a lesser aesthetic value and not as systematic to their surroundings including Greenore ACA in comparison to this application's proposed development's design and layout.



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## **CHAPTER 6**

### **MATERIAL ASSETS: TRAFFIC & TRANSPORT**

## **VOLUME II**

### **ENVIRONMENTAL IMPACT ASSESSMENT REPORT**

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## 6 Material Assets: Traffic & Transport

It is noted that for ease of reference all changes from the original chapter are shown in blue.  
Where text has been removed it is shown as ~~strike through~~.

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### 6.1 Introduction

This chapter of the EIAR was prepared to assess the potential significant effects of the proposed development on traffic and transportation. It should be read in conjunction with project description. Trafficwise Ltd. has undertaken a Traffic and Transport Assessment (TTA) carried in accordance with Transport Infrastructure Ireland (TII) Publication TII-PE-PDV-02045 '*Traffic and Transport Assessment Guidelines*' (May 2014). The TTA report is submitted with the application. Technical information in the TTA is referenced throughout this chapter which should be read in conjunction with the TTA.

The aim of this Chapter is to provide the Planning Authority with sufficient roads and traffic related information to determine the current traffic characteristics of the existing development and based upon industry standard traffic forecasting to inform an assessment of the potential traffic impact arising from the proposed development which comprises the development of Operations and Maintenance Facilities at Greenore Port.

This chapter of the EIAR was prepared to assess the potential significant effects of the proposed development on the receiving road environment and should be read in conjunction with Chapter 13 '*Noise and Vibration*' and Chapter 14 '*Air Quality*'.

### 6.2 Expertise & Qualifications

This Chapter has been prepared by Julian Keenan of Trafficwise Ltd., Traffic and Transportation Planning Consultants.

Julian Keenan is an Engineer in practice and a director of Trafficwise Ltd. holding the degree of Bachelor of Engineering (Hons.) in civil engineering conferred by University College, Galway, in 1990. Mr Keenan is a member of the Institution of Engineers of Ireland and a member of the Chartered Institution of Highways and Transportation and has over 33 years engineering experience, including approximately seven years in local government in the United Kingdom and over 26 years of private engineering consultancy services in Ireland, of which 22 years have been with Trafficwise Ltd. He has specialised in roads design and traffic and transportation planning for approximately 28 years. Consultancy experience includes advising clients in relation to road schemes, residential, commercial, industrial and leisure developments for which the key work involves provision of professional services in the design and appraisal of schemes, including the preparation of planning applications and appeals. Mr Keenan has represented clients at An Bord Pleanála oral hearings for commercial development, strategic infrastructure development and represented landowners and stakeholders in relation to various road schemes and infrastructural works. He has given sworn evidence before the Property Arbitrator, including in relation to road schemes, and has provided expert witness testimony to the High Court.

## 6.3 Proposed Development

A full description of the proposed development is set out in Chapter 2 of this EIAR, and in the TTA Chapter 4 'Proposed Development'.

### 6.3.1 Aspects Relevant to this Assessment

When considering a development of this nature, the potential traffic and transport impact on the receiving road network is considered for each of two distinct stages:

- demolition & construction phase, and;
- operational phase.

During the construction stage the main focus in relation to traffic and transport matters will arise from demolition, piling, dredging and other more typical construction activities. These activities have the potential to generate additional traffic to the receiving roads network. The construction phase impacts will be temporary to short-term in duration.

The primary potential sources of impact upon traffic and transport during the operational phase arise from staff travel together with deliveries and routine servicing of the development. All impacts during the operational phase are assessed as long-term.

## 6.4 Methodology

This chapter has been prepared having regard to the following guidelines;

- Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment (Department of Housing, Planning & Local Government, 2018)
- Environmental Impact Assessment of Projects: Guidance on the preparation of the Environmental Impact Assessment Report (European Commission, 2017)
- Guidelines on the Information to be Contained in Environmental Impact Assessment Reports (EPA, 2022)
- Louth County Development Plan 2021–2027
- Transport Infrastructure Ireland (TII) Publication TII-PE-PDV-02045 'Traffic and Transport Assessment Guidelines' (May 2014).
- Chartered Institution of Highways and Transportation (CIHT) 'Guidelines for Traffic Impact Assessment' (Sept 1994)
- Department of the Environment & Local Government (DoELG), Department of Transport (DoT) and the Dublin Transportation Office (DTO) 'Traffic Management Guidelines' (May 2022).
- TII Publication PE-PAG-02017 'Project Appraisal Guidelines for National Roads Unit 5.3 Travel Demand Projections' (Oct 2021).
- TII Publication PE-PAG-02039 'Project Appraisal Guidelines for National Roads Unit 16.1: Expansion Factors for Short Period Traffic Counts' (Oct 2016);
- TII Publication PE-PAG-02016 'Project Appraisal Guidelines for National Roads Unit 5.2 - Data Collection' (Dec 2023).
- TII Publication DN-GEO-03060 'Geometric Design of Junctions'. (May 2023)
- TII Publication DN-GEO-03061 'Rural Link Design'. (May 2023)
- Department of Transport, Tourism & Sport, 'Design Manual for Urban Roads & Streets' (2019).

The assessment will be undertaken using the following methodology:

- Baseline traffic surveys have been undertaken in the vicinity of the proposed development site in order to characterise the existing receiving road network and traffic environment;
- A review of the most applicable standards and guidelines to set a range of acceptable threshold criteria for the construction and operational phases of the proposed development;
- Predictive calculations of traffic generation relating to construction phase activities have been undertaken;
- Predictive calculations of traffic generation have been undertaken to assess the potential impacts associated with the operation of the development on the receiving road network within the study area;
- A schedule of mitigation measures has been incorporated where required, to reduce, where necessary, the identified potential impacts relating to traffic and transport arising from the proposed development.

## 6.4.1 Relevant Guidance

### 6.4.1.1 Traffic and Transport Assessment

The Transport Infrastructure Ireland (TTI) Traffic and Transport Assessment Guidelines provide a comprehensive framework for evaluating the impacts of developments on traffic and transportation. These guidelines are used by planners, engineers, developers, and government agencies to ensure that the traffic and transportation demands of projects meet whilst minimizing negative effects on traffic flow and safety. Below is an overview of key elements involved in the preparation of the Traffic and Transport Assessment (TTA) accompanying the application which underpins the information provided in this Chapter:

- Purpose and Scope: The objective is to ensure that new developments or changes to existing travel infrastructure are assessed for their impacts on traffic and transportation systems. The guidelines apply to various types of projects, including residential, commercial, industrial, and infrastructure developments.
- Assessment Process: Initially there is a screening process based upon various threshold and sub-threshold values to determine whether the predicted impacts are significant enough to warrant full traffic and transport assessment, the need for which is typically based on the scale, nature and traffic generation characteristics of the project.
- Scoping: Initial high level assessment to define the extent and focus of the assessment, including the geographical area, time periods, and specific issues to be studied.
- Data Collection and Analysis: This includes surveys of current traffic volumes, road capacities, public transport availability, and accident statistics. This is used to establish baseline data and includes the collation of data on current transportation network performance including traffic flows. Data collection includes future projections and estimation of future traffic conditions with and without the proposed development, taking into account population growth, economic trends, and other relevant factors.
- Impact Assessment: Calculation of trip generation and estimation of the number of trips generated by the development, including different modes of transport. Forecasting trip distribution and assignment to the receiving road network providing rationale for the analysis of where trips will originate and end, and the routes they will take.

- Capacity Analysis: Evaluation of forecast traffic impacts based upon assessment threshold values and criteria. Modelling assessments of whether existing or planned infrastructure can handle the additional traffic, including intersections, road segments, and public transport facilities in the case of urban development.
- Mitigation Measures: Where impacts are sufficiently significant to warrant infrastructure Improvements typically recommendations for road upgrades, intersection improvements, or new transport facilities are put forward. This may include traffic management strategies to optimize traffic flow, such as staff shift scheduling, new signage, or traffic calming measures. In developments generating significant staff numbers sustainable transport solutions including the promotion of public transport, cycling, and walking can be considered to reduce reliance on private vehicles.

#### 6.4.2 Traffic and Transport Assessment Guidelines - Thresholds

Traffic and Transport Assessment or Traffic Impact Assessment must accompany all planning applications for developments which could potentially generate significant traffic volumes. Initially there is a screening process based upon various threshold and sub-threshold values to determine whether the predicted impacts are significant enough to warrant full traffic and transport assessment. The following sets out the various relevant thresholds:

- Development traffic exceeds 10% of the traffic flow on the adjoining road.
- Development traffic exceeds 5% of the traffic flow on the adjoining road where congestion exists or the location is sensitive.
- Residential development in excess of 200 dwellings.
- Retail and leisure development in excess of 1,000m<sup>2</sup>.
- Office, education and hospital development in excess of 2,500m<sup>2</sup>.
- Industrial development in excess of 5,000m<sup>2</sup>.
- Distribution and warehousing in excess of 10,000m<sup>2</sup>.

Relevant thresholds for Traffic Assessment where the development has the potential to affect national roads are as follows:

- 100 trips in / out combined in the peak hours for the proposed development
- Development traffic exceeds 10% of turning movements at junctions with and on National Roads.
- Development traffic exceeds 5% of turning movements at junctions with National Roads if location has potential to become congested or sensitive.
- Industrial development in excess of 5,000m<sup>2</sup>.
- Distribution and warehousing in excess of 10,000m<sup>2</sup>.
- 100 on-site parking spaces.

Sub threshold criteria for Traffic Assessment are as follows:

- The character and total number of trips per day is such that as to cause concern.
- Location of the site is not consistent with national guidance or local plan policy or accessibility criteria contained in the Development Plan.

- The development is part of incremental development that will have significant transport implications.
- The development may generate traffic at peak times in a heavily trafficked/ congested area or near a junction with a main traffic route.
- The development may generate heavy vehicles in a residential area.
- There are concerns over the development's potential effects on road safety.
- The development is in a tourist area with potential to cause congestion.
- The planning authority considers that the proposal will result in a material change in trips patterns or raises other significant transport implications.

### 6.4.3 Assessment Criteria

TII PE-PDV-02045 Traffic and Transportation Assessment Guidelines 2014, Table 2.1 '*Traffic Management Guidelines Thresholds for Transport Assessments*' sets out various threshold values and criteria that typically trigger that a TTA is required where national roads are affected by traffic arising from any proposed development. A general threshold value which is commonly used to identify whether a TTA including detailed junction capacity assessments is required is as follows:

- Traffic to and from the development exceeds 10% of the traffic flow on the adjoining road

It should be noted the 10% flow is generally a prompt for whether or not a TTA is recommended, it is not typically used to determine the significance of effects. It is nonetheless commonly used in TTA to reference the scale of increase in traffic flows when assessing the forecast long-term operational traffic effects of proposed developments. It is used herein as a preliminary measure of the potential magnitude of effect on the receiving road network.

### 6.4.4 Baseline Traffic Surveys

Traffinomics Transportation Surveys Ltd. carried out classified turning count surveys on the public road network in the vicinity of the site on Wed 17-May-2023. The traffic turning count data was collected mid-week to reflect typical weekday traffic patterns and includes the commuter peak periods. The weekday commuter peak periods typically tend to have the heaviest hourly network flows.

In addition to the short-term turning count surveys Traffinomics Transportation Surveys Ltd. also undertook Automatic Traffic Counter (ATC) surveys spanning 2 no. weeks. These surveys were undertaken on R175, R176 and Euston Street commencing on Thurs 4 May 2023.

The baseline data included an the ATC survey site on R175 Shore Road close to the port access and this enabled the baseline traffic data to be validated and calibrated against long term weighbridge records for the port, spanning 3 years. In the interest of a robust and thorough study, the assessments of traffic impacts include for the recorded average baseline traffic conditions on the receiving roads and also include for a separate upper value baseline sensitivity analysis. Both sets of data are carried through numerical and statistical analyses and are both used in the detailed modelling assessment of the effects of development traffic on the capacity of the receiving roads infrastructure including effects on queuing and delay.



## 6.5 Difficulties Encountered

There were no difficulties encountered when compiling this assessment.

## 6.6 Baseline Environment

### 6.6.1 Baseline Traffic Surveys

Traffinomics Transportation Surveys Ltd. carried out classified turning count surveys on the public road network in the vicinity of the site using CCTV on Wed 17-May-2023 between 07:00 and 19:00hrs. A copy of the survey data is provided in TTA: Appendix A. Traffic data was collected for the following locations identified in Figure 6.1 where the prefix 'J' indicates the location of turning counts and the prefix 'A' indicates the location of Automatic Traffic Counters that were in place for two weeks.

The traffic turning count data was collected mid-week to reflect typical weekday traffic patterns and includes the commuter peak periods. The weekday commuter peak periods typically tend to have the heaviest hourly network flows. In addition to the short-term turning count surveys Traffinomics Transportation Surveys Ltd. also undertook Automatic Traffic Counter (ATC) surveys spanning 2 no. weeks. These surveys were undertaken on R175, R176 and Euston Street commencing on Thurs 4 May 2023. The locations of the ATC surveys are identified in Figure 6.1 by the prefix 'A'.

Traffic data was collected for the following locations identified in Figure 6.1.

- Site J1: R175/R176 Priority Junction
- Site J2: R175 Shore Road/L70661 Euston Street Priority Junction
- Site A1: ATC - R175 Dundalk Road (South of R176)
- Site A2: ATC - R175 Greenore Road (South of IDA Industrial Estate)
- Site A3: ATC - R176 Carlingford Road
- Site A4: ATC - L70661 Euston Street (Near Junction with R175)
- Site A5: ATC - R175 Shore Road

The traffic flow data from the May 2023 surveys forms the basis of the assessments of road network capacity and the assessment of the likely impact of the proposed development on the operation of the receiving road network.

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**Figure 6.1 Baseline Traffic Survey Locations**

Table 6.1 provides a summary of the recorded average daily traffic flows by direction at the junction turning count locations. The road link numbers used in the table correspond to those used in the network flow diagrams provided in TTA: Appendix B which for ease of reference correspond with the survey site numbering convention used by Traffinomics Ltd. provided in TTA: Appendix A.

Table 6.1 shows the average weekday traffic flow and percentage HGV content enumerated for 12 hours and provides an estimate of 2023 Annual Average Daily Traffic (AADT). AADT is a commonly used metric in transportation engineering and planning, particularly in the context of roads design and maintenance. AADT represents the total two-way flow of vehicles passing a specific point on a road over the course of a year divided by the number of days per year.

With respect to traffic volume assessment, AADT is a fundamental measure for understanding the traffic flow on a road. It provides insights into how busy a particular stretch of road is, which is crucial for designing and maintaining roads to accommodate the expected volume of traffic. AADT is also a key parameter in the design of roads. Engineers use this data to determine the appropriate road cross-section, design speed, and other features which aid to determine that the road can handle the anticipated traffic demand. The volume and weight of traffic are critical factors in determining the type and thickness of pavement needed for a road. AADT data is used in pavement design to ensure that roads can withstand the expected traffic loads. AADT data is also often used in transportation planning to prioritise infrastructure investment. It helps roads authorities allocate resources by identifying roads with higher traffic volumes that may require upgrades or expansions and is valuable in scheduling road maintenance programmes. AADT data is also used in environmental impact assessments related to transportation projects. The volume of traffic can affect air quality, noise levels, and other environmental factors, and planners use AADT to evaluate these impacts. In summary, AADT is a critical statistical measure that informs various aspects of road design, maintenance, and planning. It helps transportation professionals make informed decisions to ensure that road infrastructure meets the demands of the traveling public.

The estimates of AADT are based upon the total flows recorded in traffic surveys to which are applied the appropriate factors derived from TII Publication PE-PAG-02039: Project Appraisal Guidelines Unit 16.1 (2016) '*Expansion Factors for Short Period Traffic Counts*' (Oct 2016). The network flow diagrams of TTA: Appendix B, each provide a schedule of the link numbers and each link is identified on the diagrams.

**Table 6.1 Network Link Road Traffic – Average Daily Flows (Two-way)**

Road Link		Survey Traffic Flows 12hrs 07:00-19:00hrs			AADT
		Total	Heavy	%HGV	
1	R175 Dundalk Road (South of R176)	3,820	679	17.8%	5,043(18%)
2	R175 Greenore Road (South of IDA Industrial Estate)	1,892	562	29.7%	2,498(30%)
3	R176 Carlingford Road	2,862	189	6.6%	3,778(7%)
4	R175 Greenore Road (North of IDA Industrial Estate)	1,492	538	36.1%	1,970(36%)
5	L70661 Euston Street (Near Junction with R175)	659	9	1.4%	870(1%)
6	R175 Shore Road	973	529	54.4%	1,284(54%)

The peak hours and associated traffic flows recorded in the May-2023 surveys are as follows:

- Weekday AM Network Peak Hour      08:00-09:00hrs
- Weekday PM Network Peak Hour      17:00-18:00hrs

Table 6.2 and Table 6.3 provide summaries of the recorded two-way peak hour traffic flows on the receiving road network in the morning and evening peak hours.

**Table 6.2 Network Link Road Traffic – Average AM Peak Hour Flows (Two-way)**

Road Link		Weekday AM Peak Hour Traffic Flows 08:00-09:00hrs		
		Total	Heavy	%HGV
1	R175 Dundalk Road (South of R176)	309	70	23%
2	R175 Greenore Road (South of IDA Industrial Estate)	137	55	40%
3	R176 Carlingford Road	212	19	9%
4	R175 Greenore Road (North of IDA Industrial Estate)	95	48	51%
5	L70661 Euston Street (Near Junction with R175)	44	0	0%
6	R175 Shore Road	59	48	81%

Corresponding network flow diagrams of the recorded peak hour traffic flows are provided in network flow diagram format in TTA: Appendix B, Figure 2 ‘*Surveyed Morning Peak Hour Traffic Flows 08:00-09:00hrs*’ and TTA: Appendix B, Figure 3 ‘*Surveyed Evening Peak Hour Traffic Flows 17:00-18:00hrs*’.

**Table 6.3 Network Link Road Traffic – Average PM Peak Hour Flows (Two-way)**

Road Link		Weekday PM Peak Hour Traffic Flows 17:00-18:00hrs		
		Total	Heavy	%HGV
1	R175 Dundalk Road (South of R176)	397	24	6%
2	R175 Greenore Road (South of IDA Industrial Estate)	159	13	8%
3	R176 Carlingford Road	340	13	4%
4	R175 Greenore Road (North of IDA Industrial Estate)	114	2	2%
5	L70661 Euston Street (Near Junction with R175)	72	0	0%
6	R175 Shore Road	52	2	4%

#### 6.6.1.1 Operation of Port and Baseline Calibration

The road network traffic surveys include detailed traffic data spanning two weeks on Euston Street and R175 Shore Road. Euston Street is not subject to significant existing traffic generated by the port. No port HGV traffic is generated to Euston Street. Historically the OpenHydro building car park (part of the application site) was accessed from Euston Street. The OpenHydro car park had capacity for 62 no. car spaces including 3 no. disabled spaces. These spaces are located to the west of the port office buildings served through a separate gate and thus apart from the parking spaces at the end of Euston Street generally used by staff and visitor to the port administration offices.

The generation of HGV and the volume of product transported by each vehicle entering and leaving the port is not only product dependent but is commercially driven. Materials are exported from the port in bulk and generally by articulated vehicles carrying the most logistically efficient and commercially viable loads. Materials are not generally exported from the port in part loads. Based upon a review of weighbridge records for the site for the year 2023 the average vehicle weight from a sample of approx. 30,000 vehicles was 45.6 tonnes per vehicle. Vehicles used to transport loose



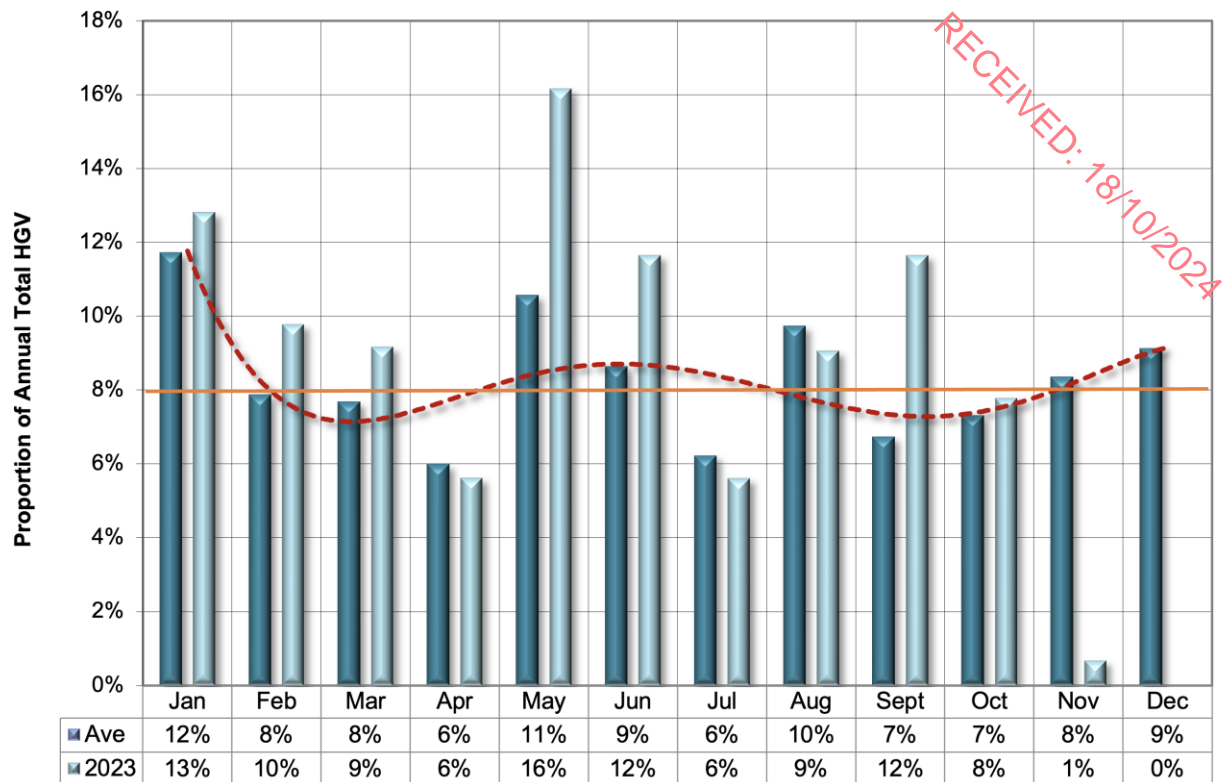
materials such as grain are predominantly the eight-wheeler tipper and articulated tipper types. There is no importation of materials but some sundry supplies and fuel deliveries occur occasionally. Based upon an assessment of site records for the haulage of materials from the site over the course of 2023 the average payload of vehicles leaving the site was 29 tonnes.

In order to assess the traffic generation characteristics of the existing port operation weighbridge records for that site have been analysed, the weighbridge chiefly records the mass of materials exported together with date and time. The weighbridge data analysis period extends for the 37-month period from Nov-2020 to Nov-2023. Based upon an assessment of weighbridge data the haulage of materials from the port typically occurs all in full loads.

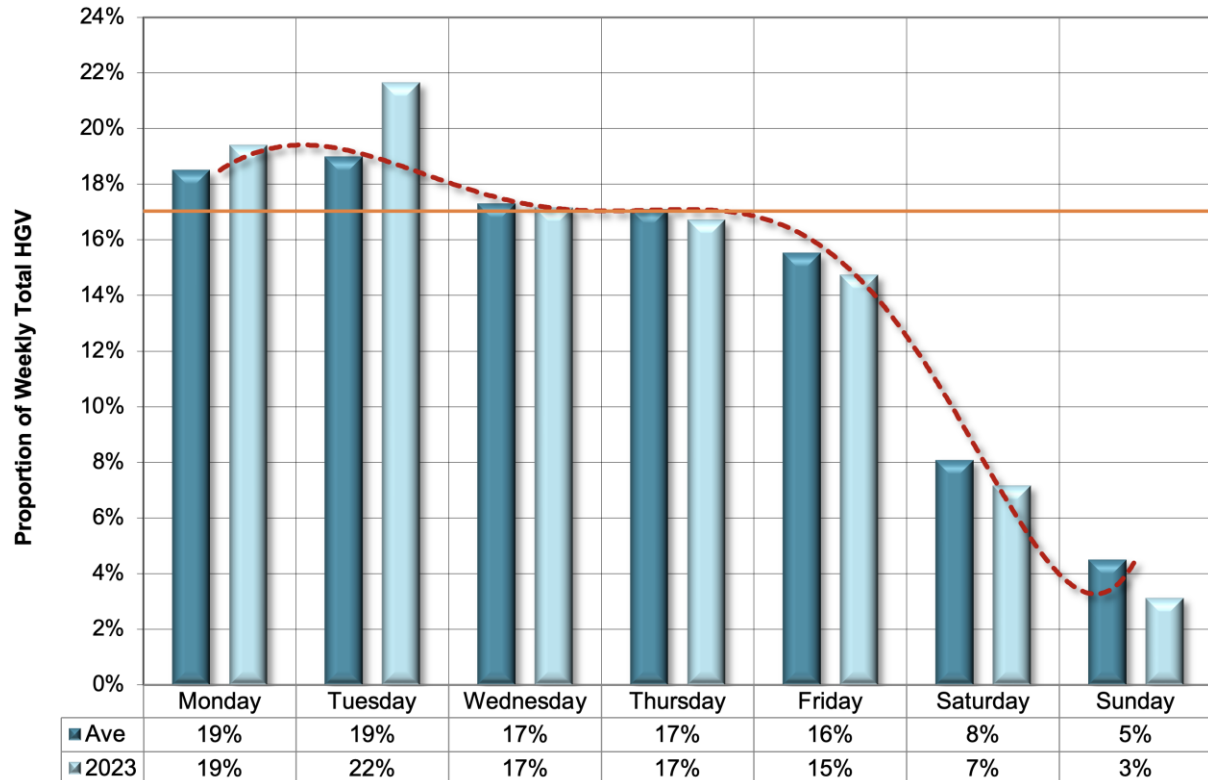
Based upon the full 3 no. years range of data Figure 6.2 shows the percentage of the annual total number of HGV trips generated each month and thus an annual profile of HGV traffic generation. The recorded total annual HGV trips were 45,038 in 2021, 44,616 in 2022 and 29,710 in 2023. The average monthly HGV traffic generation over the 3 no. years is 39,788. The red dashed line in Figure 6.2 is a moving average whilst the solid orange line indicates the average monthly HGV traffic generation which is 8% of annual HGV vehicle trips. The average HGV trip generation per month is in the order of 3,603 in 2021, 3,569 in 2022 and 2,376 in 2023. The average monthly HGV traffic generation over the 3 no. years is 3,183. Figure 6.2 also provides separately the statistics for 2023 when the traffic counts were undertaken.

Figure 6.3 provides a breakdown of port HGV traffic generation and summarises the weekly profile of HGV traffic. The red dashed line is a moving average whilst the solid orange line indicates the average weekday HGV traffic generation (excludes data for Saturday and Sunday). The average weekday HGV traffic generation equates to 17% of the total weekday HGV traffic generation. Figure 6.3 shows that the volume of HGV traffic on Saturdays is approximately half that of weekdays whilst on Sundays it reduces to less than one third. On the basis of approximately 250 full working days per year plus a half day Saturdays and one third days on Sundays and excluding Sundays before a bank holiday there are approximately 289 no. days per year which yields an average weekday daily HGV traffic generation in the order of 138 HGV trips.

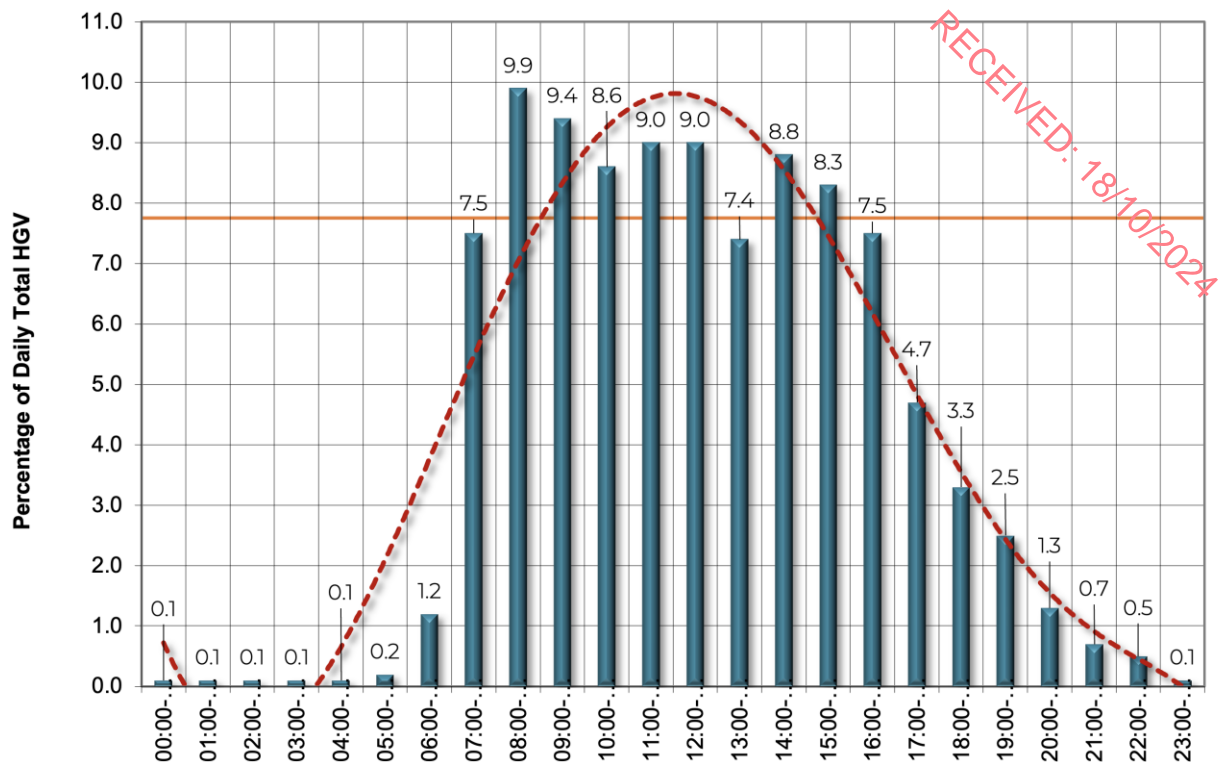




**Figure 6.2 Greenore Port Annual HGV Trip Generation Profile**



**Figure 6.3 Greenore Port Weekly HGV Trip Generation Profile**



**Figure 6.4 Greenore Port Daily HGV Trip Generation Profile**

Figure 6.4 summarises the weekday hourly profile of traffic generation recorded over the 3 no. years of weighbridge records. The red dashed line in Figure 6.4 is a moving average whilst the solid orange line indicates the average hourly HGV traffic generation for the period 07:00-19:00hrs. The average hourly HGV traffic generation over this central period equates to 7.8% of the total daily HGV traffic generation. The average HGV traffic generation is estimated to be in the order of 11 HGV trips per hour. HGV traffic generation is relatively constant between 07:00 and 16:00hrs with modest deviation about the mean. The peak HGV traffic generation is 9.9% with a sustained 9% over most of the working day. Based upon the above assessment the typical peak hour HGV traffic generation of the port is estimated to be in the order of 14 no. HGV trips.

Figure 6.2 shows that the total monthly flow of HGV in May 2023 when the traffic counts were undertaken was 16% of the annual total HGV generation of the year. As a proportion of total HGV traffic May 2023 generated double the average for the three years 2020-2023 for which the weighbridge data was assessed.

In the data collection exercise an automatic traffic counter was placed on Shore Road to the south of the port access. Since this counter site will also have enumerated some other general local port traffic moving materials (not exporting) and since it will also include traffic coming to and from the ferry it is not expected to be an accurate reflection of port HGV activity nevertheless it can be used as a general reference for the volume of HGV entering and leaving the port.

The following Table 6.4 summarises the total number of articulated HGV (OGV2) trips on Shore Road recorded during the traffic surveys starting Thursday 4 May 2023 to Wednesday 17th May 2023. Also provided in Table 6.4 is the total HGV recorded crossing the weighbridge (WB) for each of the days of the traffic count. There is a reasonable correlation between the two data sets.

The weighbridge records clearly show that traffic generation arising at the port during the two weeks of the automatic traffic counter traffic surveys was particularly high. Figure 6.2 shows that May 2023 shows HGV traffic generation is approximately double the average calculated for the years 2020-2023 and this is borne out in the data summarised in Table 6.4.

**Table 6.4 Shore Road Auto Traffic Count Data and Weighbridge Data**

Day	Thur	Fri	Sat	Sun	Mon	Tue	Wed	Thur	Fri	Sat	Sun	Mon	Tue	Wtd
Date	04	05	06	07	08	09	10	11	12	13	14	15	16	17
00:00	0	1	0	0	0	0	0	0	0	0	0	0	0	0
01:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00	0	0	0	0	0	0	1	2	1	1	0	2	0	0
04:00	2	1	0	0	0	0	0	2	2	1	0	1	2	0
05:00	2	3	2	0	0	0	2	0	1	0	0	1	4	2
06:00	0	3	8	0	7	6	3	0	0	3	0	0	8	17
07:00	17	14	12	0	14	18	11	17	21	15	0	20	22	21
08:00	14	16	32	0	30	33	13	21	24	29	0	12	33	20
09:00	16	17	31	0	30	37	19	29	30	20	0	19	29	12
10:00	18	13	29	0	29	29	13	38	32	20	0	24	28	17
11:00	22	13	30	1	40	39	29	30	29	0	0	18	31	22
12:00	12	18	35	1	42	29	19	36	42	0	0	16	36	19
13:00	6	9	28	0	32	14	16	23	22	0	0	18	24	23
14:00	17	16	28	0	43	26	35	38	30	0	0	27	29	38
15:00	23	20	31	1	41	25	25	38	28	1	0	22	33	24
16:00	9	5	20	1	24	27	10	28	37	0	1	23	32	21
17:00	2	0	0	0	35	18	1	22	16	1	0	9	28	0
18:00	0	0	0	2	33	20	0	23	3	0	1	0	28	0
19:00	0	0	1	0	27	13	0	13	0	0	0	1	14	2
20:00	0	0	0	0	0	18	0	2	0	0	0	0	20	0
21:00	0	0	0	0	1	4	1	1	0	0	1	0	13	0
22:00	0	0	0	0	0	0	1	0	0	0	1	0	8	3
23:00	0	0	0	0	0	0	1	1	1	0	0	1	3	1
Total 07-19	156	141	276	6	393	315	191	343	314	86	2	208	353	217
Total 00-00	160	149	287	6	428	356	200	364	319	91	4	214	425	242
WB 04-17	190	109	299	0	409	349	135	343	294	100	0	176	414	171
Date	18	19	20	21	22	23	24	25	26	27	28	29	30	31
WB 18-31	181	160	44	0	319	181	75	148	106	8	0	81	17	127

Table 6.4 also includes separately the weighbridge records for the two weeks that followed the traffic surveys in May 2023. The weighbridge data shows that 70% of the total May 2023 traffic generation was manifest in the first two weeks of the month during the traffic surveys. Excluding Saturdays and Sundays, the average HGV traffic generation for the first two weeks of May 2023 was 260 no. trips whilst over the course of the latter two weeks it was 140 no. trips. The average for the entire month excluding weekends was 200 no. HGV trips per day where the average calculated for the 3 no. years period 2020-2023 is 138 no. HGV trips.

Traffic generation during May 2023 was 14% higher than the 85<sup>th</sup> percentile monthly rate for the period 2020-2023. Traffic generation during the automatic traffic surveys can reasonably be considered to be representative of upper value levels of HGV activity at the port. The maximum recorded HGV trips generation during the surveys was Monday 08 May 2023 with 409 no. HGV trips.

The 85<sup>th</sup> percentile HGV traffic generation rate for the first two weeks of May 2023 was 388 no. HGV trips whilst the 85<sup>th</sup> percentile rate for the entire month was 343 no. HGV trips. It is noted that the one day 12-hour junction turning count surveys were undertaken on Wednesday 17 May 2023 when traffic generation at the port was 217 no. trips or approximately 50% above the average 138 no. trips. The traffic survey data derived from the junction turning count surveys and summarised in Table 6.4 is considered representative, and perhaps a somewhat robust evaluation of port traffic generation for the purposes of assessment of the operation of the receiving road network.

The data returned from the Automatic Traffic Counter (ATC) surveys are representative of upper value traffic generation associated with the operation of the port. The ATC surveys can be used to factor turning data in the preparation of sensitivity analyses representative of exceptional HGV traffic generation arising from port operations. Where Table 6.1, Table 6.2 and Table 6.3 are based upon the junction turning count survey data and will be used as the typical or average traffic baseline the following Table 6.5, Table 6.6 and Table 6.7 provide corresponding data derived from the ATC surveys which are considered representative of the upper value baseline for operations at the port and are representative of times when ships are unloaded directly at the quayside.

Table 6.5 provides a summary of the recorded average daily traffic flows by direction at the 5 no. ATC site locations over the course of the two-week surveys. A corresponding network flow diagram is provided in network flow diagram format in TTA: Appendix B, Figure 4 'Surveyed 2023 Weekday Average Link Flows'.

**Table 6.5 Network Link Road Traffic – Upper Value Daily Flows (Two-way)**

Road Link		Surveyed Weekday Average Daily Traffic Flows 24hrs			AADT
		Total	Heavy	%HGV	
1	R175 Dundalk Road (South of R176)	9,337	935	9.9%	9,226 (9.9%)
2	R175 Greenore Road (South of IDA Industrial Estate)	2,492	532	21%	2,475(21%)
3	R176 Carlingford Road	5,819	124	3.2%	3,816(3.2%)
4	R175 Greenore Road (North of IDA Industrial Estate)	2,492	532	21%	2,475(21%)
5	L70661 Euston Street (Near Junction with R175)	902	6	0.7%	896(0.7%)
6	R175 Shore Road	1,145	506	43%	1,152(43%)

Table 6.5 shows the average weekday traffic flow and percentage HGV content enumerated for 24 hours and also provides an estimate of 2023 Annual Average Daily Traffic (AADT) based upon the upper value port baseline flows. The estimates of AADT are based upon the total flows recorded in the two-week traffic surveys to which are applied the appropriate factors derived from TTA Publication PE-PAG-02039: Project Appraisal Guidelines Unit 16.1 (2016) 'Expansion Factors for Short Period Traffic Counts' (Oct 2016). The Weekly Average Daily Traffic (WADT) for each of the road links is the average daily two-way traffic flow over the two-week survey.

It is generally best practice in preparing TTA to assess the impact of the proposed development during periods when the impact of development traffic flows on the receiving road network are likely to be greatest. The peak hours and associated traffic flows recorded in the May-2023 surveys are as follows:

- Weekday AM Network Peak Hour 08:00-09:00hrs
- Weekday PM Network Peak Hour 17:00-18:00hrs

Table 6.6 and Table 6.7 provide summaries of the recorded two-way peak hour traffic flows on the receiving road network in the morning and evening peak hours.

**Table 6.6 Network Link Road Traffic – Upper Value AM Peak Hour (Two-way)**

Road Link		Weekday AM Peak Hour Traffic Flows 08:00-09:00hrs		
		Total	Heavy	%HGV
1	R175 Dundalk Road (South of R176)	649	103	16%
2	R175 Greenore Road (South of IDA Industrial Estate)	179	62	35%
3	R176 Carlingford Road	224	14	6%
4	R175 Greenore Road (North of IDA Industrial Estate)	179	62	35%
5	L70661 Euston Street (Near Junction with R175)	44	1	0.7%
6	R175 Shore Road	66	50	77%

**Table 6.7 Network Link Road Traffic – Upper Value PM Peak Hour (Two-way)**

Road Link		Weekday PM Peak Hour Traffic Flows 17:00-18:00hrs		
		Total	Heavy	%HGV
1	R175 Dundalk Road (South of R176)	691	60	8.7%
2	R175 Greenore Road (South of IDA Industrial Estate)	193	30	16%
3	R176 Carlingford Road	299	8	3%
4	R175 Greenore Road (North of IDA Industrial Estate)	193	30	16%
5	L70661 Euston Street (Near Junction with R175)	77	1	0.4%
6	R175 Shore Road	64	30	46%

Corresponding network flow diagrams are provided in TTA: Appendix B, Figure 5 'Surveyed 2023 Weekday Average Link Flows - Morning Peak' and TTA: Appendix B, Figure 6 'Surveyed 2023 Weekday Average Link Flows - Evening Peak'.



## 6.7 The 'Do Nothing' Scenario

In the Do Nothing scenario it is expected that the traffic environment will remain as per the baseline. It's noted that there are two permitted developments that planned for implementation in the absence of the proposed development.

- Extension and modification of existing Warehouse, LCC Planning Ref 20268, ABP Ref 307862;
- New Warehouse, LCC Planning Ref Planning ref 20543, ABP Ref 310184.

## 6.8 Potential Significant Effects

### 6.8.1 Construction and Demolition Phase

The construction stage will be undertaken over a number of stages from site preparation through to building construction and internal fit out. The key stages and activities with potential to result in traffic generation are set out below.

#### 6.8.1.1 Phase 1 - Construction Traffic Generation

Based upon the Outline Construction Environmental Management Plan (CEMP) submitted with the application, the following is an estimate of the duration of the various key elements of Phase 1, with the overall length of the Phase 1 works expected to last c.16months:-

- |                                      |            |
|--------------------------------------|------------|
| ▪ Dredging                           | 2.5 months |
| ▪ Quay wall                          | 8 months   |
| ▪ Pontoon                            | 3.5 months |
| ▪ Building A                         | 16 months  |
| ▪ Demolition of residential dwelling | 0.5 months |
| ▪ Communications Mast                | 1 month    |

##### 6.8.1.1.1 Dredging

Dredge material will be transported from the quay side to a licenced disposal facility. When exporting materials from the port, as per typical materials export, the operators of the site (contractor) will generally ensure that exports are in as economical loads as feasible and it follows therefore that dredged materials will be exported in fully laden vehicles, which in the case of rigid HGV is 20t-22t per vehicle and for articulated HGV is 29t. The traffic surveys show that all exports of materials from the port are by the latter vehicle type.

Dredging will produce an estimated 45,000m<sup>3</sup> of material. It is highly likely that all materials will be exported by articulated vehicle giving rise to a total of 2,045 vehicle trips. Following a 2 no. week mobilisation process, dredging is estimated to be of approximately 50 working days duration and is thus estimated to generate average daily HGV traffic in the order of 41 trips by articulated vehicles.

In the interest of a robust assessment, say more than one haulier was engaged in removing materials there is potential for a local haulier with the smaller vehicles to be engaged in transporting materials. Were it assumed that 30% of materials were transported by the smaller rigid vehicle then the daily HGV trip generation would increase to 47 trips per day. Given the facilities for storing dredged

materials on site it is considered reasonable to expect a regulated and constant flow of material from the site without significant peaks.

#### 6.8.1.1.2 Quay Wall

The quay wall consists of a piled face and concrete beam (cope) across the top of the piles. The quay wall is tied back to a sheet piled/concrete anchor wall via steel tie rods. The remaining ground is back filled and topped with a heavy-duty concrete pavement. In total it is estimated in the Outline CEMP that the construction of the quay wall will be of 190 working days duration.

#### 6.8.1.1.3 Quay Wall – Piling

By reference to the Outline CEMP it is estimated that the construction of the quay wall will generate a total of 52 no. deliveries by HGV. Key amongst the required deliveries is a requirement for 240m<sup>3</sup> of concrete which will required approximately 30 no. concrete wagon deliveries. The peak activity is likely to be the pouring of concrete. A worst case scenario would be a single concrete pour and the need arising for 30 no. HGV trips in a single day.

#### 6.8.1.1.4 Quay Wall – Ground Works & Tie Rods

By reference to the Outline CEMP tie rod installation will require the excavation of the area between the anchor and quay walls. Once excavated tie rods will connect the two walls. Backfilling of the tie rods will reuse a large portion of the excavated materials. In total the delivery of tie rods will generate 3 no. HGV. The ground works will require the import of an estimated 540t of cement bound granular mixture giving rise to a total of 30 no. HGV. An estimate 720t of stone will be required and is estimated to generate 26 no. HGV.

#### 6.8.1.1.5 Quay Wall – Cope and Pavement

By reference to the Outline CEMP it is estimated that the construction of the quay wall will generate a total of 183 no. deliveries by HGV. Key amongst the required deliveries is a requirement for 1,440m<sup>3</sup> of concrete which will required approximately 180 no. concrete wagon deliveries. The peak activity is likely to be the pouring of concrete. It is estimated that there would be a minimum of 6 no. separate concrete pours giving rise to approximately 30 no. HGV trips on each of these days. It is unlikely that any other trip intensive construction activities would be carried in tandem with the concrete pours.

#### 6.8.1.1.6 Breakwater Pontoon -Piling

Piling will require boring into rock, pitching and setting in place of steel piles from floating and elevated platforms. Piling will require the use of a crane barge and piling plant. There is a modest HGV traffic generation arising during the mobilisation stage and decommissioning of the plant required. The breakwater pontoon piling is to be carried out on a phased basis. Phase 1 includes the construction of 4 no. berths. Phase 2 will include the pontoons supporting Buildings B and C. Piling is expected to take 40 working days for Phase 1 and 30 working days for Phase 2. IN both cases an allowance is made for a 2 no. week mobilisation period and 2 no. week period for demobilisation. This construction activity is not an intensive traffic generator. Including for mobilisation of plant and delivery of piles to the site a total of 20 no. HGV deliveries is estimated in both Phase 1 and Phase 2.

#### 6.8.1.1.7 Breakwater Pontoon - Gangway Installation

Breakwater pontoons and services will be manufactured off site and transported by road or sea dependant on the supplier. The pontoons will arrive in segments of up to 70t each if arriving by road.

The route from Greenore to the national motorway network has previously been assessed and used for units measuring up to 6m in width by 37m long. It is considered likely at this stage that the units will be brought to site by sea. If however the segments are to arrive by road an operation specific traffic route analysis and traffic management plan will be conducted by the abnormal loads contractor.

The units will be lifted into the water using the harbour cranes on site and fixed in position manually using workboats and small tools. The gangway will arrive in similar fashion and be bolted in place. Following delivery to site breakwater pontoons are estimated to take 30 working days to install and commission in each of the construction phases. Each phase is estimated as likely to generate a total of 25 no. HGV trips.

#### 6.8.1.1.8 Building A Construction

Building A will comprise a steel frame construction with concrete floors, metal cladding and reinforced concrete lift shaft. The building will be to the latest energy standards and of a high-quality finish. The buildings will be constructed on concrete footings on precast or in-situ concrete piles where ground conditions dictate. It is estimated that Building A will take approximately 335 no. working days to complete. The principal activities will include excavation and preparation of ground, driving of piles and compaction of foundation materials, pouring of foundations and floors, erection of steel structure, erecting cladding and finishings. Based upon the estimated quantities of materials arising from the construction it is estimated in the Outline CEMP that the process will generate approximately 1,068 HGV vehicle trips to the site. The importation of stone gives rise to a total of 444 no. HGV whilst the importation of concrete gives rise to 384 no. HGV. All other activities generate few deliveries by HGV. Importing stone and concrete are not only the greatest generators of HGV traffic but these trips are typically concentrated at various times in the construction. The Outline CEMP associated works programme shows a period of 45 no. working days for the completion of substructures which would involve the import of stone and concrete. It is expected that the most intensive operations would give rise to a HGV trip generation in the order of 25 no. HGV per day and this is based on days when concrete pours are scheduled, which activity is assumed to be concentrated into 15 days of the total 45 no. working days attributed to substructures in the works programme which include for the heavy-duty concrete pavement that will be provided to the rear of building which will be used for storage and direct access to quayside..

#### 6.8.1.1.9 Demolition of Vacant Residential Dwelling

Site clearance will entail the demolition of the existing domestic dwelling. Topsoil will be stripped from the site. Most topsoil will be used through the wider site for landscaping. A sub-base of stone will be laid through the site prior to the excavation for and installation of drainage and services. Gravel/stone arisings from excavations elsewhere on the site will be reused where possible. Imported stone will be used to complete the sub-base. It is proposed that the site clearance works will coincide with Phase 1 of the works to facilitate contractor's laydown and parking. Car park works are expected to take 82 working days to complete. HGV traffic generation will arise chiefly from site clearance work, the removal of demolition material, the import of stone and drainage materials for completion of the sub-base and the import of surfacing materials.

#### 6.8.1.1.10 Communications Mast

The existing 25m communications mast located at the seaward end of Berth 1 will be replaced with a 40m communications mast to be erected at the same location as the decommissioned mast. The works required to replace the existing mast are not considered likely to give rise to significant generation of HGV.

#### 6.8.1.2 Phase 2 - Construction Traffic Generation

Based upon the Outline CEMP, the following is an estimate of the duration of the various key elements of Phase 2, with a total construction programme of C.19 months.

- Pontoon (part) 5 months
- Demolition OpenHydro 1 month
- Building B and C 16 months
- Substation 3.5 months
- Fuel Storage 1 month
- Access control/fencing 1 month
- Port Entrance upgrades 2 months
  - Demolition of 'Sea Farer's Room' 1 week
  - Construction 2 months
- Surface Carpark and pedestrian access 4 months

##### 6.8.1.2.1 Pontoon

As per the same activity in Phase 1, breakwater pontoons and services will be manufactured off site and transported by road or sea dependant on the supplier. The pontoons will arrive in segments of up to 70t each if arriving by road. It is considered likely at this stage that the units will be brought to site by sea.

Following delivery to site breakwater pontoons are estimated to take 30 working days to install and commission in each of the construction phases. Each phase is estimated as likely to generate a total of 25 no. HGV trips.

##### 6.8.1.2.2 Demolition OpenHydro Building

An existing office/welfare unit known as the 'OpenHydro' building is to be retained and operational for the duration of Phase 1. It will be demolished and removed off site to facilitate Phase 2 of the development. The building is a steel portal frame structure with precast retaining panels mounted internally to provide bulk warehousing. The existing panels will be removed from the building and stored for reused elsewhere in the port. The building frame will be removed off site for recycling. The existing substructure and walls will be saw cut to reduce breaker effort and grubbed up by excavator and breaker for removal off site. The substation and switch room will be decommissioned and removed as part of these works once a replacement substation and switch has been commissioned. Based upon the Outline CEMP estimate of materials arising being 30t of cladding, 60t of steel and 450m<sup>3</sup> of concrete it is estimated that the demolition of the existing building has the potential to generate approximately 50-60 HGV trips.

#### 6.8.1.2.3 Building B and C Construction

Buildings B and C will be identical to Building A and will similarly be comprised of a steel frame construction with concrete floors, metal cladding and reinforced concrete lift shaft. The buildings will be constructed on concrete footings on precast or in-situ concrete piles where ground conditions dictate. Both buildings will be constructed at the same time and it is estimated that construction will take approximately 335 no. working days to complete. Based upon the estimated quantities of materials arising from the construction it is estimated in the Outline CEMP that the process will generate approximately 2,136 HGV vehicle trips to the site. The importation of stone gives rise to a total of 888 no. HGV whilst the importation of concrete gives rise to 768 no. HGV. All other activities generate few deliveries by HGV. Importing stone and concrete are not only the greatest generators of HGV traffic but these trips are typically concentrated at various times in the construction. The CEMP associated works programme shows a period of 45 no. working days for the completion of substructures which would involve the import of stone and concrete. It is expected that the most intensive operations would give rise to a HGV trip generation in the order of 50 no. HGV per day and this is based on days when concrete pours are scheduled, which activity is assumed to be concentrated into 15 days of the total 45 no. working days attributed to substructures in the works programme which include for the heavy-duty concrete pavement that will be provided to the rear of building which will be used for storage and direct access to quayside.

#### 6.8.1.2.4 Port Entrance Upgrades

It is proposed to provide a new pedestrian access from the Shore Road carpark, within and along the Port boundary to the rear of properties at Euston Street, and to upgrade the main civilian entrance to Greenore Port at the north end of Euston Street. This will create a new pedestrian route in front of the existing Port offices to the OMF buildings. This will entail hard and soft landscaping together with the installation of lighting and utilities. Construction works are expected to entail standard road construction methods including trenching, filling, kerbing, paving and road reinstatement. The OMF entrance will be upgraded and widened to provide safe pedestrian access through the demolition of a small portion of the Sea Farer's building. This will entail the demolition of blockwork walls and making good of the remaining boundary with the remaining meeting room. A feature wall will be constructed at the OMF entrance at the new gable end of the shortened Seafarers room. Based upon the CEMP estimate of materials arising a HGV traffic generation over the course of the construction of the entrance upgrade works is 46 HGV trips.

#### 6.8.1.2.5 Surface Car Park, Shore Road

Following installation of kerbing, lighting, and access control foundations in Phase 2 a bituminous surface will be applied to the parking area. Based upon the Outline CEMP estimate of materials arising a HGV traffic generation over the course of the construction of the car park on Shore Road is 154 HGV trips.

#### 6.8.1.3 Assessment of Construction Traffic

The construction activities associated with Phase 1 and Phase 2 are set out above. The activities that are considered the most significant generators of construction traffic include dredging which will require materials to be exported from the port, and construction of the quay wall which will require the importation of materials including stone and concrete.



The peak period for activity will be during dredging in Phase 1 which is forecast to generate 41 no. HGV trips per day. This combined with other sundry activities is likely to give rise to a peak HGV trip generation of 50-60 HGV per day. Dredging has a forecast duration of 50 no. working days and is considered the peak generator of HGV during construction.

Import of stone for the quay wall and other construction activities require significantly less HGV and are generally less intense traffic generators. During construction there are likely to be occasional short periods of intense activity, for instance during concrete pours, where perhaps 50 no. HGV might be generated in one day. This figure is likely to be limited due to the site location and availability of materials.

The construction program will be scheduled and co-ordinated with port activity so that the combined traffic generation to and from the port access does not exceed current levels during periods of greater construction HGV traffic generation. Construction HGV traffic combined with existing port traffic will not exceed the values used in the upper value road network assessments. Construction staff will not exceed the values used in the summer maintenance and winter maintenance figures used in the network assessments. Given that car traffic and HGV traffic generation during construction will not exceed those values already included in the assessments of operational assessment it is not considered that a separate specific network capacity assessment is required for the construction period, either in the construction of Phase 1 or in subsequent construction of Phase 2 when Phase 1 becomes operational. The detailed capacity assessments for the operational volumes of traffic confirm that the effect on the capacity of the receiving road network will not be significant. Since the volume of traffic generated during construction is less than those used in the detailed capacity assessment, it follows that the impact on network capacity and operation during construction will similarly not be significant.

## **6.8.2 Operational Phase**

### **6.8.2.1 Operational Phase Traffic Generation**

In the interest of a robust assessment of traffic generation, no allowance is made for shift working and save for technicians it is expected that each of the OMF buildings will be staffed by approximately 15 no. persons between the hours of 08:00 and 18:00hrs.

Parking demands arising from these staff and sundry visitors will be accommodated in the 76 no. car parking spaces close to the OMF buildings and accessed via the upgraded existing port office access at the northern end of Euston Street.

The traffic scenario arising from the operation of the 3 no. buildings combined will be akin to the previous operation of the former OpenHydro building when it housed 100 staff and was served by a 60 no. space car park. Upon completion of Phase 1 and during Phase 2 construction both OMF staff and technicians will park at the OMF building until such time as the Shore Road car park and connecting pedestrian infrastructure is completed.

There will typically be 30 no. technicians operating from each of the OMF buildings. Technicians will operate on a dynamic schedule which will be influenced by weather and sea conditions. For the purposes of traffic assessment it is assumed that all 3 no. OMF buildings will be staffed by 30 no.

technicians daily giving rise to a total of 90 no. technicians. The majority of technician staff will be required to park in the 135 no. space car park proposed on Shore Road and will use the dedicated pedestrian connection to the OMF buildings. Save for Phase 1 and during the construction period of Phase 2, only a small number of senior technician staff will use Euston Street and the car parking at the OMF buildings.

During periods of annual maintenance during periods of better weather i.e. c. May - September, there will be a potential requirement for an additional 15 no. technicians (45 no. total technician personnel per building) to operate from each of the OMF buildings giving a total demand for 135 no. technicians. This is scheduled annual maintenance and it is likely that each of the OMF building operators will co-ordinate resources. It is unlikely that all OMF buildings would require 45 no. technicians all at the same time. But such maintenance is an annual event and perhaps suitable weather windows may be limited, so in the interest of a robust traffic analyses it is assumed for the purposes of the traffic assessments that this elevated annual demand arises at all OMF buildings all at the same time. If every technician is assumed to travel one per vehicle then this scenario, in which the Shore Road car park is practically filled and thus represents a worst case scenario.

This worst case ignores the possibility of technicians living locally or availing of public transport or other means of travel and also ignores the possibility of car sharing or the provision of private mini-bus or coach transport by the employers. In practice it is likely that there will be a greater car occupancy the 1 no. technician per vehicle.

Once every 3-4 no. years the requirement for technicians will increase to a potential or possible 60 no. technicians per OMF building. This is a scheduled type of operation and it is not considered likely that all 3 no. OMF operators would schedule such work to all occur at the same time as there would not be sufficient resources either landside or maritime to facilitate such a scenario. For the purposes of the traffic assessments in the TTA, to distinguish the two maintenance scenarios, the more regular annual maintenance events are referred to as 'winter maintenance' whilst the scenario where the more intensive 3-4 year maintenance campaigns are considered is referred to as 'summer maintenance' albeit that neither activity is defined by the respective seasonally derived nomenclature.

#### 6.8.2.2 Daily Generation and Distribution of OMF Building Staff Traffic

The TRICS (Trip Rate Information Computer System) database has been used to establish representative traffic daily distribution profiles. Daily traffic generation rates are provided as are hourly rates calculated including the established network peak hours of 08:00-09:00hrs in the morning and 17:00-18:00hrs in the evening. The approach adopted in this study and the traffic assumptions used in the study should yield sufficiently robust network analysis output satisfactory for use in the evaluation and forecasting of roads infrastructure performance.

The operational phase of the development will generate office and landside staff together with technicians that will operate at sea. The traffic generation rates derived from TRICS are based on survey data from existing office developments. The TRICS criteria selected to model the trip distribution for the landside elements of the proposed development are evaluated based upon the survey categories under 'Land Use 02A – Employment/Office'. The traffic profile for Offices have been derived from a selection of 17 no. sites in Ireland and the UK consisting of 71 no. surveys of which

17 no. are located in a town centre, 26 no. at edge of town centre, 10 no. at edge of town and 18 no. others in suburban and neighbourhood areas.

Table 6.8 is derived from the forecast TRICS rates and provides an estimate of the traffic generation arising at the OMF buildings on weekdays. The traffic generation in Table 6.10 and Table 6.11 is based upon the TRICS standard daily profile and the following assumptions.

- 15 no. staff per building are forecast to generate an inbound movement and outbound movement each day associated with arrival and departure from work
- 10 no. additional movements both in and out per building are estimated as likely to be generated by sundry staff and visitor movements throughout the day.

**Table 6.8 Daily Traffic Profile of OMF Landside Staff (Each Building/Operator)**

Time Period	TRICS Profile		OMF Building Office Staff Profile of Traffic Generation					
			A		B		C	
	Arrive	Depart	Arrive	Depart	Arrive	Depart	Arrive	Depart
06:00-07:00	9.3%	1.5%	2	0	2	0	2	0
07:00-08:00	12.0%	1.4%	3	0	3	0	3	0
08:00-09:00	24.9%	3.0%	6	1	6	1	6	1
09:00-10:00	15.6%	4.1%	4	1	4	1	4	1
10:00-11:00	6.1%	4.0%	2	1	2	1	2	1
11:00-12:00	4.6%	4.1%	1	1	1	1	1	1
12:00-13:00	5.0%	6.1%	1	2	1	2	1	2
13:00-14:00	5.6%	5.4%	1	1	1	1	1	1
14:00-15:00	4.4%	5.2%	1	1	1	1	1	1
15:00-16:00	3.1%	7.7%	1	2	1	2	1	2
16:00-17:00	3.1%	16.6%	1	5	1	5	1	5
17:00-18:00	2.2%	23.1%	1	6	1	6	1	6
18:00-19:00	1.1%	8.7%	1	2	1	2	1	2
19:00-20:00	1.1%	5.5%	0	1	0	1	0	1
20:00-21:00	0.8%	2.1%	0	1	0	1	0	1
21:00-22:00	1.1%	1.7%	0	0	0	0	0	0
22:00-23:00	0.0%	0.0%	0	0	0	0	0	0
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>25</b>	<b>25</b>	<b>25</b>	<b>25</b>	<b>25</b>	<b>25</b>

### 6.8.2.3 Daily Generation and Distribution of OMF Technician Staff

There is no available TRICS survey data relating to the operation of OMF offshore technician activity. Technicians will typically work in 12hr shifts with normal CTV operation between 06:00 - 21:00hrs. It is likely that there will be a number of shift start times for technicians who will start to arrive after 05:30hrs for the first shift and would arrive after 08:30 for the start of the last shift start at 09:00hrs.

Table 6.9 is derived from first principles and provides a summary of the forecast rate of arrival and departure for permanently commissioned technicians and for technicians brought in for each of the identified maintenance periods.

**Table 6.9 Daily Traffic Profile of OMF Landside Staff (Each Building/Operator)**

Time Period	TRICS Profile		OMF Building Office Staff Profile of Traffic Generation					
			A		B		C	
	Arrive	Depart	Arrive	Depart	Arrive	Depart	Arrive	Depart
05:00-06:00	25%	0%	8	0	11	0	15	0
06:00-07:00	27%	0%	8	0	12	0	16	0
07:00-08:00	29%	0%	9	0	13	0	17	0
08:00-09:00	19%	0%	6	0	9	0	11	0
09:00-10:00	0%	0%	0	0	0	0	0	0
10:00-11:00	0%	0%	0	0	0	0	0	0
11:00-12:00	0%	0%	0	0	0	0	0	0
12:00-13:00	0%	0%	0	0	0	0	0	0
13:00-14:00	0%	0%	0	0	0	0	0	0
14:00-15:00	0%	0%	0	0	0	0	0	0
15:00-16:00	0%	0%	0	0	0	0	0	0
16:00-17:00	0%	0%	0	0	0	0	0	0
17:00-18:00	0%	0%	0	0	0	0	0	0
18:00-19:00	0%	19%	0	6	0	9	0	11
19:00-20:00	0%	29%	0	9	0	13	0	17
20:00-21:00	0%	27%	0	8	0	12	0	16
21:00-22:00	0%	25%	0	8	0	11	0	15
<b>Total</b>	<b>25%</b>	<b>0%</b>	<b>8</b>	<b>0</b>	<b>11</b>	<b>0</b>	<b>15</b>	<b>0</b>

#### 6.8.2.3.1 Pre-existing Traffic Generation and Relevant Planning History

Planning Reg. Ref. 20/268 (ABP-307862-20) was for extension and modification to the warehouse, formerly OpenHydro, and modification to another warehouse, and ancillary works at Greenore Port, Co. Louth. The former OpenHydro building was initially developed as a research and development facility. Permission was sought for an enlargement of the former OpenHydro building, used as a warehouse, increasing in floor area by 1,499m<sup>2</sup> to 3,185m<sup>2</sup>. The application was accompanied by a Transport Statement prepared by AECOM Ireland Limited dated October 2019. The scope, or study area for the Transport Statement included the junction of Euston Street and R175 Shore Road and the R175/R176 junction.

The Transport Statement reported that in 2018, Greenore Port had handled a total of c. 905,000 tonnes per annum. Of that total, the break bulk commodities (i.e. steel, project cargo) remain in storage facilities within the port whilst the dry bulk commodities (737,000 tonnes per annum in 2018)

are taken off site to third-party warehousing units or to an end customer. The statement concluded that there was a significant level of traffic associated with the distribution of dry bulk commodities, with approx. 3,000 tonnes being discharged from the port to HGVs (carrying from 20 - 30 tonnes) over a typical 13-hour weekday period. Based upon 737,000 tonnes of dry-bulk commodity being delivered to the port in 2018 resulting in an average of 123 HGV loads per day based on following assumption that (1) break bulk commodities (i.e. steel, project cargo) shipped into Greenore Port remain on site; (2) 48 no. working weeks per annum and 5 no. working days per week; (3) A tipper truck has the capacity of approx. of 25 tonnes.

The proposed development comprised a change of use of the former 'OpenHydro-building from light engineering and office to storage for port commodities (agricultural feed, fertiliser, rock and salt). Access to the development was through the existing Greenore Port main site access at the end of R175 Shore Road. The Transport Statement indicated that existing car parking at Greenore Port was provided adjacent to the existing office building, located at the top of Euston Street and since the proposed development resulted in no increase in the number of employees at Greenore Port no additional parking was proposed. Parking serving the former OpenHydro light engineering use was not proposed to be removed.

The former OpenHydro building closed in August 2018. When in operation the building had comprised light engineering and office use, with approximately 100 no. employees. Staff access to the building was via Euston Street. The Transport Statement estimated that the OpenHydro building had generated a morning peak hour flow of 31 no. arrivals and 3 no. departures between 08:00-09:00hrs and had generated 2 no. arrivals and 26 no. departures in the evening peak hour identified as 17:00-18:00hrs.

The then proposed warehouse development had capacity of approx. 6,000 tonnes. The change of use from light engineering to storage allows for storage of dry bulk commodity to occur on site immediately, without the requirement for HGV to transfer deliveries to a satellite storage facility. This ultimately results in a better efficiency for unloading vessels and delays the requirement to transport a port delivery (200 – 300 tonnes) from the port to an off-site storage facility which the report stated takes approximately 1.5 days. Storage at the building did not reduce the total number of HGV trips generated by the port. Since the proposed development was anticipated to have a net benefit in regulating port traffic no impact analysis was undertaken.

In recommending a grant of permission for the development the An Bord Pleanála Inspector assessment concluded that the proposed development would not change the capacity of port to send or receive cargo because it would not increase the capacity of its berthage. The Inspector acknowledged that the increased covered storage available in the port would allow the port operator to exercise more control over the movement of cargo to and from the port on the landward side and so manage the movement of goods vehicles on the road network in the area. The Inspector concluded that the impact of the proposed development on traffic would therefore be marginally positive.

#### 6.8.2.4 Operational Traffic Generation to Proposed Development

Table 6.8 provides details on the traffic generation arising from permanent landside staff at each of the OMF Buildings when operational. Table 6.9 provides similar daily traffic profile information with



respect to the movement of technicians. Table 6.10 shows the combined operational traffic generation of the site upon completion of Phase 1 (Network Peak Hours are highlighted).

**Table 6.10 Daily Traffic Profile of Operational Staff – Phase 1**

Time Period	OMF Building A							
	Building Staff		Technician Staff					
	Administration		Permanent		Winter Maintenance		Summer Maintenance	
	Arrive	Depart	Arrive	Depart	Arrive	Depart	Arrive	Depart
05:00-06:00	0	0	8	0	11	0	15	0
06:00-07:00	2	0	8	0	12	0	16	0
07:00-08:00	3	0	9	0	13	0	17	0
08:00-09:00	6	1	6	0	9	0	11	0
09:00-10:00	4	1	0	0	0	0	0	0
10:00-11:00	2	1	0	0	0	0	0	0
11:00-12:00	1	1	0	0	0	0	0	0
12:00-13:00	1	2	0	0	0	0	0	0
13:00-14:00	1	1	0	0	0	0	0	0
14:00-15:00	1	1	0	0	0	0	0	0
15:00-16:00	1	2	0	0	0	0	0	0
16:00-17:00	1	5	0	0	0	0	0	0
17:00-18:00	1	6	0	0	0	0	0	0
18:00-19:00	1	2	0	6	0	9	0	11
19:00-20:00	0	1	0	9	0	13	0	17
20:00-21:00	0	1	0	8	0	12	0	16
21:00-22:00	0	0	0	8	0	11	0	15
22:00-23:00	0	0	0	0	0	0	0	0
<b>Total</b>	<b>25</b>	<b>25</b>	<b>30</b>	<b>30</b>	<b>45</b>	<b>45</b>	<b>60</b>	<b>60</b>

Table 6.11 shows the combined operational traffic generation of the site upon completion of Phase 2 (Network Peak Hours are highlighted). Traffic generated by the OMF buildings is assigned to Euston Street as per the traffic to the existing port office and traffic to the former OpenHydro building, although it is acknowledged that from time to time some senior technician staff will park at the OMF buildings, technician traffic is distributed to and from the proposed new purpose-built car park located on R175 Shore Road. Various traffic generation scenarios for the operational phases of the proposed development are set out in network flow diagram format in TTA: Appendix B in Figures 9 through 26.

**Table 6.11 Daily Traffic Profile of Operational Staff – Phase 2**

Time Period	OMF Building A & Building B & Building C							
	Building Staff		Technician Staff					
	Administration		Permanent		Winter Maintenance		Summer Maintenance	
	Arrive	Depart	Arrive	Depart	Arrive	Depart	Arrive	Depart
05:00-06:00	0	0	24	0	33	0	31	0
06:00-07:00	6	0	24	0	36	0	32	0
07:00-08:00	9	0	27	0	39	0	35	0
08:00-09:00	18	3	18	0	27	0	23	0
09:00-10:00	12	3	0	0	0	0	0	0
10:00-11:00	6	3	0	0	0	0	0	0
11:00-12:00	3	3	0	0	0	0	0	0
12:00-13:00	3	6	0	0	0	0	0	0
13:00-14:00	3	3	0	0	0	0	0	0
14:00-15:00	3	3	0	0	0	0	0	0
15:00-16:00	3	6	0	0	0	0	0	0
16:00-17:00	3	15	0	0	0	0	0	0
17:00-18:00	3	18	0	0	0	0	0	0
18:00-19:00	3	6	0	18	0	27	0	23
19:00-20:00	0	3	0	27	0	39	0	35
20:00-21:00	0	3	0	24	0	36	0	32
21:00-22:00	0	0	0	24	0	33	0	31
22:00-23:00	0	0	0	0	0	0	0	0
<b>Total</b>	<b>75</b>	<b>75</b>	<b>90</b>	<b>90</b>	<b>135*</b>	<b>135</b>	<b>120**</b>	<b>120</b>

\* All 3 no. buildings concurrently undertaking Winter Maintenance (Max)

\*\* 2 no. buildings operating normally whilst 1 no. undertakes Summer Maintenance

### 6.8.2.5 Development Network Traffic

Section 6.6 details the current traffic flows on the receiving road network. Various figures and tables are provided for weekdays together with the respective peak hours. Table 6.10 and Table 6.11 show the daily assessment traffic generation arising from the proposed development together with the traffic generation in the morning and evening peak hours. It is typical practice and recommended by the Chartered Institution of Highways and Transportation, that additional traffic generated by the proposed development can reasonably be distributed on the adjoining highway in accordance with the proportions of current traffic turning flows recorded during the traffic surveys. The current traffic characteristics and turning proportions of traffic generated at the junctions within the study area during the day and in the peak hours is provided in TTA: Appendix B, Figure 1 'Surveyed Daily Traffic Flows – Weekday 07:00-19:00hrs', TTA: Appendix B, Figure 2 'Surveyed Peak Hour Traffic Flows – Morning Peak 08:00-09:00hrs', and TTA: Appendix B, Figure 3 'Surveyed Peak Hour Traffic Flows – Evening Peak 17:00-18:00hrs'. Traffic generation arising at the proposed development as summarised

in TTA: Appendix B, Figure 9 through TTA: Appendix B, Figure 26 is assumed to follow this same general pattern. The distribution of traffic in the study is assumed to be the same as the distribution of traffic recorded in the May 2023 turning count traffic surveys.

## 6.8.2.6 Preliminary Peak Hour Scoping Assessment

### 6.8.2.6.1 Average Baseline Network Traffic

The following Table 6.12, Table 6.13 and Table 6.14 are based upon Table 6.1, Table 6.2 and Table 6.3 which summarise the baseline network traffic flows when the port is operating at typical average levels of traffic generation. Table 6.12, Table 6.13 and Table 6.14 summarise the proposed development forecast peak hour traffic generation set against the 2023 surveyed peak hour traffic flows on the receiving road network (no allowance has been made for traffic growth).

**Table 6.12 Network Link Traffic – Average Daily Flows (Phase 1)**

Road Link		Baseline 2023 Network Traffic Flow		Development Generated Traffic Flow		Increase	
		Total	Heavy	Total	Heavy	Total	Heavy
Typical Daily Operation							
1	R175 Dundalk Road (South of R176)	3820	679	75	0	+2%	+0
2	R175 Greenore Road (South of IDA Ind. Est.)	1892	562	110	0	+6%	+0
3	R176 Carlingford Road	2862	189	35	0	+1%	+0
4	R175 Greenore Road (North of IDA Ind. Est.)	1492	538	110	0	+7%	+0
5	L70661 Euston Street (Near Junction with R175)	659	9	50	0	+7%	+0
6	R175 Shore Road	973	529	60	0	+6%	+0
Daily Operation During Winter Maintenance							
1	R175 Dundalk Road (South of R176)	3820	679	116	0	+3%	+0
2	R175 Greenore Road (South of IDA Ind. Est.)	1892	562	170	0	+9%	+0
3	R176 Carlingford Road	2862	189	54	0	+2%	+0
4	R175 Greenore Road (North of IDA Ind. Est.)	1492	538	170	0	+11%	+0
5	L70661 Euston Street (Near Junction with R175)	659	9	50	0	+8%	+0
6	R175 Shore Road	973	529	120	0	+12%	+0

Daily traffic generation arising from Phase 1 typical operation is less than 10% during typical operations and is marginally over 10% during the months when Summer Maintenance is undertaken which would occur every 3 to 4 years.

The forecast morning peak hour traffic effects arising from Phase 1 are set out in Table 6.13 which shows a greater proportional uplift above 10% on the parts of the network closest to the port. The forecast evening peak hour traffic effects arising from Phase 1 are set out in Table 6.14 which shows a proportional uplift in the order of 10% or less.

**Table 6.13 Network Link Traffic – Average Morning Peak Flows (Phase 1)**

Road Link		Baseline 2023 Network Traffic Flow		Development Generated Traffic Flow		Increase	
		Total	Heavy	Total	Heavy	Total	Heavy
<b>Typical Daily Operation</b>							
1	R175 Dundalk Road (South of R176)	309	70	10	0	+3%	+0
2	R175 Greenore Road (South of IDA Ind. Est.)	137	55	13	0	+9%	+0
3	R176 Carlingford Road	212	19	3	0	+1%	+0
4	R175 Greenore Road (North of IDA Ind. Est.)	95	48	13	0	+14%	+0
5	L70661 Euston Street (Near Junction with R175)	44	0	7	0	+16%	+0
6	R175 Shore Road	59	48	6	0	+10%	+0
<b>Daily Operation During Winter Maintenance</b>							
1	R175 Dundalk Road (South of R176)	309	70	14	0	+5%	+0
2	R175 Greenore Road (South of IDA Ind. Est.)	137	55	18	0	+13%	+0
3	R176 Carlingford Road	212	19	4	0	+2%	+0
4	R175 Greenore Road (North of IDA Ind. Est.)	95	48	18	0	+19%	+0
5	L70661 Euston Street (Near Junction with R175)	44	0	7	0	+16%	+0
6	R175 Shore Road	59	48	11	0	+19%	+0

**Table 6.14 Network Link Traffic – Average Evening Peak Flows (Phase 1)**

Road Link		Baseline 2023 Network Traffic Flow		Development Generated Traffic Flow		Increase	
		Total	Heavy	Total	Heavy	Total	Heavy
<b>Typical Daily Operation</b>							
1	R175 Dundalk Road (South of R176)	397	24	5	0	+1%	+0
2	R175 Greenore Road (South of IDA Ind. Est.)	159	13	7	0	+4%	+0
3	R176 Carlingford Road	340	13	2	0	+1%	+0
4	R175 Greenore Road (North of IDA Ind. Est.)	114	2	7	0	+6%	+0
5	L70661 Euston Street (Near Junction with R175)	72	0	7	0	+10%	+0
6	R175 Shore Road	52	2	0	0	+0%	+0
<b>Daily Operation During Winter Maintenance</b>							
1	R175 Dundalk Road (South of R176)	397	24	5	0	+1%	+0
2	R175 Greenore Road (South of IDA Ind. Est.)	159	13	7	0	+4%	+0
3	R176 Carlingford Road	340	13	2	0	+1%	+0
4	R175 Greenore Road (North of IDA Ind. Est.)	114	2	7	0	+6%	+0
5	L70661 Euston Street (Near Junction with R175)	72	0	7	0	+10%	+0
6	R175 Shore Road	52	2	0	0	+0%	+0

#### 6.8.2.6.2 Upper Value Baseline Network Traffic

In the interest of a comprehensive evaluation of traffic effects the following Table 6.15, Table 6.16 and Table 6.17 are based upon Table 6.5, Table 6.6 and Table 6.7 which summarise the baseline network traffic flows when the port is operating at the higher or upper values recorded in the 2-week long automatic traffic counter surveys. Since development traffic is the same as the previous assessment and only the network traffic flows have increased it stands to reason that the proportional uplift in traffic flows is less than for the average network flows. Table 6.15 shows that in the case of both the typical daily operation and the worst case which is when Summer Maintenance is undertaken the effect of the Phase 1 operation is less than 10% when measured against daily traffic flows.

**Table 6.15 Network Link Traffic – Upper Value Daily Flows (Phase 1)**

Road Link		Baseline 2023 Network Traffic Flow		Development Generated Traffic Flow		Increase	
		Total	Heavy	Total	Heavy	Total	Heavy
<b>Typical Daily Operation</b>							
1	R175 Dundalk Road (South of R176)	9,337	935	75	0	+1%	+0
2	R175 Greenore Road (South of IDA Ind. Est.)	2,492	532	110	0	+4%	+0
3	R176 Carlingford Road	5,819	124	35	0	+1%	+0
4	R175 Greenore Road (North of IDA Ind. Est.)	2,492	532	110	0	+4%	+0
5	L70661 Euston Street (Near Junction with R175)	902	6	50	0	+5%	+0
6	R175 Shore Road	1,145	506	60	0	+5%	+0
<b>Daily Operation During Winter Maintenance</b>							
1	R175 Dundalk Road (South of R176)	9,337	935	116	0	+1%	+0
2	R175 Greenore Road (South of IDA Ind. Est.)	2,492	532	170	0	+7%	+0
3	R176 Carlingford Road	5,819	124	54	0	+1%	+0
4	R175 Greenore Road (North of IDA Ind. Est.)	2,492	532	170	0	+7%	+0
5	L70661 Euston Street (Near Junction with R175)	902	6	50	0	+6%	+0
6	R175 Shore Road	1,145	506	120	0	+10%	+0

Table 6.16 summarises the effects of Phase 1 of the proposed development set against the upper value baseline network flows for the morning peak hour. The effects of the proposed development are shown to exceed 10% in the morning peak hour at Euston Street and on Shore Road at the port entry. The table shows that the percentage increases exceed 10% but the numerical increases in traffic are relatively low at approximately 10 vehicles additional vehicles per hour. The elevated forecast percentage increase arises directly as a result of the low volumes of traffic manifest on the baseline network. Table 6.17 summarises the forecast traffic generation of the Phase 1 development set against the upper value baseline network traffic flows for the evening peak hour. The results of the analyses show that the proposed development at Phase 1 is not likely to have a significant negative impact upon the operation of the receiving road network.



**Table 6.16 Network Link Traffic – Upper Value Morning Peak Flows (Phase 1)**

Road Link		Baseline 2023 Network Traffic Flow		Development Generated Traffic Flow		Increase	
		Total	Heavy	Total	Heavy	Total	Heavy
Typical Daily Operation							
1	R175 Dundalk Road (South of R176)	9,337	935	75	0	+1%	+0
2	R175 Greenore Road (South of IDA Ind. Est.)	2,492	532	110	0	+4%	+0
3	R176 Carlingford Road	5,819	124	35	0	+1%	+0
4	R175 Greenore Road (North of IDA Ind. Est.)	2,492	532	110	0	+4%	+0
5	L70661 Euston Street (Near Junction with R175)	902	6	50	0	+5%	+0
6	R175 Shore Road	1,145	506	60	0	+5%	+0
Daily Operation During Winter Maintenance							
1	R175 Dundalk Road (South of R176)	9,337	935	116	0	+1%	+0
2	R175 Greenore Road (South of IDA Ind. Est.)	2,492	532	170	0	+7%	+0
3	R176 Carlingford Road	5,819	124	54	0	+1%	+0
4	R175 Greenore Road (North of IDA Ind. Est.)	2,492	532	170	0	+7%	+0
5	L70661 Euston Street (Near Junction with R175)	902	6	50	0	+6%	+0
6	R175 Shore Road	1,145	506	120	0	+10%	+0

**Table 6.17 Network Link Traffic – Upper Value Evening Peak Flows (Phase 1)**

Road Link		Baseline 2023 Network Traffic Flow		Development Generated Traffic Flow		Increase	
		Total	Heavy	Total	Heavy	Total	Heavy
Typical Daily Operation							
1	R175 Dundalk Road (South of R176)	9,337	935	75	0	+1%	+0
2	R175 Greenore Road (South of IDA Ind. Est.)	2,492	532	110	0	+4%	+0
3	R176 Carlingford Road	5,819	124	35	0	+1%	+0
4	R175 Greenore Road (North of IDA Ind. Est.)	2,492	532	110	0	+4%	+0
5	L70661 Euston Street (Near Junction with R175)	902	6	50	0	+5%	+0
6	R175 Shore Road	1,145	506	60	0	+5%	+0
Daily Operation During Winter Maintenance							
1	R175 Dundalk Road (South of R176)	9,337	935	116	0	+1%	+0
2	R175 Greenore Road (South of IDA Ind. Est.)	2,492	532	170	0	+7%	+0
3	R176 Carlingford Road	5,819	124	54	0	+1%	+0
4	R175 Greenore Road (North of IDA Ind. Est.)	2,492	532	170	0	+7%	+0
5	L70661 Euston Street (Near Junction with R175)	902	6	50	0	+6%	+0
6	R175 Shore Road	1,145	506	120	0	+10%	+0

Comparing the traffic generation forecasts of the development summarised in Table 6.10 and Table 6.11 it can be appreciated that the operational traffic generation of Phase 2 is approximately treble that of Phase 1. The forecast traffic generation set against the recent 2023 network traffic flow data shows that the proposed development will have the potential to exceed the 10% typical threshold triggering the need for detailed traffic assessment. This happens in the morning peak hour where development traffic is concentrated near the junction Euston Street and R175 Shore Road. Based upon the preliminary assessment against 2023 surveyed traffic flow figures and the traffic flow assumptions of development generated traffic, the proposed development has the potential to increase the two-way daily volume of traffic on Euston Street and Shore Road in excess of the standard threshold value of 10%.

#### 6.8.2.7 Traffic and Transport Assessment Guidelines - Thresholds

In Ireland, a Traffic and Transport Assessment or Traffic Impact Assessment must accompany all planning applications for developments which could potentially generate significant traffic volumes. A Traffic and Transport Assessment should be carried out if the proposed development exceeds the following thresholds:

- Development traffic exceeds 10% of the traffic flow on the adjoining road.
- Development traffic exceeds 5% of the traffic flow on the adjoining road where congestion exists or the location is sensitive.
- Residential development in excess of 200 dwellings.
- Retail and leisure development in excess of 1,000m<sup>2</sup>.
- Office, education and hospital development in excess of 2,500m<sup>2</sup>.
- Industrial development in excess of 5,000m<sup>2</sup>.
- Distribution and warehousing in excess of 10,000m<sup>2</sup>.

Relevant thresholds for Traffic Assessment where the development has the potential to affect national roads are as follows:

- a) 100 trips in / out combined in the peak hours for the proposed development
- b) Development traffic exceeds 10% of turning movements at junctions with and on National Roads.
- c) Development traffic exceeds 5% of turning movements at junctions with National Roads if location has potential to become congested or sensitive.
- d) Industrial development in excess of 5,000m<sup>2</sup>.
- e) Distribution and warehousing in excess of 10,000m<sup>2</sup>.
- f) 100 on-site parking spaces.

Sub threshold criteria for Traffic Assessment are as follows:

- g) The character and total number of trips per day is such that as to cause concern.
- h) Location of the site is not consistent with national guidance or local plan policy or accessibility criteria contained in the Development Plan.
- i) The development is part of incremental development that will have significant transport implications.

- j) The development may generate traffic at peak times in a heavily trafficked/ congested area or near a junction with a main traffic route.
- k) The development may generate heavy vehicles in a residential area.
- l) There are concerns over the development's potential effects on road safety.
- m) The development is in a tourist area with potential to cause congestion.
- n) The planning authority considers that the proposal will result in a material change in trips patterns or raises other significant transport implications.

The following sets out the forecast traffic generation scenario against the various threshold criteria.

- a) The proposed development when fully developed and occupied is forecast to generate approximately 45 inbound and 3 outbound movements in the morning peak hour and 3 inbound and 18 outbound movements trips in the evening peak. Neither exceeds the threshold value of 100 trips<sup>1</sup> in/out.
- b) The forecast peak hour traffic flows show that it is likely that development traffic will exceed 10% of traffic flow and turning movements on Euston Street in the evening peak hour period.
- c) Development traffic at junctions with National Roads is not considered likely to exceed 5% of existing turning movements. The forecast is likely to be in the order of 2% or less in the case of the closest national road junctions.
- d) The proposed development comprises more than 5,000m<sup>2</sup> of buildings and can be considered to exceed the development threshold value of 1,000m<sup>2</sup>.
- e) Distribution and warehousing is not in excess of 10,000m<sup>2</sup>.
- f) The proposed development exceeds the threshold value of 100 on-site parking spaces.

Sub threshold criteria for Traffic Assessment are as follows:

- g) The lands are zoned appropriately and the character and total number of trips in / out combined per day is not such that it should not reasonably give cause for concern.
- h) The location of the site is considered to be consistent with national guidance and local plan policy and is consistent with the accessibility criteria in the Development Plan.
- i) The operation of the development is not considered likely to have significant transport implications.
- j) The development will generate traffic volumes at peak times that exceed the standard thresholds on Euston Street which is a lightly trafficked route.
- k) The development will not generate heavy vehicles in a residential area.
- l) The site is appropriately zoned and the receiving roads have been designed to cater for traffic with the characteristics of the proposed development accordingly no concerns should arise with respect to the potential effects on road safety.
- m) The development is located in an operational port but the general receiving area is considered a tourist area. The numerical increase in traffic flows in the peak hours are modest even during maintenance periods when traffic generation will be temporarily elevated so the development is not considered likely to have the potential to cause congestion.

<sup>1</sup> Trip comprises an inbound movement from origin and an outbound movement to destination

Given the forecast peak hour traffic generation it can reasonably be concluded that the impact of the proposed development on the capacity and operation of the receiving road network is not likely to be significant. Nevertheless, a number of the threshold criteria set out in the guidelines are either met or exceeded, accordingly the traffic impact of the proposed development warrants further investigation with respect to the potential impact upon the capacity and operation of the junctions in the study area.

#### 6.8.2.8 Assessment Years and Estimation of Traffic Growth

The capacity of any road network is dictated by the operation of the links and junctions within that network. Capacity assessments of the key junctions in the vicinity of the site are modelled for base and future year scenarios in order to provide a comparative basis upon which to evaluate the incremental impact of the proposed development and to appraise the overall performance of the road network under future assumed network traffic flow criteria. To prepare a traffic network model various base assumptions are made with respect to the future growth of traffic on the receiving road network.

Regarding the choice of appropriate assessment years the TII Publication PE-PDV-02045 *'Traffic and Transport Assessment Guidelines'* advise as follows; *"Timescale: Traffic volumes for opening year, opening +5 and opening year +15. These timescales are fairly standard and should be expected"*. The application is for a phased development and the applicant aspires to have Phase 1 of the development completely constructed by the end of 2025 and occupied in 2026. For the purposes of this traffic assessment 2026 has been selected as opening year. Phase 2 of the development is programmed to be completed and occupied in 2032. Since an analysis of operational for 2031 would be prior to the completion of Phase 2 the exercise would be somewhat academic accordingly an interim assessment year of 2032 or Opening +6yrs has been selected to co-ordinate with the forecast year of completion and full occupancy of the 3 no. OMF buildings. In line with the guidance provided in the National Roads Authority *'Traffic and Transport Assessment Guidelines'*, modelling analyses of the capacity of the receiving road network have been carried out for the following:

- Baseline 2023
- Opening Year (Forecast 2026)
- Opening Year +6yrs (2032)
- Opening Year +15yrs (2041).

The following junctions have been included in the scope of the modelling assessments

- Site 1: R175 Dundalk Road/R176 Carlingford Road
- Site 2: R175 Shore Road/L70661 Euston Street

##### 6.8.2.8.1 Traffic Growth Rates

For the purposes of the traffic assessment traffic generation arising directly from the proposed development has been assumed not to grow over time. Background traffic flows on the public road network have been assumed to grow in accordance with the latest growth factors published by Transport Infrastructure Ireland (TII) in October 2021 in the document PE-PAG-02017 *'Project Appraisal Guidelines: Unit 5.3 Travel Demand Projections'*.

Central growth rate factors have been used in the derivation of the future traffic flows from the surveyed 2023 flows. The TII forecast central growth rate factors for Louth (excluding Metropolitan Area) assume traffic growth rates of 1.48% per annum for light vehicles and 3.63% for heavy vehicles between 2016 and 2030 and 0.70% per annum for light vehicles and 1.74% for heavy vehicles between 2030 and 2040 and 0.63% per annum for light vehicles and 1.98% for heavy vehicles thereafter to 2050. Existing traffic flows are as surveyed and will be used as a baseline for comparison of the analyses for future year junction performance. The growth indices used to derive Opening Year (2026) and; Opening Year +6yrs (2032) and Opening Year +15yrs (2041) flows from the surveyed (2023) flows are as follows.

#### National Primary Road Central Growth Rates (Applied to All Roads)

▪ 2023-2026 (Opening Year)	1.0451 (Cars)	1.1129 (HGV)
▪ 2023-2032 (Opening Year +6yrs)	1.1326 (Cars)	1.3532 (HGV)
▪ 2023-2041 (Opening Year +15yrs)	1.2051 (Cars)	1.5843 (HGV)

TII growth factors have been applied directly to peak hour traffic data. Growth factors are not always directly applicable to peak hour periods (the peak hour generally spreads out as opposed to intensifying). Ignoring this factor and adding growth directly to the peak hour generally results in robust calculations favoured by traffic experts in the assessment of road networks.

The traffic generated by the future completion and occupation of Phase 2 is included in the 2032 and 2041 analyses. In the assessment of these future years, it is assumed that the entire development will be fully constructed, occupied and operating at capacity. The application of TII growth rates to the receiving network is considered likely to account for the cumulative traffic arising as a result of economic growth and development locally over the specified assessment period.

#### 6.8.2.8.2 Scenarios Analysed – Proposed Development

The main corridor upon which the new traffic generated by the development will have an impact is R175 and R176 accordingly the scope of future year assessments focuses on the operation of the affected junctions. The existing receiving road network has operated under similar load when the OpenHydro development was in operation. The assessments aim to confirm that the infrastructure provided by the receiving road network including the strategic network is suitable to accommodate the forecast traffic arising from the proposed development. The various 'do-nothing' and 'do-something' traffic flow scenarios have been assessed for the Opening Year 2026, Opening Year +6yrs and the Design Year of 2041.

The future year assessments include for scenarios both with and without the proposed development so that the incremental impact of development traffic can be evaluated. The TRL suite of programs has been used to assess network junction performance in the identified peak hours. The 'do something' scenarios include for the forecast assessment value development traffic flows being added to the forecast network flows derived from the 2023 traffic surveys factored as set out above. The relative traffic generation and distribution flows arising from the proposed development are shown in TTA: Appendix B Figures 9 through 26.



The forecast network turning traffic flows for each of the assessment years and for each of the assessment scenarios based upon average port traffic flows are shown in TTA: Appendix B Figures 27 through 65.

The forecast network turning traffic flows for each of the assessment years and for each of the assessment scenarios based upon upper value port traffic flows are shown in TTA: Appendix B Figures 66 through 104.

#### 6.8.2.8.3 Forecast Development Traffic (Average Value Network Traffic Baseline)

The forecast network turning traffic flows for each of the assessment years and for the surveyed average value baseline and future forecast traffic flows on the link roads between junctions on the road network within the study scope are summarised in the following tables relating to the lower value or Average value road network assessments:

- Table 6.18 Link 1 – R175 Dundalk Road (South of R176)
- Table 6.19 Link 2 – R175 Greenore Road (South of IDA)
- Table 6.20 Link 3 – R176 Carlingford Road
- Table 6.21 Link 4 – R175 Greenore Road (South of L70661)
- Table 6.22 Link 5 – L70661 Euston Street
- Table 6.23 Link 6 – R175 Shore Road

**Table 6.18 Link 1 – Average Network Value Two-way Traffic Flows**

Assessment Scenario	Year	AM Peak 08:00-09:00hrs			PM Peak 17:00-18:00hrs			AADT	
		LV	HGV	Total	LV	HGV	Total	Value	%HGV
R175 Dundalk Road South of R176 Baseline Do Nothing Scenario	2023	239	70	309	373	24	397	5040	17.8%
	2026	250	78	328	400	27	427	5328	18.7%
	2032	271	95	365	434	32	466	5905	20.5%
	2041	288	111	399	462	38	500	6413	22.1%
Forecast Do Something Typical Traffic	2026	260	78	338	405	27	432	5427	18.4%
	2032	299	95	393	449	32	481	6201	19.5%
	2041	316	111	427	477	38	515	6708	21.25%
Forecast Do Something Winter Maintenance	2026	263	78	341	405	27	432	5453	18.3%
	2032	304	95	398	449	32	481	6288	19.3%
	2041	321	111	432	477	38	515	6795	20.9%
Forecast Do Something Summer Maintenance	2026	264	78	342	405	27	432	5481	18.2%
	2032	307	95	401	449	32	481	6288	19.3%
	2041	324	111	435	477	38	515	6795	20.9%
Forecast Do Something	2026	10 4.0%	0 0.0%	10 3.0%	5 1.3%	0 0.0%	5 1.2%	99 1.9%	-0.3%
	2032	28	0	28	15	0	15	296	-1.0%

Assessment Scenario	Year	AM Peak 08:00-09:00hrs			PM Peak 17:00-18:00hrs			AADT	
		LV	HGV	Total	LV	HGV	Total	Value	%HGV
		10.3%	0.0%	7.7%	3.5%	0.0%	3.2%	5.0%	
Typical Traffic Incremental Increase Over Do Nothing	2041	28	0	28	15	0	15	295	-0.9%
		9.7%	0.0%	7.0%	3.2%	0.0%	3.0%	4.6%	
Forecast Do Something Winter Maintenance Incremental Increase Over Do Nothing	2026	13	0	13	5	0	5	125	-0.4%
		5.2%	0.0%	4.0%	1.3%	0.0%	1.2%	2.3%	
	2032	33	0	33	15	0	15	383	-1.2%
		12.2%	0.0%	9.0%	3.5%	0.0%	3.2%	6.5%	
	2041	33	0	33	15	0	15	382	-1.2%
		11.5%	0.0%	8.3%	3.2%	0.0%	3.0%	6.0%	
Forecast Do Something Summer Maintenance Incremental Increase Over Do Nothing	2026	14	0	14	5	0	5	153	-0.5%
		5.6%	0.0%	4.3%	1.3%	0.0%	1.2%	2.9%	
	2032	36	0	36	15	0	15	383	-1.2%
		13.3%	0.0%	9.9%	3.5%	0.0%	3.2%	6.5%	
	2041	36	0	36	15	0	15	382	-1.2%
		12.5%	0.0%	9.0%	3.2%	0.0%	3.0%	6.0%	

**Table 6.19 Link 2 – Average Network Value Two-way Traffic Flows**

Assessment Scenario	Year	AM Peak 08:00-09:00hrs			PM Peak 17:00-18:00hrs			AADT	
		LV	HGV	Total	LV	HGV	Total	Value	%HGV
R175 Greenore Road South of IDA Baseline Do Nothing Scenario	2023	145	70	215	178	31	209	4526	18.7%
	2026	151	78	229	198	35	233	4788	19.6%
	2032	164	95	259	214	42	257	5313	21.5%
	2041	175	111	285	228	50	278	5775	23.2%
Forecast Do Something Typical Traffic	2026	164	78	242	205	35	240	4933	19.0%
	2032	203	95	298	235	42	278	5748	19.9%
	2041	214	111	324	249	50	299	6210	21.5%
Forecast Do Something Winter Maintenance	2026	167	78	245	205	35	240	4972	18.9%
	2032	208	95	303	235	42	278	5875	19.4%
	2041	219	111	329	249	50	299	6337	21.1%
Forecast Do Something Summer Maintenance	2026	169	78	247	205	35	240	5012	18.7%
	2032	212	95	307	235	42	278	5875	19.4%
	2041	223	111	333	249	50	299	6337	21.1%
Forecast Do Something	2026	13	0	13	7	0	7	145	-0.6%
		8.6%	0.0%	5.7%	3.5%	0.0%	3.0%	3.0%	

Typical Traffic Incremental Increase Over Do Nothing	2032	39 23.8%	0 0.0%	39 15.1%	21 9.8%	0 0.0%	21 8.2%	435 8.2%	-1.6%
	2041	39 22.3%	0 0.0%	39 13.7%	21 9.2%	0 0.0%	21 7.6%	435 7.5%	-1.7%
Forecast Do Something Winter Maintenance Incremental Increase Over Do Nothing	2026	16 10.6%	0 0.0%	16 7.0%	7 3.5%	0 0.0%	7 3.0%	184 3.8%	-0.7%
	2032	44 26.8%	0 0.0%	44 17.0%	21 9.8%	0 0.0%	21 8.2%	562 10.6%	-2.1%
	2041	44 25.1%	0 0.0%	44 15.4%	21 9.2%	0 0.0%	21 7.6%	562 9.7%	-2.1%
Forecast Do Something Summer Maintenance Incremental Increase Over Do Nothing	2026	18 11.9%	0 0.0%	18 7.9%	7 3.5%	0 0.0%	7 3.0%	224 4.7%	-0.9%
	2032	48 29.3%	0 0.0%	48 18.5%	21 9.8%	0 0.0%	21 8.2%	562 10.6%	-2.1%
	2041	48 18.7%	0 18.7%	48 18.7%	21 18.7%	0 18.7%	21 18.7%	562 18.7%	-2.1%

**Table 6.20 Link 3 – Average Network Value Two-way Traffic Flows**

Assessment Scenario	Year	AM Peak 08:00-09:00hrs			PM Peak 17:00-18:00hrs			AADT	
		LV	HGV	Total	LV	HGV	Total	Value	%HGV
R176 Carlingford Road Baseline Do Nothing Scenario	2023	296	20	317	418	15	433	8599	2.8%
	2026	310	23	332	437	17	454	9004	3.0%
	2032	336	27	363	473	21	494	9793	3.3%
	2041	357	32	389	503	24	528	10454	3.7%
Forecast Do Something Typical Traffic	2026	313	23	335	439	17	456	9050	3.0%
	2032	347	27	374	479	21	500	9933	3.3%
	2041	368	32	400	509	24	534	10594	3.6%
Forecast Do Something Winter Maintenance	2026	313	23	335	439	17	456	9063	3.0%
	2032	347	27	374	479	21	500	9972	3.3%
	2041	368	32	400	509	24	534	10634	3.6%
Forecast Do Something Summer Maintenance	2026	314	23	336	439	17	456	9075	3.0%
	2032	348	27	375	479	21	500	9972	3.3%
	2041	369	32	401	509	24	534	10634	3.6%
Forecast Do Something	2026	3 1.0%	0 0.0%	3 0.9%	2 0.5%	0 0.0%	2 0.4%	46 0.5%	0.0%

Typical Traffic Incremental Increase Over Do Nothing	2032	11 3.3%	0 0.0%	11 3.0%	6 1.3%	0 0.0%	6 1.2%	140 1.4%	0.0%
	2041	11 3.1%	0 0.0%	11 2.8%	6 1.2%	0 0.0%	6 1.1%	140 1.3%	-0.1%
Forecast Do Something Winter Maintenance Incremental Increase Over Do Nothing	2026	3 1.0%	0 0.0%	3 0.9%	2 0.5%	0 0.0%	2 0.4%	59 0.7%	0.0%
	2032	11 3.3%	0 0.0%	11 3.0%	6 1.3%	0 0.0%	6 1.2%	179 1.8%	0.0%
	2041	11 3.1%	0 0.0%	11 2.8%	6 1.2%	0 0.0%	6 1.1%	180 1.7%	-0.1%
Forecast Do Something Summer Maintenance Incremental Increase Over Do Nothing	2026	4 1.3%	0 0.0%	4 1.2%	2 0.5%	0 0.0%	2 0.4%	71 0.8%	0.0%
	2032	12 3.6%	0 0.0%	12 3.3%	6 1.3%	0 0.0%	6 1.2%	179 1.8%	0.0%
	2041	12 3.4%	0 0.0%	12 3.1%	6 1.2%	0 0.0%	6 1.1%	180 1.7%	-0.1%

**Table 6.21 Link 4 – Average Network Value Two-way Traffic Flows**

Assessment Scenario	Year	AM Peak 08:00-09:00hrs			PM Peak 17:00-18:00hrs			AADT	
		LV	HGV	Total	LV	HGV	Total	Value	%HGV
R175 Greenore Road South of L70661 Baseline Do Nothing Scenario	2023	88	62	150	156	5	160	3716	22.1%
	2026	92	69	161	163	5	168	3939	23.2%
	2032	99	84	183	176	7	183	4390	25.3%
	2041	106	98	204	188	8	195	4789	27.1%
Forecast Do Something Typical Traffic	2026	105	69	174	170	5	175	4084	22.3%
	2032	138	84	222	197	7	204	4825	23.0%
	2041	145	98	243	209	8	216	5225	24.9%
Forecast Do Something Winter Maintenance	2026	108	69	177	170	5	175	4124	22.1%
	2032	143	84	227	197	7	204	4944	22.4%
	2041	150	98	248	209	8	216	5343	24.3%
Forecast Do Something Summer Maintenance	2026	110	69	179	170	5	175	4164	21.9%
	2032	147	84	231	197	7	204	4944	22.4%
	2041	154	98	252	209	8	216	5343	24.3%
Forecast Do Something	2026	13 14.1%	0 0.0%	13 8.1%	7 4.3%	0 0.0%	7 4.2%	145 3.7%	-0.9%
	2032	39	0	39	21	0	21	435	-2.3%

Assessment Scenario	Year	AM Peak 08:00-09:00hrs			PM Peak 17:00-18:00hrs			AADT	
		LV	HGV	Total	LV	HGV	Total	Value	%HGV
		39.4%	0.0%	21.3%	11.9%	0.0%	11.5%	9.9%	
Typical Traffic Incremental Increase Over Do Nothing	2041	39	0	39	21	0	21	436	-2.2%
		36.8%	0.0%	19.1%	11.2%	0.0%	10.8%	9.1%	
Forecast Do Something Winter Maintenance Incremental Increase Over Do Nothing	2026	16	0	16	7	0	7	185	-1.1%
		17.4%	0.0%	9.9%	4.3%	0.0%	4.2%	4.7%	
	2032	44	0	44	21	0	21	554	-2.9%
		44.4%	0.0%	24.0%	11.9%	0.0%	11.5%	12.6%	
	2041	44	0	44	21	0	21	554	-2.8%
		41.5%	0.0%	21.6%	11.2%	0.0%	10.8%	11.6%	
Forecast Do Something Summer Maintenance Incremental Increase Over Do Nothing	2026	18	0	18	7	0	7	225	-1.3%
		19.6%	0.0%	11.2%	4.3%	0.0%	4.2%	5.7%	
	2032	48	0	48	21	0	21	554	-2.9%
		48.5%	0.0%	26.2%	11.9%	0.0%	11.5%	12.6%	
	2041	48	0	48	21	0	21	554	-2.8%
		45.3%	0.0%	23.5%	11.2%	0.0%	10.8%	11.6%	

**Table 6.22 Link 5 – Average Network Value Two-way Traffic Flows**

Assessment Scenario	Year	AM Peak 08:00-09:00hrs			PM Peak 17:00-18:00hrs			AADT	
		LV	HGV	Total	LV	HGV	Total	Value	%HGV
L70661 Euston Street Baseline Do Nothing Scenario	2023	44	0	44	72	0	72	869	1.4%
	2026	46	0	46	75	0	75	909	1.5%
	2032	50	0	50	82	0	82	987	1.6%
	2041	53	0	53	87	0	87	1052	1.8%
Forecast Do Something Typical Traffic	2026	53	0	53	82	0	82	975	1.4%
	2032	71	0	71	103	0	103	1185	1.4%
	2041	74	0	74	108	0	108	1250	1.5%
Forecast Do Something Winter Maintenance	2026	53	0	53	82	0	82	975	1.4%
	2032	71	0	71	103	0	103	1185	1.4%
	2041	74	0	74	108	0	108	1250	1.5%
Forecast Do Something Summer Maintenance	2026	53	0	53	82	0	82	975	1.4%
	2032	71	0	71	103	0	103	1185	1.4%
	2041	74	0	74	108	0	108	1250	1.5%
Forecast	2026	7	0	7	7	0	7	66	-0.1%



Assessment Scenario	Year	AM Peak 08:00-09:00hrs			PM Peak 17:00-18:00hrs			AADT	
		LV	HGV	Total	LV	HGV	Total	Value	%HGV
Do Something Typical Traffic Incremental Increase Over Do Nothing		15.2%	0%	15.2%	9.3%	0%	9.3%	7.3%	
		21	0	21	21	0	21	198	-0.2%
	2032	42.0%	0%	42.0%	25.6%	0%	25.6%	20.1%	
		21	0	21	21	0	21	198	-0.3%
	2041	39.6%	0%	39.6%	24.1%	0%	24.1%	18.8%	
Forecast Do Something Winter Maintenance Incremental Increase Over Do Nothing	2026	7	0	7	7	0	7	66	-0.1%
		15.2%	0%	15.2%	9.3%	0%	9.3%	7.3%	
	2032	21	0	21	21	0	21	198	-0.2%
		42.0%	0%	42.0%	25.6%	0%	25.6%	20.1%	
	2041	21	0	21	21	0	21	198	-0.3%
		39.6%	0%	39.6%	24.1%	0%	24.1%	18.8%	
Forecast Do Something Summer Maintenance Incremental Increase Over Do Nothing	2026	7	0	7	7	0	7	66	-0.1%
		15.2%	0%	15.2%	9.3%	0%	9.3%	7.3%	
	2032	21	0	21	21	0	21	198	-0.2%
		42.0%	0%	42.0%	25.6%	0%	25.6%	20.1%	
	2041	21	0	21	21	0	21	198	-0.3%
		39.6%	0%	39.6%	24.1%	0%	24.1%	18.8%	

**Table 6.23 Link 6 – Average Network Value Two-way Traffic Flows**

Assessment Scenario	Year	AM Peak 08:00-09:00hrs			PM Peak 17:00-18:00hrs			AADT	
		LV	HGV	Total	LV	HGV	Total	Value	%HGV
R175 Shore Road Baseline Do Nothing Scenario	2023	11	48	59	50	2	52	1284	1.4%
	2026	11	53	65	52	2	54	1389	1.5%
	2032	12	65	77	57	3	59	1608	1.6%
	2041	13	76	89	60	3	63	1812	1.8%
Forecast Do Something Typical Traffic	2026	17	53	71	52	2	54	1468	1.4%
	2032	30	65	95	57	3	59	1845	1.4%
	2041	31	76	107	60	3	63	2049	1.5%
Forecast Do Something Winter Maintenance	2026	20	53	74	52	2	54	1508	1.4%
	2032	35	65	100	57	3	59	1964	1.4%
	2041	36	76	112	60	3	63	2168	1.5%
Forecast Do Something	2026	22	53	76	52	2	54	1547	1.4%
	2032	39	65	104	57	3	59	1964	1.4%

Assessment Scenario	Year	AM Peak 08:00-09:00hrs			PM Peak 17:00-18:00hrs			AADT	
		LV	HGV	Total	LV	HGV	Total	Value	%HGV
Summer Maintenance	2041	40	76	116	60	3	63	2468	1.5%
Forecast Do Something Typical Traffic Incremental Increase Over Do Nothing	2026	6 54.5%	0 0.0%	6 9.2%	0 0.0%	0 0.0%	0 0.0%	79 5.7%	-0.1%
	2032	18 150%	0 0.0%	18 23.4%	0 0.0%	0 0.0%	0 0.0%	237 14.7%	-0.2%
	2041	18 138%	0 0.0%	18 20.2%	0 0.0%	0 0.0%	0 0.0%	237 13.1%	-0.3%
Forecast Do Something Winter Maintenance Incremental Increase Over Do Nothing	2026	9 81.8%	0 0.0%	9 13.8%	0 0.0%	0 0.0%	0 0.0%	119 8.6%	-0.1%
	2032	23 191%	0 0.0%	23 29.9%	0 0.0%	0 0.0%	0 0.0%	356 22.1%	-0.2%
	2041	23 176%	0 0.0%	23 25.8%	0 0.0%	0 0.0%	0 0.0%	356 19.6%	-0.3%
Forecast Do Something Summer Maintenance Incremental Increase Over Do Nothing	2026	11 100%	0 0.0%	11 16.9%	0 0.0%	0 0.0%	0 0.0%	158 11.4%	-0.1%
	2032	27 225%	0 0.0%	27 35.1%	0 0.0%	0 0.0%	0 0.0%	356 22.1%	-0.2%
	2041	27 207%	0 0.0%	27 30.3%	0 0.0%	0 0.0%	0 0.0%	356 19.6%	-0.3%

The above detailed assessment of baseline and forecast future network traffic flows confirm that results of the preliminary scoping assessments summarised in Table 6.13, Table 6.14 and Table 6.15. The incremental increase in traffic arising from the proposed development in the morning and evening peak hours is sub-threshold on Link 1 'R175 Dundalk Road' and on Link 3 'R176 Carlingford Road'. The incremental effect of development traffic on Link 2 'Greenore Road (South of IDA )' and Link 4 'Greenore Road (North of IDA)' exceed the typical threshold value of 10% which usually triggers the need for further assessment and detailed junction/network capacity assessments. Similarly the effect on Link 5 'Euston Street' and Link 6 'Shore Road' exceeds the threshold percentage and for the same reasons warrant further detailed assessment. It should be noted that where the threshold percentage values are exceeded, the numerical increases are not significant. In that case of Euston Street, the forecast increases in peak hour and daily traffic volumes are similar to those that were generated when OpenHydro operated from the port where the associated car park was accessed from Euston Street as is the case in the current application.

Turning traffic at junctions have the greatest effect on network capacity. Transport Infrastructure Ireland (TII) Publication TII-PE-PDV-02045 'Traffic and Transport Assessment Guidelines' (May 2014) provides advisory thresholds for Traffic and Transport Assessment where national roads are affected. Notwithstanding that the receiving environment is the Regional Road network, having regard to those

advisory thresholds the following Table 6.24 summarises the increase over average in traffic flow turning movements on the receiving road junctions in the study area.

**Table 6.24 Percentage Uplift in Turning Movements – Do-Something (Average)**

Year	AM Peak 08:00-09:00hrs		PM Peak 17:00-18:00hrs		Daily 07:00-19:00hrs	
	Site 1	Site 2	Site 1	Site 2	Site 1	Site 2
2026	1.5%	15.2%	0.6%	9.3%	+1.5%	+7.3%
2032	4.6%	42.1%	1.6%	25.7%	+3.8%	+20.0%
2041	4.3%	39.6%	1.5%	24.2%	+3.6%	+18.8%

Table 6.24 shows that the increase in the total turning traffic flows on the receiving road network in the morning peak hour is generally less than +5% at Site 1 which is the intersection of R175 Dundalk Road and R176 Carlingford Road. At the junction of Shore Road and Euston Street where existing turning volumes are relatively low the proportional uplift in the peak hours is 10-15% during Phase 1 of the development and 20-40% in Phase 2. The forecast increase in turning traffic is comprised of light vehicle traffic where the operational phases of the development will generate HGV only occasionally and are not considered in the analysis of peak hour and daily traffic generation.

It is concluded from the above analyses that the effect of development traffic on the capacity of the receiving road network warrants further detailed analysis of the effects of development traffic on junction and network capacity and delay.

#### 6.8.2.8.4 Forecast Development Traffic (Upper Value Network Traffic Baseline)

The preceding network analysis is based upon the recorded average network traffic flows where Greenore Port was recorded to generate traffic volumes that were slightly above average by reference to Table 6.7. During periods of increased activity at the port network traffic flows are locally elevated. The duration of elevated traffic flows is typically around 4 no. days and this is understood to occur approximately 8 no. times per annum. Assessing the proposed development against such elevated traffic flows will show the percentage impact reduced over the preceding tabulated figures. Analysing one or the other scenario or an average of the two would likely not provide a complete picture of the typical and occasional local traffic conditions so, in the interest of a comprehensive assessment it was considered worthwhile to carry through calculations and assessment of traffic effects under both scenarios.

The forecast network turning traffic flows for each of the assessment years and for The surveyed, upper value baseline and future forecast traffic flows on the link roads between junctions on the road network within the study scope are summarised in the following tables relating to the lower value or Average value road network assessments:

- Table 6.25      Link 1 – R175 Dundalk Road (South of R176)
- Table 6.26      Link 2 – R175 Greenore Road (South of IDA)
- Table 6.27      Link 3 – R176 Carlingford Road
- Table 6.28      Link 4 – R175 Greenore Road (South of L70661)
- Table 6.29      Link 5 – L70661 Euston Street
- Table 6.30      Link 6 – R175 Shore Road

**Table 6.25 Link 1 – Upper Value Network Value Two-way Traffic Flows**

Assessment Scenario	Year	AM Peak 08:00-09:00hrs			PM Peak 17:00-18:00hrs			AADT	
		LV	HGV	Total	LV	HGV	Total	Value	%HGV
R175 Dundalk Road South of R176 Baseline Do Nothing Scenario	2023	399	86	486	495	42	538	10627	9.5%
	2026	417	96	513	529	47	576	11174	10.0%
	2032	452	117	569	574	57	631	12258	11.1%
	2041	481	137	618	611	67	677	13189	12.1%
Forecast Do Something Typical Traffic	2026	427	96	523	534	47	581	11273	10.0%
	2032	480	117	597	589	57	646	12554	10.9%
	2041	509	137	646	626	67	692	13484	11.9%
Forecast Do Something Winter Maintenance	2026	430	96	526	534	47	581	11300	9.9%
	2032	485	117	602	589	57	646	12641	10.8%
	2041	514	137	651	626	67	692	13571	11.8%
Forecast Do Something Summer Maintenance	2026	431	96	527	534	47	581	11327	9.9%
	2032	488	117	605	589	57	646	12641	10.8%
	2041	517	137	654	626	67	692	13571	11.8%
Forecast Do Something Typical Traffic Incremental Increase Over Do Nothing	2026	10 2.4%	0 0.0%	10 1.9%	5 0.9%	0 0.0%	5 0.9%	99 0.9%	0.0%
	2032	28 6.2%	0 0.0%	28 4.9%	15 2.6%	0 0.0%	15 2.4%	296 2.4%	-0.2%
	2041	28 5.8%	0 0.0%	28 4.5%	15 2.5%	0 0.0%	15 2.2%	295 2.2%	-0.2%
Forecast Do Something Winter Maintenance Incremental Increase Over Do Nothing	2026	13 3.1%	0 0.0%	13 2.5%	5 0.9%	0 0.0%	5 0.9%	126 1.1%	-0.1%
	2032	33 7.3%	0 0.0%	33 5.8%	15 2.6%	0 0.0%	15 2.4%	383 3.1%	-0.3%
	2041	33 6.9%	0 0.0%	33 5.3%	15 2.5%	0 0.0%	15 2.2%	382 2.9%	-0.3%
Forecast Do Something Summer Maintenance Incremental Increase Over Do Nothing	2026	14 3.4%	0 0.0%	14 2.7%	5 0.9%	0 0.0%	5 0.9%	153 1.4%	-0.1%
	2032	36 8.0%	0 0.0%	36 6.3%	15 2.6%	0 0.0%	15 2.4%	383 3.1%	-0.3%
	2041	36 7.5%	0 0.0%	36 5.8%	15 2.5%	0 0.0%	15 2.2%	382 2.9%	-0.3%



**Table 6.26 Link 2 – Upper Value Network Value Two-way Traffic Flows**

Assessment Scenario	Year	AM Peak 08:00-09:00hrs			PM Peak 17:00-18:00hrs			AADT	
		LV	HGV	Total	LV	HGV	Total	Value	%HGV
R175 Greenore Road South of IDA Baseline Do Nothing Scenario	2023	145	70	215	178	31	209	4526	18.7%
	2026	151	78	229	198	35	233	4788	19.6%
	2032	164	95	259	214	42	257	5313	21.5%
	2041	175	111	285	228	50	278	5775	23.2%
Forecast Do Something Typical Traffic	2026	164	78	242	205	35	240	4933	19.0%
	2032	203	95	298	235	42	278	5748	19.9%
	2041	214	111	324	249	50	299	6210	21.5%
Forecast Do Something Winter Maintenance	2026	167	78	245	205	35	240	4972	18.9%
	2032	208	95	303	235	42	278	5875	19.4%
	2041	219	111	329	249	50	299	6337	21.1%
Forecast Do Something Summer Maintenance	2026	169	78	247	205	35	240	5012	18.7%
	2032	212	95	307	235	42	278	5875	19.4%
	2041	223	111	333	249	50	299	6337	21.1%
Forecast Do Something Typical Traffic Incremental Increase Over Do Nothing	2026	13 8.6%	0 0.0%	13 5.7%	7 3.5%	0 0.0%	7 3.0%	145 3.0%	-0.6%
	2032	39 23.8%	0 0.0%	39 15.1%	21 9.8%	0 0.0%	21 8.2%	435 8.2%	-1.6%
	2041	39 22.3%	0 0.0%	39 13.7%	21 9.2%	0 0.0%	21 7.6%	435 7.5%	-1.7%
Forecast Do Something Winter Maintenance Incremental Increase Over Do Nothing	2026	16 10.6%	0 0.0%	16 7.0%	7 3.5%	0 0.0%	7 3.0%	184 3.8%	-0.7%
	2032	44 26.8%	0 0.0%	44 17.0%	21 9.8%	0 0.0%	21 8.2%	562 10.6%	-2.1%
	2041	44 25.1%	0 0.0%	44 15.4%	21 9.2%	0 0.0%	21 7.6%	562 9.7%	-2.1%
Forecast Do Something Summer Maintenance Incremental Increase Over Do Nothing	2026	18 11.9%	0 0.0%	18 7.9%	7 3.5%	0 0.0%	7 3.0%	224 4.7%	-0.9%
	2032	48 29.3%	0 0.0%	48 18.5%	21 9.8%	0 0.0%	21 8.2%	562 10.6%	-2.1%
	2041	48 27.4%	0 0.0%	48 16.8%	21 9.2%	0 0.0%	21 7.6%	562 9.7%	-2.1%

**Table 6.27 Link 3 – Upper Value Network Value Two-way Traffic Flows**

Assessment Scenario	Year	AM Peak 08:00-09:00hrs			PM Peak 17:00-18:00hrs			AADT	
		LV	HGV	Total	LV	HGV	Total	Value	%HGV
R176 Carlingford Road Baseline Do Nothing Scenario	2023	296	20	317	418	15	433	8599	2.8%
	2026	310	23	332	437	17	454	9004	3.0%
	2032	336	27	363	473	21	494	9793	3.3%
	2041	357	32	389	503	24	528	10454	3.7%
Forecast Do Something Typical Traffic	2026	313	23	335	439	17	456	9050	3.0%
	2032	347	27	374	479	21	500	9933	3.3%
	2041	368	32	400	509	24	534	10594	3.6%
Forecast Do Something Winter Maintenance	2026	313	23	335	439	17	456	9063	3.0%
	2032	347	27	374	479	21	500	9972	3.3%
	2041	368	32	400	509	24	534	10634	3.6%
Forecast Do Something Summer Maintenance	2026	314	23	336	439	17	456	9075	3.0%
	2032	348	27	375	479	21	500	9972	3.3%
	2041	369	32	401	509	24	534	10634	3.6%
Forecast Do Something Typical Traffic Incremental Increase Over Do Nothing	2026	3 1.0%	0 0.0%	3 0.9%	2 0.5%	0 0.0%	2 0.4%	46 0.5%	0.0%
	2032	11 3.3%	0 0.0%	11 3.0%	6 1.3%	0 0.0%	6 1.2%	140 1.4%	0.0%
	2041	11 3.1%	0 0.0%	11 2.8%	6 1.2%	0 0.0%	6 1.1%	140 1.3%	-0.1%
Forecast Do Something Winter Maintenance Incremental Increase Over Do Nothing	2026	3 1.0%	0 0.0%	3 0.9%	2 0.5%	0 0.0%	2 0.4%	59 0.7%	0.0%
	2032	11 3.3%	0 0.0%	11 3.0%	6 1.3%	0 0.0%	6 1.2%	179 1.8%	0.0%
	2041	11 3.1%	0 0.0%	11 2.8%	6 1.2%	0 0.0%	6 1.1%	180 1.7%	-0.1%
Forecast Do Something Summer Maintenance Incremental Increase Over Do Nothing	2026	4 1.3%	0 0.0%	4 1.2%	2 0.5%	0 0.0%	2 0.4%	71 0.8%	0.0%
	2032	12 3.6%	0 0.0%	12 3.3%	6 1.3%	0 0.0%	6 1.2%	179 1.8%	0.0%
	2041	12 3.4%	0 0.0%	12 3.1%	6 1.2%	0 0.0%	6 1.1%	180 1.7%	-0.1%

**Table 6.28 Link 4 – Upper Value Network Value Two-way Traffic Flows**

Assessment Scenario	Year	AM Peak 08:00-09:00hrs			PM Peak 17:00-18:00hrs			AADT	
		LV	HGV	Total	LV	HGV	Total	Value	%HGV
R175 Greenore Road South of L70661 Baseline Do Nothing Scenario	2023	88	62	150	156	5	160	3716	22.1%
	2026	92	69	161	163	5	168	3939	23.2%
	2032	99	84	183	176	7	183	4390	25.3%
	2041	106	98	204	188	8	195	4789	27.1%
Forecast Do Something Typical Traffic	2026	105	69	174	170	5	175	4084	22.3%
	2032	138	84	222	197	7	204	4825	23.0%
	2041	145	98	243	209	8	216	5225	24.9%
Forecast Do Something Winter Maintenance	2026	108	69	177	170	5	175	4124	22.1%
	2032	143	84	227	197	7	204	4944	22.4%
	2041	150	98	248	209	8	216	5343	24.3%
Forecast Do Something Summer Maintenance	2026	110	69	179	170	5	175	4164	21.9%
	2032	147	84	231	197	7	204	4944	22.4%
	2041	154	98	252	209	8	216	5343	24.3%
Forecast Do Something Typical Traffic Incremental Increase Over Do Nothing	2026	13 14.1%	0 0.0%	13 8.1%	7 4.3%	0 0.0%	7 4.2%	145 3.7%	-0.9%
	2032	39 39.4%	0 0.0%	39 21.3%	21 11.9%	0 0.0%	21 11.5%	435 9.9%	-2.3%
	2041	39 36.8%	0 0.0%	39 19.1%	21 11.2%	0 0.0%	21 10.8%	436 9.1%	-2.2%
Forecast Do Something Winter Maintenance Incremental Increase Over Do Nothing	2026	16 17.4%	0 0.0%	16 9.9%	7 4.3%	0 0.0%	7 4.2%	185 4.7%	-1.1%
	2032	44 44.4%	0 0.0%	44 24.0%	21 11.9%	0 0.0%	21 11.5%	554 12.6%	-2.9%
	2041	44 41.5%	0 0.0%	44 21.6%	21 11.2%	0 0.0%	21 10.8%	554 11.6%	-2.8%
Forecast Do Something Summer Maintenance Incremental Increase Over Do Nothing	2026	18 19.6%	0 0.0%	18 11.2%	7 4.3%	0 0.0%	7 4.2%	225 5.7%	-1.3%
	2032	48 48.5%	0 0.0%	48 26.2%	21 11.9%	0 0.0%	21 11.5%	554 12.6%	-2.9%
	2041	48 45.3%	0 0.0%	48 23.5%	21 11.2%	0 0.0%	21 10.8%	554 11.6%	-2.8%

**Table 6.29 Link 5 – Upper Value Network Value Two-way Traffic Flows**

Assessment Scenario	Year	AM Peak 08:00-09:00hrs			PM Peak 17:00-18:00hrs			AADT	
		LV	HGV	Total	LV	HGV	Total	Value	%HGV
L70661 Euston Street Baseline Do Nothing Scenario	2023	79	0	79	98	0	98	2014	0.6%
	2026	82	0	82	102	0	102	2105	0.6%
	2032	89	0	89	111	0	111	2283	0.7%
	2041	95	0	95	118	0	118	2431	0.8%
Forecast Do Something Typical Traffic	2026	89	0	89	109	0	109	2171	0.6%
	2032	110	0	110	132	0	132	2481	0.6%
	2041	116	0	116	139	0	139	2629	0.7%
Forecast Do Something Winter Maintenance	2026	89	0	89	109	0	109	2171	0.6%
	2032	110	0	110	132	0	132	2481	0.6%
	2041	116	0	116	139	0	139	2629	0.7%
Forecast Do Something Summer Maintenance	2026	89	0	89	109	0	109	2171	0.6%
	2032	110	0	110	132	0	132	2481	0.6%
	2041	116	0	116	139	0	139	2629	0.7%
Forecast Do Something Typical Traffic Incremental Increase Over Do Nothing	2026	7 8.5%	0 0.0%	7 8.5%	7 6.9%	0 0.0%	7 6.9%	66 3.1%	0.0%
	2032	21 23.6%	0 0.0%	21 23.6%	21 18.9%	0 0.0%	21 18.9%	198 8.7%	-0.1%
	2041	21 22.1%	0 0.0%	21 22.1%	21 17.8%	0 0.0%	21 17.8%	198 8.1%	-0.1%
Forecast Do Something Winter Maintenance Incremental Increase Over Do Nothing	2026	7 8.5%	0 0.0%	7 8.5%	7 6.9%	0 0.0%	7 6.9%	66 3.1%	0.0%
	2032	21 23.6%	0 0.0%	21 23.6%	21 18.9%	0 0.0%	21 18.9%	198 8.7%	-0.1%
	2041	21 22.1%	0 0.0%	21 22.1%	21 17.8%	0 0.0%	21 17.8%	198 8.1%	-0.1%
Forecast Do Something Summer Maintenance Incremental Increase Over Do Nothing	2026	7 8.5%	0 0.0%	7 8.5%	7 6.9%	0 0.0%	7 6.9%	66 3.1%	0.0%
	2032	21 23.6%	0 0.0%	21 23.6%	21 18.9%	0 0.0%	21 18.9%	198 8.7%	-0.1%
	2041	21 22.1%	0 0.0%	21 22.1%	21 17.8%	0 0.0%	21 17.8%	198 8.1%	-0.1%

**Table 6.30 Link 6 – Upper Value Network Value Two-way Traffic Flows**

Assessment Scenario	Year	AM Peak 08:00-09:00hrs			PM Peak 17:00-18:00hrs			AADT	
		LV	HGV	Total	LV	HGV	Total	Value	%HGV
R175 Shore Road Baseline Do Nothing Scenario	2023	20	62	82	67	5	72	2018	40.1%
	2026	21	69	90	70	5	75	2164	41.6%
	2032	22	84	106	76	7	82	2464	44.4%
	2041	24	98	122	81	8	88	2738	46.8%
Forecast Do Something Typical Traffic	2026	27	69	96	70	5	75	2243	40.1%
	2032	40	84	124	76	7	82	2701	40.5%
	2041	42	98	140	81	8	88	2976	43.0%
Forecast Do Something Winter Maintenance	2026	30	69	99	70	5	75	2283	39.4%
	2032	45	84	129	76	7	82	2820	38.8%
	2041	47	98	145	81	8	88	3095	41.4%
Forecast Do Something Summer Maintenance	2026	32	69	101	70	5	75	2322	38.7%
	2032	49	84	133	76	7	82	2820	38.8%
	2041	51	98	149	81	8	88	3095	41.4%
Forecast Do Something Typical Traffic Incremental Increase Over Do Nothing	2026	6 28.6%	0 0.0%	6 6.7%	0 0.0%	0 0.0%	0 0.0%	79 3.7%	-1.5%
	2032	18 81.8%	0 0.0%	18 17.0%	0 0.0%	0 0.0%	0 0.0%	237 9.6%	-3.9%
	2041	18 75.0%	0 0.0%	18 14.8%	0 0.0%	0 0.0%	0 0.0%	238 8.7%	-3.8%
Forecast Do Something Winter Maintenance Incremental Increase Over Do Nothing	2026	9 42.9%	0 0.0%	9 10.0%	0 0.0%	0 0.0%	0 0.0%	119 5.5%	-2.2%
	2032	23 104%	0 0.0%	23 21.7%	0 0.0%	0 0.0%	0 0.0%	356 14.4%	-5.6%
	2041	23 95.8%	0 0.0%	23 18.9%	0 0.0%	0 0.0%	0 0.0%	357 13.0%	-5.4%
Forecast Do Something Summer Maintenance Incremental Increase Over Do Nothing	2026	11 52.4%	0 0.0%	11 12.2%	0 0.0%	0 0.0%	0 0.0%	158 7.3%	-2.9%
	2032	27 122%	0 0.0%	27 25.5%	0 0.0%	0 0.0%	0 0.0%	356 14.4%	-5.6%
	2041	27 112%	0 0.0%	27 22.1%	0 0.0%	0 0.0%	0 0.0%	357 13.0%	-5.4%



The incremental increase in traffic arising from the proposed development in the morning and evening peak hours is sub-threshold on Link 1 'R175 Dundalk Road' and on Link 3 'R176 Carlingford Road'. The incremental effect of development traffic on Link 2 'Greenore Road (South of IDA)' and Link 4 'Greenore Road (North of IDA)' exceed the typical threshold value of 10%. Similarly the effect on Link 5 'Euston Street' and Link 6 'Shore Road' exceed the threshold percentage and therefore warrant further detailed assessment. As with the average flow analysis where the threshold percentage values are exceeded, the numerical increases are not significant. By comparison with the earlier analysis, the baseline network traffic is approximately double the average and so it follows that the measure of percentage impact is halved in the upper value scenario. As in the earlier analysis sub-threshold incremental values are highlighted in the foregoing tables by 'green' figures where the increase is less than 10% and 'orange' figures where the incremental increase exceeds 10%.

Having regard to the TII advisory thresholds for national roads the following Table 6.31 summarises the increase over upper value traffic flow turning movements on the receiving road junctions in the study area.

**Table 6.31 Percentage Uplift in Turning Movements – Do-Something (Upper Value)**

Year	AM Peak 08:00-09:00hrs		PM Peak 17:00-18:00hrs		Daily 07:00-19:00hrs	
	Site 1	Site 2	Site 1	Site 2	Site 1	Site 2
2026	2026	1.0%	8.5%	0.4%	6.8%	0.7%
2032	2032	3.1%	23.5%	1.2%	18.9%	1.7%
2041	2041	2.9%	22.1%	1.1%	17.9%	1.6%

Table 6.31 shows that the average increase in the total traffic flow across the receiving road network in the morning peak hour is less than +3% at Site 1 and less than 20% at Site 2 closer to the port.

The results of the numerical assessment confirms that the effect of development traffic on the capacity of the receiving road network warrants further detailed analysis. Capacity assessments are typically undertaken using traffic modelling software.

#### 6.8.2.9 Traffic Model Results – Capacity & Delay

As recommended by the TII and the CIHT, the Transport Research Laboratory (TRL) computer modelling program Junctions 10 has been used to assess the existing and future performance of the junctions. Junctions 10 is primarily intended as a means of assessing junction performance. The output provides performance indicators for roads designers and planners with regards to capacity, queuing and delay at junctions including priority junctions.

An 85% level of saturation corresponding to a Ratio of Flow to Capacity (RFC) of 0.850 is generally accepted at priority junctions in urban areas, although this figure should not be considered in isolation and should be viewed together with queuing and delay information. The indices for junction operation can be relatively complex, nonetheless an RFC of 0.850 is considered the rule of thumb target figure for a priority junction functioning within capacity.

In the following section we provide a summary of the salient output results for each assessment. The limitations of the Junctions 10 model mean that it will not accurately model exact traffic conditions especially in congested networks. The output results of the analyses should primarily be viewed as a performance indicator facilitating a comparative analysis between the various traffic flow scenarios from which the effect of development traffic can be evaluated.

The infrastructure upon which the proposed development relies has existing so a comparative assessment of existing infrastructure at the baseline year of 2023 provides a practical and observable (no development) basis upon which to judge the output analyses of future network performance.

The modelling analyses of the receiving road network includes various traffic flow scenarios aimed at providing a comprehensive assessment of the capacity of the existing junctions under various assumptions and various development scenarios between the forecast year of opening 2026 and the Design Year of 2041 15 years after the opening of the proposed development. The criteria for each assessment and each of the scenarios is specifically set out and clearly detailed.

The various assessment traffic flow scenarios for the proposed development are undertaken based upon Average Value network traffic flows as set out below.

- **Scenario 1 (S1):** 2023 Baseline Year of traffic surveys (Average Traffic Flows)
- **Scenario 2 (S2):** 2026 Year of Opening 'Do-Nothing' peak hour assessments which includes for the TII forecast growth in network traffic flows. No traffic flows arising the proposed development is included.
- **Scenario 3 (S3):** 2026 Year of Opening 'Do-Something' peak hour assessments which includes for the TII forecast growth in network traffic flows. Typical traffic flows arising from permanent staff at the proposed development are included.
- **Scenario 4 (S4):** 2026 Year of Opening 'Do-Something' peak hour assessments which includes for the TII forecast growth in network traffic flows. Typical traffic flows arising from permanent staff at the proposed development are included together with additional Technician staff involved in the Winter Maintenance period.
- **Scenario 5 (S5):** 2026 Year of Opening 'Do-Something' peak hour assessments which includes for the TII forecast growth in network traffic flows. Typical traffic flows arising from permanent staff at the proposed development are included together with additional Technician staff involved in the Summer Maintenance period.
- **Scenario 6 (S6):** 2032 Year of Opening +6 years (Opening of Phase 2) 'Do-Nothing' peak hour assessments which includes for the TII forecast growth in network traffic flows. No traffic flows arising the proposed development is included.
- **Scenario 7 (S7):** 2032 Year of Opening +6 years 'Do-Something' peak hour assessments which includes for the TII forecast growth in network traffic flows. Typical traffic flows arising from permanent staff at the proposed development are included.
- **Scenario 8 (S8):** 2032 Year of Opening +6 years 'Do-Something' peak hour assessments which includes for the TII forecast growth in network traffic flows. Typical traffic flows arising from permanent staff at the proposed development are included together with additional Technician staff involved in the Winter Maintenance period.
- **Scenario 9 (S9):** 2032 Year of Opening +6 years 'Do-Something' peak hour assessments which includes for the TII forecast growth in network traffic flows. Typical traffic flows arising from

permanent staff at the proposed development are included together with additional Technician staff involved in the Summer Maintenance period.

- **Scenario 10 (S10):** 2041 Year of Opening +6 years (Opening of Phase 2) 'Do-Nothing' peak hour assessments which includes for the TII forecast growth in network traffic flows. No traffic flows arising the proposed development is included.
- **Scenario 11 (S11):** 2041 Year of Opening +6 years 'Do-Something' peak hour assessments which includes for the TII forecast growth in network traffic flows. Typical traffic flows arising from permanent staff at the proposed development are included.
- **Scenario 12 (S12):** 2041 Year of Opening +6 years 'Do-Something' peak hour assessments which includes for the TII forecast growth in network traffic flows. Typical traffic flows arising from permanent staff at the proposed development are included together with additional Technician staff involved in the Winter Maintenance period.
- **Scenario 13 (S13):** 2041 Year of Opening +6 years 'Do-Something' peak hour assessments which includes for the TII forecast growth in network traffic flows. Typical traffic flows arising from permanent staff at the proposed development are included together with additional Technician staff involved in the Summer Maintenance period.

Additional assessment traffic flow scenarios using Upper Value network traffic flows have been undertaken as set out below.

- **Scenario 14 (S14):** 2023 Baseline Year of traffic surveys (Upper Value Traffic Flows).
- **Scenario 15 (S15):** 2026 Year of Opening 'Do-Nothing' peak hour assessments which includes for the TII forecast growth in network traffic flows. No traffic flows arising the proposed development is included.
- **Scenario 16 (S16):** 2026 Year of Opening 'Do-Something' peak hour assessments which includes for the TII forecast growth in network traffic flows. Typical traffic flows arising from permanent staff at the proposed development are included.
- **Scenario 17 (S17):** 2026 Year of Opening 'Do-Something' peak hour assessments which includes for the TII forecast growth in network traffic flows. Typical traffic flows arising from permanent staff at the proposed development are included together with additional Technician staff involved in the Winter Maintenance period.
- **Scenario 18 (S18):** 2026 Year of Opening 'Do-Something' peak hour assessments which includes for the TII forecast growth in network traffic flows. Typical traffic flows arising from permanent staff at the proposed development are included together with additional Technician staff involved in the Summer Maintenance period.
- **Scenario 19 (S19):** 2032 Year of Opening +6 years (Opening of Phase 2) 'Do-Nothing' peak hour assessments which includes for the TII forecast growth in network traffic flows. No traffic flows arising the proposed development is included.
- **Scenario 20 (S20):** 2032 Year of Opening +6 years 'Do-Something' peak hour assessments which includes for the TII forecast growth in network traffic flows. Typical traffic flows arising from permanent staff at the proposed development are included.
- **Scenario 21 (S21):** 2032 Year of Opening +6 years 'Do-Something' peak hour assessments which includes for the TII forecast growth in network traffic flows. Typical traffic flows arising from permanent staff at the proposed development are included together with additional Technician staff involved in the Winter Maintenance period.

- **Scenario 22 (S22):** 2032 Year of Opening +6 years 'Do-Something' peak hour assessments which includes for the TII forecast growth in network traffic flows. Typical traffic flows arising from permanent staff at the proposed development are included together with additional Technician staff involved in the Summer Maintenance period.
- **Scenario 23 (S23):** 2041 Year of Opening +6 years (Opening of Phase 2) 'Do-Nothing' peak hour assessments which includes for the TII forecast growth in network traffic flows. No traffic flows arising the proposed development is included.
- **Scenario 24 (S24):** 2041 Year of Opening +6 years 'Do-Something' peak hour assessments which includes for the TII forecast growth in network traffic flows. Typical traffic flows arising from permanent staff at the proposed development are included.
- **Scenario 25 (S25):** 2041 Year of Opening +6 years 'Do-Something' peak hour assessments which includes for the TII forecast growth in network traffic flows. Typical traffic flows arising from permanent staff at the proposed development are included together with additional Technician staff involved in the Winter Maintenance period.
- **Scenario 26 (S26):** 2041 Year of Opening +6 years 'Do-Something' peak hour assessments which includes for the TII forecast growth in network traffic flows. Typical traffic flows arising from permanent staff at the proposed development are included together with additional Technician staff involved in the Summer Maintenance period.

#### 6.8.2.9.1 R175 Dundalk Road / R176 Carlingford Road Junction (Site 1)

##### 6.8.2.9.1.1 Effects of Development Traffic on Network (Average Value)

The underlying assessment criteria are as follows:

- Using Average Value network traffic flows (Average activity at port)
- With/Without Proposed Development
- National Road Central Value Growth Rate Applied to Network

The results of the Junctions 10 modelling analyses output for the existing junction subject to surveyed 2023 traffic flows is provided in Table 6.32 and is a basis for practical calibrating of the output from the model for forecast traffic flow scenarios.

Table 6.33, Table 6.34 and Table 6.35 provide a summary of junction modelling output data for the R175/R176 priority junction subject to the forecast future morning and evening weekday peak hour traffic flow scenarios for the year of opening and future year scenarios.

Summary modelling results provide directly comparable output data relating to both the 'Do-Nothing' scenario where only network traffic growth is considered and the 'Do-Something' scenario where the forecast traffic generation arising from the proposed development has been added to the 'Do-Nothing' network traffic flows that have been factored in accordance with TII Publication PE-PAG-02017 'Project Appraisal Guidelines for National Roads Unit 5.3 Travel Demand Projections' (Oct 2021).

The road network assessments include for no specific local developments other than the proposed development. The developments considered are those already in operation. Other future development that may give rise to the generation of new traffic on the receiving roads network is included for by the application of TII published growth rates to all traffic on all routes within the study

area. The additional traffic generation arising on the receiving road network assumed in this Chapter through the application of the TII growth rates is as follows:

- 2023-2026 (Opening Year) 1.0451 (Cars) 1.1129 (HGV)
- 2023-2032 (Opening Year +6yrs) 1.1326 (Cars) 1.3532 (HGV)
- 2023-2041 (Opening Year +15yrs) 1.2051 (Cars) 1.5843 (HGV)

In the context of the location the growth rates are likely to result in robust estimates of future network traffic flows that will account for local economic development. The cumulative traffic arising from future economic growth and development resulting in traffic growth on the receiving Regional Road network are included for in both the 'do nothing' and 'do something' road network assessment scenarios. It is reasonable to expect that traffic arising from the proposed development would by definition be included, or at least included in part in the TII growth rates. This factor is disregarded in the traffic assessments that all traffic to the proposed development is considered totally new to the road network for the proposed period of operation commencing with the occupation of Phase 1 in 2026.

The results of the analyses for the year of the traffic surveys in May 2023 are summarised Table 6.32 and show that the junction operates within capacity with a maximum RFC of 0.290. The overall junction Level of Service (LOS) is A in both the morning and evening peak hours.

**Table 6.32 Baseline 2023 Modelling Assessment R175/R176 Junction (Site 1)**

Assessment Scenario Ave. Values	Stream	Queue (Veh)		Delay (s)	RFC	LOS	Junction		Network Residual Capacity
		Ave	95%				Delay	LOS	
Baseline 2023 Scenario S1 - AM Peak	B-AC	0.3	1.4	7.81	0.23	A	2.79	A	186% [B-AC]
	C-AB	0.0	0.5	6.33	0.01	A			
Baseline 2023 Scenario S1 - PM Peak	B-AC	0.4	1.7	8.25	0.29	A	3.31	A	145% [B-AC]
	C-AB	0.1	0.5	5.72	0.05	A			

**Arm A:** R175 Dundalk Rd. **Arm B:** R176 Carlingford Rd. **Arm C:** R175 Greenore Rd.

The results of the Junctions 10 modelling for the peak hour traffic flow scenarios for the year of opening of Phase 1 in 2026 are summarised in Table 6.33.

The results of the analyses for 2026 show that the junction operates within capacity with a maximum RFC of 0.31 and junction Level of Service A. Comparing the 'Do-Nothing' and 'Do-Something' scenario results the incremental effects of the proposed development on the operation of the junction can be determined. The effects of the traffic arising at the proposed development in the morning peak hour is forecast to consist of an increased junction delay in the order of 0.01 seconds and registers no effect on RFC that is registered in the mathematical equations of the modelling program. The effect in the evening peak hour is forecast to consist of an increased junction delay in the order of 0.01 seconds and a corresponding decrease in RFC in the order of 0.01 or 1%. Comparing the data in Table 6.33 against the 2023 analyses in Table 6.32 suggests that neither network growth or the traffic arising from the proposed development will not have a significant impact on the operation of the existing junction in the year of opening 2026.



**Table 6.33 2026 Year of Opening Phase 1 - Assessment R175/R176 Junction (Site 1)**

Assessment Scenario Ave. Values	Stream	Queue (Veh)		Delay (s)	RFC	LOS	Junction		Network Residual Capacity
		Ave.	95%				Delay	LOS	
Do Nothing 2026 Scenario S2 - AM Peak	B-AC	0.3	1.5	8.01	0.25	A	2.81	A	170% [B-AC]
	C-AB	0.0	0.5	6.39	0.01	A			
With Typical 2026 Scenario S3 - AM Peak	B-AC	0.3	1.0	8.07	0.25	A	2.82	A	164% [B-AC]
	C-AB	0.0	0.5	6.40	0.01	A			
With Winter 2026 Scenario S4 - AM Peak	B-AC	0.3	1.1	8.09	0.25	A	2.82	A	162% [B-AC]
	C-AB	0.0	0.5	6.41	0.01	A			
With Summer 2026 Scenario S5 - AM Peak	B-AC	0.3	1.1	8.09	0.26	A	2.83	A	161% [B-AC]
	C-AB	0.0	0.5	6.41	0.01	A			
Do Nothing 2026 Scenario S2 - PM Peak	B-AC	0.4	1.9	8.51	0.30	A	3.33	A	131% [B-AC]
	C-AB	0.1	0.5	5.67	0.05	A			
With Typical 2026 Scenario S3 - PM Peak	B-AC	0.4	1.9	8.55	0.31	A	3.34	A	129% [B-AC]
	C-AB	0.1	0.5	5.68	0.06	A			
With Winter 2026 Scenario S4 - PM Peak	B-AC	0.4	1.9	8.55	0.31	A	3.34	A	129% [B-AC]
	C-AB	0.1	0.5	5.68	0.06	A			
With Summer 2026 Scenario S5 - PM Peak	B-AC	0.4	1.9	8.55	0.31	A	3.33	A	129% [B-AC]
	C-AB	0.1	0.5	5.68	0.06	A			

**Arm A:** R175 Dundalk Rd. **Arm B:** R176 Carlingford Rd. **Arm C:** R175 Greenore Rd.

The results of the Junctions 10 modelling for the peak hour traffic flow scenarios for the year of opening of Phase 2 in 2032 are summarised in Table 6.34.

The results of the analyses for 2032 show that the junction operates within capacity with a maximum RFC of 0.34 and junction Level of Service A. Comparing the 'Do-Nothing' and 'Do-Something' scenario results the incremental effects of the traffic arising at the proposed development in the morning peak hour is forecast to consist of an increased junction delay in the order of 0.03 seconds and a reduction in RFC of 0.02 or 2%. The effect in the evening peak hour is forecast to consist of no increase in junction delay and a decrease in RFC in the order of 0.01 or 1%.

**Table 6.34 2032 Opening of Phase 2 - Assessment R175/R176 Junction (Site 1)**

Assessment Scenario Ave. Values	Stream	Queue (Veh)		Delay (s)	RFC	LOS	Junction		Network Residual Capacity
		Ave.	95%				Delay	LOS	
Do Nothing 2032 Scenario S6 - AM Peak	B-AC	0.4	1.5	8.56	0.28	A	2.93	A	141% [B-AC]
	C-AB	0.0	0.5	6.50	0.01	A			
With Typical 2032 Scenario S7 - AM Peak	B-AC	0.4	1.8	8.79	0.30	A	2.96	A	125% [B-AC]
	C-AB	0.0	0.5	6.42	0.02	A			
With Winter 2032 Scenario S8 - AM Peak	B-AC	0.4	1.8	8.82	0.30	A	2.96	A	124% [B-AC]
	C-AB	0.0	0.5	6.43	0.02	A			
With Summer 2032 Scenario S9 - AM Peak	B-AC	0.4	1.8	8.86	0.30	A	2.96	A	122% [B-AC]
	C-AB	0.0	0.5	6.44	0.02	A			
Do Nothing 2032 Scenario S6 - PM Peak	B-AC	0.5	2.3	9.13	0.34	A	3.56	A	109% [B-AC]
	C-AB	0.1	0.5	5.77	0.06	A			
With Typical 2032 Scenario S7 - PM Peak	B-AC	0.5	2.4	9.25	0.34	A	3.56	A	105% [B-AC]
	C-AB	0.1	0.5	5.73	0.07	A			
With Winter 2032 Scenario S8 - PM Peak	B-AC	0.5	2.4	9.25	0.34	A	3.56	A	105% [B-AC]
	C-AB	0.1	0.5	5.73	0.07	A			
With Summer 2032 Scenario S9 - PM Peak	B-AC	0.5	2.4	9.25	0.34	A	3.56	A	105% [B-AC]
	C-AB	0.1	0.5	5.73	0.07	A			

**Arm A:** R175 Dundalk Rd. **Arm B:** R176 Carlingford Rd. **Arm C:** R175 Greenore Rd.

Comparing the data in Table 6.34 against the 2023 analyses in Table 6.32 suggests that neither network growth or the traffic arising from the proposed development will have a significant impact on the operation of the existing junction in the year of opening of Phase 2 in 2032.

The results of the Junctions 10 modelling for the peak hour traffic flow scenarios for the design year which is the year of opening of Phase 1 plus 15 years are summarised in Table 6.35.

The results of the analyses for 2041 design year show that the junction operates within capacity with a maximum RFC of 0.37 and junction Level of Service A. Comparing the 'Do-Nothing' and 'Do-Something' scenario results the incremental effects of the traffic arising at the proposed development in the morning peak hour is forecast to consist of an increased junction delay in the order of 0.04 seconds and a reduction in RFC of 0.02 or 2%. The effect in the evening peak hour is forecast to consist of an increase in junction delay of 0.01 seconds and a decrease in RFC in the order of 0.01 or 1% for the C-AB stream and no increase in the B-AC stream (no reduction in capacity on the minor arm R176).

**Table 6.35 2041 Design Year - Assessment R175/R176 Junction (Site 1)**

Assessment Scenario Ave. Values	Stream	Queue (Veh)		Delay (s)	RFC	LOS	Junction		Network Residual Capacity
		Ave.	95%				Delay	LOS	
Do Nothing 2041 Scenario S10 - AM Peak	B-AC	0.4	1.9	9.10	0.31	A	3.06	A	120% [B-AC]
	C-AB	0.0	0.5	6.60	0.01	A			
With Typical 2041 Scenario S11- AM Peak	B-AC	0.5	2.1	9.38	0.33	A	3.10	A	107% [B-AC]
	C-AB	0.0	0.5	6.48	0.02	A			
With Winter 2041 Scenario S12 - AM Peak	B-AC	0.5	2.1	9.41	0.33	A	3.10	A	106% [B-AC]
	C-AB	0.0	0.5	6.49	0.02	A			
With Summer 2041 Scenario S13 - AM Peak	B-AC	0.5	2.2	9.43	0.33	A	3.10	A	105% [B-AC]
	C-AB	0.0	0.5	6.49	0.02	A			
Do Nothing 2041 Scenario S10 - PM Peak	B-AC	0.6	2.7	9.73	0.37	A	3.77	A	94% [B-AC]
	C-AB	0.1	0.5	5.81	0.06	A			
With Typical 2041 Scenario S11 - PM Peak	B-AC	0.6	2.7	9.88	0.37	A	3.78	A	90% [B-AC]
	C-AB	0.1	0.5	5.77	0.07	A			
With Winter 2041 Scenario S13- PM Peak	B-AC	0.6	2.7	9.88	0.37	A	3.78	A	90% [B-AC]
	C-AB	0.1	0.5	5.77	0.07	A			
With Summer 2041 Scenario S13 - PM Peak	B-AC	0.6	2.7	9.88	0.37	A	3.78	A	90% [B-AC]
	C-AB	0.1	0.5	5.77	0.07	A			

**Arm A:** R175 Dundalk Rd. **Arm B:** R176 Carlingford Rd. **Arm C:** R175 Greenore Rd.

#### 6.8.2.9.1.2 Effects of Development Traffic on Network (Upper Value)

The underlying assessment criteria are as follows:

- Using Upper Value network traffic flows (Increased activity at port)
- With/Without Proposed Development
- National Road Central Value Growth Rate Applied to Network

The results of the Junctions 10 modelling analyses output for the existing junction subject to the higher flows recorded in the first week of the Automatic Traffic Counter (ATC) surveys on May 2023 is provided in Table 6.36 and is a basis for practical calibrating of the output from the model for forecast traffic flow scenarios. The data shows that the junction operates within capacity with a maximum RFC of 0.260. The overall junction Level of Service (LOS) is A in both the morning and evening peak hours

**Table 6.36 Baseline 2023 Modelling Assessment R175/R176 Junction (Site 1)**

Assessment Scenario Upper Values	Stream	Queue (Veh)		Delay (s)	RFC	LOS	Junction		Network Residual Capacity
		Ave	95%				Delay	LOS	
Baseline 2023	B-AC	0.4	1.2	8.48	0.26	A	2.14	A	134% [B-AC]
Scenario S14 - AM Peak	C-AB	0.0	0.5	6.49	0.02	A			
Baseline 2023	B-AC	0.4	1.2	8.29	0.26	A	2.27	A	122% [B-AC]
Scenario S14 - PM Peak	C-AB	0.1	0.5	6.32	0.06	A			

**Arm A:** R175 Dundalk Rd. **Arm B:** R176 Carlingford Rd. **Arm C:** R175 Greenore Rd.

Table 6.37, Table 6.38 and Table 6.39 provide a summary of junction modelling output data for the R175/R176 priority junction subject to the forecast future morning and evening weekday peak hour traffic flow scenarios for the year of opening and future year scenarios. As before, the summary modelling results provide directly comparable output data relating to both the 'Do-Nothing' scenario where only network traffic growth is considered and the 'Do-Something' scenario where the forecast traffic generation arising from the proposed development has been added. The results of the Junctions 10 modelling for the peak hour traffic flow scenarios for 2026 are summarised in Table 6.37.

**Table 6.37 2026 Year of Opening Phase 1 - Assessment R175/R176 Junction (Site 1)**

Assessment Scenario Ave. Values	Stream	Queue (Veh)		Delay (s)	RFC	LOS	Junction		Network Residual Capacity
		Ave.	95%				Delay	LOS	
Do Nothing 2026	B-AC	0.4	1.5	8.76	0.28	A	2.19	A	121% [B-AC]
Scenario S15 - AM Peak	C-AB	0.0	0.5	6.56	0.02	A			
With Typical 2026	B-AC	0.4	1.6	8.84	0.28	A	2.20	A	117% [B-AC]
Scenario S16 - AM Peak	C-AB	0.0	0.5	6.58	0.02	A			
With Winter 2026	B-AC	0.4	1.6	8.87	0.28	A	2.20	A	116% [B-AC]
Scenario S17 - AM Peak	C-AB	0.0	0.5	6.59	0.02	A			
With Summer 2026	B-AC	0.4	1.6	8.88	0.29	A	2.21	A	115% [B-AC]
Scenario S18- AM Peak	C-AB	0.0	0.5	6.59	0.02	A			
Do Nothing 2026	B-AC	0.4	1.5	8.57	0.28	A	2.29	A	122% [B-AC]
Scenario S15- PM Peak	C-AB	0.1	0.5	6.28	0.07	A			
With Typical 2026	B-AC	0.4	1.5	8.61	0.28	A	2.30	A	120% [B-AC]
Scenario S16 - PM Peak	C-AB	0.1	0.5	6.28	0.07	A			
With Winter 2026	B-AC	0.4	1.5	8.61	0.28	A	2.30	A	120% [B-AC]
Scenario S17 - PM Peak	C-AB	0.1	0.5	6.28	0.07	A			
With Summer 2026	B-AC	0.4	1.5	8.61	0.28	A	2.30	A	120% [B-AC]
Scenario S18 - PM Peak	C-AB	0.1	0.5	6.28	0.07	A			

**Arm A:** R175 Dundalk Rd. **Arm B:** R176 Carlingford Rd. **Arm C:** R175 Greenore Rd.

The results of the analyses for 2026 show that the junction operates within capacity with a maximum RFC of 0.28 and junction Level of Service A.

Comparing the 'Do-Nothing' and 'Do-Something' scenario results the incremental effects of the traffic arising at the proposed development in the morning peak hour is forecast to consist of an increased junction delay in the order of 0.01 seconds and a corresponding increase in RFC of 0.01 or 1%.

The effect in the evening peak hour is forecast to consist of an increased junction delay in the order of 0.01 seconds and no corresponding decrease in RFC.

Comparing the data in Table 6.37 against the 2023 upper value analyses in Table 6.36 suggests that neither network growth or the traffic arising from the proposed development will have a significant impact on the operation of the existing junction in the year of opening 2026.

The results of the Junctions 10 modelling for the peak hour traffic flow scenarios for the year of opening of Phase 2 in 2032 are summarised in Table 6.38.

**Table 6.38 2032 Opening of Phase 2 - Assessment R175/R176 Junction (Site 1)**

Assessment Scenario Ave. Values	Stream	Queue (Veh)		Delay (s)	RFC	LOS	Junction		Network Residual Capacity
		Ave.	95%				Delay	LOS	
Do Nothing 2032 Scenario S19 - AM Peak	B-AC	0.4	1.9	9.52	0.31	A	2.31	A	98% [B-AC]
	C-AB	0.0	0.5	6.72	0.02	A			
With Typical 2032 Scenario S20- AM Peak	B-AC	0.5	2.2	9.85	0.33	A	2.41	A	88% [B-AC]
	C-AB	0.0	0.5	6.69	0.02	A			
With Winter 2032 Scenario S21- AM Peak	B-AC	0.5	2.2	9.89	0.33	A	2.41	A	87% [B-AC]
	C-AB	0.0	0.5	6.70	0.02	A			
With Summer 2032 Scenario S22- AM Peak	B-AC	0.5	2.3	9.92	0.33	A	2.41	A	86% [B-AC]
	C-AB	0.0	0.5	6.72	0.02	A			
Do Nothing 2032 Scenario S19 - PM Peak	B-AC	0.4	1.9	9.24	0.31	A	2.45	A	101% [B-AC]
	C-AB	0.1	0.6	6.43	0.09	A			
With Typical 2032 Scenario S20- PM Peak	B-AC	0.5	2.0	9.37	0.31	A	2.48	A	97% [B-AC]
	C-AB	0.1	0.6	6.38	0.09	A			
With Winter 2032 Scenario S21- PM Peak	B-AC	0.5	2.0	9.37	0.31	A	2.48	A	97% [B-AC]
	C-AB	0.1	0.6	6.38	0.09	A			
With Summer 2032 Scenario S22 - PM Peak	B-AC	0.5	2.0	9.37	0.31	A	2.48	A	97% [B-AC]
	C-AB	0.1	0.6	6.38	0.09	A			

**Arm A:** R175 Dundalk Rd. **Arm B:** R176 Carlingford Rd. **Arm C:** R175 Greenore Rd.

The results of the analyses for 2032 show that the junction operates within capacity with a maximum RFC of 0.33 and junction Level of Service A. Comparing the 'Do-Nothing' and 'Do-Something' scenario results the incremental effects of the traffic arising at the proposed development in the morning peak hour is forecast to consist of an increased junction delay in the order of 0.1 seconds and a reduction in RFC of 0.02 or 2%.



The effect in the evening peak hour is forecast to consist of an increase in junction delay in order of 0.03 seconds and no decrease in RFC.

Comparing the data in Table 6.38 against the 2023 upper value analyses in Table 6.36 suggests that neither network growth or the traffic arising from the proposed development will have a significant impact on the operation of the existing junction in the year of opening of Phase 2 in 2032.

**Table 6.39 2041 Design Year - Assessment R175/R176 Junction (Site 1)**

Assessment Scenario Ave. Values	Stream	Queue (Veh)		Delay (s)	RFC	LOS	Junction		Network Residual Capacity
		Ave.	95%				Delay	LOS	
Do Nothing 2041 Scenario S23 - AM Peak	B-AC	0.5	2.4	10.23	0.34	A	2.44	A	81% [B-AC]
	C-AB	0.0	0.5	6.87	0.02	A			
With Typical 2041 Scenario S24- AM Peak	B-AC	0.6	2.7	10.61	0.36	A	2.54	A	73% [B-AC]
	C-AB	0.0	0.5	6.80	0.03	A			
With Winter 2041 Scenario S25 - AM Peak	B-AC	0.6	2.7	10.65	0.37	A	2.54	A	72% [B-AC]
	C-AB	0.0	0.5	6.81	0.03	A			
With Summer 2041 Scenario S26 - AM Peak	B-AC	0.6	2.7	10.71	0.37	A	2.55	A	71% [B-AC]
	C-AB	0.0	0.5	6.82	0.03	A			
Do Nothing 2041 Scenario S23 - PM Peak	B-AC	0.5	2.3	9.81	0.34	A	2.58	A	86% [B-AC]
	C-AB	0.1	0.6	6.56	0.09	A			
With Typical 2041 Scenario S24 - PM Peak	B-AC	0.5	2.4	9.97	0.34	A	2.60	A	83% [B-AC]
	C-AB	0.1	0.6	6.47	0.10	A			
With Winter 2041 Scenario S25- PM Peak	B-AC	0.5	2.4	9.97	0.34	A	2.60	A	83% [B-AC]
	C-AB	0.1	0.6	6.47	0.10	A			
With Summer 2041 Scenario S26 - PM Peak	B-AC	0.5	2.4	9.97	0.34	A	2.60	A	83% [B-AC]
	C-AB	0.1	0.6	6.47	0.10	A			

**Arm A:** R175 Dundalk Rd. **Arm B:** R176 Carlingford Rd. **Arm C:** R175 Greenore Rd.

The results of the Junctions 10 modelling for the peak hour traffic flow scenarios for the design year which is the year of opening of Phase 1 plus 15 years are summarised in Table 6.39.

The results of the analyses for 2041 design year show that the junction operates within capacity with a maximum RFC of 0.37 and junction Level of Service A. Comparing the 'Do-Nothing' and 'Do-Something' scenario results the incremental effects of the traffic arising at the proposed development in the morning peak hour is forecast to consist of an increased junction delay in the order of 0.1 seconds and a reduction in RFC of 0.03 or 3%. The effect in the evening peak hour is forecast to consist of an increase in junction delay of 0.02 seconds and a decrease in RFC in the order of 0.01 or 1% for the C-AB stream and no increase in the B-AC stream (no reduction in capacity on the minor arm R176).

#### 6.8.2.9.1.3 Capacity Assessment Conclusion

The results of the Junctions 10 using the typical average network flows and the upper value flows (both recorded in the traffic surveys of May 2023) serve to demonstrate that the proposed

development will not have a significant impact on the operation of the existing junction. The level of impact is considered likely to be practically imperceptible to existing users of the R175/R176 junction located approximately 1.5km south-west of the proposed development at Greenore Port.

#### 6.8.2.9.2 R175 Shore Road / L70661 Euston Street (Site 2)

##### 6.8.2.9.2.1 Effects of Development Traffic on Network (Average Value)

The underlying assessment criteria are as follows:

- Using Average Value network traffic flows (Average activity at port)
- With/Without Proposed Development
- National Road Central Value Growth Rate Applied to Network

The results of the Junctions 10 modelling analyses output for the existing Euston Street junction subject to surveyed 2023 traffic flows is provided in Table 6.40 and is a basis for practical calibrating of the output from the model for forecast traffic flow scenarios.

Table 6.41, Table 6.42 and Table 6.43 provide a summary of junction modelling output data for the R175 Shore Road/L70661 Euston Street priority junction subject to the forecast future morning and evening weekday peak hour traffic flow scenarios for the year of opening and future year scenarios.

Summary modelling results provide directly comparable output data relating to both the 'Do-Nothing' scenario where only network traffic growth is considered and the 'Do-Something' scenario where the forecast traffic generation arising from the proposed development has been added to the 'Do-Nothing' network traffic flows that have been factored in accordance with TII Publication PE-PAG-02017.

As per the assessments of the R175/R176 junction, the road network assessments include for no specific local developments other than the proposed development. Other future development that may give rise to the generation of new traffic on the receiving roads network is included for by the application of TII published growth rates to all traffic on all routes within the study area. As set out above, in the context of the location the growth rates are likely to result in robust estimates of future network traffic flows that will account for local economic development. The cumulative traffic arising from future economic growth and development resulting in traffic growth on the receiving Regional Road network are included for in both the 'do nothing' and 'do something' road network assessment scenarios. As in the earlier junction assessments it is reasonable to expect that traffic arising from the proposed development would by definition be included, or at least included in part in the TII growth rates. This factor is disregarded in the traffic assessments that all traffic to the proposed development is considered totally new to the road network.

The results of the analyses for the year of the traffic surveys in May 2023 are summarised Table 6.40 and show that the junction operates within capacity with a maximum RFC of 0.06. The overall junction Level of Service (LOS) is A in both the morning and evening peak hours.

**Table 6.40 Baseline 2023 Modelling Assessment R175/L70661 Junction (Site 2)**

Assessment Scenario Ave. Values	Stream	Queue (Veh)		Delay (s)	RFC	LOS	Junction		Network Residual Capacity
		Ave	95%				Delay	LOS	
Baseline 2023	B-AC	0.0	0.5	7.16	0.03	A	0.96	A	900% [B-AC]
Scenario S1 - AM Peak	C-AB	0.0	0.5	5.72	0.01	A			
Baseline 2023	B-AC	0.1	0.5	6.57	0.06	A	1.62	A	900% [B-AC]
Scenario S1 - PM Peak	C-AB	0.0	0.5	5.60	0.00	A			

Arm A: R175 Greenore Rd. Arm B: L70661 Euston St. Arm C: R175 Shore Rd.

**Table 6.41 2026 Year Opening Phase 1 - Assessment R175/L70661 Junction (Site 2)**

Assessment Scenario Ave. Values	Stream	Queue (Veh)		Delay (s)	RFC	LOS	Junction		Network Residual Capacity
		Ave.	95%				Delay	LOS	
Do Nothing 2026	B-AC	0.0	0.5	7.16	0.03	A	0.79	A	900% [B-AC]
Scenario S2 - AM Peak	C-AB	0.0	0.5	5.72	0.01	A			
With Typical 2026	B-AC	0.0	0.5	6.69	0.03	A	0.80	A	900% [B-AC]
Scenario S3 - AM Peak	C-AB	0.0	0.5	5.72	0.01	A			
With Winter 2026	B-AC	0.0	0.5	6.74	0.04	A	0.82	A	837% [B-AC]
Scenario S4 - AM Peak	C-AB	0.0	0.5	5.75	0.01	A			
With Summer 2026	B-AC	0.0	0.5	6.74	0.04	A	0.82	A	829% [B-AC]
Scenario S5 - AM Peak	C-AB	0.0	0.5	5.75	0.01	A			
Do Nothing 2026	B-AC	0.1	0.5	6.59	0.06	A	1.85	A	900% [B-AC]
Scenario S2 - PM Peak	C-AB	0.0	0.5	5.60	0.00	A			
With Typical 2026	B-AC	0.1	0.5	6.71	0.07	A	1.86	A	783% [B-AC]
Scenario S3 - PM Peak	C-AB	0.0	0.5	5.60	0.00	A			
With Winter 2026	B-AC	0.1	0.5	6.71	0.07	A	1.86	A	783% [B-AC]
Scenario S4 - PM Peak	C-AB	0.0	0.5	5.60	0.00	A			
With Summer 2026	B-AC	0.1	0.5	6.71	0.07	A	1.86	A	783% [B-AC]
Scenario S5 - PM Peak	C-AB	0.0	0.5	5.60	0.00	A			

Arm A: R175 Greenore Rd. Arm B: L70661 Euston St. Arm C: R175 Shore Rd.

The results of the Junctions 10 modelling for the peak hour traffic flow scenarios for 2026 are summarised in Table 6.41.

The results of the analyses for 2026 show that the junction operates within capacity with a maximum RFC of 0.07 and junction Level of Service A. Comparing the 'Do-Nothing' and 'Do-Something' scenario results the incremental effects of the traffic arising at the proposed development in the morning peak hour is forecast to consist of an increased junction delay in the order of 0.03 seconds and a reduction in RFC of 0.01 or 1%. The effect in the evening peak hour is forecast to consist of an increase in junction delay of 0.01 seconds and a decrease in RFC of 0.01 or 1%.

Comparing the data in Table 6.40 against the 2023 average value analyses in Table 6.41 suggests that neither network growth or the traffic arising from the proposed development will have a significant impact on the operation of the existing junction in the year of opening of Phase 1 in 2026.

The results of the Junctions 10 modelling for the peak hour traffic flow scenarios for the year of opening of Phase 2 in 2032 are summarised in Table 6.42.

The results of the analyses for 2032 show that the junction operates within capacity with a maximum RFC of 0.10 and junction Level of Service A. Comparing the 'Do-Nothing' and 'Do-Something' scenario results the incremental effects of the traffic arising at the proposed development in the morning peak hour is forecast to consist of an increased junction delay in the order of 0.03 seconds and a reduction in RFC of less than 1%. The effect in the evening peak hour is forecast to consist of an increase in junction delay of 0.62 seconds and a decrease in RFC in the order of 0.04 or 4%.

**Table 6.42 2032 Opening of Phase 2 - Assessment R175/L70661 Junction (Site 2)**

Assessment Scenario Ave. Values	Stream	Queue (Veh)		Delay (s)	RFC	LOS	Junction		Network Residual Capacity
		Ave.	95%				Delay	LOS	
Do Nothing 2032 Scenario S6 - AM Peak	B-AC	0.0	0.5	6.77	0.04	A	0.70	A	788% [B-AC]
	C-AB	0.0	0.5	5.74	0.01	A			
With Typical 2032 Scenario S7 - AM Peak	B-AC	0.0	0.5	6.92	0.04	A	0.73	A	647% [B-AC]
	C-AB	0.0	0.5	5.81	0.01	A			
With Winter 2032 Scenario S8 - AM Peak	B-AC	0.0	0.5	6.94	0.04	A	0.73	A	632% [B-AC]
	C-AB	0.0	0.5	5.82	0.01	A			
With Summer 2032 Scenario S9 - AM Peak	B-AC	0.0	0.5	6.95	0.04	A	0.73	A	619% [B-AC]
	C-AB	0.0	0.5	5.83	0.01	A			
Do Nothing 2032 Scenario S6 - PM Peak	B-AC	0.1	0.5	6.63	0.06	A	1.62	A	823% [B-AC]
	C-AB	0.0	0.5	5.60	0.00	A			
With Typical 2032 Scenario S7 - PM Peak	B-AC	0.1	0.5	6.97	0.10	A	2.24	A	564% [B-AC]
	C-AB	0.0	0.5	5.60	0.0	A			
With Winter 2032 Scenario S8 - PM Peak	B-AC	0.1	0.5	6.97	0.10	A	2.24	A	564% [B-AC]
	C-AB	0.0	0.5	5.60	0.0	A			
With Summer 2032 Scenario S9 - PM Peak	B-AC	0.1	0.5	6.97	0.10	A	2.24	A	564% [B-AC]
	C-AB	0.0	0.5	5.60	0.0	A			

**Arm A:** R175 Greenore Rd. **Arm B:** L70661 Euston St. **Arm C:** R175 Shore Rd.

The results of the Junctions 10 modelling for the peak hour traffic flow scenarios for the design year which is the year of opening of Phase 1 plus 15 years are summarised in Table 6.43. The results of the analyses for 2041 design year show that the junction operates within capacity with a maximum RFC of 0.10 and junction Level of Service A. Comparing the 'Do-Nothing' and 'Do-Something' scenario results the incremental effects of the traffic arising at the proposed development in the morning peak hour is forecast to consist of an increased junction delay in the order of 0.04 seconds and a reduction

in RFC of 0.01 or 1%. The effect in the evening peak hour is forecast to consist of an increase in junction delay of 0.64 seconds and a decrease in RFC in the order of 0.03 or 3% for the B-AC stream.

**Table 6.43 2041 Design Year - Assessment R175/L70661 Junction (Site 2)**

Assessment Scenario Ave. Values	Stream	Queue (Veh)		Delay (s)	RFC	LOS	Junction		Network Residual Capacity
		Ave.	95%				Delay	LOS	
Do Nothing 2041 Scenario S10 - AM Peak	B-AC	0.0	0.5	6.86	0.04	A	0.70	A	695% [B-AC]
	C-AB	0.0	0.5	5.76	0.01	A			
With Typical 2041 Scenario S11- AM Peak	B-AC	0.0	0.5	7.01	0.05	A	0.74	A	580% [B-AC]
	C-AB	0.0	0.5	5.83	0.01	A			
With Winter 2041 Scenario S12 - AM Peak	B-AC	0.0	0.5	7.03	0.05	A	0.74	A	566% [B-AC]
	C-AB	0.0	0.5	5.84	0.01	A			
With Summer 2041 Scenario S13 - AM Peak	B-AC	0.0	0.5	7.04	0.05	A	0.74	A	557% [B-AC]
	C-AB	0.0	0.5	5.85	0.01	A			
Do Nothing 2041 Scenario S10 - PM Peak	B-AC	0.1	0.5	6.69	0.07	A	1.62	A	765% [B-AC]
	C-AB	0.0	0.5	5.60	0.00	A			
With Typical 2041 Scenario S11 - PM Peak	B-AC	0.1	0.5	7.02	0.10	A	2.26	A	533% [B-AC]
	C-AB	0.0	0.5	5.60	0.00	A			
With Winter 2041 Scenario S13- PM Peak	B-AC	0.1	0.5	7.02	0.10	A	2.26	A	533% [B-AC]
	C-AB	0.0	0.5	5.60	0.00	A			
With Summer 2041 Scenario S13 - PM Peak	B-AC	0.1	0.5	7.02	0.10	A	2.26	A	533% [B-AC]
	C-AB	0.0	0.5	5.60	0.00	A			

**Arm A:** R175 Greenore Rd. **Arm B:** L70661 Euston St. **Arm C:** R175 Shore Rd.

#### 6.8.2.9.2.2 Effects of Development Traffic on Network (Upper Value)

The underlying assessment criteria are as follows:

- Using Upper Value network traffic flows (Increased activity at port)
- With/Without Proposed Development
- National Road Central Value Growth Rate Applied to Network

**Table 6.44 Baseline 2023 Modelling Assessment R175/L70661 Junction (Site 2)**

Assessment Scenario Upper Values	Stream	Queue (Veh)		Delay (s)	RFC	LOS	Junction		Network Residual Capacity
		Ave	95%				Delay	LOS	
Baseline 2023 Scenario S14 - AM Peak	B-AC	0.0	0.5	5.65	0.03	A	0.55	A	811% [B-AC]
	C-AB	0.0	0.5	5.40	0.01	A			
Baseline 2023 Scenario S14 - PM Peak	B-AC	0.0	0.5	5.51	0.04	A	0.87	A	900% [B-AC]
	C-AB	0.0	0.5	5.25	0.00	A			

**Arm A:** R175 Greenore Rd. **Arm B:** L70661 Euston St. **Arm C:** R175 Shore Rd.



The results of the Junctions 10 modelling analyses output for the existing junction subject to the higher flows recorded in the first week of the Automatic Traffic Counter (ATC) surveys on May 2023 is provided in Table 6.44 and is a basis for practical calibrating of the output from the model for forecast traffic flow scenarios. The data shows that the junction operates within capacity with a maximum RFC of 0.040. The overall junction Level of Service (LOS) is A in both the morning and evening peak hours.

The results of the Junctions 10 modelling for the peak hour traffic flow scenarios for 2026 are summarised in Table 6.45.

The results of the analyses for 2026 show that the junction operates within capacity with a maximum RFC of 0.050 and junction Level of Service A. The effects of the traffic arising at the proposed development in the morning peak hour is forecast to consist of an increased junction delay in the order of 0.02 seconds and a corresponding decrease in RFC of less than 1%. The effect in the evening peak hour is forecast to consist of an increased junction delay in the order of 0.16 seconds and a corresponding decrease in RFC of 1%. The existing junction will continue to operate satisfactorily whilst the effect of the proposed development at Phase 1 is shown not to be not significant.

**Table 6.45 2026 Year Opening Phase 1 - Assessment R175/L70661 Junction (Site 2)**

Assessment Scenario Ave. Values	Stream	Queue (Veh)		Delay (s)	RFC	LOS	Junction		Network Residual Capacity
		Ave.	95%				Delay	LOS	
Do Nothing 2026 Scenario S15 - AM Peak	B-AC	0.0	0.5	5.71	0.03	A	0.53	A	811% [B-AC]
	C-AB	0.0	0.5	5.42	0.01	A			
With Typical 2026 Scenario S16 - AM Peak	B-AC	0.0	0.5	5.75	0.03	A	0.54	A	738% [B-AC]
	C-AB	0.0	0.5	5.45	0.01	A			
With Winter 2026 Scenario S17 - AM Peak	B-AC	0.0	0.5	5.75	0.03	A	0.54	A	695% [B-AC]
	C-AB	0.0	0.5	5.46	0.01	A			
With Summer 2026 Scenario S18 - AM Peak	B-AC	0.0	0.5	5.76	0.03	A	0.55	A	685% [B-AC]
	C-AB	0.0	0.5	5.46	0.01	A			
Do Nothing 2026 Scenario S15 - PM Peak	B-AC	0.0	0.5	5.53	0.04	A	0.87	A	900% [B-AC]
	C-AB	0.0	0.5	5.25	0.00	A			
With Typical 2026 Scenario S16 - PM Peak	B-AC	0.0	0.5	5.62	0.05	A	1.03	A	807% [B-AC]
	C-AB	0.0	0.5	5.26	0.00	A			
With Winter 2026 Scenario S17 - PM Peak	B-AC	0.0	0.5	5.62	0.05	A	1.03	A	808% [B-AC]
	C-AB	0.0	0.5	5.26	0.00	A			
With Summer 2026 Scenario S18 - PM Peak	B-AC	0.0	0.5	5.62	0.05	A	1.03	A	808% [B-AC]
	C-AB	0.0	0.5	5.26	0.00	A			

**Arm A:** R175 Greenore Rd. **Arm B:** L70661 Euston St. **Arm C:** R175 Shore Rd.

The results of the Junctions 10 modelling for the peak hour traffic flow scenarios for the year of opening of Phase 2 in 2032 are summarised in Table 6.46.

**Table 6.46 2032 Opening of Phase 2 - Assessment R175/L70661 Junction (Site 2)**

Assessment Scenario Ave. Values	Stream	Queue (Veh)		Delay (s)	RFC	LOS	Junction		Network Residual Capacity
		Ave.	95%				Delay	LOS	
Do Nothing 2032 Scenario S19 - AM Peak	B-AC	0.0	0.5	5.81	0.03	A	0.51	A	629% [B-AC]
	C-AB	0.0	0.5	5.46	0.01	A			
With Typical 2032 Scenario S20- AM Peak	B-AC	0.0	0.5	5.93	0.04	A	0.51	A	538% [B-AC]
	C-AB	0.0	0.5	5.55	0.01	A			
With Winter 2032 Scenario S21- AM Peak	B-AC	0.0	0.5	5.94	0.04	A	0.52	A	527% [B-AC]
	C-AB	0.0	0.5	5.56	0.01	A			
With Summer 2032 Scenario S22- AM Peak	B-AC	0.0	0.5	5.95	0.04	A	0.52	A	520% [B-AC]
	C-AB	0.0	0.5	5.56	0.01	A			
Do Nothing 2032 Scenario S19 - PM Peak	B-AC	0.0	0.5	5.59	0.05	A	0.87	A	769% [B-AC]
	C-AB	0.0	0.5	5.27	0.00	A			
With Typical 2032 Scenario S20- PM Peak	B-AC	0.1	0.5	5.81	0.08	A	1.30	A	570% [B-AC]
	C-AB	0.0	0.5	5.27	0.00	A			
With Winter 2032 Scenario S21- PM Peak	B-AC	0.1	0.5	5.81	0.08	A	1.30	A	570% [B-AC]
	C-AB	0.0	0.5	5.27	0.00	A			
With Summer 2032 Scenario S22 - PM Peak	B-AC	0.1	0.5	5.81	0.08	A	1.30	A	570% [B-AC]
	C-AB	0.0	0.5	5.27	0.00	A			

**Arm A:** R175 Greenore Rd. **Arm B:** L70661 Euston St. **Arm C:** R175 Shore Rd.

The results of the analyses for 2032 show that the junction operates within capacity with a maximum RFC of 0.08 and junction Level of Service A. Comparing the 'Do-Nothing' and 'Do-Something' scenario results the incremental effects of the traffic arising at the proposed development in the morning peak hour is forecast to consist of an increased junction delay in the order of 0.1 seconds and a reduction in RFC of 0.01 or 1%. The effect in the evening peak hour is forecast to consist of an increase in junction delay in order of 0.43 seconds and a reduction in RFC in the order of 3%.

The results of the Junctions 10 modelling for the peak hour traffic flow scenarios for the design year which is the year of opening of Phase 1 plus 15 years are summarised in Table 6.47.

The results of the analyses for 2041 design year show that the junction operates within capacity with a maximum RFC of 0.08 and junction Level of Service A. Comparing the 'Do-Nothing' and 'Do-Something' scenario results the incremental effects of the traffic arising at the proposed development in the morning peak hour is forecast to consist of an increased junction delay in the order of 0.1 seconds and a reduction in RFC of less than 1%. The effect in the evening peak hour is forecast to consist of an increase in junction delay of 0.41 seconds and a decrease in RFC in the order of 0.03 or 3% for the B-AC stream (reduction in capacity due to traffic turning right from Euston Street to R1756).

**Table 6.47 2041 Design Year - Assessment R175/L70661 Junction (Site 2)**

Assessment Scenario Ave. Values	Stream	Queue (Veh)		Delay (s)	RFC	LOS	Junction		Network Residual Capacity
		Ave.	95%				Delay	LOS	
Do Nothing 2041 Scenario S23 - AM Peak	B-AC	0.0	0.5	5.91	0.04	A	0.50	A	544% [B-AC]
	C-AB	0.0	0.5	5.49	0.01	A			
With Typical 2041 Scenario S24- AM Peak	B-AC	0.0	0.5	6.04	0.04	A	0.51	A	473% [B-AC]
	C-AB	0.0	0.5	5.57	0.01	A			
With Winter 2041 Scenario S25 - AM Peak	B-AC	0.0	0.5	6.05	0.04	A	0.51	A	464% [B-AC]
	C-AB	0.0	0.5	5.58	0.01	A			
With Summer 2041 Scenario S26 - AM Peak	B-AC	0.0	0.5	6.07	0.04	A	0.51	A	457% [B-AC]
	C-AB	0.0	0.5	5.59	0.01	A			
Do Nothing 2041 Scenario S23 - PM Peak	B-AC	0.1	0.5	5.64	0.05	A	0.87	A	450% [B-AC]
	C-AB	0.0	0.5	5.27	0.00	A			
With Typical 2041 Scenario S24 - PM Peak	B-AC	0.1	0.5	5.86	0.08	A	1.28	A	400% [B-AC]
	C-AB	0.0	0.5	5.28	0.00	A			
With Winter 2041 Scenario S25- PM Peak	B-AC	0.1	0.5	5.86	0.08	A	1.28	A	400% [B-AC]
	C-AB	0.0	0.5	5.28	0.00	A			
With Summer 2041 Scenario S26 - PM Peak	B-AC	0.1	0.5	5.86	0.08	A	1.28	A	400% [B-AC]
	C-AB	0.0	0.5	5.28	0.00	A			

Arm A: R175 Greenore Rd. Arm B: L70661 Euston St. Arm C: R175 Shore Rd.

#### 6.8.2.10 Capacity Assessment Conclusion

The results of the Junctions 10 using the typical average network flows and the upper value flows (both recorded in the traffic surveys of May 2023) serve to demonstrate that the proposed development will not have a significant impact on the operation of the existing junction. The level of impact is considered likely to be practically imperceptible to existing users of the Euston Street junction in terms of delay and level of service. The traffic flows at the junction on weekdays is very low and the numerical analysis shows an approximate 20-40% increase in peak hour traffic at the junction which may be noticeable to existing users. It is noted however that development traffic will be entering the street in the morning against a predominant outbound commuter flow from the area which is characterised by residences. The reverse will prevail in the evening with residents returning and office/staff generated traffic generally leaving the area. It is noted that daily traffic flows to and from Euston Street during the weekend exceed those forecast in the assessments for the weekday. The assessment figures include for national road traffic growth and development traffic generation, both of which are considered robust. Applying national road growth rates to the residential cul-de-sac is extremely robust and has been done in the interest of a comprehensive and satisfactorily robust capacity assessment. This notwithstanding, the results of the capacity assessments show that the existing receiving road network is not under peak hour pressure at present and will satisfactorily accommodate the traffic generation by the proposed development without significant negative

impact. The level of impact on the capacity, queuing, operation and level of service at the Shore Road/Euston Street junction will not be significant.

### 6.8.3 Cumulative Effects

#### 6.8.3.1 Construction Phase

A number of minor developments have been granted permission within the surrounding area, these are typically associated with extensions or alterations to single buildings. Identified developments with the study area with potential for cumulative traffic impacts include the following:

- Lisa and Sean Crudden (Ref: LCC 231);
- Tara and Declan Boyle (Ref: LCC 22614);
- Andrew Bothwell (Ref: LCC 211331);
- Brendan Rafferty (Ref: LCC 211223);
- Valerie Halpenny (Ref: LCC 19202);
- Damien Wynne and Martina McNally (Ref: LCC 2360256);
- Cooley Peninsula Men's Shed (Ref: LCC 23125);
- Hanlon Transport Ltd (Ref: LCC 20362).

The road network assessments do not include for specific local developments other than the proposed development. Permitted development and other future development that may give rise to the generation of new traffic on the receiving roads network is included for by the application of TII published growth rates to existing surveyed traffic flows on the receiving road in the study area. The additional traffic generation arising on the receiving road network assumed in this Chapter through the application of the TII growth rates is as follows:

- |                                   |               |              |
|-----------------------------------|---------------|--------------|
| ▪ 2023-2026 (Opening Year)        | 1.0451 (Cars) | 1.1129 (HGV) |
| ▪ 2023-2032 (Opening Year +6yrs)  | 1.1326 (Cars) | 1.3532 (HGV) |
| ▪ 2023-2041 (Opening Year +15yrs) | 1.2051 (Cars) | 1.5843 (HGV) |

The cumulative traffic arising from future economic growth and development resulting in traffic growth on the receiving network are included for in both the 'do-nothing' and 'do-something' road network assessment scenarios. Baseline traffic on the receiving road network includes traffic generated by the existing port to which growth factors have been applied which is likely to result in robust calculations. It is reasonable to expect that traffic arising from the proposed development would by definition be included, or at least included in part in the TII growth rates. This factor is disregarded in the traffic assessments which considers all future traffic to the proposed development as totally new to the road network for both the proposed construction and operational periods.

The additional projects included in the updated List of Cumulative Projects appended to Chapter 1, i.e. the proposed ORE developments in the Irish Sea were considered and no additional cumulative effects arising from these projects were identified.

## 6.8.4 Summary

The following Table 6.48 summarises the identified likely significant effects during the construction phase of the proposed development before mitigation measures are applied.

**Table 6.48 Summary of Construction Phase Traffic Effects in the absence of mitigation**

Likely Significant Effect	Quality	Significance	Extent	Probability	Duration	Type
Demolition	Negative	Slight	Receiving Network	Likely	Short-term	Direct
Piling for Port Buildings	Negative	Not Significant	Receiving Network	Likely	Short-term	Direct
Quay Wall / Breakwater Pontoon Piling	Negative	Not Significant	Receiving Network	Likely	Short-term	Direct
Construction of Proposed Buildings, Quay Wall and Pontoon & Gangway Installation	Negative	Slight	Receiving Network	Likely	Short-term	Direct
Port Entrance Upgrades	Negative	Not Significant	Receiving Network	Likely	Short-term	Direct
Dredging	Negative	Slight	Receiving Network	Likely	Short-term	Direct
General Construction Traffic	Negative	Not Significant	Receiving Network	Likely	Short-term	Direct

The following Table 6.49 summarises the identified likely significant effects during the operational phase of the proposed development before mitigation measures are applied.

**Table 6.49 Summary of Operational Phase Effects in the absence of mitigation**

Likely Significant Effect	Quality	Significance	Extent	Probability	Duration	Type
Operational Traffic	Negative	Not Significant	Receiving Network	Likely	Long-term	Direct

## 6.9 Mitigation

### 6.9.1 Incorporated Design Mitigation

The proposed development access is achieved through the existing port office entrance at Euston Street which it is proposed will be modified and enhanced in the interest of increases efficiency of vehicular entry and in the interest of pedestrian safety. Access to the new car park is provided directly from Shore Road. The location of the proposed new car park will ensure that Shore Road continues to provide an element of orbital function to Euston Street aiding in the distribution of traffic away from the centre of Greenore. The specific attributes of the scheme design and public realm enhancements at the northern end of Euston Street contributes to achieving objectives of DMURS and



includes well designed pedestrian crossing facilities along the key travel desire lines through the scheme. The enhancements at the port office entrance and entrance to the OMF buildings was designed with careful consideration for pedestrians and efficient movement of vehicles to and from the port offices and the proposed development. The proposed works include a segregated footway which will become the future link between Shore Road and the port office and OMF buildings. Internal provision for pedestrians includes for 2.0m segregated facilities on the main access road. High quality and slip resistant materials will be used in the construction of crossings and gradients at dropped crossings will be sufficiently shallow to allow access for users of all abilities. Sightlines at the new car park junction on Shore Road are provided in accordance with DMURS from a maximum setback of 2.4m. Roadside features and landscaping is so positioned not to obstruct visibility for drivers approaching or emerging from the Shore Road car park junction.

### 6.9.2 Construction Phase Mitigation

In the immediate vicinity of the development site it is surrounded by the port and sea to the northwest, north and northeast however there are areas of residential development to the south and north and east. There some industrial and commercial development on the R175 to the west of the port. The proposed development has the potential to affect this residential population, as well as the working population in the area.

During the construction phase of the proposed development, the local residents and local workers will be affected by a range of temporary and short- term effects such as noise, dust, HGV construction traffic, disruption to residential and commercial properties and perhaps in some occasional cases increased journey times.

Construction phase effects will be short-term. It is proposed that construction traffic will access the site via the port entrance at the end of Shore Road. Whilst in use for the purposes of construction the existing port entrance will remain an all movements priority arrangement which has sufficient capacity to accommodate construction traffic. The effects of construction traffic upon the capacity of the port access are forecast to be negligible.

The following mitigation measures are proposed:

- A Construction Traffic Management Plan will be prepared by the appointed contractor(s), including measures to provide information to affected parties, including advising land and property owners in advance of any diversions. Local access shall be maintained at all times. In addition, it is proposed that temporary signage shall be put in place to minimise disruption and ensure all road users understand that construction works are in progress.
- 'Construction Environmental Management Plan'(CEMP) shall include details on working hours, , construction traffic including deliveries, parking arrangements and incorporate the mitigation measures outlined here.
- All HGV vehicle movements will be restricted to the Main Port Entrance on Shore Road.

### 6.9.3 Operational Phase Mitigation

During the operational phase of the proposed development, there will be direct permanent effects consisting of increases in road traffic. Detailed traffic modelling analysis has shown that traffic arising

from the proposed development will not result in significant impact upon the operation of the local receiving road network. The effects upon traffic in the study area including Greenore are shown not to be significant and so minimal mitigation measures (see below) are proposed for the operational phase.

### 6.9.3.1 Travel Planning

TTA Section 10 outlines a Modal Management Planning for the proposed development. The purpose of a mobility management planning is to evaluate the accessibility of a development to the current and future transport infrastructure relative to the site location and to promote initiatives and to support and encourage future occupiers of the proposed development to use sustainable travel modes. The principal objective of a MMP is to reduce levels of private car use by encouraging staff to walk, cycle, use public transport, car share or to reduce the frequency and/or length of trips.

Mobility management planning aims to positively influence the travel patterns and behaviours of future occupiers and their staff through the encouragement of greater use of active travel, public transport and other sustainable modes of travel to reduce the numbers of cars accessing the development. The aim is to provide more sustainable transport choices, which lead to a reduction in the need for vehicular journeys principally by private car.

The following mitigation measures are proposed:

- The Occupants will prepare a Modal Management Plan and encourage sustainable travel to work

## 6.10 Residual Impact Assessment

This section assesses potential significant environmental impacts which remain after mitigation measures are implemented.

### 6.10.1 Construction Phase

The following Table 6.50 summarises the identified likely significant effects during the construction phase of the proposed development after mitigation measures are applied.

**Table 6.50 Summary of Construction Phase Traffic Effects after mitigation**

Likely Significant Effect	Quality	Significance	Extent	Probability	Duration	Type
Demolition	Negative	Slight	Receiving Network	Likely	Short-term	Direct
Piling for Port Buildings	Negative	Not Significant	Receiving Network	Likely	Short-term	Direct
Quay Wall / Breakwater Pontoon Piling	Negative	Not Significant	Receiving Network	Likely	Short-term	Direct
Construction of Proposed Buildings, Quay Wall and Pontoon & Gangway Installation	Negative	Slight	Receiving Network	Likely	Short-term	Direct

Likely Significant Effect	Quality	Significance	Extent	Probability	Duration	Type
Port Entrance Upgrades	Negative	Not Significant	Receiving Network	Likely	Short-term	Direct
Dredging	Negative	Slight	Receiving Network	Likely	Short-term	Direct
General Construction Traffic	Negative	Not Significant	Receiving Network	Likely	Short-term	Direct

### 6.10.2 Operational Phase

The following Table 6.51 summarises the identified likely significant effects during the operational phase of the proposed development after mitigation measures are applied.

**Table 6.51 Summary of Operational Phase Effects in the absence of mitigation**

Likely Significant Effect	Quality	Significance	Extent	Probability	Duration	Type
Operational Traffic	Negative	Not Significant	Receiving Network	Likely	Long-term	Direct

### 6.10.3 Cumulative Residual Effects

Given the location of other permitted developments and the likely potential for traffic generation it is not considered likely that there will be a perceptible cumulative impact.

## 6.11 Interactions

There are interactions between the traffic assessments and the noise/vibration and air quality/climate assessments. With increased traffic movements, the noise levels in the surrounding area increase. The impacts of the proposed development on the noise and air quality environment are assessed by reviewing the change in traffic flows on roads close to the site. In this assessment, the impact of the interactions between traffic and noise are considered to be imperceptible due to the low level changes in traffic flows associated with the proposed development.

## 6.12 Monitoring

The contractor will be required to ensure construction activities operate within the parameters set out in the Contractors CEMP and the Construction Traffic Management Plan.

There is no monitoring recommended for the operational phase of the development as impacts due to traffic generation are predicted to be not significant.

## 6.13 Conclusion

Trafficwise Ltd., Traffic and Transportation Planning Consultants have undertaken an assessment of the potential traffic impacts as a result of the proposed development. Mitigation measures have been specified for both the construction stages and the operational stage. With mitigation applied the

construction impacts will be reduced although will remain temporarily significant during periods of relatively intense works of short duration. During the operational stage impacts are forecast not to be significant whilst the mitigation measures of modal management will aim to reduce the number to vehicle trips generated by staff.

## 6.14 References and Sources

- Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment (Department of Housing, Planning & Local Government, 2018)
- Environmental Impact Assessment of Projects: Guidance on the preparation of the Environmental Impact Assessment Report (European Commission, 2017)
- Guidelines on the Information to be Contained in Environmental Impact Assessment Reports (EPA, 2022)
- Louth County Development Plan 2021–2027
- Transport Infrastructure Ireland (TII) Publication TII-PE-PDV-02045 'Traffic and Transport Assessment Guidelines' (May 2014).
- Chartered Institution of Highways and Transportation (CIHT) 'Guidelines for Traffic Impact Assessment' (Sept 1994)
- Department of the Environment & Local Government (DoELG), Department of Transport (DoT) and the Dublin Transportation Office (DTO) 'Traffic Management Guidelines' (May 2022).
- TII Publication PE-PAG-02017 'Project Appraisal Guidelines for National Roads Unit 5.3 Travel Demand Projections' (Oct 2021).
- TII Publication PE-PAG-02039 'Project Appraisal Guidelines for National Roads Unit 16.1: Expansion Factors for Short Period Traffic Counts' (Oct 2016);
- TII Publication PE-PAG-02016 'Project Appraisal Guidelines for National Roads Unit 5.2 - Data Collection' (Dec 2023).
- TII Publication DN-GEO-03060 'Geometric Design of Junctions'. (May 2023)
- TII Publication DN-GEO-03061 'Rural Link Design'. (May 2023)
- Department of Transport, Tourism & Sport, 'Design Manual for Urban Roads & Streets' (2019).

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## **CHAPTER 7**

### **MATERIAL ASSETS: BUILT SERVICES**

## **VOLUME II**

### **ENVIRONMENTAL IMPACT ASSESSMENT REPORT**

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## 7 Material Assets: Built Services

It is noted that for ease of reference all changes from the original chapter are shown in blue.  
Where text has been removed it is shown as ~~strike through~~.

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### 7.1 Introduction

This chapter of the EIAR was prepared to assess aspects of the proposed development relating to the material assets of surface water drainage, foul drainage, water supply and utilities (electricity, telecoms and gas) in respect of the proposed development and assesses the impact of the proposed development on the existing environment in the vicinity of the site. This chapter contains necessary information as defined in the Environmental Protection Agency (EPA) 'Guidelines on the Information to be contained in Environmental Impact Assessment Reports' (EPA, 2022).

This Chapter should be read in conjunction with Chapter 2 of this EIAR. Other materials assets including roads and traffic have been assessed in Chapter 06 Traffic and Transport of this EIAR. This section should be read in conjunction with the project design drawings and reports including the Engineering Planning Report by CSEA 2024 submitted as part of this application.

### 7.2 Expertise & Qualifications

This chapter of the EIAR has been prepared by Joseph McCarthy & Richard Browne Chartered Engineers and directors at McCarthy Browne Consulting Engineers with Mechanical and Electrical inputs from Shane Belton, Chartered Engineer and Director at Belton Consulting Engineers and Civil and Structural inputs from Ronan Geoghegan, Chartered Engineer and Director Clifton Scannell Emerson and Associates Consulting Engineers.

Joseph McCarthy has over 15 years of experience in the design and construction of built structures, civil and marine engineering schemes including the preparation of EIARs. These have included projects of similar scale and nature such as Dún Laoghaire Urban Beach & Floating Pool and the River Dodder Flood Alleviation Scheme. Richard Browne has over 15 years' experience in the design and construction of heavy civils, marine civils and floating structures.

Ronan Geoghegan has over 20 years of experience in the design of civil and structural projects of similar scale and nature. He and his team have completed EIARs for projects of similar scale such as Dexcom Medical, Athenry, Edge Connex Grid Connection, Clondalkin and multiple data centres.

Shane Belton has over 25 years of experience in his field and has been involved in major marine infrastructural projects in Dublin Port as well as commercial and industrial infrastructure for Harvey Norman, Texaco, Blue Gas, P&O and Seatruck.

### 7.3 Proposed Development

A full description of the proposed development is provided in **Chapter 2** of this EIAR. The following is a summary of the proposed works:

**Greenore Port Unlimited Company** intend to apply for a 10-year permission for development at Greenore Port and site of dwelling house on Shore Road (A91DD42), Greenore, Co. Louth, (total site area c.4.88 hectare).

The development will provide for Operations and Maintenance (O&M) Facilities serving as a support base for future offshore windfarm projects. In general, it will comprise of terrestrial (landside) and nearshore works, with three standalone buildings incorporating office, warehouse and ancillary space landside and a pontoon to accommodate Crew Transfer Vessels (CTVs) marine side. To facilitate the proposed development, dredging within the nearshore and the demolition of existing port buildings and a vacant residential property is required.

The Operations and Maintenance Facilities (OMF) will provide twenty-four-seven, year-round support, to three individual offshore renewable energy (ORE) projects that will be owned and operated by entities separate from the applicant. These ORE projects will consist of offshore windfarms on the East Coast of Ireland.

Three standalone operation and maintenance buildings incorporating office, warehouse and ancillary space (canteen, welfare, plant, cycle parking etc.) are proposed within the 'terrestrial port' area. Each building has a gross floor area of c.1,670 sq.m and a maximum height of 13.5m.

A new quay wall will be developed at Berth 3 (70m length). This will include a new quay wall face and upgraded deck. A pontoon will be constructed to accommodate crew transfer vessels (CTVs), for use by the operators to travel out to the offshore windfarms. The CTV's will be accessed via an access ramp connected to the quay wall and deck. Approx 45,000m<sup>3</sup> of material will be dredged to facilitate navigable access at this location, and it will be disposed of on land. Where rock is encountered (estimate max of 1,000m<sup>3</sup>), it will be reused on site.

Adjacent to the buildings, space is allocated for 76 car parking spaces, with a further 135 spaces proposed in the surface carpark at the 'Residential Site' on Shore Road. The existing carpark associated with the former Open Hydro building (60 spaces) will be used during the construction phase and Phase 1 of the development.

Pedestrian and motor vehicle access is via the existing entrance beside the Port's office, which served the previous Open Hydro development. Heavy goods vehicles will access the buildings via the Port's existing heavy goods entrance on Shore Road (R175). Pedestrian access from the surface carpark to the OMF buildings will be provided along a new pedestrian route within the Port's landholding.

To facilitate the development, demolition works are required, including the former Open Hydro building, an ESB substation, a small portion of the Port's office accommodation and the vacant dwelling at the 'residential site' on Shore Road.

Improvement works to the public / private realm in the foreground of the existing Greenore Port office building will comprise of an enhancement to existing road and pathways to facilitate improved pedestrian and vehicular access to the proposed O&M Facilities, a new feature entrance wall, removal of 6 no. port car parking spaces, link to new pedestrian route from the new Shore Road carpark and hard and soft landscaping. These works are located within the Greenore Architectural Conservation Area (ACA). The aim is to redesign the space to improve the character of the ACA at this point; provide a more user friendly space with pedestrian priority; and improve the existing access arrangements to

the site. Inside the proposed main entrance to the site, it is proposed to integrate the existing engine room wall and include this as a feature within the landscape design.

Ancillary development will include the installation of drainage infrastructure, landscaping, lighting, signage, boundary treatments, rooftop solar photovoltaic panels, an ESB substation, a communications mast, a bunded fuel storage tank and waste management areas etc.

The infrastructure described above will likely be delivered over two phases. However, this could extend to three phases, or the sequence of the works may vary,, depending on the delivery of future ORE projects and the associated Offshore Renewable Energy Auctions.

The proposed scheme is distributed over several individual plots, and for ease of reference, they are described as follows:-

1. **'Terrestrial Port Area'**, (c.1.9ha) which includes, a port commodity warehouse (former Open Hydro building), hardstanding areas, remnant wall associated with the pre-existing 'engine room', and a communications mast.
2. **'Nearshore Environment'** (c.2.3ha) encompassing part of Carlingford Lough and an existing caisson quay wall, known as 'Berth 3'.
3. **'Residential Site'** (c. 0.5ha) a greenfield site with a single-storey unoccupied residential dwelling with frontage to the R175, Shore Road.
4. **'Port Office Entrance'** (c. 0.18ha) encompassing a portion of the existing office building, known as the 'Seafarers room', hardstanding and parking area to the front of the port office with pockets of green space, that front Euston Street.

The following is a general location plan of the plots identified above.

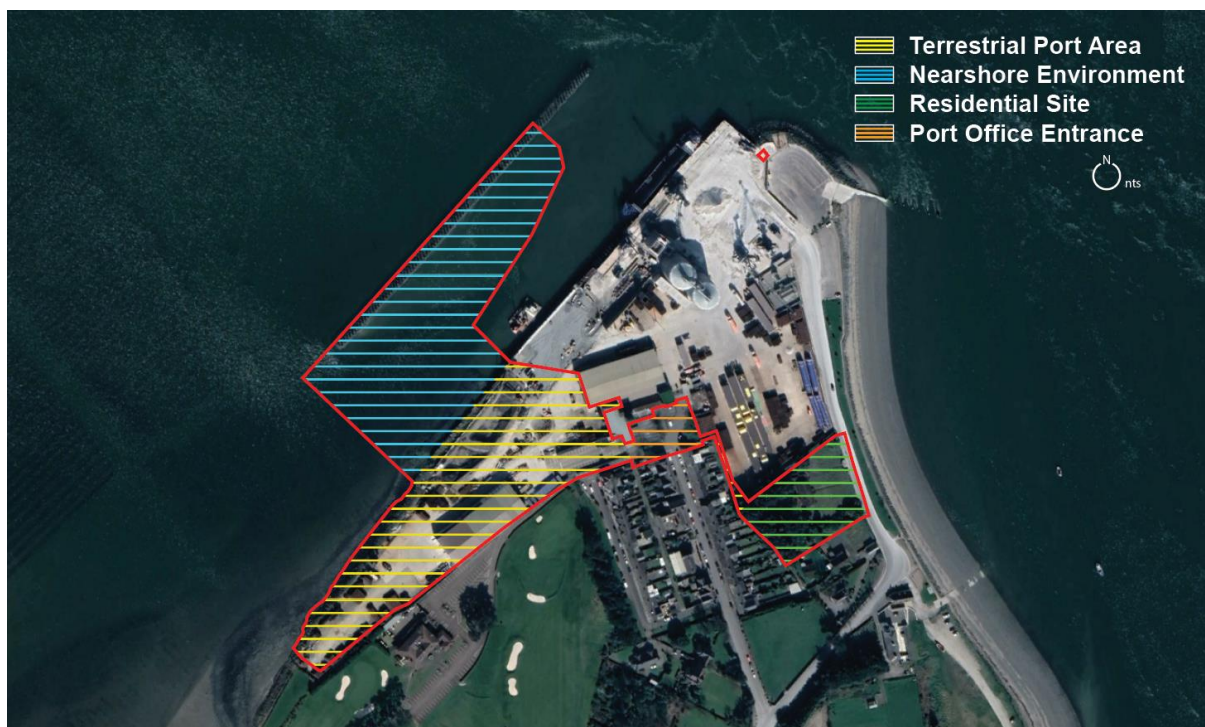


Figure 7-1 Development Areas

### 7.3.1 Aspects Relevant to this Chapter

The aspects of the development that are considered relevant to this assessment and therefore considered as part of this chapter include new and adjusted surface water drainage systems, revised wastewater drainage systems, new freshwater supply systems, new electrical infrastructure and additional telecommunications provisioning by way of a new mast. These include the items described in the sub-headings below across the multiple phases of the project including construction phases & operational phases.

#### 7.3.1.1 Surface Water Drainage

Site surveys indicate the existence of underground positive surface water drainage systems servicing the existing OMF catchment within the Port area. These systems ultimately discharge into the sea through existing outfalls.

##### 7.3.1.1.1 Construction phase

Demolition works remove roof drainage systems from the OpenHydro building, dwelling house and portion of the Seafarer's room.

During the Construction phase, additional gravel hardstanding's will be formed in the proposed surface parking area at the Residential Site on Shore Road. These hard-standings will be self draining in to the soils below. These hard-standings will be in place from the outset of Phase 1 of the development until its completion at the end of Phase 2.

It is not anticipated that groundwater dewatering will be required during the works. As outlined in the Outline Construction & Environmental Management Plan, temporary bunding of the dredge material is anticipated with capture of run-off water.

##### 7.3.1.1.2 Operational Phase

No additional hardstanding areas within the current terrestrial Port area are proposed. The proposed surface water drainage from the O&M site will use an existing outfall into Carlingford Lough. An attenuation system provides temporary storage whilst discharge rates through the outfall is limited during high tides due to tide locking. A bypass separator will be installed to intercept pollutants such as petroleum and oil before the surface water outfalls to sea. Permeable paving is proposed in all parking bay areas to promote infiltration to the groundwater where suitable. However, at locations where infiltration rate is very low, a proposed perforated pipe will convey the excess runoff back to the positive drainage network. Grasscrete will be used in sections of the site where fire tender access is required.

The proposed Shore Road surface carpark catchment area (satellite car park) will be drained by a series of proposed filter drains that will collect surface water runoff from impermeable vehicular aisles through the permeable paving car parking bays prior to discharging into the proposed stone filled attenuation system. The proposed stormwater drainage pipework network will range between 225mm and 450mm pipe diameter depending on the required flow capacity. For further details pertaining the above, please refer to CSEA Drawing 23\_119\_CSE-00-XX-DR-C-2563 that accompanies this planning application.

### 7.3.1.2 Wastewater Drainage

#### 7.3.1.2.1 Construction phases

During the construction phases, it is intended that the main contractors compound and welfare will be located within the existing OpenHydro carpark with an average of 30 persons on site. When Phase 2 commences, and the former Open Hydro carpark is no longer available, the surface carpark on Shore Road will be used. Additional temporary compounds may be made available within the port boundaries. In areas where a foul network exists, arrangements will be made for welfare to be connected to existing welfare. In other areas chemical toilets and/or tanks will be utilised.

#### 7.3.1.2.2 Operational phases

The proposed development, subject to this planning application, will comprise of a gravity foul sewer line consisting of 150mm and 225mm diameter pipework, discharging into the existing Uisce Éireann foul collection tank, collected by Uisce Éireann for off-site disposal to Dundalk Wastewater Treatment Plant. The overall wastewater discharge associated with the proposed development are in accordance with the demand/discharge rates estimated based on Irish Water wastewater infrastructure code of practice IW-CDS-5030-03 (Revision 2 - 2020).

### 7.3.1.3 Water Supply

#### 7.3.1.3.1 Construction phase

No new supplies are anticipated during the construction phases.

#### 7.3.1.3.2 Operational phase

A new watermain and fire supply is proposed for the development and has been confirmed feasible as per Uisce Éireann Confirmation of Feasibility (COF) letter reference number CDS23004977.

### 7.3.1.4 Electrical Supply

#### 7.3.1.4.1 Construction phase

Electrical power during the construction phase will be supplied by ESB Networks from existing supply lines. A replacement substation will be constructed to facilitate Phase 2 of the works.

#### 7.3.1.4.2 Operational phase

Increased supply to the facility is proposed by means of new electrical infrastructure including a relocated switch and new substation.

### 7.3.1.5 Gas Supply

There are no current gas supplies in the area, nor are any proposed for this development.

### 7.3.1.6 Telecommunications

#### 7.3.1.6.1 Operational phase

Wired telecommunications by way for Eir infrastructure will be provided to each of the buildings.

Potential for wireless communications will be provided by way of a new communications mast in place of an existing smaller communications and lighting mast.



## 7.4 Methodology

This assessment is made in accordance with guidance from 'Guidelines on the information to be contained in environmental impact assessment reports', published by the EPA in May 2022. The study aims to identify the likely significant effects that the Development may have on water services and public utilities under the following headings.

- Surface Water Drainage
- Wastewater Drainage
- Water Supply
- Electrical Supply
- Telecommunications

### 7.4.1 Relevant Legislation & Guidance

This EIAR chapter has been produced in accordance with the 2014/52/EU Directive as transposed into Irish law through European Union (Planning and Development) (Environmental Impact Assessment) Regulations 2018 (SI No. 296 of 2018) which amended the Planning and Development Act, 2000 and the Planning and Development Regulations 2001.

As part of assessing the likely impact of the proposed development, surface water runoff, foul drainage discharge and water usage calculations were carried out in accordance with the following guidelines & design standards:

- Louth County Council Development Plan 2021 – 2027 Chapter 10
- Greater Dublin Strategic Drainage Study (GDSDS)
- CIRIA SuDS Manual, 2015
- Irish Water, Code of Practice for Wastewater Infrastructure
- BS EN 752 Drain and sewer systems outside buildings

Electrical usage calculations and assessments were carried out in accordance with the following guidelines & design standards:

- Louth County Council Development Plan 2021 – 2027 Chapter 12
- Building Regulations 2019, Part L
- EU Directive 2010/31/EU

### 7.4.2 Site Surveys/Investigations

Information on built assets in the vicinity of the development lands was assembled from the following:

Desktop review of existing utilities including;

- ESB network utility mapping, Drawing 20221214-049-001\_A3, December 2022.
- Gas Networks Ireland, email consultation with utility provider, July 2023
- Eir utility mapping, accessed via Eir Portal (<https://cei.openeir.ie/>) June 2022 & May 2024
- Virgin Media, consultation with operator, July 2023
- Uisce Éireann utility, consultation with utility provider & subsequent Confirmation of Feasibility CDS23004977

Additionally, a series of surveys were commissioned for the proposed development, summarised in McCarthy Browne drawings D1014 & D1015 including;

- Aerial and ordnance survey maps of the area
- Existing site investigation information provided by the Client.
- Utility mapping, topographical & bathymetric surveys commissioned for the proposed development. SixWest, 2023 & 2024

Supplementary site investigations were carried out for the proposed development and summarised as a Ground Investigation Report by GDG, 2024.

- Land based site investigation commissioned for the proposed development.

McCarthy Browne also have detailed site knowledge and experience of the site.

### **7.4.3 Consultation**

A Pre-Connection Enquiry (reference CDS23004977) was lodged with Uisce Éireann in relation to proposed water and wastewater connections at the development site. A Confirmation Of Feasibility letter has been issued by Uisce Éireann confirming both are feasible without infrastructure upgrade (Refer to Engineering Planning Report by CSEA submitted under separate cover).

A Pre-planning consultation took place with Louth County Council 10<sup>th</sup> May 2024 and 20<sup>th</sup> May 2024.

## **7.5 Difficulties Encountered**

No significant difficulties have been encountered.

## **7.6 Baseline Environment**

The following utilities are noted as being within the proposed scheme study area. The study area is defined as 100m from the redline boundary.

**Table 7.1 Utilities in the study area**

Utility Provider	Service Type	Description
Greenore Port	Surface water sewer network	Roof water, gullies and surface water network including interceptor tanks and existing outfalls.
	Foul water sewer network	Foul lines to Uisce Éireann storage tank from former OpenHydro Building, Port offices and Greenore Village.
	Low voltage electricity	Underground ducting
	Communications ducting	Underground ducting
	CCTV	Underground cabling
ESB	High voltage electricity	None within proposed development area.
	Medium voltage electricity	Underground 10KV lines traversing underground from Shore Road.
	Low voltage electricity	Underground ducting from substations at OpenHydro and Existing Greenore Port Offices.
Telecommunications	Eir	1x1way MD 2x100 ducts feed to Greenore Port. Underground ducting (1x50pp) from main pit beside Greenore Port Offices to the Old OpenHydro Building.
	Virgin Media	None within proposed development area
Local Authority	Surface water sewer network	Existing 100mm diameter gravity surface water system passes from the Shore Road through the northeast portion of Greenore Port.
Uisce Eireann	Mains water network	An existing 100mm watermain enters the subject site at the location of the former OpenHydro Building. Another 100mm connection is fed into Greenore Port at the Port's heavy goods entrance on Shore Road.
	Foul water network	Existing foul water network enters Greenore Port at the main port entrance. An existing holding tank is present under 'Store 0', within Greenore Port.

#### 7.6.1.1 Surface Water Drainage

The site is located adjacent to Carlingford Lough and as there is no downstream development before out falling to the Irish Sea.

The site survey indicates that the topography of the terrestrial port area and port office entrance area is predominately flat such that drainage is achieved by purpose made low areas where gullies are positioned to intercept the surface water. The survey furthermore indicates the existence of an underground positive surface water drainage system servicing the existing buildings and parking within the OMF Catchment (ie the Terrestrial Site). It shows gully drainage of existing hard standings and around the existing buildings. The gravity system discharges through a bypass separator before discharging into Carlingford Lough through an existing outfall. The outfall is a 225mm diameter uPVC pipe that discharges through a 225mm diameter flap valve.

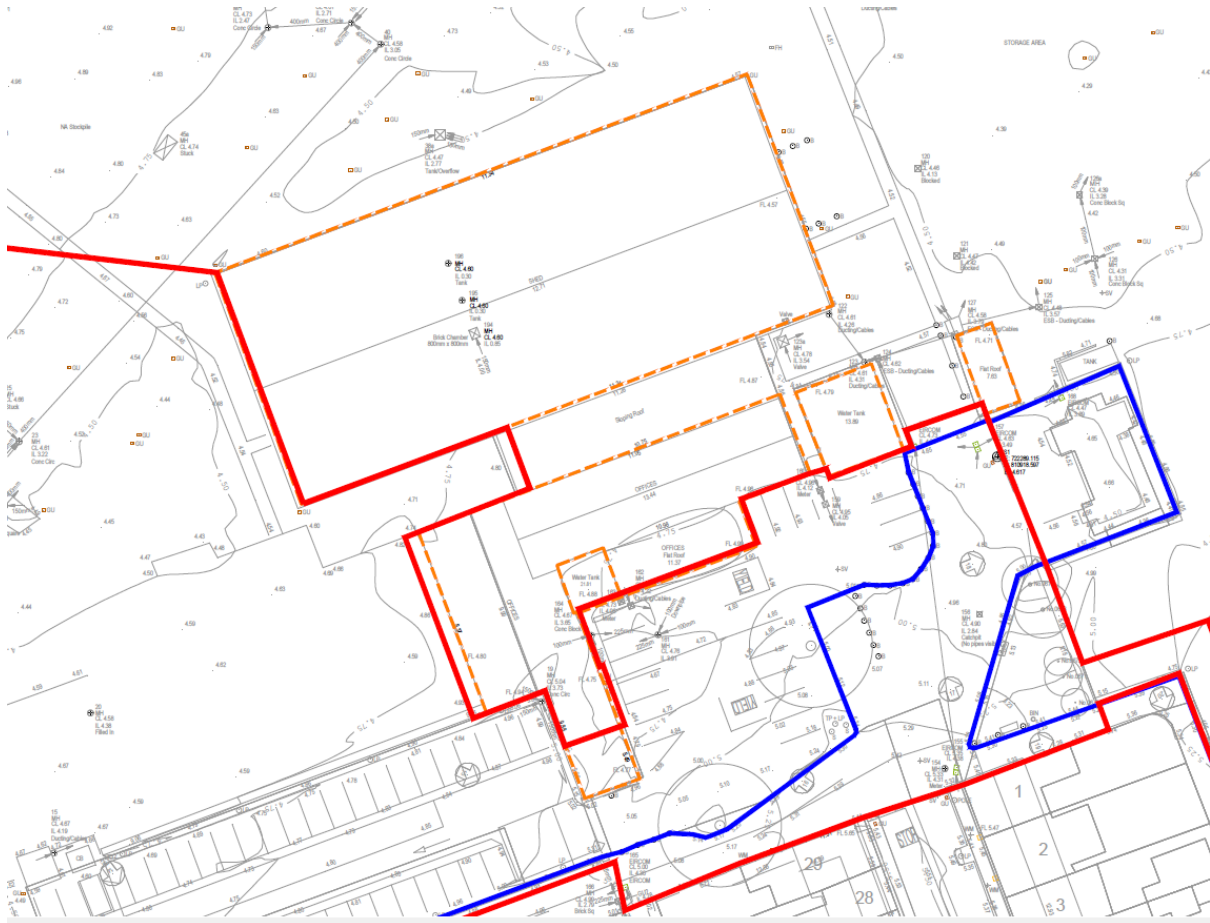
The site of the proposed Shore Road Carpark is sloping eastward towards Shore Road and comprises a vacant residential dwelling and garden. A 100mm diameter existing surface water uPVC pipe system was identified along Shore Road adjoining the property. Existing gullies and manholes were also

identified. This existing surface water uPVC pipe travels along Shore Road into Greenore Port where it discharges through an outfall northeast of Berth 1.

#### 7.6.1.2 Wastewater Drainage

There is an existing Victorian brick arch tank structure (Septic Tank) located under the Greenore Port maintenance shed (Store 0), Figure 7-2. The local Greenore village foul network terminates here. The tank consists of 3 no. chambers of 3.5mx4mx2m which approximately equals 84m<sup>3</sup>. An existing 225mm gravity foul line from the Greenore Village discharges into this tank. A 100mm pipe from the Greenore Port offices and a 150mm connection from the former Open Hydro building also discharges locally into the 225mm feed.

An overflow pipe from this existing Septic Tank that previously discharged directly into the Carlingford Lough was decommissioned by UÉ. Currently, this existing Septic Tank is emptied every fortnight as facilitated by LCC. The waste is disposed of at the Dundalk Waste Water Treatment Plant.



**Figure 7-2 Extract of CSEA Drawing 23\_119 - CSE - GEN - XX - DR - C - 2535 showing Store 0 to the North with tank surveyed under**

#### 7.6.1.3 Water Supply

There is an existing 100mm diameter watermain parallel to the southern boundary of the terrestrial port area of the site. There is also a network of pipes at the port office entrance coming from the Greenore Village. Under the proposed marshalling yard there is an existing water main network that

is observed to be mostly obsolete considering that the buildings that would have been served are no longer there. Inside in application site boundary namely the Terrestrial Site, extending to the Existing Port on Berths 1 & 2, there is a watermain network consisting of 100mm pipe network that feeds the port and quay wall infrastructure.

#### 7.6.1.4 Electrical Supply

ESB has 10 kV and low voltage infrastructure serving existing Greenore Port operations. This is located at the existing Greenore Port offices. A further substation is located at the former OpenHydro building. This substation has a redundant low-voltage room and a transformer which supplies power to the neighbouring Golf Club and a number of properties in Greenore Port Village.

#### 7.6.1.5 Telecommunications

Virgin Media have confirmed they have no utilities present on or near the development site. As no new Virgin Media infrastructure is intended as part of the proposed development, Virgin Media infrastructure is not considered further in this assessment.

Eir have confirmed presence of existing utilities in the area. The main connection point is located close to the Greenore Port offices. The Greenore Port Offices and former OpenHydro building are serviced by underground ducting.

An existing mast within the Port lands provides lighting and CCTV for the Port currently.

## 7.7 The 'Do Nothing' Scenario

In a 'do nothing' scenario this proposed development will not be constructed. The existing baseline environment may be changed in accordance the natural development of the port and/or with the extant permissions for Greenore Port as per permitted developments; namely.

- i. Extension and modification of existing Warehouse, **LCC Planning Ref 20268, ABP Ref 307862**
- ii. New Warehouse, **LCC Planning Ref Planning ref 20543, ABP Ref 310184**

In neither application, nor in the natural growth of the Port is any significant modernisation or upgrade of utilities.

### 7.7.1 LCC Planning Ref 20268 ABP Ref 307862

This application concerns the extension and modification to the former OpenHydro warehouse including an overall 4,499m<sup>2</sup> extension and modifications to the existing Store 0 including an increase in ridge height. Save for local diversions around the proposed works, it is not proposed to upgrade any utilities infrastructure as part of this development.

In respect of this application, the 'do nothing' scenario has no effect on the surrounding utilities infrastructure should no further development take place.

## 7.7.2 LCC Planning Ref 20543, ABP Ref 310184

This application considers the construction of 2 no. new warehouse buildings, Store 1 and Store 2 measuring 1,812 sq. m and 1,184 sq. m respectfully. As part of this development, new surface water drainage to service roof rainwater would be installed within the facility draining to the existing outfalls. Demolition of existing and proposed new ESB substation and switch room would be installed to facilitate the position of the new warehouses. Save for local diversions around the proposed works, it is not proposed to upgrade any other utilities infrastructure as part of this development.

In respect of this application, the 'do nothing' scenario has no effect on the surrounding utilities infrastructure should no further development take place.

## 7.8 Potential Significant Effects

### 7.8.1 Construction Phases

#### 7.8.1.1 Surface Water Drainage

Without mitigations in place there is potential for the surface water drainage system to become contaminated by site run-off including silts, hydrocarbons. There is the potential for compound at the residential site to cause increase demand on the drainage network. Potential exists for road gullies and associated storm networks to become blocked from 'trackout'. Construction sequencing may also cause ponding.

Surface water networks may be damaged and/or disrupted during works during infrastructure connection/adjustment works.

Without appropriate mitigation, impacts during the construction will be significant and effects short-term and moderate.

#### 7.8.1.2 Wastewater Drainage

Without mitigations in place there is potential for improper discharge from construction activities into the foul drainage network from the contractor's compound. Inappropriate demand may be placed on the foul drainage network due to peak demands and inappropriate discharges. Underground services may be damaged by the works or in the process of making or adjusting infrastructure connections.

With appropriate mitigation impacts during the construction will be negative and effects temporary and significant.

#### 7.8.1.3 Water Supply

It is intended that any water supplies required during construction will be provided from existing water outlets located within the grounds of the Port.

Construction activities will require access to the local water supply network to facilitate connections. These have the potential to disrupt or contaminate local supplies.

Without mitigation, impacts during the construction effects will be local, negative, temporary and significant.



#### 7.8.1.4 Electrical Supply

Construction activities will require temporary connection to existing electrical outlets within the Port for the provision of offices, welfare, lighting etc. There is potential for construction activities to disrupt existing electrical infrastructure through accidental impact or improper works.

With these mitigation measures in place potential impacts from these activities on the electrical supply network will be temporary, negative and significant.

#### 7.8.1.5 Telecommunications

Construction phase activities will require access to the local wired Eir telecommunications network to facilitate connections. These works have the potential to disrupt the existing wired telecommunications infrastructure through accidental impact or improper works.

The proposed communications mast will be constructed before the demolition of the existing mast. Potential exists for local infrastructure (CCTV, lighting) to be disrupted during this work.

Without mitigation measures in place, potential impacts from these activities on the wired telecommunications network will be temporary, negative and significant.

Without mitigation measures in place, potential impacts from these activities on the wireless telecommunications network and Port CCTV will be local to the Port, temporary, negative and insignificant.

### 7.8.2 Operational Phase

The operational phase of the development may be in excess of 60 years and therefore all operational effects are described as permanent unless noted otherwise.

#### 7.8.2.1 Surface Water Drainage

During the Operational Phases there will be potential for contamination of the surface water drainage system from hydrocarbons, silt/dust and other chemicals. Surface water discharge rates may exceed the capacity of the existing network.

There will be an increase in surface water volumes from the satellite area draining into the existing surface water network on Shore Road.

The effects without mitigation will therefore be negative and moderate.

#### 7.8.2.2 Wastewater Drainage

The proposed development will increase the current discharge to the local foul system but will be less than the previous (OpenHydro) discharge allowance. This increase is catered for by increased servicing of the foul water storage tank located within the Port and maintained by Uisce Éireann. Uisce Éireann have confirmed that wastewater connection to existing infrastructure is feasible without infrastructural upgrade.

The impact significance of the effects is assessed to be negative and slight.

### 7.8.2.3 Water Supply

The proposed development will increase water demand on the water supply network. Uisce Éireann have confirmed that water supply connection is feasible without infrastructural upgrade. The impact significance of the effects is assessed to be negative and not significant.

### 7.8.2.4 Electrical Supply

Without mitigations there exists the possibility of creating excessive energy demand for the local network. This may be due to terrestrial development including the buildings, EV parking and associated service demands.

Provision is being made for future vessel fuelling technologies including Electric Power. Such technologies are in development and without mitigation could cause undue pressure on the electrical network.

The impact significance of the effects is assessed to be negative & significant.

### 7.8.2.5 Telecommunications

Wired telecommunications may be disrupted by the additional demands placed on them by the proposed facility.

Communications infrastructure will be mounted on a replacement mast to facilitate communication between future tenants and the offshore windfarms and CTV's. The mast will continue to be used by Greenore Port for CCTV and lighting.

The impact significance of the effects is assessed to be negative and moderate.

## 7.8.3 Cumulative Effects

The zone of influence has been considered as any proposed development utilising the wastewater network at Greenore or any other development within 500m of the site.

### 7.8.3.1 Extant Permissions outside the Port

A list of planning applications in the vicinity of the proposed development is given in Appendix 1-1. Planning applications of lesser scale including small scale residential projects have been considered as having a neutral, imperceptible effect owing to their insignificant demand on material assets. Planning applications outside of Greenore village are considered to have a neutral, imperceptible effect owing to them having no influence on any material assets relevant to this development. All developments are considered to have a permanent effect.

The additional projects included in the updated List of Cumulative Projects appended to Chapter 1, i.e. the proposed ORE developments in the Irish Sea were considered and no additional cumulative effects arising from these projects were identified.

**Table 7.2 Summary of Cumulative Effects**

Planning Ref	Description	Date	Comments
LCC 23254	Permission for alterations and extension to existing precision engineering workshop and all associated site works	01/09/2023	Development consists of warehouse extension with no further development of materials assets under consideration. Will have a neutral, imperceptible effect.
LCC 23125	Permission for the change of use of existing building from commercial/residential use to voluntary community workshop and all associated site development works	18/08/2023	The proposed change of use of the commercial building to a voluntary community workshop (men's) shed represents no increased demand on material assets. Will have a neutral, imperceptible effect.
LCC 20362	Permission for development consisting of the installation of a grid connected photovoltaic panel system fitted to the roofs of existing warehouse buildings.	21/07/2020	Installation of photovoltaic panels to existing roofs which will add electrical capacity to the overall electrical grid. Will have a positive, imperceptible effect.

The changes to the stormwater network will have an imperceptible effect on aquaculture and therefore an imperceptible, neutral effect on extant or new licenses listed in Appendix 1-1. The proposed development has a neutral, imperceptible effect on all other applications listed in Appendix 1-1.

#### 7.8.3.2 Extant permissions within the Port

The extant permissions within the Port are not intended to be implemented alongside the proposed development and will therefore have no effect on these developments.

#### 7.8.4 Summary

The following Table summarises the identified likely significant effects during the construction phase of the proposed development before mitigation measures are applied.

**Table 7.3 Summary of Demolition & Construction Phase Likely Significant Effects in the absence of mitigation**

Likely Significant Effect	Quality	Significance	Extent	Probability	Duration	Type
Contamination of surface water runoff due to construction activities	Negative	Significant	Local	Likely	Short-term	Worst-case
Improper discharge of foul drainage from contractor's compound	Negative	Slight	Local	Likely	Short-term	Worst-case
Road gullies and associated storm networks to become blocked from 'trackout'	Negative	Slight	Local	Likely	Short-term	Worst-case
Additional utilities demand during construction	Negative	Slight	Local	Likely	Short-term	Worst-case
Damage to existing underground and overhead services due to accidental impact or making of connections	Negative	Slight	Local	Likely	Temporary	Worst-case
Service interruptions may be required for switch over or service diversion purposes	Negative	Slight	Local	Likely	Temporary	Worst-case

The following Table summarises the identified likely significant effects during the operational phase of the proposed development before mitigation measures are applied.

**Table 7.4 Summary of Operational Phase Likely Significant Effects in the absence of mitigation**

Likely Significant Effect	Quality	Significance	Extent	Probability	Duration	Type
Contamination of the surface water drainage system from hydrocarbons, silt/dust and other chemicals.	Negative	Significant	Regional	Likely	Permanent	Worst-case
Surface water discharge rates may exceed the capacity of the existing network	Negative	Moderate	Local	Likely	Permanent	Worst-case
Increase in surface water volumes from satellite parking area	Negative	Moderate	Local	Likely	Permanent	Worst-case
Connection to existing wastewater infrastructure	Negative	Slight	Local	Likely	Permanent	Worst-case
Connection to water infrastructure	Negative	Slight	Local	Likely	Permanent	Worst-case
Increased electrical demand	Negative	Slight	Local	Likely	Permanent	Worst-case
Improved wired communications demand	Negative	Moderate	Local	Likely	Long-term	Worst-case

## 7.9 Mitigation

### 7.9.1 Incorporated Design Mitigation

- All new infrastructure will be designed in accordance with relevant standards and Codes of Practice.
- Surface water drainage systems have been designed in accordance with the Louth County Council Development Plan 2021-2027, Greater Dublin Strategic Drainage Study and CIRIA SuDS Manual 2015. This ensures that the surface water discharges are in line with sustainability standards. Specific measures include:
  - The provision of permeable paving
  - Stormwater attenuation tank provision
  - Rainwater harvesting
  - Flow control devices
  - Chemical interceptors
- Fuel and chemical storage areas will be double skinned and/or bunded in accordance with best practice.
- Wastewater networks have been designed in accordance with current regulations and standards. Efficiencies in water usage will be considered throughout the engineering design of the development.
- Buildings will be designed to achieve TGD Part L, NZEB 2002 compliance which incorporates renewable energy technologies and measures to avoid energy losses. These will have a positive effect on the electrical demand of the proposed development.
- Design phasing ensures the proposed relocation of the substation will be carried out in a phased manner with switchover procedures agreed with ESB. It is expected that any power outages will be planned and coordinated with affected customers (including the Golf club and village residents / business) and will be brief.
- New foul and water connections have received a Confirmation of Feasibility from Uisce Éireann.
- A surface water attenuation system has been designed in the satellite parking area prior to discharge to the existing Shore Road drainage system.
- The proposed substation is sized for the future expected capacity demand including EV charging. Additional duct capacity is designed into buried structures for future EV infrastructure.
- Arrangements will be made with the local utility provider to upgrade telecommunications infrastructure if required to meet wired telecommunications demand of the facility.

### 7.9.2 Demolition & Construction Phase Mitigation

- A site-specific Construction and Environmental Management Plan will be enacted by the Contractor. The plan will put in place good construction practices to reduce the potential for releases to the surface water environment. These include measures to control run-off and the mobilisation of suspended material especially during key activities such as earthworks, dredging & concreting. Good practice vehicle site exiting procedures will be followed including wheel washes as appropriate.



- Pre-construction consultation and authorisation will be achieved for all the relevant infrastructure connections.
- Any works required to material assets on or around the Site will be carried out in conjunction with the relevant provider to ensure minimal disruption to the existing users.
- Any works required to material assets on or around the Site will be carried out strictly in accordance with the relevant provider's Code of Practices.
- Permanent works will require the alteration of existing ESB networks and subject to pre-development authorisation from ESB. The Contractor will be required to put in place measures to the satisfaction of ESB to ensure that these works are carried out safely and in accordance with the appropriate requirements and ESB guidelines.

### 7.9.3 Operational Phase Mitigation

- There will be an overall reduction in surface water volumes in the OMF area owing to rainwater harvesting in each of the buildings. Existing drainage systems will be augmented through the use of petrol interceptors resulting in a long-term positive effect on the drainage system and existing outfalls.
- SuDS features will be maintained appropriately throughout the operational phase of the development by the relevant management body.
- Interceptors & COSHH stores will be maintained during the Operational phase of the development by the relevant management body. Potentially harmful chemicals such as fuels and waste oils will be stored in suitably bunded and/or double skinned tanks in designated areas.
- NZEB technologies will be employed to reduce electrical demand from the facility. The following NZEB technologies have been considered for the development; Centralised air to water heat pumps, photovoltaic systems, combined heat and power. Electrical infrastructure within the port will be upgraded as part of this proposed development to cater for increased demand.
- Any future additional power requirement will be agreed with the utility provider.

## 7.10 Residual Impact Assessment

This section assesses potential significant environmental impacts which remain after mitigation measures are implemented.

### 7.10.1 Demolition & Construction Phases

A series of mitigation measure have been prepared to minimise ill effects during demolition and construction phases. Provided these measures are employed, residual impacts are short-term, direct, negative and not significant.

### 7.10.2 Operational Phase

During the Operational Phase of the development infrastructure will continue to be maintained by the appropriate bodies. Provided these items are maintained as designed, residual impacts are long-term, local, negative and not significant.

### **7.10.3 Summary of Post-mitigation Effects**

No significant residual effects during demolition, construction or operational phases are identified.

### **7.11 Risk of Major Accidents or Disasters**

Major accidents or disasters may relate to the provision and storage of fuel on site. Appropriate mitigation measures such as bunding have been employed to avoid major accidents or disasters.

Major accidents or disasters may relate to the provision of sub-stations and power handling on site. Appropriate mitigation measures such as design in accordance with ESB standards and Building Regulations have been employed to avoid major accidents.

### **7.12 Worst Case Scenario**

Worst case estimates have been used as part of this assessment. As a result, the above details the worst case impact for the proposed development.

### **7.13 Interactions**

#### **7.13.1 Land and soils**

There are interactions with the land and soils chapter given the proposed infiltration from permeable paving into surrounding soils.

#### **7.13.2 Landscape and Visual**

The proposed permeable paving, substation infrastructure and NZEB plant requirements will have an effect on the visual appearance of the development and are therefore considered in the LVIA.

#### **7.13.3 Climate**

The built services have been designed with climate impact in mind including NZEB compliant buildings, SuDS drainage design and landscaping.

#### **7.13.4 Water & Hydrology**

There are interactions with the water and hydrology chapter due to the proposed discharge of stormwater to existing outfalls.

### **7.14 Monitoring**

No monitoring is proposed in the demolition or construction phases.

Appropriate measures to maintain surface water drainage systems and infrastructure shall be put in place such as tank & bund monitoring alarms.

## 7.15 Summary of Mitigation and Monitoring

The following Table summarises the Construction Phase mitigation and monitoring measures.

**Table 7.5 Summary of Demolition & Construction Phase Mitigation and Monitoring**

Likely Significant Effect	Mitigation	Monitoring
Contamination of surface water runoff due to construction activities Improper discharge of foul drainage from contractor's compound	A site-specific Construction and Environmental Management Plan will be enacted by the Contractor incorporating all mitigation measures..	None
Additional utilities demand during construction	Pre-construction consultation and authorisation will be achieved for all the relevant infrastructure connections.	none
Damage to existing utilities (under and over ground)	New infrastructure will be designed and constructed in accordance with relevant standards, policy and Codes of Practice.	none
Service interruptions may be required for switch over or service diversion purposes	Works required to material assets on or around the Site will be carried out in conjunction with the relevant provider to ensure minimal disruption to the existing users	none

The following Table summarises the Operational Phase mitigation and monitoring measures.

**Table 7.6 Summary of Operational Phase Mitigation and Monitoring**

Likely Significant Effect	Mitigation	Monitoring
Contamination of surface water runoff due to operation activities	Interceptors will be maintained during the Operational phase of the development by the relevant management body.	Tank monitoring alarms
Surface water discharges in excess of capacity.	Integration of stormwater attenuations systems and SUDs drainage features.	Regular maintenance
Storage of chemicals	Interceptors & COSHH stores will be maintained during the Operational phase of the development by the relevant management body.	Tank monitoring alarms Bund monitoring alarms
Additional electricity demands by new structures and facility uses causing capacity issues.	Provision made in landside infrastructure for future energy demands, future connections subject to necessary permissions. Buildings designed and constructed to NZEB standards	none

Likely Significant Effect	Mitigation	Monitoring
Additional wired telecommunications demand causing capacity issues.	Consultation will take place with utilities providers to determine any inline upgrades required as part of a new connection application.	none

## 7.16 Conclusion

This chapter has reviewed and analysed the potential and the predicted impacts of the proposed development on material assets. These impacts have been considered for the demolition, construction and operational phases of the proposed development. The cumulative impact of the proposed development and surrounding developments have also been considered.

Provided all mitigation measures set out in this chapter are adhered to in full throughout all phases, the overall predicted impact of the proposed development is **long-term, slight and negative**.

## 7.17 References and Sources

- Guidelines on the information to be contained in environmental impact assessment reports. Environmental Protection Agency (EPA, 2022).
- Louth County Development Plan (2021-2027).
- Directive 2014/52/EU (16 April 2014) European Parliament.
- CIRIA 532 (2001). Control of Water Pollution from Construction Sites, Guidance for Consultants and Contractors.
- CIRIA 650 (2005). Environmental Good Practice on Site.
- CIRIA 753 (2015). The SuDS Manual.
- Greater Dublin Strategic Drainage Study (GDSDS)
- Irish Water, Code of Practice for Wastewater Infrastructure
- BS EN 752 Drain and sewer systems outside buildings
- Building Regulations 2019, Part L
- EU Directive 2010/31/EU
- Greenore Ground Investigation Report, GDG 2024

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## **CHAPTER 8**

### **MATERIAL ASSETS: WASTE**

## **VOLUME II**

### **ENVIRONMENTAL IMPACT ASSESSMENT REPORT**

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## 8 Material Assets: Waste

It is noted that for ease of reference all changes from the original chapter are shown in blue.  
Where text has been removed it is shown as ~~strike through~~.

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### 8.1 Introduction

This chapter evaluates the impacts, if any, which the proposed development may have on Material Assets - Waste as defined in the EIA Directive (Directive 2011/92/EU as amended by Directive 2014/52/EU) and the EPA 2022 Guidelines on the information to be contained in Environmental Impact Assessment Reports during the construction and operational phases of the proposed development, as described in Chapter 2 (Development Description).

A site-specific Resource Waste Management Plan (RWMP) has been prepared by AWN Consulting to guide and manage the waste generated during the construction phase of the proposed development (including excavation / dredging and demolition works) and has been included as Appendix 8.1. The RWMP was prepared in accordance with the Environmental Protection Agency's (EPA) document Best Practice Guidelines for the Preparation of Resource and Waste Management Plans for Construction & Demolition Projects (2021).

The Chapter has been prepared in accordance with European Commissions Guidelines, Guidance on the preparation of the Environmental Impact Assessment Report (2017), the EPA Guidelines on the Information to be contained in EIAR (2022) and the EU Commission Notice on changes and extensions to projects, 2021.

These documents will ensure the management of wastes arising at the development site in accordance with legislative requirements and best practice standards.

### 8.2 Expertise & Qualifications

This Chapter has been prepared by Chonaill Bradley (Bsc ENV, PG Dip Circ Econ, AssocCIWM) of AWN Consulting. Chonaill is a Principal Environmental Consultant in the Environment Team at AWN. He holds a BSc in Environmental Science from Griffith University, Australia and a Postgraduate Diploma in Circular Economy Leadership for the Built Environment from the Atlantic Technological University, Galway. He is an Associate Member of the Institute of Waste Management (AssocCIWM). Chonaill has over nine years' experience in the environmental consultancy sector and specialises in waste management.

### 8.3 Proposed Development

A full description of the proposed development is set out in Chapter 2 of this EIAR. The following is a summary of the proposed works.

**Greenore Port Unlimited Company** intend to apply for a 10-year permission for development at Greenore Port and site of dwelling house on Shore Road (A91DD42), Greenore, Co. Louth, (total site area c.4.88 hectare).

The development will provide for Operations and Maintenance (O&M) Facilities serving as a support base for future offshore windfarm projects. In general, it will comprise of terrestrial (landside) and nearshore works, with three standalone buildings incorporating office, warehouse and ancillary space landside and a pontoon to accommodate Crew Transfer Vessels (CTVs) marine side. To facilitate the proposed development, dredging within the nearshore and the demolition of existing port buildings and a vacant residential property is required.

The Operations and Maintenance Facilities (OMF) will provide twenty-four-seven, year-round support, to three individual offshore renewable energy (ORE) projects that will be owned and operated by entities separate from the applicant. These ORE projects will consist of offshore windfarms on the East Coast of Ireland.

The proposed development is described in further detail below.

## 8.4 Proposed Site

The proposed scheme is distributed over several individual plots, and for ease of reference, they are described as follows:-

1. **‘Terrestrial Port Area’**, (c.2ha) which includes, a port commodity warehouse (former Open Hydro building), hardstanding areas, remnant wall associated with the pre-existing ‘engine room’, and a communications mast.
2. **‘Nearshore Environment’** (c.2ha) encompassing part of Carlingford Lough and an existing caisson quay wall, known as ‘Berth 3’.
3. **‘Residential Site’** (c. 0.5ha) a greenfield site with a single-storey unoccupied residential dwelling with frontage to the R175, Shore Road.
4. **‘Port Office Entrance’** (c. 0.18ha) encompassing a portion of the existing office building, known as the ‘Seafarers room’, hardstanding and parking area to the front of the port office with pockets of green space, that front Euston Street.

The following is a general location plan of the plots identified above.



**Figure 8.1 Development Areas.**

Three standalone operation and maintenance buildings incorporating office, warehouse and ancillary space (canteen, welfare, plant, cycle parking etc.) are proposed within the 'terrestrial port' area. Each building has a gross floor area of c.1,670 sq.m and a maximum height of 13.5m.

A new quay wall will be developed at Berth 3 (70m length). This will include a new quay wall face and upgraded deck. A pontoon will be constructed to accommodate crew transfer vessels (CTVs), for use by the operators to travel out to the offshore windfarms. The CTV's will be accessed via an access ramp connected to the quay wall and deck. Approx 45,000m<sup>3</sup> of material will be dredged to facilitate navigable access at this location, and it will be disposed of on land. Where rock is encountered (estimate max of 1,000m<sup>3</sup>), it will be reused on site.

Adjacent to the buildings, space is allocated for 76 car parking spaces, with a further 135 spaces proposed in the surface carpark at the 'Residential Site' on Shore Road. The existing carpark associated with the former Open Hydro building (60 spaces) will be used during the construction phase and Phase 1 of the development.

Pedestrian and motor vehicle access is via the existing entrance beside the Port's office, which served the previous Open Hydro development. Heavy goods vehicles will access the buildings via the Port's existing heavy goods entrance on Shore Road (R175). Pedestrian access from the surface carpark to the OMF buildings will be provided along a new pedestrian route within the Port's landholding.

To facilitate the development, demolition works are required, including the former Open Hydro building, an ESB substation, a small portion of the Port's office accommodation and the vacant dwelling at the 'residential site' on Shore Road.

Improvement works to the public / private realm in the foreground of the existing Greenore Port office building will comprise of an enhancement to existing road and pathways to facilitate improved

pedestrian and vehicular access to the proposed O&M Facilities, a new feature entrance wall, removal of 6 no. port car parking spaces, link to new pedestrian route from the new Shore Road carpark and hard and soft landscaping. These works are located within the Greenore Architectural Conservation Area (ACA). The aim is to redesign the space to improve the character of the ACA at this point; provide a more user friendly space with pedestrian priority; and improve the existing access arrangements to the site. Inside the proposed main entrance to the site, it is proposed to integrate the existing engine shed wall and include this as a feature within the landscape design.

Ancillary development will include the installation of drainage infrastructure, landscaping, lighting, signage, boundary treatments, rooftop solar photovoltaic panels, an ESB substation, a communications mast, a bunded fuel storage tank and waste management areas etc.

The infrastructure described above will likely be delivered over two phases. However, this could extend to three phases, or the sequence of the works may vary,, depending on the delivery of future ORE projects and the associated Offshore Renewable Energy Auctions.

#### **8.4.1 Aspects Relevant to this Chapter**

The aspects of the development that will be considered as part of this chapter are the existing site conditions, existing site use and the waste that will be generated as part of the demolition, construction and operation of the proposed development. These aspects will be considered together with the proposed development use. This section should be read in conjunction with the design drawings and reports which accompany this planning application.

### **8.5 Methodology**

The assessment of the impacts of the proposed development, arising from the consumption of resources and the generation of waste materials, was carried out taking into account the methodology specified in relevant guidance documents, along with an extensive document review to assist in identifying current and future requirements for waste management; including national and regional waste policy, waste strategies, management plans, legislative requirements and relevant reports.

This Chapter is based on the proposed development, as described in Chapter 2 (Development Description) and considers the following aspects:

- Legislative context;
- Construction phase (including site excavations, dredging and demolitions); and
- Operational phase.

A desktop study was carried out which included the following:

- Review of applicable policy and legislation which creates the legal framework for resource and waste management in Ireland;
- Description of the typical waste materials that will be generated during the Construction and Operational phases; and
- Identification of mitigation measures to prevent waste generation and promote management of waste in accordance with the waste hierarchy.

Estimates of waste generation during the construction and operational phases of the proposed development have been calculated and are included in Section 8.6 of this chapter. The waste types and estimated quantities are based on published data by the EPA in the National Waste Reports and National Waste Statistics, data recorded from similar previous developments, Irish and US EPA waste generation research.

Mitigation measures are proposed to minimise the effect of the proposed development on the environment during the construction and operational phases, to promote efficient waste segregation and to reduce the quantity of waste requiring disposal. This information is presented in Section 8.9.

A detailed review of the existing ground conditions on a regional, local and site-specific scale are presented in Chapter 9 of this EIAR (Land & Soils).

### **8.5.1 Relevant Legislation & Guidance**

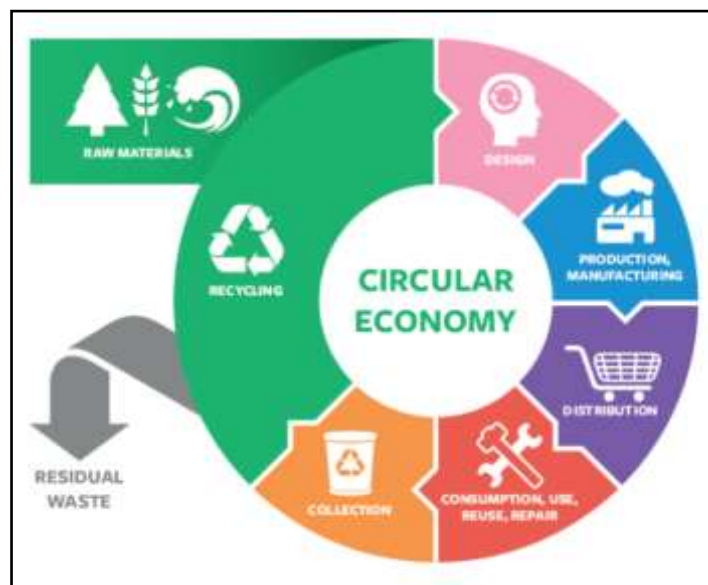
Waste management in Ireland is subject to EU, national and regional waste legislation and control, which defines how waste materials must be managed, transported and treated. The overarching EU legislation is the Waste Framework Directive (2008/98/EC) which is transposed into national legislation in Ireland. The cornerstone of Irish waste legislation is the Waste Management Act 1996 (as amended). European and national waste management policy is based on the concept of 'waste hierarchy', which sets out an order of preference for managing waste (prevention > preparing for reuse > recycling > recovery > disposal) (Figure 8.2).





**Figure 8.2 Waste Hierarchy (Source: European Commission).**

EU and Irish National waste policy also aims to contribute to the circular economy by extracting high-quality resources from waste as much as possible. Circular Economy (CE) is a sustainable alternative to the traditional linear (take-make-dispose) economic model, reducing waste to a minimum by reusing, repairing, refurbishing and recycling existing materials and products. (Figure 8.4).



**Figure 8.3 Circular Economy (Source: Repak).**

The Irish government issues policy documents which outline measures to improve waste management practices in Ireland and help the country to achieve EU targets in respect of recycling and disposal of waste. The most recent policy document, Waste Action Plan for a Circular Economy (WAPCE) – Waste Management Policy in Ireland, was published in 2020 and shifts focus away from waste disposal and moves it back up the production chain. The move away from targeting national waste targets is due

to the Irish and international waste context changing in the years since the launch of the previous waste management plan, A Resource Opportunity, in 2012.

One of the first actions to be taken from the WAPCE was the development of the Whole of Government Circular Economy Strategy 2022-2023 'Living More, using Less' (2021) to set a course for Ireland to transition across all sectors and at all levels of Government toward circularity and was issued in December 2021.

The Circular Economy and Miscellaneous Provisions Act 2022 was signed into law in July 2022. The Act underpins Ireland's shift from a "take-make-waste" linear model to a more sustainable pattern of production and consumption, that retains the value of resources in our economy for as long as possible and that will work to significantly reduce our greenhouse gas emissions. The Act defines Circular Economy for the first time in Irish law, incentivises the use of recycled and reusable alternatives to wasteful, single-use disposable packaging, introduces a mandatory segregation and incentivised charging regime for commercial waste, streamlines the national processes for End-of-Waste and By-Products decisions.

The strategy for the management of waste from the construction phase is in line with the requirements of the EPA's 'Best Practice Guidelines for the Preparation of Resource and Waste Management Plans for Construction & Demolition Projects' (2021). The guidance documents, Best Practice Guidelines for the Preparation of Waste Management Plans for Construction and Demolition Projects and Construction and Demolition Waste Management: A Handbook for Contractors and Site Managers (FÁS & Construction Industry Federation, 2002), were also consulted in the preparation of this assessment.

There are currently no national guidelines on the assessment of operational waste generation, and guidance is taken from industry guidelines, plans and reports including the National Waste Management Plan for a Circular Economy 2024 – 2030 (NWMPE) (2024), BS 5906:2005 Waste Management in Buildings – Code of Practice, the Louth County Council (LCC) Waste Management (Segregation, Storage & Presentation of Household and Commercial Waste) Bye-Laws (2018), the EPA National Waste Database Reports 1998 – 2020, the Circular Economy and National Waste Database Report 2021 (2023) and the EPA National Waste Statistics Web Resource.

### **8.5.2 Site Surveys/Investigations**

Site investigations were carried out by K.T. Cullen & Co Ltd in December 1996. In November 2011, RPS carried out a site investigation on behalf of then "Topaz Energy Group Ltd" on the shallow subsoil and groundwater beneath the decommissioned Topaz fuel storage facility at Greenore Port, Co. Louth. Further site investigations and waste classification of 4 no. soil samples was conducted in 2024 by McCarthy Brown and BHP.

The assessment of the impacts of the proposed development, was carried out taking into account the methodology specified in relevant guidance documents, along with an extensive document review to assist in identifying current and future requirements for waste management; including national and regional waste policy, waste strategies, management plans, legislative requirements and relevant reports.

### 8.5.3 Consultation

Consultation was undertaken with Louth County Council in the form of a pre-application consultation.

## 8.6 Difficulties Encountered

Until final materials and detailed demolition and construction methodologies have been confirmed, the exact materials and quantities may be subject to some degree of change and variation during the construction process.

There is a number of licensed, permitted and registered waste facilities in the Louth Area, EMR regions and across Ireland and Northern Ireland. However, these sites may not be available for use when required or may be limited by the waste contractor selected to service the development in the appropriate phase. In addition, there is potential for more suitably placed waste facilities or recovery facilities to become operational in the future which may be more beneficial from an environmental perspective.

The ultimate selection of waste contractors and waste facilities would be subject to appropriate selection criteria proximity, competency, capacity and serviceability. The waste facilities selected will ultimately be selected to minimise the environmental impacts on the surrounding environment.

## 8.7 Baseline Environment

### 8.7.1 Demolition

There will be waste materials generated from the demolition of some existing structures onsite. This will include the demolition of the former 'Open Hydro building', and a small portion of the port's office accommodation, an ESB substation and associated switch room, and an unoccupied dwelling house on site to accommodate the new development and facilitation works. Additionally the existing external concrete pavement within the site will be taken up to facilitate the proposed development. The quay deck pavement, between the proposed buildings and the quayside will also be removed and replaced with a heavy-duty reinforced concrete pavement designed to withstand 50kPa port loading.

Further detail on the waste materials likely to be generated during the demolition works are presented in the project-specific RWMP in Appendix 8.1. The RWMP provides an estimate of the main waste types likely to be generated during the C&D phase of the proposed Development. The reuse, recycling / recovery and disposal rates have been estimated using the EPA National Waste Reports and the developments targeted recycling and reuse rates. The quantities of waste material have been supplied by the project engineers – McCarthy Browne and are summarised in Table 8.1.

**Table 8.1 Predicted on and off-site reuse, recycle and disposal rates for demolition waste.**

Waste Type	Tonnes	Reuse		Recycle / Recovery		Disposal	
		%	Tonnes	%	Tonnes	%	Tonnes
Glass	10.0	0.0	0.0	85.0	8.5	15.0	1.5
Concrete, Bricks, Tiles, Ceramics	2047.2	40.0	818.9	55.0	1126.0	5.0	102.4
Plasterboard	3.0	0.0	0.0	80.0	2.4	20.0	0.6
Asphalts	75.0	0.0	0.0	25.0	18.8	75.0	56.3
Metals	74.7	2.0	1.5	90.0	67.3	8.0	6.0
Timber	2.0	10.0	0.2	40.0	0.8	50.0	1.0
<b>Total</b>	<b>2211.9</b>		<b>820.6</b>		<b>1223.8</b>		<b>167.8</b>

## 8.7.2 Construction

During the construction phase, waste will be produced from surplus materials such as broken or off-cuts of timber, plasterboard, concrete, tiles, bricks, etc. Waste from packaging (cardboard, plastic, timber) and oversupply of materials may also be generated.

There will be soil and stones excavated to facilitate construction of new foundations and the installation of underground services. The project engineers (McCarthy Browne) have estimated that c. 7,225 m<sup>3</sup> of material will need to be excavated to do so. It is currently envisaged that there will be an opportunity to reuse c. 4,265 m<sup>3</sup> of excavated material for use in landscaping and fill. The remaining 2,960 m<sup>3</sup> of material, will need to be removed offsite due to the limited opportunities for reuse on site. This will be taken for appropriate offsite reuse, recovery, recycling and / or disposal.

There will be dredging undertaken to facilitate navigable access and suitable berthing for the crew transfer vessels (CTV)s. The project engineers (McCarthy Browne) have estimated that c. 41,000 m<sup>3</sup> of material will need to be dredged to do so with all but 1,000 m<sup>3</sup> of this material to be removed from site. This material will be taken for appropriate offsite reuse, recovery, recycling and / or disposal.

When material that requires removal from the site is deemed to be a waste, removal and reuse / recycling / recovery / disposal of the material will be carried out in accordance with the Waste Management Act 1996 (as amended), the Waste Management (Collection Permit) Regulations 2007 (as amended) and the Waste Management (Facility Permit & Registration) Regulations 2007 (as amended). The volume of waste requiring recovery / disposal will dictate whether a Certificate of Registration (COR), permit or licence is required for the receiving facility. Alternatively, the material may be classed as by-product under Regulation 27 (By-products), as amended, of S.I. No. 323/2020 - European Union (Waste Directive) Regulations 2011-2020, (Previously Article 27 of the European Communities (Waste Directive)). For more information in relation to the envisaged management of by-products, refer to the RWMP (Appendix 8.1).

In order to establish the appropriate reuse, recovery and / or disposal route for the soils and stones to be removed off-site, it will first need to be classified. Waste material will initially need to be classified as hazardous or non-hazardous in accordance with the EPA publication Waste Classification – List of Waste & Determining if Waste is Hazardous or Non-Hazardous (2019). Environmental soil

analysis will be carried out prior to removal of the material on a number of the soil samples in accordance with the requirements for acceptance of waste at landfills (Council Decision 2003/33/EC Waste Acceptance Criteria). This legislation sets limit values on landfills for acceptance of waste material based on properties of the waste, including potential pollutant concentrations and leachability. Any surplus excavated material will be suitable for acceptance at either inert or non-hazardous soil recovery facilities / landfills in Ireland or, in the unlikely event of hazardous material being encountered, be transported for treatment / recovery or exported abroad for disposal in suitable facilities.

Waste will also be generated from construction phase workers e.g. organic / food waste, dry mixed recyclables (waste paper, newspaper, plastic bottles, packaging, aluminium cans, tins and Tetra Pak cartons), mixed non-recyclables and, potentially, sewage sludge from temporary welfare facilities provided on-site during the Construction phase. Waste printer / toner cartridges, waste electrical and electronic equipment (WEEE) and waste batteries may also be generated in small volumes from site offices.

Further detail on the waste materials likely to be generated during the excavation and construction works are presented in the project-specific RWMP (Appendix 8.1). The RWMP provides an estimate of the main waste types likely to be generated during the Construction phase of the proposed development. These are summarised in Table 8.2.

**Table 8.2 Predicted on and off-site reuse, recycle and disposal rates for construction waste.**

Waste Type	Tonnes	Reuse		Recycle/Recovery		Disposal	
		%	Tonnes	%	Tonnes	%	Tonnes
Mixed C&D	32.8	10	3.3	80	26.3	10	3.3
Timber	27.9	40	11.1	55	15.3	5	1.4
Plasterboard	9.9	30	3.0	60	6.0	10	1.0
Metals	8.0	5	0.4	90	7.2	5	0.4
Concrete	6.0	30	1.8	65	3.9	5	0.3
Other	14.9	20	3.0	60	9.0	20	3.0
<b>Total</b>	<b>99.5</b>		<b>22.6</b>		<b>67.5</b>		<b>9.4</b>

### 8.7.3 Operation

All waste materials will be segregated into appropriate categories and will be stored in appropriate bins or other suitable receptacles in a designated, easily accessible areas of the site. It is envisaged that waste types will be generated by staff employed and work activities at the facility and from office administration work.

The total estimated waste generation for the proposed development for the main waste types, based on the AWN waste generation model (WGM) incorporating EPA National Waste reports data, EPA National Waste Statistics Web Resource and floor use per m<sup>2</sup> of the proposed development, is presented in Table 8.3, below, and is based on the uses and areas as advised by the project architect.

**Table 8.3 Estimated Waste Generation During Operational Phase Main waste types**

Waste Type	Waste Volume (m <sup>3</sup> / week)
Organic Waste	0.44
Confidential Paper	0.13
Glass	0.08
Dry Mixed Recyclables	9.72
Mixed Non-Recyclables	4.19
<b>Total</b>	<b>14.56</b>

In addition to the typical waste materials that are generated on a daily basis, there will be some additional waste types generated from time to time that will need to be managed separately. A non-exhaustive list is presented below.

#### Green waste

Green waste may be generated from external landscaping and internal plants/flowers. Green waste generated from landscaping of external areas will be removed by external landscape contractors. Green waste generated from gardens internal plants/flowers can be placed in the organic waste bins.

#### Batteries

Waste batteries must be separately stored and returned to retailer or collected for recycling and recovery of resources and the operator(s) are responsible for arranging this. Waste batteries generated from the office or warehouse may be returned to any retail outlet where similar batteries are sold, regardless of whether they were originally purchased in that outlet. The operator will be required to store batteries within an internal store. The operator will arrange for return to retailers or collection by an authorised waste contractor, as required.

#### Waste Electrical and Electronic Equipment (WEEE)

WEEE must be separately stored and returned to manufacturer/retailer or collected for recycling and recovery of resources and the tenant(s) are responsible for arranging this. The *WEEE Directive 2002/96/EC* and associated *European Union (WEEE) Regulations 2014* have been enacted to ensure a high level of recycling of electronic and electrical equipment. It is the manufacturers' responsibility to take back the WEEE, regardless of whether a replacement product is purchased or not and retailers are required to take back WEEE where a similar product is purchased. Operator will be required to store WEEE within an internal store, the operator will arrange for return to retailers or collection by an authorised waste contractor, as required.

#### Printer Cartridge/Toners

It is recommended that a printer cartridge/toner bin is provided at the print/copy stations in the office. The operator will be required to store this waste within their own unit, the operator will arrange for return to retailers or collection by an authorised waste contractor, as required.



#### Chemicals (solvents, paints, adhesives, resins, detergents etc)

Chemicals (such as solvents, paints etc.) are largely generated from building maintenance works. Such works are usually completed by external contractors who are responsible for the off-site removal and appropriate recovery/recycling/disposal of any waste materials generated.

Any waste cleaning products or waste packaging from cleaning products generated in the commercial units that is classed as hazardous (if they arise) will be appropriately stored within the operator own space. Facilities management or operator will arrange collection as required.

#### Light Bulbs (Fluorescent Tubes, Long Life, LED and Lilament bulbs)

Waste light bulbs may be generated by lighting in the warehouse, office and surrounding grounds. It is anticipated that the operator will be responsible for the off-site removal and appropriate recovery/disposal of these wastes. Space will be allocated within an internal store for these items if required. Facilities management or the operator will arrange collection as required.

#### Textiles

Where possible, waste textiles should be recycled or donated to a charity organisation for reuse.

#### Furniture (and other bulky wastes)

Furniture and other bulky waste items (such as carpet, pallets etc.) may occasionally be generated by the commercial operators. The collection of bulky waste will be arranged as required by the operator. These collections will be subject to approval with facilities management.

## 8.8 The 'Do Nothing' Scenario

If the proposed development was not to go ahead (i.e. in the Do-Nothing scenario) there would be no excavation or construction at this site. There would, therefore, be a neutral effect on the environment in terms of waste.

If the proposed development is not to go ahead the potential the existing permissions for Greenore Port could be implemented:

- i. Extension and modification of existing Warehouse, **LCC Planning Ref 20268, ABP Ref 307862**
- ii. New Warehouse, **LCC Planning Ref Planning ref 20543, ABP Ref 310184**

## 8.9 Potential Significant Effects

This section details the potential waste effects associated with the proposed development.

### 8.9.1 Demolition Phase

The proposed Development will generate a range of non-hazardous and hazardous waste materials during site demolition works. General housekeeping and packaging will also generate waste materials, as well as typical municipal wastes generated by construction employees, including food waste. Waste materials will be required to be temporarily stored on-site pending collection by a waste contractor.

If waste material is not managed and stored correctly, it is likely to lead to litter or pollution issues at the development site and in adjacent areas. The indirect effect of litter issues is the presence of vermin in areas affected. In the absence of mitigation, the effect on the local and regional environment is likely to be **short-term, significant and negative**.

The use of non-permitted waste contractors or unauthorised waste facilities could give rise to inappropriate management of waste, resulting in indirect negative environmental impacts, including pollution. It is essential that all waste materials are dealt with in accordance with regional and national legislation, as outlined previously, and that time and resources are dedicated to ensuring efficient waste management practices. In the absence of mitigation, the effect on the local and regional environment is likely to be **long-term, significant and negative**.

Wastes arising will need to be taken to suitably registered / permitted / licenced waste facilities for processing and segregation, reuse, recycling, recovery, and / or disposal, as appropriate. There are numerous licensed waste facilities in the EMR which can accept hazardous and non-hazardous waste materials, and acceptance of waste from the development site would be in line with daily activities at these facilities. At present, there is sufficient capacity for the acceptance of the likely C&D waste arisings at facilities in the region. The majority of construction materials are either recyclable or recoverable. However, in the absence of mitigation, the effect on the local and regional environment is likely to be **short-term, significant and negative**.

### 8.9.2 Construction Phase

The impact assessment in this section relates to all phases of construction including site excavations, dredging and demolition works.

The proposed Development will generate a range of non-hazardous and hazardous waste materials during site excavation, dredging and construction. General housekeeping and packaging will also generate waste materials, as well as typical municipal wastes generated by construction employees, including food waste. Waste materials will be required to be temporarily stored on-site pending collection by a waste contractor. If waste material is not managed and stored correctly, it is likely to lead to litter or pollution issues at the development site and in adjacent areas. The indirect effect of litter issues is the presence of vermin in areas affected. In the absence of mitigation, the effect on the local and regional environment is likely to be **short-term, significant and negative**.

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arisings at facilities in the region. The majority of construction materials are either recyclable or recoverable. However, in the absence of mitigation, the effect on the local and regional environment is likely to be **short-term, significant and negative**.

There is a quantity of excavated material and dredged material which will need to be excavated to facilitate the proposed development. A detailed review of the existing ground conditions on a regional, local site-specific scale are presented in Chapter 9. It is anticipated that c. 2,960 m<sup>3</sup> of excavated material and 40,000m<sup>3</sup> of dredged material will need to be removed off-site. Correct classification and segregation of the excavated material is required to ensure that any potentially contaminated materials are identified and handled in a way that will not impact negatively on workers as well as on water and soil environments, both on and off-site. However, in the absence of mitigation, the effect on the local and regional environment is likely to be **short-term, significant and negative**.

### 8.9.3 Operational Phase

The potential impacts on the environment of improper, or a lack of, waste management during the operational phase would be a diversion from the priorities of the waste hierarchy which would lead to small volumes of waste being sent unnecessarily to landfill. In the absence of mitigation, the effect on the local and regional environment is likely to be **long-term, significant and negative**.

The nature of the development means the generation of waste materials during the operational phase is unavoidable. Networks of waste collection, treatment, recovery and disposal infrastructure are in place in the region to manage waste efficiently from this type of development. Waste which is not suitable for recycling is typically sent for energy recovery. There are also facilities in the region for segregation of municipal recyclables which is typically exported for conversion in recycled products (e.g. paper mills and glass recycling).

If waste material is not managed and stored correctly, it is likely to lead to litter or pollution issues at the development site and in adjacent areas. The knock-on effect of litter issues is the presence of vermin in affected areas. However, in the absence of mitigation, the effect on the local and regional environment is likely to be **short-term, significant and negative**.

Waste contractors will be required to service the proposed development on a regular basis to remove waste. The use of non-permitted waste contractors or unauthorised facilities could give rise to inappropriate management of waste and result in negative environmental impacts or pollution. It is essential that all waste materials are dealt with in accordance with regional and national legislation, as outlined previously, and that time and resources are dedicated to ensuring efficient waste management practices. However, in the absence of mitigation, the effect on the local and regional environment is likely to be **long-term, significant and negative**.

### 8.9.4 Cumulative Effects

If waste material is not managed and stored correctly and in the absence of mitigation, the effect on the local and regional environment is likely to be **long-term, significant and negative**.

### 8.9.5 Summary

The following Table summarises the identified likely significant effects during the construction phase including site excavations, dredging and demolition works )of the proposed development before mitigation measures are applied.

**Table 8.4 Summary of Construction Phase Likely Significant Effects in the absence of mitigation**

Likely Significant Effect	Quality	Significance	Extent	Probability	Duration	Type
Litter Pollution	Negative	Significant	Local	Likely	Short-Term	Indirect & Direct
Unlicensed Waste Collection (Illegal Dumping)	Negative	Significant	Local & Regional	Likely	Long-Term	Direct
Insufficient Waste Facilities	Negative	Significant	Local & Regional	Unlikely	Short-Term	Direct
Lack of waste Classification	Negative	Significant	Local & Regional	Likely	Short-Term	Direct

The following Table summarises the identified likely significant effects during the operational phase of the proposed development before mitigation measures are applied.

**Table 8.5 Summary of Operational Phase Likely Significant Effects in the absence of mitigation**

Likely Significant Effect	Quality	Significance	Extent	Probability	Duration	Type
Unlicensed Waste Collection (Illegal Dumping)	Negative	Significant	Local & Regional	Likely	Long-Term	Direct
Poor Waste Segregation	Negative	Significant	Local & Regional	Likely	Long-Term	Direct
Litter Pollution	Negative	Significant	Local & Regional	Likely	Short-Term	Direct

## 8.10 Mitigation

### 8.10.1 Incorporated Design Mitigation

This section outlines the measures that will be employed in order to reduce the amount of waste produced, manage the wastes generated responsibly and handle the waste in such a manner as to minimise the effects on the environment.

The concept of the 'Waste Hierarchy' and 'Circular Economy' is employed when considering all mitigation measures. The waste hierarchy states that the preferred option for waste management is

prevention and minimisation of waste, followed by preparing for reuse and recycling / recovery, energy recovery (i.e. incineration) and, least favoured of all, disposal. The circular economy principle aims to keep materials, components, and products in-use in the economy for as long as possible. In circularity, the key objective is to design consumption and production systems to create and retain value. Both principles have been applied and will further be applied during the detailed design, construction and operational phases.

### 8.10.2 Demolition Phase Mitigation

The following mitigation measures will be implemented during the demolition phase of the proposed development:

As previously stated, a project specific RWMP has been prepared in line with the requirements of EPA Best Practice Guidelines for the Preparation of Resource and Waste Management Plans for Construction & Demolition Projects' (2021) and is included as Appendix 8.1. The mitigation measures outlined in the RWMP will be implemented in full and form part of mitigation strategy for the site. The mitigation measures presented in this RWMP will ensure effective waste management and minimisation, reuse, recycling, recovery and disposal of waste material generated during the demolition phase of the proposed development.

- Prior to commencement, the appointed Contractor(s) will be required to refine / update the RWMP (Appendix 8.1) in agreement with LCC and in compliance with any planning conditions, or submit an addendum to the RWMP to LCC, detailing specific measures to minimise waste generation and resource consumption, and provide details of the proposed waste contractors and destinations of each waste stream.
- The Contractor will implement the RWMP throughout the duration of the proposed demolition phase and should treat the document as outlined in the guidance as a live document.

In addition, the following mitigation measures will be implemented:

- On-site segregation of waste materials will be carried out where possible to increase opportunities for off-site reuse, recycling and recovery. The following waste types, at a minimum, will be segregated:
  - Glass
  - Concrete, Bricks, Tiles, Ceramics
  - Plasterboard
  - Asphalts
  - Metals and
  - Timber.
- Any suitable demolition materials to be re-used on-site, where possible;
- All waste materials will be stored in skips or other suitable receptacles in designated areas of the site;

- Any hazardous wastes generated (such as chemicals, solvents, glues, fuels, oils) will also be segregated and will be stored in appropriate receptacles (in suitably banded areas, where required);
- A Resource Manager will be appointed by the main Contractor(s) to ensure effective management of waste during the demolition works;
- All staff will be provided with training regarding the waste management procedures;
- All waste leaving site will be reused, recycled or recovered, where possible, to avoid material designated for disposal;
- All waste leaving the site will be transported by suitably permitted contractors and taken to suitably registered, permitted or licenced facilities; and
- All waste leaving the site will be recorded and copies of relevant documentation maintained.

These mitigation measures will ensure that the waste arising from the demolition phase of the proposed development is dealt with in compliance with the provisions of the Waste Management Act 1996, as amended, associated Regulations and the Litter Pollution Act 1997, the NWMPCE (2024). It will also ensure optimum levels of waste reduction, reuse, recycling and recovery are achieved and will promote more sustainable consumption of resources.

### 8.10.3 Construction Phase Mitigation

The following mitigation measures will be implemented during the excavation, dredging and construction phase of the proposed development:

As previously stated, a project specific RWMP has been prepared in line with the requirements of the EPA Best Practice Guidelines for the Preparation of Resource and Waste Management Plans for Construction & Demolition Projects' (2021) and is included as Appendix 8.1. The mitigation measures outlined in the RWMP will be implemented in full and form part of mitigation strategy for the site. The mitigation measures presented in this RWMP will ensure effective waste management and minimisation, reuse, recycling, recovery and disposal of waste material generated during the excavation and construction phases of the proposed development.

- Prior to commencement, the appointed Contractor(s) will be required to refine / update the RWMP (Appendix 8.1) in agreement with LCC and in compliance with any planning conditions, or submit an addendum to the RWMP to LCC, detailing specific measures to minimise waste generation and resource consumption, and provide details of the proposed waste contractors and destinations of each waste stream.
- The Contractor will implement the RWMP throughout the duration of the proposed excavation and construction phases and should treat the document as outlined in the guidance as a live document.

A quantity of topsoil and sub soil will need to be excavated to facilitate the proposed development. The project design team have estimated that c. 2,960 m<sup>3</sup> of excavated material will need to be removed off-site and 45,000m<sup>3</sup> of dredged material will also be required to be removed offsite. Correct classification and segregation of the excavated material is required to ensure that any



potentially contaminated materials are identified and handled in a way that will not impact negatively on workers as well as on water and soil environments, both on and off-site.

In addition, the following mitigation measures will be implemented:

- Building materials will be chosen to 'design out waste';
- On-site segregation of waste materials will be carried out where possible to increase opportunities for off-site reuse, recycling and recovery. The following waste types, at a minimum, will be segregated:
  - Clean Soil & Stone
  - Contaminated Soil & Stone
  - Clean Dredged Material
  - Contaminated Dredged Material
  - Concrete rubble (including ceramics, tiles and bricks);
  - Plasterboard;
  - Metals;
  - Glass; and
  - Timber.
- Left over materials (e.g. timber off-cuts, broken concrete blocks / bricks) and any suitable construction materials shall be re-used on-site, where possible;
- All waste materials will be stored in skips or other suitable receptacles in designated areas of the site;
- Any hazardous wastes generated (such as chemicals, solvents, glues, fuels, oils) will also be segregated and will be stored in appropriate receptacles (in suitably bunded areas, where required);
- A Resource Manager will be appointed by the main Contractor(s) to ensure effective management of waste during the excavation and construction works;
- All construction staff will be provided with training regarding the waste management procedures;
- All waste leaving site will be reused, recycled or recovered, where possible, to avoid material designated for disposal;
- All waste leaving the site will be transported by suitably permitted contractors and taken to suitably registered, permitted or licenced facilities; and
- All waste leaving the site will be recorded and copies of relevant documentation maintained.

Nearby sites requiring clean fill material will be contacted to investigate reuse opportunities for clean and inert material, if required. If any of the material is to be reused on another site as by-product (and not as a waste), this will be done in accordance with Regulation 27 of the EC (Waste Directive) Regulations (2011-2020). EPA approval will be obtained prior to moving material as a by-product.

These mitigation measures will ensure that the waste arising from the construction phase of the proposed development is dealt with in compliance with the provisions of the Waste Management Act 1996, as amended, associated Regulations and the Litter Pollution Act 1997, the NWMPCE (2024). It

will also ensure optimum levels of waste reduction, reuse, recycling and recovery are achieved and will promote more sustainable consumption of resources.

#### 8.10.4 Operational Phase Mitigation

The following mitigation measures will be implemented during the operational phase of the proposed development:

All waste materials will be segregated into appropriate categories and will be temporarily stored in appropriate bins, skips or other suitable receptacles in a designated, easily accessible areas of the site.

- The Operator(s) / Facilities Manager of the Site during the operational phase will be responsible for ensuring – allocating personnel and resources, as needed – for the authoring and implementation of an Operational Waste Management Strategy, ensuring a high level of recycling, reuse and recovery at the site of the proposed development.
- The Operator / Facilities Manager will regularly audit the onsite waste storage facilities and infrastructure, and maintain a full record of waste documentation for all waste movements from the site.

The following mitigation measures will be implemented:

- The Operator will ensure on-Site segregation of all waste materials into appropriate categories, including (but not limited to):
  - Organic waste;
  - Dry Mixed Recyclables;
  - Mixed Non-Recyclable Waste;
  - Glass;
  - Waste Oil;
  - Waste electrical and electronic equipment (WEEE) including computers, printers and other ICT equipment;
  - Batteries (non-hazardous and hazardous);
  - Light bulbs;
  - Cleaning chemicals (pesticides, paints, adhesives, resins, detergents, etc.); and
  - Bulky Items
- The Operator will ensure that all waste materials will be stored in colour coded bins or other suitable receptacles in designated, easily accessible locations. Bins will be clearly identified with the approved waste type to ensure there is no cross contamination of waste materials;
- The Operator will ensure that all waste collected from the site of the proposed development will be reused, recycled or recovered, where possible, with the exception of those waste streams where appropriate facilities are currently not available; and
- The Operator will ensure that all waste leaving the site will be transported by suitable permitted contractors and taken to suitably registered, permitted or licensed facilities.

These mitigation measures will ensure the waste arising from the proposed development is dealt with in compliance with the provisions of the Waste Management Act 1996, as amended, associated Regulations, the Litter Pollution Act 1997, the NWMPCE (2024) and the LCC waste bye-laws. It will also ensure optimum levels of waste reduction, reuse, recycling and recovery are achieved.

## 8.11 Residual Impact Assessment

The implementation of the mitigation measures outlined in Section 8.9 will ensure that targeted rates of reuse, recovery and recycling are achieved at the site of the proposed development during the construction and operational phases. It will also ensure that European, National and Regional legislative waste requirements with regard to waste are met and that associated targets for the management of waste are achieved.

### 8.11.1 Demolition Phase

A carefully planned approach to waste management as set out in Section 8.9.1 and adherence to the RWMP (which includes mitigation) (Appendix 8.1) during the demolition phase will ensure that the predicted effect on the environment will be **short-term, imperceptible and neutral**.

### 8.11.2 Construction Phase

A carefully planned approach to waste management as set out in Section 8.9.2 and adherence to the RWMP (which includes mitigation) (Appendix 8.1) during the construction phase will ensure that the predicted effect on the environment will be **short-term, imperceptible and neutral**.

### 8.11.3 Operational Phase

During the operational phase, a structured approach to waste management as set out in Section 8.9.3 will promote resource efficiency and waste minimisation. Provided the mitigation measures are implemented and a high rate of reuse, recycling and recovery is achieved, the predicted impact of the operational phase on the environment will be **long-term, imperceptible and neutral**.

### 8.11.4 Summary of Post-mitigation Effects

The implementation of the mitigation measures outlined in Section 8.9 will ensure that high rates of reuse, recovery and recycling are achieved at the site of the proposed development during the construction and operational phases and the waste will be correctly managed. It will also ensure that European, National and Regional legislative waste requirements with regard to waste are met and that associated targets for the management of waste are achieved.

The following Table summarises the identified likely residual significant effects during the construction phase (including site excavations, dredging and demolition works) of the proposed development post mitigation.

**Table 8.6 Summary of Construction Phase Effects Post Mitigation**

Likely Significant Effect	Quality	Significance	Extent	Probability	Duration	Type
Litter Pollution	Negative	Not Significant	Local	Unlikely	Short-Term	Indirect & Direct
Unlicensed Waste Collection (Illegal Dumping)	Negative	Significant	Local & Regional	Unlikely	Long-Term	Direct
Insufficient Waste Facilities	Negative	Significant	Local & Regional	Unlikely	Short-Term	Direct
Lack of waste Classification	Negative	Significant	Local & Regional	Unlikely	Short-Term	Direct

The following Table summarises the identified likely residual significant effects during the operational phase of the proposed development post mitigation.

**Table 8.7 Summary of Operational Phase Effects Post Mitigation**

Likely Significant Effect	Quality	Significance	Extent	Probability	Duration	Type
Unlicensed Waste Collection (Illegal Dumping)	Negative	Significant	Local & Regional	Unlikely	Long-Term	Direct
Poor Waste Segregation	Negative	Not Significant	Local & Regional	Unlikely	Long-Term	Direct
Litter Pollution	Negative	Not Significant	Local & Regional	Unlikely	Short-Term	Direct

### 8.11.5 Cumulative Residual Effects

The additional projects included in the updated List of Cumulative Projects appended to Chapter 1, i.e. the proposed ORE developments in the Irish Sea were considered and no additional cumulative effects arising from these projects were identified.

#### 8.11.5.1 Demolition & Construction Phase

There are existing residential and commercial developments close by, along with the multiple permissions remaining in place in the area. Multiple developments in the area could potentially be developed concurrently or overlap in the construction phase.

Developments that potentially could overlap during the demolition and construction phase:

**Table 8.8 Summary of Development applications that have been considered in the cumulative impacts**

Planning Ref	Description	Application type	Decision	Date
LCC 20543	Demolition of existing structures inc. railway and engine room walls and construction of two new stores and an ESB substation.	Permission	Conditional Upheld on Appeal	15/04/2021
LCC 20268	Extension and modifications to the existing former OpenHydro warehouse. The development applied for is within Greenore Port's landholding within the curtilage also exists the watertower, lighthouse and lighthouse keeper's cottage which are all included in the Louth Record of Protected Structures Ref. LH009-01, LH009-043, LH009-044 respectively	Permission	Conditional Upheld on Appeal	18/07/2020
LCC 2360119	Retention of as constructed dwellinghouse previously granted planning permission under planning Ref. No. 97/866 and all associated site development works	Retention	Conditional	14/07/2023
LCC 23234	Retention permission for (a) a domestic store; (b) a domestic outbuilding comprising of a games room, gym and home office and (c) associated site development works	Retention	Conditional	12/01/2024
LCC 2385	Retention permission for extensions and alterations to the existing dwelling, attached domestic garage and associated site development works	Retention	Conditional	21/07/2023
LCC 231	Permission for the following: (1) demolition of a single storey extension and outbuilding to the rear of the existing house; (2) alterations to the rear of the existing house; (3) construction of a one storey extension to the rear of the existing house	Permission	Conditional	24/02/2023
LCC 22614	Permission for elevational changes and alterations to existing dwelling house and all associated site works	Permission	Conditional	04/11/2022
LCC 211439	Retention permission for a single storey extension to the side and rear of the dwelling	Retention	Conditional	11/03/2022

Planning Ref	Description	Application type	Decision	Date
LCC 211331	Permission for a single storey extension to the rear of the dwelling and all associated site works. The existing building is a Protected Structure in the Louth County Council Development Plan Ref. No. LHS009-036B, NIAH Ref. 13831027	Permission	Conditional	17/12/2021
LCC 211223	Retention permission for development that consists of an extension to the rear of dwelling. This building is listed as a protected structure under the Louth County Development Plan 2015-2021 Ref No LHs 009-004	Retention	Conditional	10/11/2021
LCC 19754	Permission for extension to side of existing dwelling house, upgrading of existing effluent treatment system on site and all associated site development works. *Significant Further Information submitted 01/07/20*	Permission	Conditional	28/07/2020
LCC 19727	Permission for one dwelling house, effluent treatment system and all associated site development works.*Significant Further Information submitted 17/6/20*	Permission	Conditional	14/07/2020
LCC 19202	Permission for a one storey extension to rear of the existing dwelling, a protected structure (ID: LHS009-016, NIAH No. 13831014), alterations to the existing layout and associated site works. *Significant Further Information submitted 22/05/2019*	Permission	Conditional	18/06/2019
LCC 18718	The development will consist of (1) Retention of an existing dwelling house, domestic garage and associated site development works and (2) Permission for alterations to an existing dwelling house and part conversion of roof space to habitable accommodation.	Retention	Conditional	19/01/2019
LCC 23218	Permission for extension and alterations to the ground and first floor level of an existing dwelling house, a new waste water treatment system and associated site development works **Significant further information received on 26.9.23**	Permission	Conditional	13/10/2023
LCC 21572	Permission for development that will consist of the construction of a two storey dwelling house, a single storey domestic garage, septic tank with percolation area,	Permission	Conditional	21/12/2021



Planning Ref	Description	Application type	Decision	Date
	use of existing entrance onto public road and all associated site development works. *FI received on 06/12/2021*			
LCC 21732	Permission for a dwelling house, domestic garage, waste water treatment system and associated site development works *Significant Further Information submitted 04/11/21 which includes a revised house design*	Permission	Conditional	24/11/2021
LCC 2360256	Permission for extensions and modifications to existing dwelling house at 15 Euston Street, Greenore, Co. Louth. Permission to include for all associated and ancillary site development works. The existing dwelling house is a Protected Structure, Ref; LHS 009-020, and located within the Greenore Architectural Conservation Area	Permission	Conditional	15/09/2023
LCC 23254	Permission for alterations and extension to existing precision engineering workshop and all associated site works	Permission	Conditional	01/09/2023
LCC 23125	Permission for the change of use of existing building from commercial/residential use to voluntary community workshop and all associated site development works	Permission	Conditional	18/08/2023
LCC 22274	Permission for the demolition of an existing <b>Coast Guard Lifeboat House</b> and the replacement of same with a new Lifeboat House to include communication aerials, floodlighting, flag poles and all associated site development works.	Permission	Conditional Under Appeal ABP-315830-23	19/01/2023
LCC 20362	Permission for development consisting of the installation of a grid connected photovoltaic panel system fitted to the roofs of existing warehouse buildings.	Permission	Conditional	21/07/2020
LCC 2360352	Retention and completion of a partially constructed single storey extension permitted under P.A. Ref. No. 17/282 to the existing production building. The existing production building was permitted under P.A. Ref. 93/ 84 and has operated from the site for nearly 30 years. Permission is also sought to retain and complete c. 25 sq.m of additional production floorspace to the southwest of the partially constructed extension. The retention and completion of the extension	Retention	Conditional Under Appeal ABP-318516-23 Appeal Refused	

Planning Ref	Description	Application type	Decision	Date
	and additional floor area will facilitate the internalisation of part of the production process			
LCC 16852	Permission for development of a managed step down housing community with support facilities. The proposed development will consist of 30 no managed residential units, and associated ancillary facilities designed specifically for older residents. The proposed development is comprised of 9 no single storey 1-bed studio units, 3 no single storey 1-bed units, 11 no 1-bed apartments all with own door access over 2 storeys, 7 no 2-bed units and a 2 storey community and administration facility as well as associated site works (roads, drainage, street lighting, hard & soft landscaping, utility building & services)	Permission	Conditional	24/03/2017
LCC 21728	EXTENSION OF DURATION OF 16/852 - Permission for development of a managed step down housing community with support facilities. The proposed development will consist of 30 no managed residential units, and associated ancillary facilities designed specifically for older residents. The proposed development is comprised of 9 no single storey 1-bed studio units, 3 no single storey 1-bed units, 11 no 1-bed apartments all with own door access over 2 storeys, 7 no 2-bed units and a 2 storey community and administration facility as well as associated site works (roads, drainage, street lighting, hard & soft landscaping, utility building & services)	Extension of Duration	Conditional	09/07/2021
LA07/2016 /1273/F	Demolition of existing dwelling and erection of 3 No. detached dwellings		Granted	16/08/2017
LA07/2022 /1234/F	Renewal of planning approval granted under LA07/2016/1273/F for the demolition of existing dwelling and erection of 3 no. detached dwellings		Granted	22/03/2023

Other developments in the area will be required to manage waste in compliance with national and local legislation, policies and plans which will mitigate against any potential cumulative effects associated with waste generation and waste management. As such the effect will be **short-term, not significant** and **neutral**.

#### 8.11.5.2 Operational Phase

There are existing residential and commercial developments close by, along with the multiple permissions remaining in place. All of the current and potential developments will generate similar waste types during their operational phases. Authorised waste contractors will be required to collect waste materials segregated, at a minimum, into recyclables, organic waste and non-recyclables. An increased density of development in the area is likely improve the efficiencies of waste collections in the area.

Other developments in the area and the developments planned for the surrounding land will be required to manage waste in compliance with national and local legislation, policies and plans which will minimise/mitigate any potential cumulative impacts associated with waste generation and waste management. As such the effect will be a **long-term, imperceptible** and **neutral**.

### 8.12 Risk of Major Accidents or Disasters

There is no Risk of Major Accidents or Disasters related to Material Assets Waste and the proposed development.

### 8.13 Worst Case Scenario

In a worst-case scenario, if no mitigation measures found in section 8.9 are followed, poor onsite waste management, non-permitted waste contractors or unauthorised waste facilities could give rise to inappropriate management of waste offsite and result in negative environmental impacts or pollution as shown in section 8.8.

### 8.14 Interactions

This section discusses interactions between this Chapter and other specialist environmental topics considered in this EIAR.

#### 8.14.1 Land & Soils

During the construction phase, excavated soil and stone (c. 7,225 m<sup>3</sup>) will be generated from the excavations required to facilitate site levelling, construction of new foundations and installations of site services. It is estimated that 2,960 m<sup>3</sup> of the excavated material will need to be removed off-site with the remaining balance being reused on site.

As well as soil and stone from land-based excavations there will be dredging undertaken to facilitate navigable access and suitable berthing. The project engineers (McCarthy Browne) have estimated that c. 45,000 m<sup>3</sup> of material will need to be dredged to do so with all to be removed from site. The 1,000m<sup>3</sup> of dredged rock will be reused on site.

If material has to be taken off-site, it will be taken for reuse or recovery, where practical, with disposal as a last resort. Adherence to the mitigation measures in Chapter 8, Chapter 9 (Land and Soils) and the requirements of the RWMP (Appendix 8.1), will ensure the effect is **long-term, imperceptible** and **neutral**.

### 8.14.2 Traffic & Transport

Local traffic and transport will be impacted by the additional vehicle movements generated by removal of waste from the site during the construction and operational phases of the proposed Development. The increase in vehicle movements as a result of waste generated during the construction phase will be *temporary* in duration. There will be an increase in vehicle movements in the area as a result of waste collections during the operational phase but these movements will be imperceptible in the context of the overall traffic and transportation increase. Traffic-related impacts during the construction and operational phases are addressed in Chapter 6 (Material Assets: Traffic and Transport). Provided the mitigation measures detailed in Chapter 6 and Chapter 8 are adhered to, the predicted effects are ***short to long-term, imperceptible*** and ***neutral***.

### 8.14.3 Population & Human Health

The potential impacts on human beings are in relation to incorrect management of waste during construction and / or operation, which could result in littering and presence of vermin – with associated potential for negative impacts on human health and residential amenity. A carefully planned approach to waste management and adherence to the project specific RWMP and mitigation measures in Chapter 4 (Population & Human Health) and Chapter 8, will ensure appropriate management of waste and avoid any negative impacts on the local population. The effects should be ***long-term, imperceptible and neutral***.

## 8.15 Monitoring

The management of waste during the construction phase will be monitored by the Contactor's appointed Resource Manager to ensure compliance with the above-listed mitigation measures, and relevant waste management legislation and local authority requirements, including maintenance of waste documentation.

The management of waste during the operational phase will be monitored by the Operator / Buildings Manager to ensure effective implementation of the mitigation measures outlined in section 8.9 internally and by the nominated waste contractor(s).

### 8.15.1 Demolition and Construction Phases

The objective of setting targets for waste management is only achieved if the actual waste generation volumes are calculated and compared. This is particularly important during the excavation, demolition and construction works, where there is a potential for waste management objectives to become secondary to other objectives, i.e. progress and meeting schedule targets. The RWMP specifies the need for a Resource Manager to be appointed, who will have responsibility for monitoring the actual waste volumes being generated and ensuring that contractors and sub-contractors are segregating waste as required. Where targets are not being met, the Resource Manager will identify the reasons for this and work to resolve any issues. Recording of waste generation during the demolition phase of the proposed Development will enable better management of waste contractor requirements and identify trends. The data should be maintained to advise on future developments.

### 8.15.2 Operational Phase

During the operational phase, waste generation volumes should be monitored by the Operator / Buildings Management. There may be opportunities to reduce the number of bins and equipment required in the Waste Storage Area (WSA's), where estimates have been too conservative. Reductions in bin and equipment requirements will improve efficiency and reduce waste contactor costs.

## 8.16 Summary of Mitigation and Monitoring

The following Table summarises the Construction Phase mitigation and monitoring measures.

**Table 8.9 Summary of Construction Phase Mitigation and Monitoring**

Likely Significant Effect	Quality	Significance
Litter Pollution	The Contractor will be required to fully implement the RWMP throughout the duration of the proposed construction phase.	The Contractor will review and maintain waste records and site audits
Unlicensed Waste Collection (Illegal Dumping)	All waste leaving the site will be recorded and copies of relevant documentation maintained.	A register will be maintained and reviewed. A copy of all waste collection permits will be maintained.
Insufficient Waste Facilities	All waste leaving the site will be recorded and copies of relevant documentation maintained.	A register will be maintained and reviewed. A copy of all waste collection permits will be maintained.
Lack of waste Classification	All waste material leaving site will be correctly classified and segregation prior to removal where possible.	An appointed Waste Manager will monitor all onsite waste segregation and classification

The following Table summarises the Operational Phase mitigation and monitoring measures.

**Table 8.10 Summary of Operational Phase Mitigation and Monitoring**

Likely Significant Effect	Quality	Significance
Unlicensed Waste Collection (Illegal Dumping)	The Operator / Buildings Manager will ensure that all waste leaving the Site will be transported by suitable permitted contractors and taken to suitably registered, permitted or licensed facilities.	The Operator / Buildings Manager will maintain waste receipts onsite for a period of 7 years and make available to LCC as requested.
Poor Waste Segregation	The Operator / Buildings Manager will ensure that all waste materials will be stored in colour coded bins or other suitable receptacles in designated, easily accessible locations. Bins will be clearly	Waste generation volumes will be monitored by the Operator / Buildings Manager.

Likely Significant Effect	Quality	Significance
	identified with the approved waste type to ensure there is no cross contamination of waste materials.	
Litter Pollution	The Operator / Buildings Manager will ensure that all waste collected from the Site of the proposed Development will be reused, recycled or recovered, where possible, with the exception of those waste streams where appropriate facilities are currently not available	Waste storage areas will be monitored by the Operator / Buildings Manager.

## 8.17 Conclusion

This chapter has reviewed and analysed the potential and the predicted impacts of the proposed development with regards to waste management. These impacts have been considered for both the construction and operational phases of the proposed development. The cumulative impact of the proposed development and surrounding developments have also been considered.

Provided all mitigation measures as set out in this chapter and the attached RWMP, the overall predicted impact of the proposed development is **long-term, imperceptible** and **neutral**.

## 8.18 References and Sources

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2. Protection of the Environment Act 2003, (No. 27 of 2003) as amended.
3. Litter Pollution Act 1997 (S.I. No. 12 of 1997) as amended.
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16. LCC, Louth County Development Plan 2021 – 2027 (2021).
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## **CHAPTER 9**

### **LAND, SOILS & GEOLOGY**

## **VOLUME II**

### **ENVIRONMENTAL IMPACT ASSESSMENT REPORT**

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## 9 Land, Soils and Geology

It is noted that for ease of reference all changes from the original chapter are shown in blue.  
Where text has been removed it is shown as ~~strike through~~.

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### 9.1 Introduction

This chapter of the EIAR evaluates the likely significant effects, if any, which the proposed development will have on Land, Soils and Geology. This chapter contains necessary information as defined in the Environmental Protection Agency (EPA) 'Guidelines on the Information to be contained in Environmental Impact Assessment Reports' (EPA, 2022).

The chapter initially provides a description of the receiving environment of the site and the potential impacts of the development. When assessing the potential impacts, this assessment considers the significance of the environmental attributes, the predicted scale and duration of the likely effects.

The chapter also outlines the proposed mitigation measures that will reduce or eliminate the identified potential impacts and defines the residual effects of the proposed development (the effect after the implementation of mitigation measures).

This chapter should be read in conjunction with Chapter 10 Water and Hydrology. A full description of the proposed development is set out in Chapter 2 Development Description of this EIAR.

### 9.2 Expertise & Qualifications

This chapter of the EIAR has been prepared by Alan Wilson and Marcelo Allende in the Water section of AWN Consulting Ltd.

Alan Wilson (BSc) is an Environmental Consultant at AWN. Alan holds a BSc Honours in Environmental Management in Agriculture/ Environmental and Geographical Sciences. Alan has worked on a range of large scale projects involving EIA reports, site specific flood risk assessments, baseline studies, hydrological and hydrogeological risk assessments, environmental due diligence, site investigations and groundwater, surface water and soil monitoring on various operational developments and greenfield and brownfield sites. Alan has over 2 years' experience as an Environmental Consultant including roles in Ecology and Forestry related work. Alan is a member of the International Association of Hydrogeologists (IAH) Irish Group and the Institute of Geologists of Ireland (IGI).

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### 9.3 Proposed Development

A full description of the proposed development is set out in Chapter 2 of this EIAR. The following is a summary of the proposed works.

A full description of the proposed development is provided in **Chapter 2** of this EIAR. The following is a summary of the proposed works:

**Greenore Port Unlimited Company** intend to apply for a 10-year permission for development at Greenore Port and site of dwelling house on Shore Road (A91DD42), Greenore, Co. Louth, (total site area c.4.88 hectare).

The development will provide for Operations and Maintenance (O&M) Facilities serving as a support base for future offshore windfarm projects. In general, it will comprise of terrestrial (landside) and nearshore works, with three standalone buildings incorporating office, warehouse and ancillary space landside and a pontoon to accommodate Crew Transfer Vessels (CTVs) marine side. To facilitate the proposed development, dredging within the nearshore and the demolition of existing port buildings and a vacant residential property is required.

The Operations and Maintenance Facilities (OMF) will provide twenty-four-seven, year-round support, to three individual offshore renewable energy (ORE) projects that will be owned and operated by entities separate from the applicant. These ORE projects will consist of offshore windfarms on the East Coast of Ireland.

Three standalone operation and maintenance buildings incorporating office, warehouse and ancillary space (canteen, welfare, plant, cycle parking etc.) are proposed within the 'terrestrial port' area. Each building has a gross floor area of c.1,670 sq.m and a maximum height of 13.5m.

A new quay wall will be developed at Berth 3 (70m length). This will include a new quay wall face and upgraded deck. A pontoon will be constructed to accommodate crew transfer vessels (CTVs), for use by the operators to travel out to the offshore windfarms. The CTV's will be accessed via an access ramp connected to the quay wall and deck. Approx 45,000m<sup>3</sup> of material will be dredged to facilitate navigable access at this location, and it will be disposed of on land. Where rock is encountered (estimate max of 1,000m<sup>3</sup>), it will be reused on site.

Adjacent to the buildings, space is allocated for 76 car parking spaces, with a further 135 spaces proposed in the surface carpark at the 'Residential Site' on Shore Road. The existing carpark associated with the former Open Hydro building (60 spaces) will be used during the construction phase and Phase 1 of the development.

Pedestrian and motor vehicle access is via the existing entrance beside the Port's office, which served the previous Open Hydro development. Heavy goods vehicles will access the buildings via the Port's existing heavy goods entrance on Shore Road (R175). Pedestrian access from the surface carpark to the OMF buildings will be provided along a new pedestrian route within the Port's landholding.

To facilitate the development, demolition works are required, including the former Open Hydro building, an ESB substation, a small portion of the Port's office accommodation and the vacant dwelling at the 'residential site' on Shore Road.

Improvement works to the public / private realm in the foreground of the existing Greenore Port office building will comprise of an enhancement to existing road and pathways to facilitate improved pedestrian and vehicular access to the proposed O&M Facilities, a new feature entrance wall, removal of 6 no. port car parking spaces, link to new pedestrian route from the new Shore Road carpark and hard and soft landscaping. These works are located within the Greenore Architectural Conservation Area (ACA). The aim is to redesign the space to improve the character of the ACA at this point; provide a more user friendly space with pedestrian priority; and improve the existing access arrangements to the site. Inside the proposed main entrance to the site, it is proposed to integrate the existing engine room wall and include this as a feature within the landscape design.

Ancillary development will include the installation of drainage infrastructure, landscaping, lighting, signage, boundary treatments, rooftop solar photovoltaic panels, an ESB substation, a communications mast, a bunded fuel storage tank and waste management areas etc.

The infrastructure described above will likely be delivered over two phases. However, this could extend to three phases, or the sequence of the works may vary,, depending on the delivery of future ORE projects and the associated Offshore Renewable Energy Auctions.

The proposed scheme is distributed over several individual plots, and for ease of reference, they are described as follows:-

1. **‘Terrestrial Port Area’**, (c.1.9ha) which includes, a port commodity warehouse (former Open Hydro building), hardstanding areas, remnant wall associated with the pre-existing ‘engine room’, and a communications mast.
2. **‘Nearshore Environment’** (c.2.3ha) encompassing part of Carlingford Lough and an existing caisson quay wall, known as ‘Berth 3’.
3. **‘Residential Site’** (c. 0.5ha) a greenfield site with a single-storey unoccupied residential dwelling with frontage to the R175, Shore Road.
4. **‘Port Office Entrance’** (c. 0.18ha) encompassing a portion of the existing office building, known as the ‘Seafarers room’, hardstanding and parking area to the front of the port office with pockets of green space, that front Euston Street.

The following is a general location plan of the plots identified above.



**Figure 9.1 Development Areas**

### 9.3.1 Aspects Relevant to this Chapter

#### 9.3.1.1 Construction Phase

##### 9.3.1.1.1 Ground Works, Dredging and Piling

Bulk excavation will take place during dredge and quay wall construction. It is anticipated that foundations for buildings will be strip footing type supplemented where necessary by concrete piles. The existing external concrete pavement in the port will be removed to facilitate the construction of the port buildings. The existing hardstanding areas, quayside of the proposed buildings will be upgraded on completion of the building works. The quay deck pavement shall be heavy-duty reinforced concrete pavement designed to withstand 50kPa port loading.

A mass concrete footing will be required for the proposed communications mast.

It is confirmed in the Environmental Risk Assessment and Waste Characterisation Report completed for the development (Appendix 9.4) that the bulk of the excavated material is suitable for removal to an inert waste facility and/or a soil and stone recovery facility. Remaining materials will be disposed at non-hazardous licenced facilities. This is documented further in the Outline Construction Environmental Management Plan (CEMP), prepared by McCarthy Browne and submitted under separate cover, and the Resource and Waste Management Plan, prepared by AWN Consulting submitted as appendix 8-1 of this EIAR.

The site does not act as a flood storage zone (A Site Specific Flood Risk Assessment accompanies this application, prepared by McCarthy Browne) and the proposed development will not add any new hardstanding areas within the port. The carpark area will be constructed with permeable paving.

The proposed 'maritime development' generally comprises dredging, development of a pontoon to accommodate Crew Transfer Vessels (CTVs) and improvement works to the existing Berth 3 quay wall. These works will consist of the following:

- The dredge of c.45,000m<sup>3</sup> of soft silty sand material and 1,000m<sup>3</sup> of rock from the existing port berthing area to facilitate navigable access at this location.
- Construction of quay wall at Berth 3 for a 70m length. This will include a new quay wall face and upgraded deck. The new quay wall shall be a steel pile closed face wall and shall replace an existing caisson berthing face.
- 220m of new breakwater pontoons, 5-6m wide and associated pile and collar restraints to accommodate crew transfer vessels (CTVs). The pontoon arrangement shall facilitate 9 no. berths and 2 layby berths for CTVs.
- A 40m gangway shall provide access from a newly extended quay wall.

To facilitate navigable access and suitable berthing for the CTVs it is necessary to carry out dredging in the area shown below between the existing groyne, Berth 2 and proposed Berth 3. The declared depth in this dredge pocket shall be -4m CD. The dredge material shall be c.45,000m<sup>3</sup> of soft dredge (gravel, silt, sand, clay) and c1,000m<sup>3</sup> of rock arisings, with EWC Code 17 05 06.

The existing rock armour supporting the breakwater at the outer edge of the dredging area will be repaired / strengthened during the dredging process, where the need arises. The purpose of this breakwater is twofold, creating a safe wave environment for shipping, which will be of additional benefit to the lighter craft (CTV's) utilising the pontoon. The breakwater also creates a natural 'self-scouring' port and as a result, a regular maintenance dredging programme is not required.

If suitable, excavated material may be re-used within the development for example rock can be crushed and used in pavement areas.

Dredging will be carried out using a backhoe dredger mounted on pontoons. The dredger will deposit the dredge material into a hopper barge which will be towed to the quayside. Material will be dug out of the hopper barge by an excavator standing on the quay side and placed in a bund for onward transfer to a licenced disposal facility by heavy Goods Vehicles with a carrying capacity of 20 tonnes.

The following is an estimated breakdown of the dredge material:

- Soft dredge arisings: 45,000 m<sup>3</sup>.
- Rock dredge arisings: 1,000 m<sup>3</sup>.

Dredging activities will occur for approximately 8-10 weeks.

#### 9.3.1.1.2 Dewatering

Given the soil, geological and hydrogeological characteristics of the site, it is not expected that significant groundwater will be encountered throughout the site. However, during the ground works, excavation and piling, dewatering (removing of potential perched groundwater within the subsoil) may be necessary to create a dry working environment and prevent water from seeping into the excavation and flooding the construction site. This dewatering could result in the localised lowering

of the local shallow (overburden) groundwater table which will not be part of the regional bedrock aquifer.

There may also be localised pumping of surface run-off from the excavations during and after heavy rainfall events to ensure that the excavation is kept relatively dry. Based on the depth to bedrock there is no potential for impact on the aquifer water table.

#### 9.3.1.2 Operational Phase

A fuel store with a capacity of  $\geq 200,000$  litres will be provided in a dedicated area that will be maintained and managed by Greenore Port. This quantity of proposed fuel storage is significantly below the applicable threshold of 2,500 tonnes for petroleum products and alternative fuels detailed in Part 2 of Schedule 1 of the Control of Major Accident Hazards (COMAH) Regulations 2015.

The overall volume will be stored in 1-2 bunded tanks and located in a secure area of the site to avoid accidental impact. The tanks will be fitted with overfill prevention, bund alarm and automatic shut off valves to mitigate risk of spills. Surface water will be drained from this area into the proposed network with petrol interceptors included.

CTV fueling infrastructure will be provided at a dedicated service berth on Berth 3. This will be a metered facility monitored and maintained by Greenore Port. Fuel is piped underground to this facility from the fuel store.

## 9.4 Methodology

### 9.4.1 Relevant Legislation & Guidance

This section establishes the criteria, and guidance used to rate the significance of the potential impacts of the proposed development project on the land, soil, geological, and hydrogeological aspects of the site and surrounding area.

Alongside the legislation, policy, and guidance outlined in Chapter 1, this chapter is prepared in line with the *'Guidelines on the Information to be contained in Environmental Impact Assessment Reports'* (EPA, 2022) and due consideration is also given to the guidelines provided by the Institute of Geologists of Ireland (IGI) in the document entitled *'Guidelines for the Preparation of Soils, Geology and Hydrogeology Chapters of Environmental Impact Statements'* (IGI 2013).

The document entitled *'Guidelines on Procedures for Assessment and Treatment of Geology, Hydrology and Hydrogeology for National Road Schemes'* by the Transport Infrastructure Ireland (TII) formerly National Roads Authority (NRA) (TII, 2009) is referenced where the methodology for assessment of impact is appropriate. Furthermore, in line with the TII Guidelines, an assessment of the attribute importance has been undertaken in order to provide a basis for the assessment of impact provided. The attribute importance considers the potential as well as the existing use of the surface water features as a water resource i.e., water supply, fisheries and other uses, as well as ecological habitat requirements. The TII criteria for rating the soil and geology, and hydrogeological related attributes, are presented in Appendix 9.1.

The quality, significance, and duration of the potential impacts, residual effects, and cumulative effects are described using standard EIA descriptive terminology, included in Chapter 1 (EPA, 2022).

The principal attributes (and impacts) to be assessed include the following:

- Geological heritage sites in the vicinity of the perimeter of the subject site.
- Landfills, industrial sites in the vicinity of the site and the potential risk of encountering contaminated ground.
- The quality, drainage characteristics and range of agricultural uses of soil around the site;
- Quarries or mines in the vicinity, the potential implications (if any) for existing activities and extractable reserves.
- The extent of topsoil and subsoil cover and the potential use of this material on site or requirement to remove it off-site as waste for recovery or disposal.
- High-yielding water supply springs/ wells in the vicinity of the site to within a 2km radius and the potential for increased risk presented by the Proposed Development.
- Classification (regionally important, locally important etc) and extent of aquifers underlying the site perimeter area and increased risks presented to them by the Proposed Development e.g. removal of subsoil cover, removal of aquifer (in whole or part), drawdown in water levels, alteration in established flow regimes, change in groundwater quality.
- Natural hydrogeological/ karst features in the area and potential for increased risk presented by the activities at the site; and,
- Groundwater-fed ecosystems and the increased risk presented by operations both spatially and temporarily.

#### 9.4.2 Sources of Information

Desk-based geological information on the substrata (both quaternary deposits and bedrock geology) underlying the extent of the site was obtained through accessing national databases and site archives. The collection of baseline regional data was undertaken by reviewing the following sources:

- Geological Survey of Ireland (GSI) - on-line mapping, Geo-hazard Database, Geological Heritage Sites & Sites of Special Scientific Interest, Bedrock Memoirs and 1:100,000 mapping.
- Teagasc soil and subsoil database.
- Ordnance Survey Ireland - aerial photographs and historical mapping.
- Environmental Protection Agency (EPA) – website mapping and database information; and
- National Parks and Wildlife Services (NPWS) – Protected Site Register.

Site specific data was derived from the following sources:

- Site plans and drawings submitted with the planning application pack
- Consultation with the engineering team.
- Greenore Port OMF – Engineering Planning Report (Clifton Scannell Emerson Associates, 2024).
- Greenore Port – O & M Facility – Site Specific Flood Risk Assessment (McCarthy Browne, 2024).
- Appendix 9.2 - Targeted Soil and Groundwater Assessment – Ground Investigation at the Topaz Fuel Storage Terminal, Greenore (RPS, 2011).



- Appendix 9.3 - Greenore Port – Geotechnical Interpretive Report (Gavin & Doherty Geosolutions, 2023).
- Appendix 9.4 – Waste Classification Report (BHP, 2024).
- Appendix 9.5 - BRE 365 and Plate Bearing Report (BHP, 2024).
- Appendix 9.6 – WAC Laboratory Report (Eurofins Chemtest Ltd, 2024).

### 9.4.3 Site Surveys/Investigations

An overview of site investigations carried out in and around the subject site are summarised below:

- IGSL, September 2023
- Causeway Geotechnical, May 2020,
- Ground Investigations Ireland, March 2020
- Causeway Geotechnical, March 2019
- Ground Investigations Ireland, February 2018
- Ground Investigations Ireland, May 2015
- RPS Group (Topaz Fuel Storage Terminal), November 2011
- Glover Site Investigations, May 1999
- KT. Cullen & Co (Topaz Fuel Storage Terminal), December 1996

#### 9.4.3.1 Site Investigations

Site investigation works were conducted within the site by McCarthy Browne and BHP Laboratories Ltd. in 2024. The objective of this site investigation was to further characterise the soil quality; to determine whether the ground conditions are suitable for soakaway installation; and whether the soil is suitable for disposal.

As part of the site investigation works, BHP Laboratories Ltd carried out the following tests:

- BRE365 at 4 no. locations (TP01, TP02, TP03 & TP04);
- Plate Bearing Tests; and
- Waste Acceptance Criteria suite in accordance with Council Decision 2003/33/EC (Rilta 2016 Revised WAC suite.

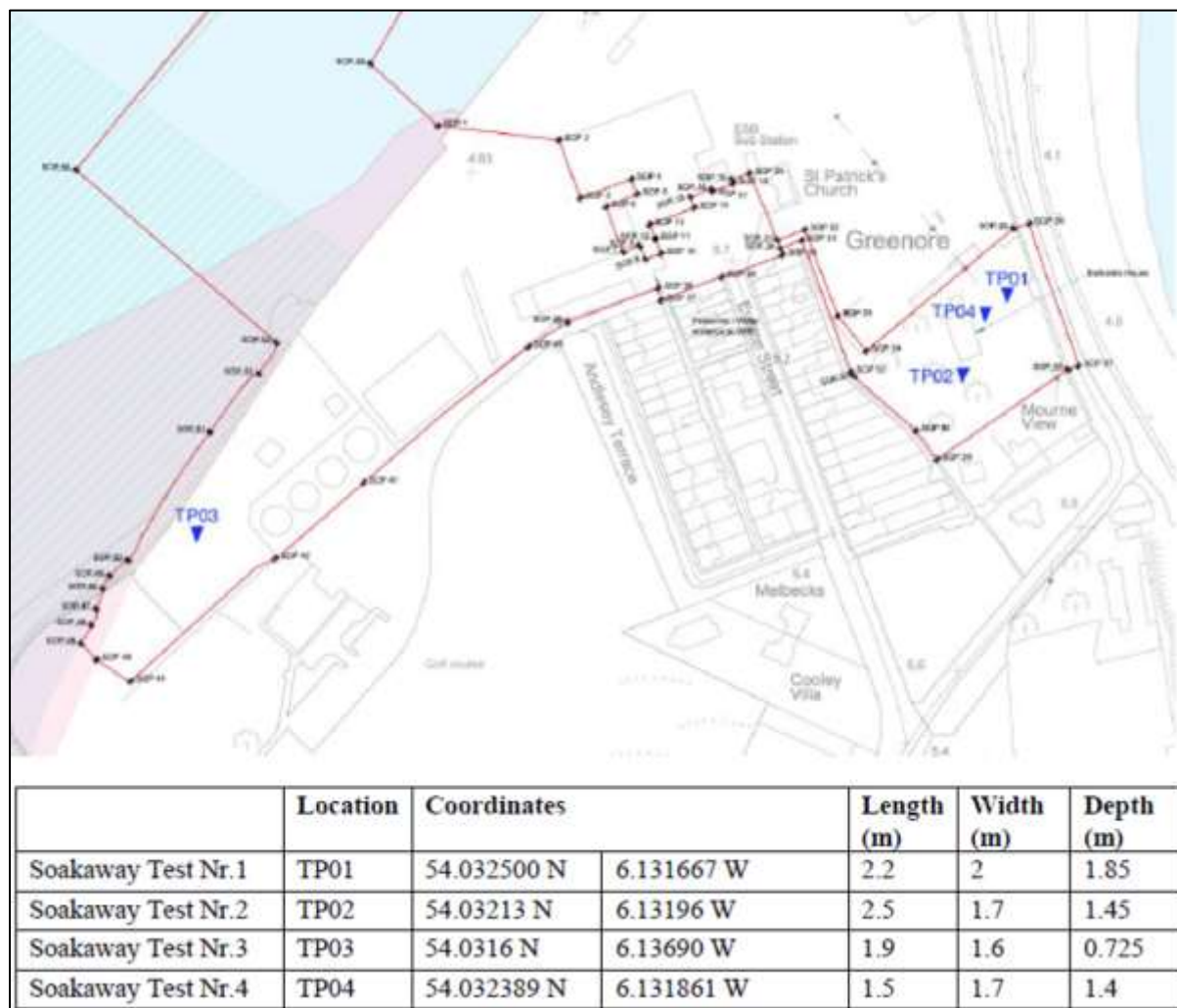
In order to assess materials which may be excavated and removed from site, in terms of waste classification, soil samples collected during the additional site investigations conducted in 2024 were analysed for a suite of parameters which allowed for the assessment of the soils in terms of total pollutant content for classification of materials as hazardous or non-hazardous referred to as the 'RILTA Suite'.

The parameter list for the RILTA suite includes analysis of the solid samples for arsenic, barium, cadmium, chromium, copper, lead, nickel, mercury, zinc, chloride, fluoride speciated aliphatic and aromatic petroleum hydrocarbons, pH, soluble sulphate, sulphide, phenols, total dissolved solids, moisture content, soil organic matter and an asbestos screen. The total pollutant content analysis also

provides analytical data which can be used to assess the quality of the subsoils underlying the site and allow an assessment of their suitability for a range of proposed uses against generic assessment criteria.

The RILTA Suite also includes those parameters specified in the EU Council Decision Establishing Criteria for the Acceptance of Waste at Landfills (Council Decision 2003/33/EC), referred to as Waste Acceptance Criteria (WAC), which for the solid samples are pH; total organic carbon (TOC); speciated aliphatic and aromatic petroleum hydrocarbons; benzene, toluene, ethylbenzene and xylene (BTEX); phenol; polychlorinated biphenyls (PCB); and polycyclic aromatic hydrocarbons (PAH).

The location of the site investigation works (TP01, TP02, TP03 & TP04) are shown below in Figure 9.2.



**Figure 9.2 Location of Works (McCarthy Browne, 2024)**

Table 9.1 below summarises the soil profile of each individual trial hole (TP01, TP02, TP03 and TP04) excavated as part of the ground investigations.

Dark grey, loose, sandy soil and Dark brown, loose, granular soil with cobbles present were encountered in TP01 and TP02, respectively. Compacted gravel and fractures bedrock were encountered at TP03 and TP04, respectively. The maximum depth reached was 1.85m bgl. No field evidence of potential impact from hazardous substances was noted. Soil samples were collected from each of the test holes for laboratory analysis.

**Table 9.1 Trial Hole Summary (BHP, 2024)**

Summary of Trial Pit No. 1			
From	To	Description	Ground Water
1.85	1.6	Topsoil	Dry
1.6	1	Dark grey, loose, sandy soil, Cobles present	
1	0	Loose Light grey Gravelly soil, Cobles present	
Summary of Trial Pit No. 2			
From	To	Description	Ground Water
1.45	1.25	Topsoil (Roots Present)	Dry
1.6	1	Dark Brown, loose, granular soil, Cobles present, Roots Present	
1	0	Dark Brown, loose, granular soil, High level of cobles present,	
Summary of Trial Pit No. 3			
From	To	Description	Ground Water
0.725	0	Compacted Gravel	Dry
Summary of Trial Pit No. 4			
From	To	Description	Ground Water
1.4	0	Fractured Rock	Dry

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Refer to Section 9.6.10.1, Appendix 9.4 – Waste Classification Report (BHP, 2024), Appendix 9.5 - BRE 365 and Plate Bearing Report (BHP, 2024) and Appendix 9.6 – WAC Laboratory Report (Eurofins Chemtest Ltd, 2024) of the EIA for further information on soil classification and soil quality results.

#### 9.4.3.2 Geotechnical Interpretive Report - GDG, 2023

Gavin & Doherty Geosolutions Limited (GDG) produced a Geotechnical Interpretive Report (GIR) to be considered in the design and site development for the proposed O&M Facilities This report is presented in Appendix 9.3.

This GIR produced a ground model based on all ground investigations carried out within the proposed development area. Cross-sections of the land and marine development areas extracted from the ground model are also presented in Appendix 9.3– Greenore Port Geotechnical Interpretative Report (GDG, 2023).

This assessment was based on the following:

- Ground investigation data (historic and recent investigations and surveys completed in the harbour area; including bathymetric and geophysical surveys).
- Geotechnical laboratory data, and
- Published and unpublished geological information.

There are no legislated threshold values for soils in Ireland. As such soil samples were compared to a Generic Assessment Criteria (GAC) derived to be protective of human health, water bodies (including groundwater) and also ecology for a resident and commercial/industrial end use.

GAC in the UK has been derived using the Contaminated Land Exposure Assessment (CLEA) model to be protective of human health for a number of different land uses. LQM (Land Quality Management) and the CIEH (Chartered Institute of Environmental Health) developed a document in July 2009 detailing their own research and derivation of their own 'LQM GACs'. A total of 82 substances including many organic substances had LQM GACs derived, for the standard land uses of residential, commercial/industrial and allotments. This was updated in 2015 following further research and the derived results are now called LQM/CIEH Suitable 4 Use Level (S4UL). The LQM/CIEH S4ULs are intended for use in assessing the potential risks posed to human health by contaminants in soil and as transparently derived and cautious "trigger values" above which further assessment of the risks or remedial action may be needed. For each contaminant S4ULs have been derived for six land use scenarios based on assessing exposure pathways in each planning scenario. In this instance the commercial scenario has been considered. Soil type and soil organic matter (SOM) has an influence on the behaviour of contaminants. S4ULs have been derived for three SOM contents (1%, 2.5% and 6%) to cover the likely range in soils. A prudent approach has been taken by considering the lower 1% SOM content.

The UK values do not have any legal standing within the Republic of Ireland and no statutory guidance for assessing the significance of soil contamination currently exists. However, the values do provide a means of placing the data within context when considering magnitude of risk and have been used in that capacity for this assessment.

Refer to Section 9.6.10.2 – Table 9.6 for sample concentrations compared against the threshold values for commercial or residential use of soil.

Site investigations included trial pits, boreholes, rotary cores and cone penetration testing. These investigations allowed an assessment of ground conditions and ground stability.

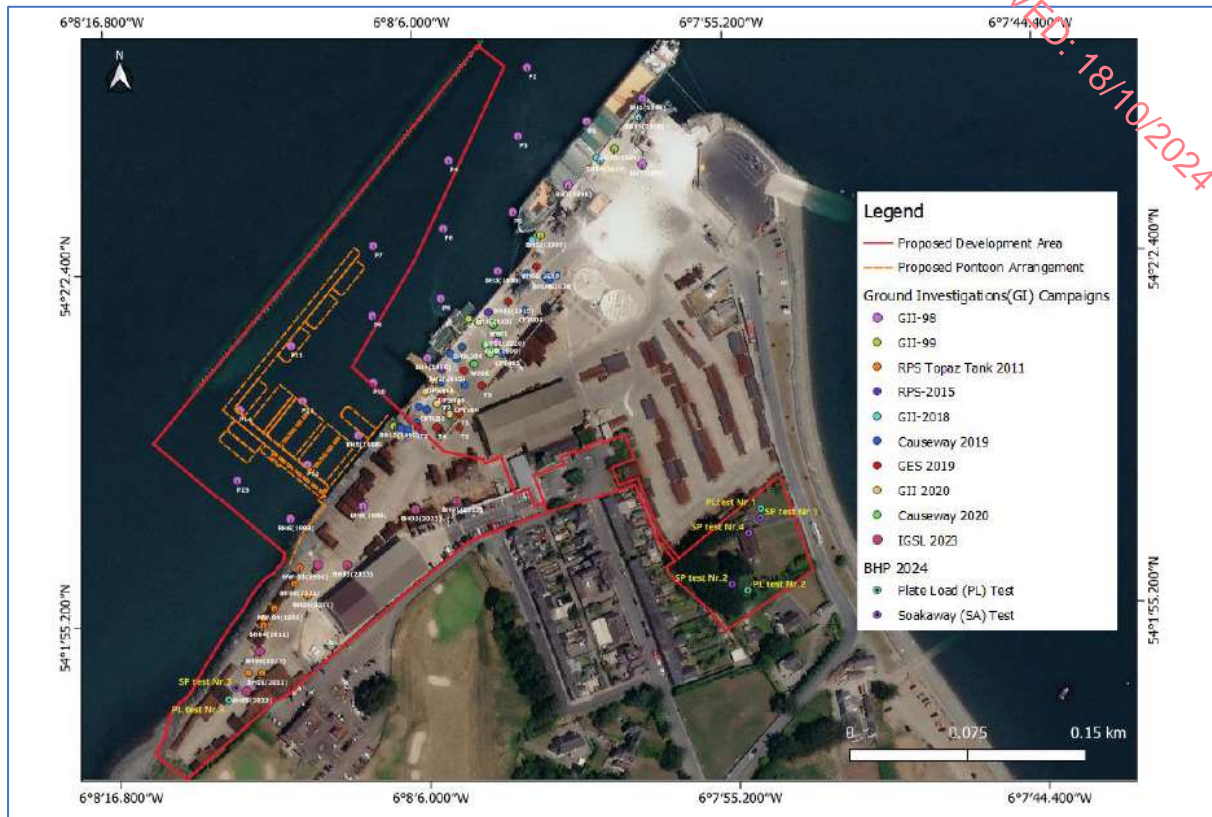
An overview of the site investigations carried out in and around the subject site as of November 2023 are summarised in 9.2 below.

**Table 9.2 Summary of GI's carried out around Greenore Port (GDG, 2023)**

SI Campaign Contractor	Year	GI Scope Summary	Report Ref:	Client Representative/ultimate client
Causeway Geotech	May 2020	#6 No of dynamic probe tests	only logs	
Ground Investigations Ireland (GII)	March 2020	#6 No of dynamic probe tests	only logs	
Geotechnical Environmental Services Limited (GES)	December 2019	#2 No. boreholes drilled in soil and rock to a maximum depth of 21.2m below existing ground level (bgl), Boreholes BH01 and BH02, on encountering rock, were continued by HQ wireline core drilling. #6 No. dynamic probes to a maximum depth of 21.9m below existing ground level (bgl). Lab tests: point load x 18, UCSx14	Berth 2 Upgrade Works, Factual Report, Report No. 011/ROI/19	Keating Construction Limited
Causeway Geotech	March 2019	#15 No. boreholes, 11 no of cone penetrometer test, standpipe installation, 2 no. of trial pits, 2 no. of plate tests. Lab tests: Atterberg test x6, PSD x 10, Consolidated drained Shear box2, Oedometerx3	Greenore Port Development, Berth 2-Ground Investigation. Report no.18-1305	Arup/Byrne Looby Consulting Engineers, on the behalf of L&M Keating Ltd.
Ground Investigations Ireland (GII)	February 2018	#4 No. boreholes (BH1 to BH4) drilled in soil and rock. Lab tests: shear box tests x 5, UCS x 4, point load x 17	Greenore Port Ground Investigation Report - 7350-01-18	RPS Consulting Engineers
Ground Investigations Ireland (GII)	May 2015	#2 No. boreholes (BH1 & BH2) drilled in soil and rock. Lab tests: PSD x10, Consolidated Shear box testsx4, point load x 6, UCS X4	Greenore Port Land Based SI carried out for RPS, only logs and lab results	RPS Group
Glover Site Investigations Ltd	May 1999	#5 No. of boreholes (10,11,12a,12RC,13) were excavated to bedrock along the existing quay	Greenore Harbour Development Rock Coring Investigation Report No.3309	Kirk McClure Morton on behalf of Greenore Ferry Services Ltd
Glover Site Investigations Ltd	August 1998	#9No. of boreholes (BH1 to BH9) and 15 No. of marine probe boreholes majority of them excavated to bedrock. Lab tests: Triaxial x5, pH and soluble sulphate content x6, Atterberg limit x4 ,PSD X17	Greenore, Co.Louth Harbour Development Site Investigation Report No.3059	Kirk McClure Morton on behalf of Greenore Ferry Services Ltd



The borehole and In-situ tests locations from all the GI campaigns carried out at the site and the wider Greenore Port area are presented in Figure 9.3 below.



**Figure 9.3 Site Investigation Point Locations of various GI carried out in Greenore Port (Source: GDG, 2024)**

#### 9.4.3.3 Targeted Soil and Groundwater Assessment – Ground Investigation at the Topaz Fuel Storage Terminal, Greenore (RPS, 2011).

On November 14<sup>th</sup> 2011, RPS carried out a site investigation on behalf of then “Topaz Energy Group Ltd” on the shallow subsoil and groundwater beneath the decommissioned Topaz fuel storage facility at Greenore Port, Co. Louth, with the aim of developing an exit strategy for the site. The refuelling gantry, located within the Terrestrial port area of the current application site, in the vicinity of the proposed Building A, was identified as the primary target for investigation in the RPS 2011 Targeted Soil and Groundwater Assessment Report.

The main objectives of the site investigation were as follows:

- Determine if hydrocarbon contamination exists in the shallow subsoil underlying the site;
- Determine if hydrocarbon contamination exists in the groundwater beneath the site; and
- Provide recommendations on any further works to take place based on the ground investigation results.

As part of the groundwater investigation, 2 no. groundwater monitoring wells (MW3 & MW4) installed by K.T. Cullen & Co Ltd. during site investigations from December 1996 were identified (see below). The monitoring wells were installed in the vicinity of the hardcover area beneath the refuelling gantry.



The 2011 RPS report includes details of historical site investigations carried out by K.T. Cullen & Co Ltd in December 1996. These site investigations identified slight hydrocarbon contamination in the soil in the southern extent of the Topaz site and in the groundwater. To further analyse the hydrocarbon contamination identified in the December 1996 site investigation, an environmental site assessment of the site was carried out by URS in 2004 and identified hydrocarbon contamination in the shallow soils in an area of scrub grassland and to the north-east of the refuelling gantry. No hydrocarbon contamination was detected during the 2004 site investigation.

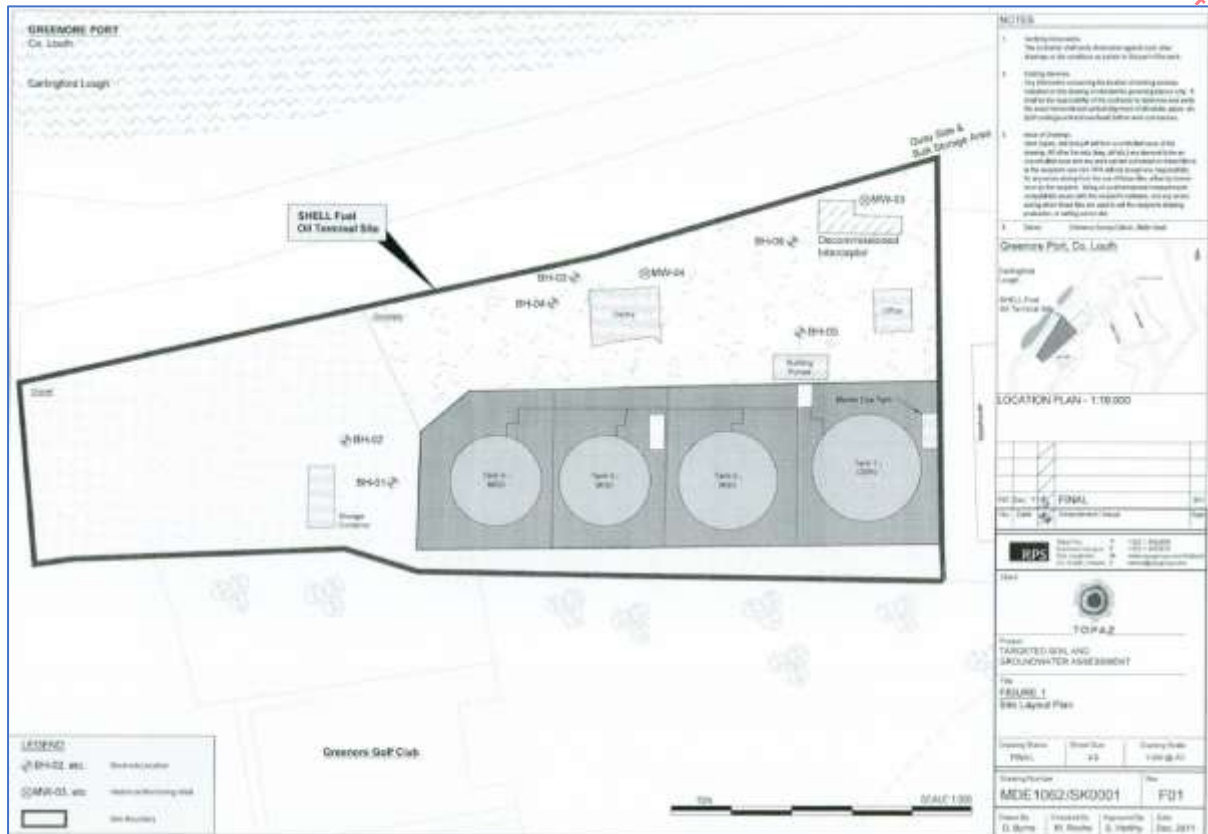


Figure 9.4 Site Layout Plan (RPS, 2011)

## 9.4.4 Consultation

There was no consultation with internal Local Authority departments, community or stakeholders encountered in compiling the specified information for this EIA chapter.

## 9.5 Difficulties Encountered

There were no significant difficulties encountered in compiling the specified information for this EIAR chapter.

## 9.6 Baseline Environment

### 9.6.1 Site Location & Surrounding Land Use

The proposed development site, located within and adjoining Greenore deep-water Port, is strategically located on Ireland's east coast in Co. Louth. It is situated approximately 20km East of Dundalk and serves as the South entrance to Carlingford Lough. The site comprises of a predominately brownfield with active port lands, public realm areas and residential area along the Shore Road.

The topography of the site is flat with an average elevation of around 4.1m for the site. Access to the proposed site is offered by via Euston Street, with HGV traffic and access to the proposed satellite carpark via Shore Road (R175).

In general, Greenore Port features a single quay facing North-West, protected by a detached breakwater made of a rubble mound rock structure with wooden piles. The exact depth of these piles is currently unknown. The main berthing pocket offers 260m of quayside berthage, with varying water depths at high water (HW) and low water (LW).

The port has a water depth of 9.1m at high water and 4.9m at low water. It can accommodate vessels up to 60,000DWT and has Liebherr port cranes capable of lifting up to 124T. The port handles both container and bulk traffic and offers marine and logistical support services.

In terms of imports, the port receives a variety of products including animal feed, fuel oil, steel, fruit, wood products, coal, timber, fertilizers, and chemicals. Its exports consist of items such as fish cages, milk powder, live cattle, frozen meats, rock, steel, woodchip, and general cargo like wind turbines.

Additionally, Greenore Port is the leading importer of steel reinforcement in Ireland, with storage facilities for steel rebar and dry bulk storage facilities capable of accommodating various dry bulk products.

Refer to Figure 9.5 below for the site location in the context of the surrounding environment and land use.



**Figure 9.5 Site Location & Surrounding Land Use (AWN, 2023)**

A detailed topographic survey by Six West was carried out on January 4<sup>th</sup> 2023 at Greenore Port area and survey details are presented in Appendix 9.3 - Greenore Port – Geotechnical Interpretive Report (Gavin & Doherty Geosolutions, 2023). Based on the topographic survey, the levels typically vary from 4.617mAOD to 4.062mAOD at the proposed development area for the landside quay and office units where the new development will tie into.



**Figure 9.6 Extract from Topographic Survey (GDG, 2023)**

The proposed development includes the demolition of an unoccupied single storey dwelling and its boundary wall at the residential site on Shore Road. A search of Louth County Council's planning search tool indicates that the house pre-dates the 1970s, with one planning entry for an extension granted in August 1970, Ref. 70347.

The house has an approx. 240sqm GFA with a ridge height of 6.2m and the existing boundary wall to be demolished is c. 1.0m in height high and c. 64.5m long.

### **9.6.3 Soils and Subsoils (Quaternary)**

According to the EPA and GSI online mapping the principal soil type on-site is Made Ground, which is expected considering the development on the site. Refer to Figure 9.7 below. This was also confirmed through site investigations carried out on the proposed development site, where the top strata recorded in all borehole logs were Concrete, Made Ground and Hardcore Fill. Refer to Appendix 9.3 – Greenore Port Geotechnical Interpretive Report (GDG, 2023) and description below for further information on the soil types encountered.



**Figure 9.7 Soils Map (EPA, 2023)**

The Quaternary geological period extends from about 1.5 million years ago to the present day and can be sub-divided into the Pleistocene Epoch, which covers the Ice Age period, which extended up to 10,000 years ago and the Holocene Epoch, which extends from that time to the present day.

The GSI/ Teagasc mapping database of the subsoils in the area of the proposed development site indicates that the material within the land site area is described as Marine sand and gravels raised beach deposits, as presented in Figure 9.8 below. There is no information available for the sediments within the channel /offshore marine site.





**Figure 9.8 Subsoils Map (GSI, 2023)**

With regard to the site investigations carried out on the proposed development site, the following subsections detail further information on the soil types encountered. For further information on previous ground investigations carried out at the proposed development site, refer to Table 4-1 “Summary of GI’s carried out around the Greenore Port” of Appendix 9.3 - Greenore Port – Geotechnical Interpretive Report (Gavin & Doherty Geosolutions, 2023).

#### 9.6.3.1.1 Geological Profile for Land Development Area

According to the GIR presented in Appendix 9.3 - Greenore Port – Geotechnical Interpretive Report (Gavin & Doherty Geosolutions, 2023) and Appendix 9.5 BRE 365 and Plate Bearing Report (BHP, 2024), the following profile was determined for the land development area.

#### Overburden Deposit

##### Gavin & Doherty Geosolutions, 2023

The top strata recorded in all borehole logs for the terrestrial port area were Concrete, Made Ground and Hardcore Fill, followed by ‘*silty sandy GRAVEL interbedded with gravelly Sand*’. Similarly, the presence of thick layers of cobbles and boulders were also recorded within this unit in BH9 (1998).

This stratum is underlaid by ‘*SILT/CLAY with some gravel and occasional shells content*’. In the majority of the boreholes, this stratum lies above the bedrock and started to record below -9.0mOD.



## Site Investigations, 2024

The strata encountered comprised dark grey, loose, sandy soil and Dark brown, loose, granular soil with cobbles in TP01 and TP02, respectively. Compacted gravel and fractures bedrock were encountered at TP03 and TP04, respectively. The maximum depth reached was 1.85m bgl. No groundwater strikes or ingresses were encountered in any of the trial pits

### Bedrock

Limestone is encountered in BH9 from the 1998 SI at 20.70mBGL or -16.10mOD (i.e. -19.15mCD). Bedrock is described as moderately strong fine grained Carboniferous Limestone.:

- P7 at 4.40mBGL -8.5mAOD (i.e. -11.55mCD);
- BH5(1998) at 17.90mBGL -13.4mAOD (i.e. -16.45mCD); and
- BH6(1998) at 17.60mBGL -13.00mAOD (i.e. -16.05mCD).

Table 9.3 below summarises the ground profile for the Land Development Area.

**Table 9.3 Geology Unit Summary for Land-Based Ground Model (GDG, 2023)**

Material Name/ Soil Geological Unit	Elevation (mAOD)		Thickness (m)	
	Top	Base	Min	Max
Concrete	4.5	4.0	0.15	0.4
Made Ground/ Hardcore Fill	4.6	-1.5	0.5	6.1
Granular Deposits (silty sandy Gravels)	4.0	-9.5	4.2	6.5
Cohesive Deposits (Silt/Clay)	-8.3	Unproven	1.3	4.6
Granular Deposits (sandy Gravels)	-13.5	Unproven	2.7	Unproven
Bedrock	-16.10	Unproven	Unproven	

#### 9.6.3.1.2 Ground Profile for Nearshore Development Area

According to the GIR (Appendix 9.2 - Greenore Port – Geotechnical Interpretive Report (Gavin & Doherty Geosolutions, 2023), the following profile was determined for the nearshore development area.

### Overburden Deposit

Generally, the main overburden material is described as '*silty sandy GRAVEL interbedded with gravelly sand*'. The proportion of the silt and sand composition varies slightly between borehole to boreholes based on the log descriptions.

The presence of thick layers of cobbles and boulders were recorded in P13(1998). In P9, P7 and P4 cohesive layer of '*sandy silty CLAY*' as top strata is noted. The presence of cohesive material '*silty CLAY with some gravel and occasional shells*' content is recorded in boreholes especially at the centre of the harbour. In P14 and P13 boreholes this layer appeared as interbedded unit – '*very stiff SILT/CLAY with some gravel and occasional shells content*'.

## Bedrock

Moderately strong grey fine grained Carboniferous Limestone was encountered in the following boreholes:

- P7 at 4.40mBGL -8.5mAOD (i.e. -11.55mCD);
- BH5(1998) at 17.90mBGL -13.4mAOD (i.e. -16.45mCD); and
- BH6(1998) at 17.60mBGL -13.00mAOD (i.e. -16.05mCD).

u 9.4 below summarises the ground profile for the Marine Development Area.

**Table 9.4 Geology Unit Summary for Marine-Based Ground Model (GDG, 2023)**

Material Name/ Soil Geological Unit	Elevation (mAOD)		Thickness (m)	
	Top	Base	Min	Max
Granular Deposits (silty sandy Gravels)	2.5	-8.5	1.5	7.3
Cohesive Deposits (Silt/Clay)	-4.5	-13.0	0.6	4.6
Granular Deposits (sandy Gravels)	-5.5	Unproven	2.3	Unproven
Bedrock	-8.5	Unproven	Unproven	

For the nearshore development area, the GI data used are from 1998 and 1991 SI campaigns. Even though the boreholes are spread well to cover the site area to understand the ground conditions, majority of these boreholes go maximum depth of 6mBGL.

### 9.6.4 Bedrock Geology

Inspection of the available GSI (2023) records (Data Sheet 16 and on-line mapping database) that the site is underlain by Dinantian Limestones (undifferentiated) - Rock Unit Code: CDDIN. This formation is from the Palaeozoic, Carboniferous and Mississippian age bracket. Refer to Figure 9.9 below.

Site investigations carried out on the site confirmed the above, where limestone was encountered. The bedrock was described as moderately strong fine grained Carboniferous Limestone and was encountered at depths from 4.4 mbgl. Refer to Appendix 9.2 – Geotechnical Interpretive Report (GDG, 2023) and Section 9.6.3 above for further information on the geological characteristics of the proposed development site.



**Figure 9.9 Bedrock Geology Map (GSI, 2023)**

### 9.6.5 Economic Geology

The EPA Extractive Industry Register and the GSI mineral database were consulted to determine whether there are any mineral sites close to the proposed development site. There are no active quarries or mineral localities within the immediate vicinity of the proposed development site. The closest mineral site is located c. 0.9 km south-west of the site (Mineral Location Ref: 3908) comprising of Clay, described by the GSI as blue plastic marine mud described as making an excellent puddling clay.

The proposed development site is located entirely within the Geological Heritage Audited Site – Greenore Raised Beach (Site Code: LH019) which is described by the GSI as a wide, flat-topped feature adjacent to the shoreline around Greenore. The remains of a beach deposited in the locality when sea level was 3m-5m higher than it is today.

### 9.6.6 Radon

According to the EPA online maps (now incorporating the Radiological Protection Institute of Ireland) the site is located in an area where between one and 10 per cent of the homes in the 10 km grid square are estimated to be above the Reference Level (200 bq/m3).

### 9.6.7 Geo-Hazards

In general, risk of landslides in this area of Ireland is considered to be low, as the land 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 site is not in an area susceptible to landslides, with a GSI Landslide Susceptibility Classification of *Low*. This is consistent with the topography and the geology across the site.

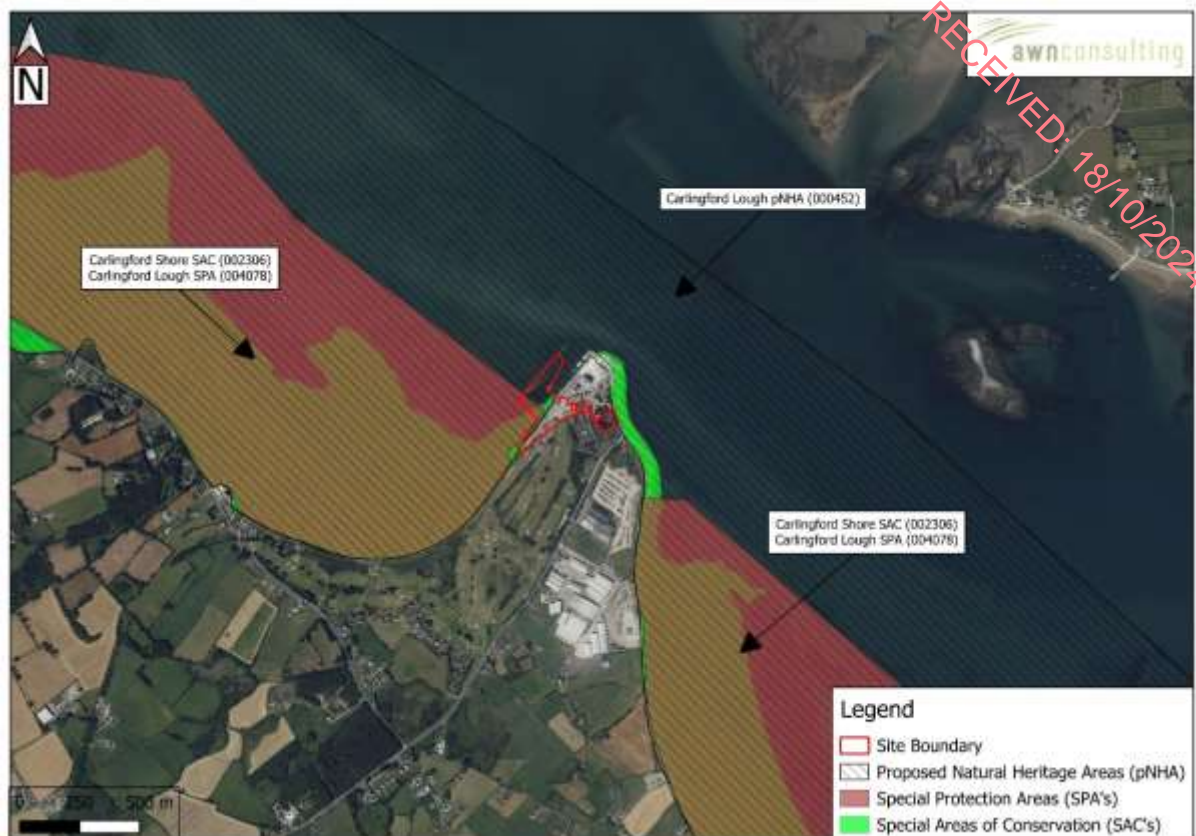
In Ireland, seismic activity is recorded by the Irish National Seismic Network. The Geophysics Section of the School of Cosmic Physics, Dublin Institute for Advanced Studies, has been recording seismic events in Ireland since 1978 ([www.dias.ie](http://www.dias.ie)). This network consists of several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

There are no active volcanoes in Ireland so there is no risk from volcanic activity at the site.

### 9.6.8 Areas of Conservation

The proposed development site is partially within Carlingford Shore SAC (Site code: 002306) and Carlingford Lough SPA (Site code: 004078). Currently there is a direct hydrological linkage between the proposed development sites and these sites through the existing stormwater drainage network which outfalls into the Carlingford Lough. Refer to Figure 9.10 below.

The Carlingford Lough receives water from the Newry catchment, which is a transboundary catchment, and more specifically from the Newry Estuary transitional waterbody (WFD Code: UKGBNI5NB030010).



**Figure 9.10 Site Location with Areas of Conservation (NPWS, 2023)**

*Note: Proposed Natural Heritage Areas (pNHAs) are designations introduced under the Wildlife Act 1976 (as amended). Although many NHA designations are not yet fully in force under this legislation, they are offered protection in the meantime under planning legislation which requires that planning authorities give due regard to their protection in planning policies and decisions.*

### 9.6.9 Site History and Previous Land Use

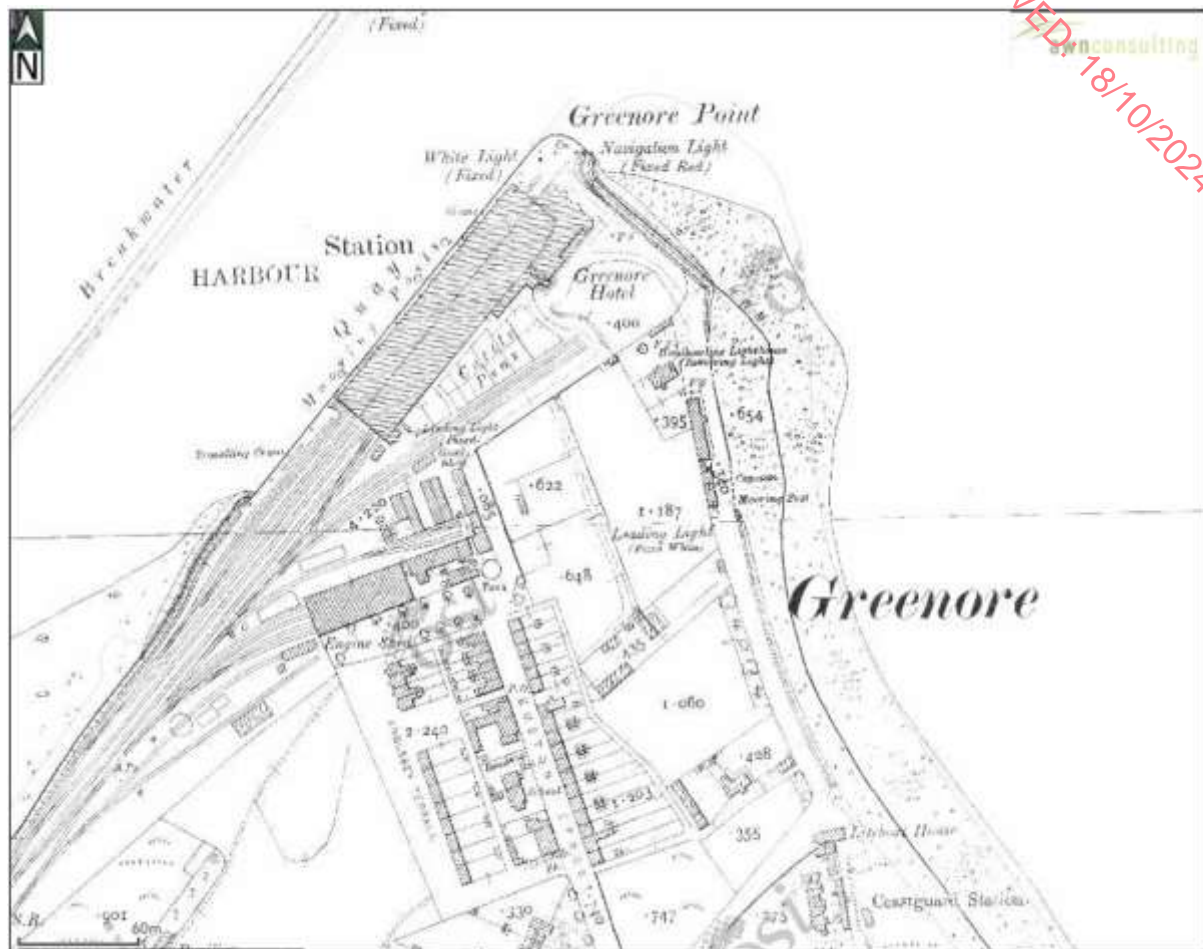
The Port played a vital maritime role in the area for the past 150 years. In 1860s London and North Western Railway (LNWR), who recognised the area's natural port characteristics, in terms of shelter of its approach and natural water depth. The Port was opened in 1873, with a railway line connecting it to Dundalk and Newry. Other facilities also opened in the area including a hotel for passengers, a village to accommodate employees, and later even a golf club.

From the 1960s both conventional and container traffics were developed. When container traffic started to move to the larger developing ports of Dublin, Belfast and Cork, the Port began handling large volumes of bulk cargoes as well as playing a vital role in the export of live cattle and frozen beef to the Middle East during the 1980s and 1990s.

Historical Ordnance Survey (OSi, 2023) maps were examined for the purpose of this study. OS maps were available for the period from 1830 to 1913 and included the historic 6" Cassini maps (c.1845), Historic Map 6-inch Colour (1837-1842), and the historic 25" maps (1888-1913). More recent aerial mapping (1995-to present date) was also used in this assessment.



Figure 9.11 below, a historic 25" map (1888-1913) shows the site is developed with a light house, harbour station, pier and rail line by 1969.



**Figure 9.11 Historic 25" Map - 1888-1913 (OSi, 2023)**

Aerial image displayed in Figure 9.12(2006-2012) and Figure 9.13 (2022) shows that all the railway lines shown in Figure 9.11 have above been removed and Greenore Port now has more container storage facilities. The development of Greenore Golf Club to the south of the proposed development is also shown, which was founded in 1896.





Figure 9.12 2006-2012 Aerial Map (OSi, 2023)



Figure 9.13 2022 Aerial Map (Google Earth Pro, 2023)

## 9.6.10 Soil Quality

### 9.6.10.1 Site Investigations, 2024

During the site investigations conducted at Greenore Port, the 4 no. soil samples from trial holes (TP01, TP02, TP03 & TP04) were analysed for Waste Acceptance Criteria suite in accordance with Council Decision 2003/33/EC (Rilta 2016 Revised WAC suite, see Table 9.5 below).

**Table 9.5 RILTA 2016 Suite**

Test Method	Code	Rilta Suite	ISO 17025	MDL	CEN references - EN/TS/TR
TMA065	Asb	Fibre screen/ asbestos ID (HSG 248)	Y		
073S	pH	pH using Metrohm	Y	0.01pH units	
PM04	MC	Moisture content as % wet weight			
021S	TOC	TOC by combustion - carbonates removed with acid by extra	Y	0.2%	EN 13137 Method B
030S		metals(As,Ba,Cd,Cr,Cu,Hg,Mo,Ni,Pb,Sb,Se,Zn)	Y	various	
038S	Hex Cr	Hexavalent Chromium plus Trivalent Chromium by calculation	N	0.3mg/kg	
031S	BTEX S	BTEX/MTBE by GC-FID	Y	5ug/kg	
086S	PCB-7 S	PCBs (7 congeners) by GC-MS	Y	5ug/kg	EN 15308 analysis GC-MS
030/005S	CWG	TPH CWG (Aliphatics C5-6,>6-8,>8-10,>10-12,>12-16,>16-21,>21-35,>35-40) (Aromatics >C5-7,>7-8,>8-10,>10-12,>12-16,>16-21,>21-35,>35-40) Extra banding Aliphatics C6-10,C10-25, C25-35, Aromatics C6-10, C10-C25, C25-35	Y	various - see tab	
004S	PAH 17 S	PAH 17 by GC-MS (inc coronene) plus PAH (total 6)	Y	various	EN 15527 PAH GC-MS
		Benzo(a)fluoranthene	N	1mg/kg	
<b>CEN 10: leachate preparation (results expressed as mg/kg)</b>					EN 12457-2 :2002
030W	Metals	As(0.025),Ba(0.03),Cd(0.005),Cr(0.015),Cu(0.07),Mo(0.02),Ni(0.02),Pb(0.05),Sb(0.02),Se(0.03),Zn(0.03)	Y	various (mg/kg)	EN 12506 / EN ISO 11885 ICP-OES
061W		Mercury by Cold Vapour Atomic Fluorescence	Y	0.1ug/kg	EN 13370 / EN 1483 CVAAS
073W	pH	Determination of pH (Metrohm)	Y	0.01pH units	
027W/173W		Chloride(3), Fluoride(3), Sulphate (0.5)	N	various (mg/kg)	EN 12506 /EN ISO 10304-1-2 liquid chromatography
026W		Phenol HPLC	Y	0.1mg/kg	
060W		DOC	N	20mg/kg	EN 1484
020W		TDS	N	350mg/kg	EN 15216

Based on the laboratory results of the material sampled across the site all samples can be classified as non-hazardous.

Refer to Appendix 9.4 – Waste Classification Report (BHP, 2024), Appendix 9.5 - BRE 365 and Plate Bearing Report (BHP, 2024) and Appendix 9.6 – WAC Laboratory Report (Eurofins Chemtest Ltd, 2024) for further information on soil classification and soil quality results.

### 9.6.10.2 Geotechnical Interpretive Report - GDG, 2023

As part of the site investigation carried out by RPS (2011; refer to Section 9.4.3.2 above), soil samples were analysed for Special Petroleum Hydrocarbons by STL, a UKAS accredited laboratory. Petroleum hydrocarbons were detected in the soil samples taken from BH1-1, BH4-1, BH4-2 and BH5-1. A large range of petroleum hydrocarbons (C8-C40) were detected in the upper subsoil at 0.5 mbgl of BH1 (BH1-1) Petroleum hydrocarbons of the range c12-c40 were detected in BH4-1 at 0.5 mbgl and C21-C40 in BH4-2 at 3.0 mbgl located to the north and west of the proposed extensions where the former refuelling gantry was located. Petroleum hydrocarbons of the range C12-C40 were detected in BH5-1 at 0.5 mbgl located downgradient of the decommissioned oil water receptor. Refer to Figure 9.3 above for the borehole locations which were samples during the ground investigations carried out by RPS in 2011.

For further information on the proposed modifications and extensions to the former OpenHydro Building in relation to the borehole locations listed above (BH1-1, BH4-1, BH4-2 and BH5-1), refer to Appendix A of Appendix 10.3 – Design Package for Alterations & Extensions to Site Buildings at Greenore Port, Greenore, Co. Louth – Services Design Report (Rockwood Chartered Engineers, March 2020)

As shown in Table 9.6 below, none of the detected levels exceeded the Dutch Intervention values for mineral oil (5000mg/kg) which may be applied to petroleum hydrocarbons in soil. All other samples were below the laboratories limit of detection (LOD).

**Table 9.6 Detected Petroleum Hydrocarbon Concentrations (RPS, 2011)**

Concentration (mg/kg)	LQM/CIEH S4ul for HHRA Residential Threshold (mg/kg)	LQM/CIEH S4ul for HHRA Commercial Threshold (mg/kg)	BH1-1	BH4-1	BH4-2	BH5-1
C8-C10	27	2,000	4.5	<1.0	<1.0	<1.0
C10-C12	130	9,700	5.1	<1.0	<1.0	<1.0
C12-16	1,100	59,000	22	6.1	<1.0	5.4
C16-C21	65,000	1,600,000	69	17	<1.0	17
C21-C40	65,000	1,600,000	350	210	23	50

As can be seen in Table 9.6 above, none of the samples exceed the threshold values for commercial or residential use of soil.

Hydrocarbon levels were below the laboratories limit of detection (LOD) in the groundwater sampled for all ranges. Refer to Chapter 10 – Water and Hydrology of this EIAR for further information on the groundwater quality results and data.

Refer to Appendix 9.3 - Greenore Port – Geotechnical Interpretive Report (Gavin & Doherty Geosolutions, 2023) for site investigation locations on the site area.

### 9.6.11 Conceptual Site Model

To summarise the current conceptual site model (CSM), local cross section are presented in Figures 9.14 and 9.15 of the terrestrial (land) development area and the nearshore development area, respectively. These cross sections are based on the site investigation data outlined in Table 9.1 of this EIAR and Appendix 9.3 of the EIAR.

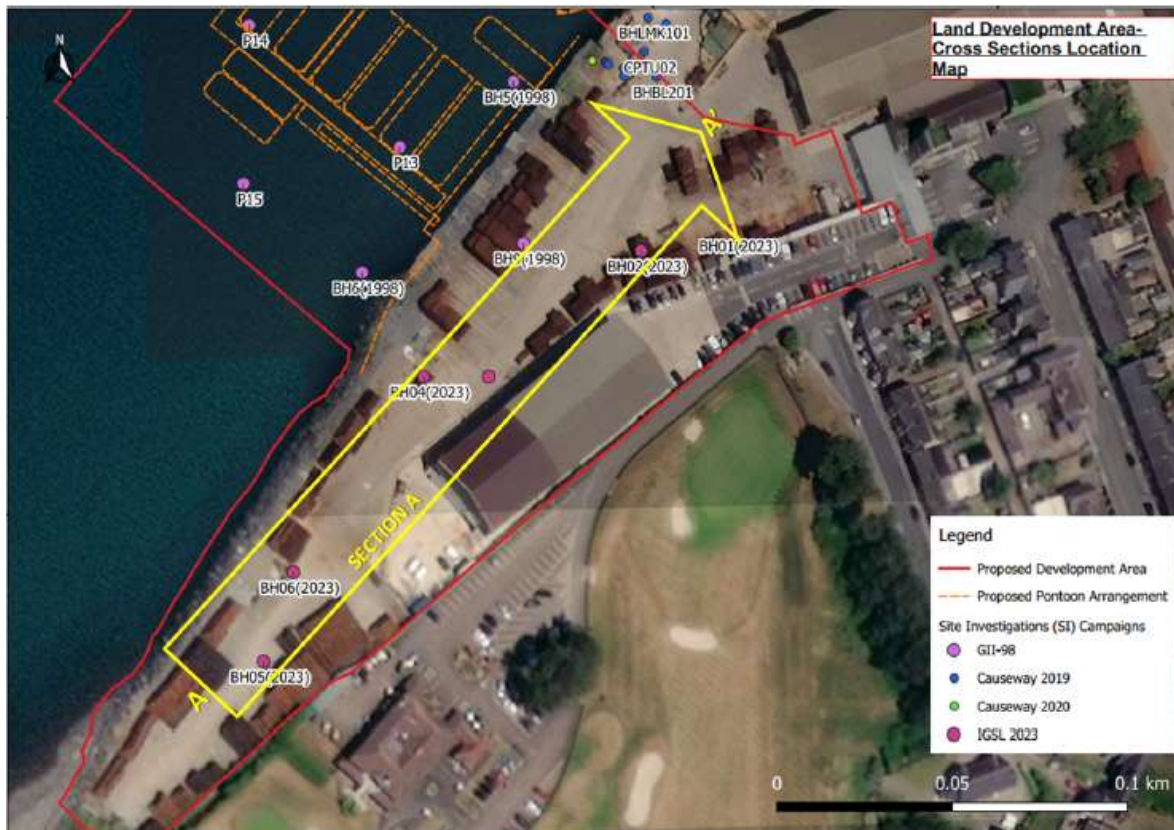
The location of previous site investigation points and the direction of the cross sections for the terrestrial (land) development area and the nearshore development area are displayed in Figures 9.13 and 9.14 below. The key points of the CSM for the site include the following:

- The ground levels typically vary from 4.617mAOD to 4.062mAOD at the proposed development area for the landside quay and proposed buildings.
- The site is underlain by Made Ground, hardcore fill, cohesive deposits and granular deposits.
- Local aquifer vulnerability is classed as 'High' which indicates that the bedrock is c. 3-5m depth with a moderate thickness of subsoil acting as a protective layer for the underlying aquifer.



- The bedrock beneath the site comprises Carboniferous Limestones and is classified as hosting a Locally Important Aquifer (Lm).
- The site is geologically and hydrogeologically connected to the Areas of Conservation (Carlingford Lough SPA and Carlingford Shore SAC), partially located within the proposed development site.

Refer to Appendix 9.3 - Greenore Port – Geotechnical Interpretive Report (Gavin & Doherty Geosolutions, 2023) for further information on the land, soils, geological and hydrogeological data from previous site investigations carried out at Greenore Port.



**Figure 9.14 Terrestrial Development Area – Cross Section and SI Locations**



Figure 9.15 Nearshore Development Area – Cross Section and SI Location

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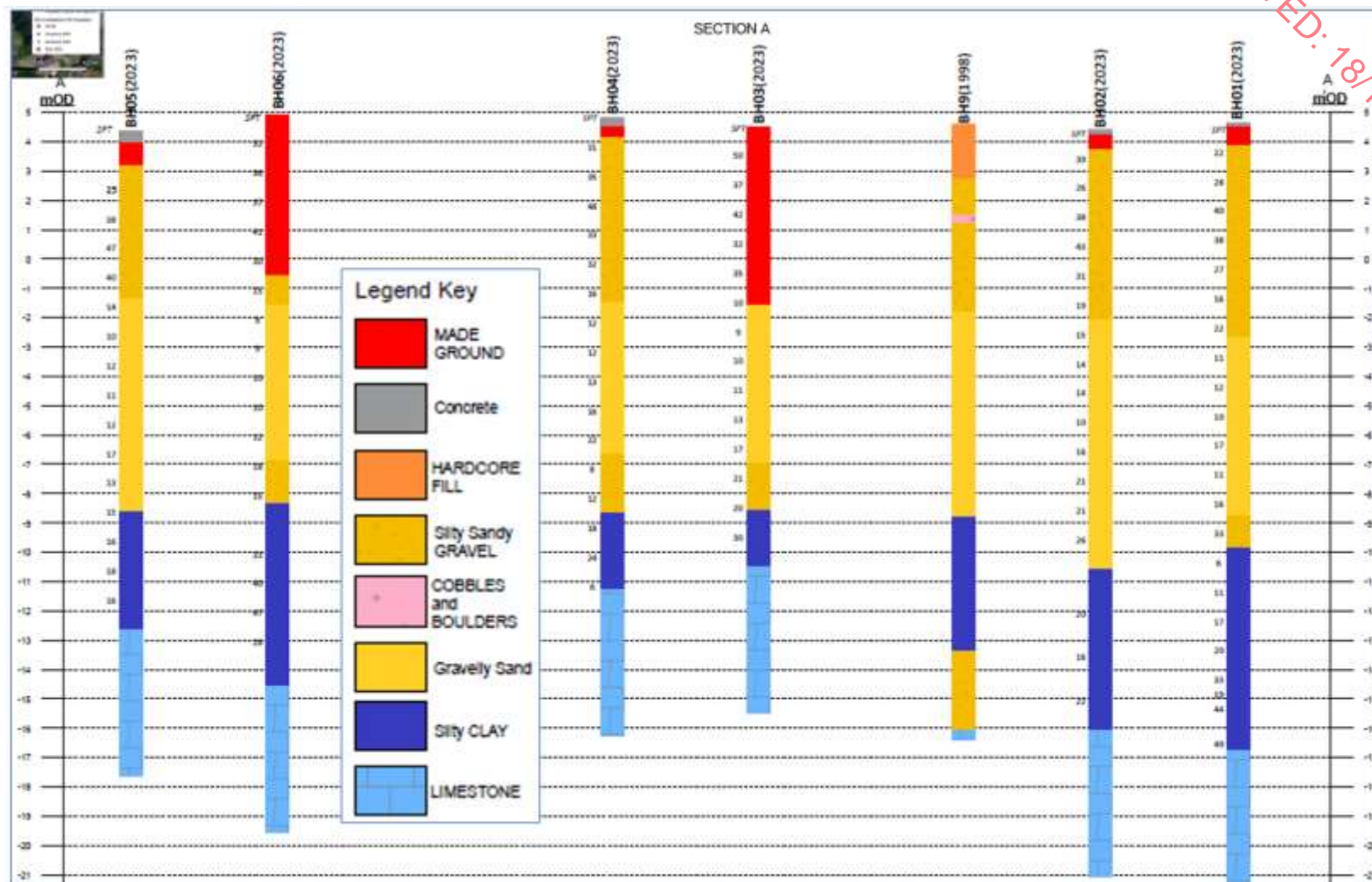


Figure 9.16 Geological Cross Section of Terrestrial Development Area



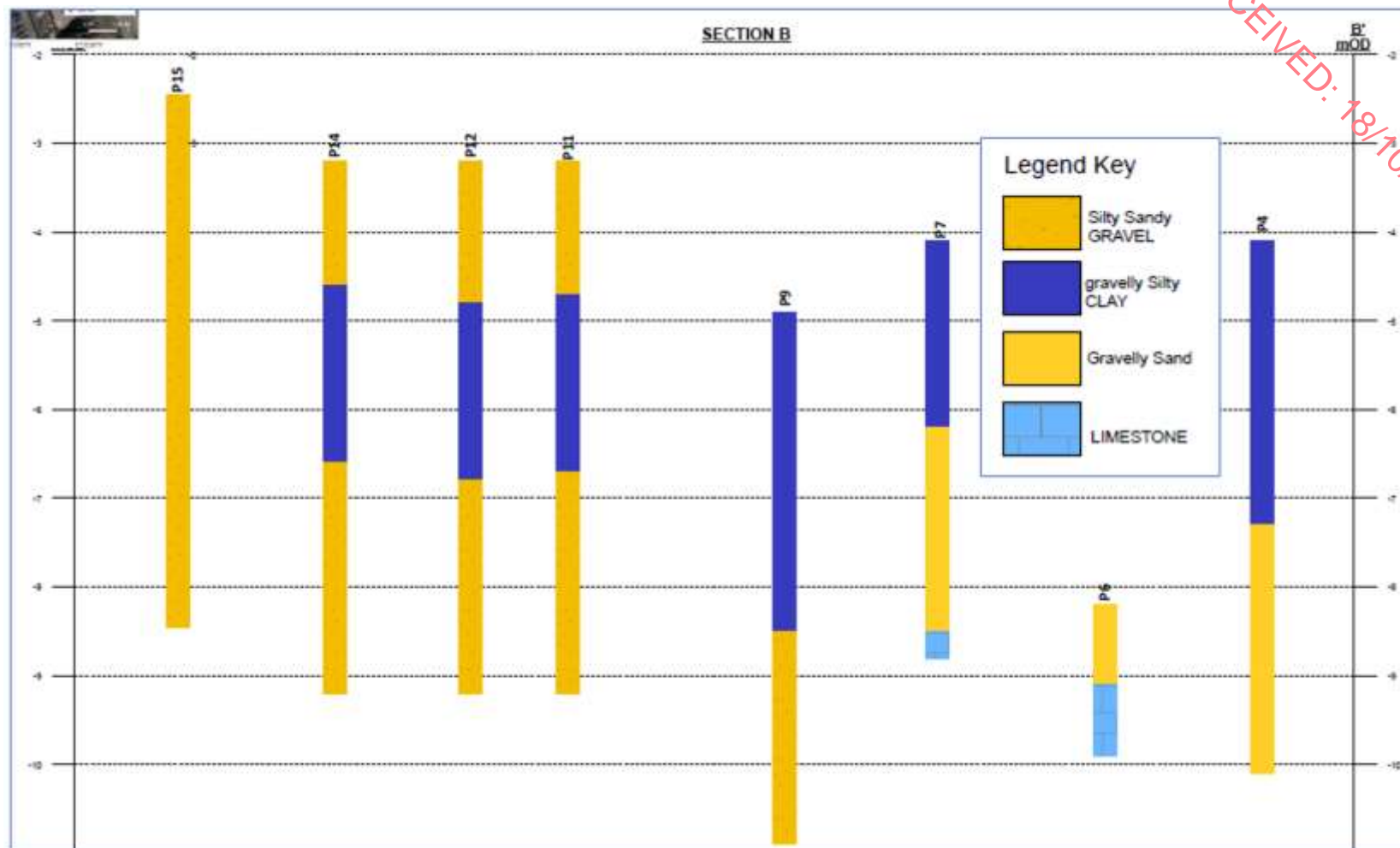


Figure 9.17 Geological Cross Section of Nearshore Development Area

### 9.6.12 Rating of Site Importance of the Geological Features

Based on the NRA/IGI methodology, the criteria for rating the importance of geological features, the importance of the bedrock and soil features at this site is rated as 'High' Importance (refer to Appendix 9.1).

This is based on the assessment that the attribute has a high quality, or value on a local scale. The site is located within a geological feature of high value on a local scale (Geological Heritage Audited Site - Greenore Raised Beach).

## 9.7 The 'Do Nothing' Scenario

If the proposed development was not to go ahead (i.e. in a Do-Nothing scenario) the baseline environment in terms of land, soils, and geology would remain unchanged as there would be no excavations or construction. Therefore, in a "Do Nothing" scenario, there would be a neutral effect on the land, soils and geological environment at the site. The likelihood in a temporary and short-term basis is the existing natural state of the area would persist, without any alterations or disturbances caused by the development.

However there are a number existing permitted developments at the site and on adjoining lands within Greenore Port. It should be noted that in the event that the proposed development does not go ahead, the extant permissions for warehousing (new and extensions) Greenore Port can be implemented.

It is likely that in the absence of the proposed development, that a development of a similar nature would be progressed on the site that accords with national and regional policies and therefore the likely significant effects would be similar to this proposal.

## 9.8 Potential Significant Effects

An analysis of the potential effects of the proposed development on the land, soils and geological environment during the demolition, construction and operational phases are outlined below. Due to the inter-relationship between land, soils, geology, hydrogeology and surface water (hydrology) the following impacts discussed will be considered applicable to both Chapter 9 and 10 of this EIA Report. Remediation and mitigation measures included in the design of this project to address these potential impacts are presented in Section 9.9.

### 9.8.1 Demolition Phase

To facilitate the development, demolition works are required. This will include the demolition of the former 'Open Hydro building', quay deck and a small portion of the port's office accommodation, an ESB substation, and an unoccupied dwelling house. The likelihood of significant effects on the land, soils and geology during the demolition phase is minimal due to the demolition works of the proposed development being limited to surface-level activities and do not involve any excavation works. The absence of excavation works means that there is no disturbance to the natural soil structure, preventing potential soil erosion or compaction. As a result, the impact on the land and soils is minimal and no significant effects on the land's composition, stability, or fertility are anticipated.

Overall, the surface-level demolition works will have a negligible impact on the land, soils and geology preserving their integrity and minimizing any potential environmental consequences. In the absence of mitigation, the effect on land, soils and geology is likely to be **short-term, Imperceptible and negative**.

Refer to Chapter 8 – Material Assets – Waste of this EIAR for further information on predicted on and off-site reuse, recycle and disposal rates for demolition waste.

## 9.8.2 Construction Phase

### 9.8.2.1 Accidental Spills, Leaks and Discharges

There is potential for the underlying soils, geology and groundwater to become contaminated with pollutants associated with construction activity. If a spill occurs, contaminated water and collected surface water run-off which arises from construction sites can pose a short-term risk to the underlying rock if contaminated water is allowed percolate to the aquifer unmitigated. The potential of contamination is associated with the following sources:

- Suspended solids (muddy water with increased turbidity (measure of the degree to which the water loses its transparency due to the presence of suspended particulates) – arising from dewatering, excavation and ground disturbance);
- Hydrocarbons and other construction chemicals (ecotoxic) – accidental spillages from construction plant or stored fuels, oils, and materials.
- Wastewater (nutrient and microbial rich) – arising from accidental discharge from on-site toilets and washrooms.

In the absence of mitigation, rainfall run-off and dewatering water during the construction phase may contain increased silt levels or otherwise become polluted from construction activities. Suspended solids in runoff water may result in an increase in suspended sediment load, resulting in increased turbidity, which may in turn impact on local infiltration capacity, or surface waterbodies. There is also the potential risk of unintentional discharge from construction traffic or stored materials like fuels and oils which could have negative impacts on both surface waters on-site and downstream from the site and the underlying groundwater. Moreover, construction activities often involve the use of chemicals, such as paints, adhesives, solvents, and pesticides, which can also pose a risk of contamination if not handled and disposed of properly. These chemicals can seep into the soil or be carried by rainwater or other runoff, ultimately contaminating groundwater. It is necessary for the measures (set out in Section 9.9.3) to be implemented to reduce and prevent accidental discharges from occurring during construction, including the implementation of effective containment and monitoring procedures.

Accidental discharges can also occur from welfare facilities during construction activities. Wastewater can contain high levels of bacteria, chemicals and organic matter, which could contaminate nearby water sources if discharged incorrectly. The establishment and use of welfare facilities and use of sealed containment, ensures that there are no potential significant impacts; therefore, no additional mitigation is required.

In addition to the unintentional spillages of the primary sources of contaminants mentioned above, there is also a risk that rainfall run-off and dewatering water from excavation activities becoming

contaminated by these sources. If not appropriately mitigated through containment, management, and monitoring, this could result in the mobilisation of these contaminants, leading to more widespread impacts on the surrounding environment. It is the intent to take necessary measures (set out in Section 9.9.3) to prevent such accidental discharges from occurring during construction, including the implementation of effective containment and monitoring procedures.

However, in the absence of mitigation, the effects on land, soils and geology are likely to be **short-term, significant and negative**.

### 9.8.2.2 Earthworks and Excavations

Removal and reinstatement (including infilling) of the 'protective' tarmac, concrete and subsoil cover across localised areas of the proposed development site will be undertaken during excavation and trenching works (including works for additional drainage and attenuation areas). The proposed development requires soil and stones to be excavated to facilitate construction of new foundations and the installation of underground services. The project engineers (McCarthy Browne) have estimated that c. 7,225 m<sup>3</sup> of material will need to be excavated to do so. It is currently envisaged that there will be an opportunity to reuse c. 4,265 m<sup>3</sup> of excavated material for use in landscaping and fill. The remaining 2,960 m<sup>3</sup> of material will be removed offsite for appropriate offsite reuse, recovery, recycling and / or disposal.

There will be dredging undertaken to facilitate navigable access and suitable berthing for the crew transfer vessels (CTV)s. Bedrock may be encountered in these areas and temporarily exposed for the duration of the excavation works and will temporarily increase the vulnerability category for the site which is classified by the GSI as 'High' indicating a general overburden depth potential between 3-5m, suggesting a moderate to good natural protection of the aquifer by high permeability marine gravel and sands and is consistent with local site investigations, as carboniferous limestones have been encountered at depths from 4.4 m below ground level (refer to Section Chapter 10 – Section 10.6.3.2). Given the anticipated size of the excavations, it is expected that they will involve only the uppermost strata and will not affect the bedrock associated to Dundalk groundwater body and locally important aquifer.

However, these works are temporary only. The overall duration of the construction works is estimated to be c.35 months (16 months per phase 1 and 19 months for phase 2). It is anticipated that c. 2,960 m<sup>3</sup> of excavated material and 45,000m<sup>3</sup> of dredged material will need to be removed off-site as stated above. Correct classification and segregation of the excavated material is required to ensure that any potentially contaminated materials are identified and handled in a way that will not impact negatively on workers as well as on water and soil environments, both on and off-site.

However, in the absence of mitigation, the effects on land, soils and geology are likely to be **short-term, significant and negative**.

## 9.8.3 Operational Phase

### 9.8.3.1 Hardstanding Areas

Once operational, the proposed development will not result in the addition of any new hardstanding areas within the port as such there will be no change to the land, soils and geology.

In the absence of mitigation measures, the potential effects during the operational phase on land, soils and geology are **long-term, imperceptible and neutral**.

#### 9.8.3.2 Storage of Hazardous Material

A fuel storage facility with a capacity of  $\geq 200,000$  litres will be provided in a dedicated area that will be maintained and managed by Greenore Port. There is limited potential for leaks or spills of petroleum hydrocarbons during site maintenance activities during the operation of the development. Unmitigated leaks or spills may lead to contamination of soil and/or groundwater. Soils that are contaminated by petroleum hydrocarbons can affect soil health.

In the absence of mitigation, measures the potential effects during the operational phase on land and soils are **long-term, significant and negative**.

#### 9.8.3.3 Drainage

The port has an existing foul drainage network in place comprising a foul collection tank and foul lines servicing buildings in the port. This includes an existing 150mm connection to the foul collection tank from the former Open Hydro building.

A new network of foul sewers will be installed to serve the proposed development, discharging to the existing collection tank.

There are two separate surface water drainage proposals for the proposed development, one for the O&M facility development at the terrestrial port area and a separate system for the satellite carpark at the residential site on Shore Road.

There is no discharge to ground proposed as part of the surface water drainage strategy from the O&M Facility and the existing outfall into Carlingford Lough will be utilised. A bypass separator will be installed to intercept pollutants such as petroleum and oil before the Surface water outfalls to sea.

There is no discharge to ground proposed as part of the surface water drainage strategy from the shore road car park. Surface water will discharge to the public surface water pipe on Shore Road. A bypass interceptor will be installed to capture pollutants such as petroleum and oil and prevent their entry to the public drainage system.

There will be no disruption to land, soils and geology during operational phase, hence there will be no potential effects.

In the absence of mitigation measures, the potential effects during the operational phase on land and soils are **long-term, imperceptible and neutral**.

#### 9.8.4 Cumulative Effects

**This section needs to consider the cumulative (combined) effects of the proposed development with the following:-**

- ➔ There are existing residential and commercial developments close by, along with the multiple permissions remaining in place in the area. Multiple developments in the area could potentially be developed concurrently or overlap during the demolition, construction and

operational phases. There will be no effects on land soils and geology as each development will adhere to their own CEMP and mitigation plan. There is no pathway and connectivity to land soils and geology to each development.

The additional projects included in the updated List of Cumulative Projects appended to Chapter 1, i.e. the proposed ORE developments in the Irish Sea were considered and no additional cumulative effects arising from these projects were identified.

### 9.8.5 Summary

The following Table summarises the identified likely significant effects during the construction phase of the proposed development before mitigation measures are applied. If the mitigation measures outlined in Section 9.9 below are not implemented and adhered to in full, the effect on the land and soils is likely to be **long-term, significant and negative**.

**Table 9.7 Summary of Construction Phase Likely Significant Effects in the absence of mitigation**

Likely Significant Effect	Quality	Significance	Extent	Probability	Duration	Type
Accidental Spills, Leaks and Discharges	Negative	Significant	Local & Regional	Likely	Long-Term	Direct
Soil Erosion & Compaction	Negative	Significant	Local	Likely	Short-Term	Direct
Increased Sediment Run Off during excavation works carrying Sediment and Pollutants into the Soil and Bedrock	Negative	Significant	Local & Regional	Likely	Short-Term	Direct & Indirect
Soil Contamination from Construction Waste, Materials & Chemicals	Negative	Significant	Local	Likely	Long-Term	Direct
Lack of waste Classification & Improper disposal of Construction Waste increasing the risk of Soil Contamination	Negative	Significant	Local	Likely	Long-Term	Direct

The following Table summarises the identified likely significant effects during the operational phase of the proposed development before mitigation measures are applied.



**Table 9.8 Summary of Operational Phase Likely Significant Effects in the absence of mitigation**

Likely Significant Effect	Quality	Significance	Extent	Probability	Duration	Type
Accidental Spills, Leaks and Discharges	Negative	Significant	Local & Regional	Likely	Long-Term	Direct
Increased Sediment Run Off from Hardstanding Areas carrying Sediment and Pollutants into the Soil and Bedrock Off-Site	Negative	Significant	Local & Regional	Likely	Short-Term	Direct
Future Maintenance Works on Underground Services and Infrastructure involving Soil Excavations and Soil Disturbance and Disposal	Negative	<b>Imperceptible</b>	Local & Regional	Likely	Short-Term	Direct

## 9.9 Mitigation

### 9.9.1 Incorporated Design Mitigation

This section outlines the measures that will be employed in order to ensure the project has minimal adverse effects on the surrounding environment, in this case land, soils and geology. These measures include appropriate design measures such as the proper storage and containment of hazardous substances and proper drainage systems in line with best practice, standard details, policies and guidelines already incorporated into the proposed design. For further information on design refer to the Engineering Planning Report (CSEA, 2023) submitted with this application.

### 9.9.2 Demolition Phase Mitigation

To facilitate the development, demolition works are required. This will include the demolition of the former 'Open Hydro building' to, and a small portion of the port's office accommodation, an ESB substation, and an unoccupied dwelling house. The demolition works of the proposed development

are limited to surface-level activities and do not involve any excavation works. As a result, the impact on the land and soils is minimal.

The demolition process focuses on dismantling and removing structures, buildings and infrastructure (i.e. Open Hydro building, office accommodation, ESB substation and associated switch room, unoccupied dwelling house etc.) to accommodate the new development and facilitation works, without disturbing the underlying soil or altering the landscape. This approach ensures that there are no significant effects on the land's composition, stability, or fertility. The absence of excavation works means that there is no disturbance to the natural soil structure, preventing potential soil erosion or compaction.

In addition, all waste materials will be dealt with in accordance with regional and national legislation, time and resources will be dedicated to ensuring efficient waste management practices and waste arisings will be taken to suitably registered / permitted / licenced waste facilities for processing and segregation, reuse, recycling, recovery, and / or disposal, as appropriate.

Refer to Chapter 8 – Material Assets – Waste – Section 8.9.2 of the EIA for further information on predicted on demolition phase mitigation in terms of off-site reuse, recycle and disposal rates for demolition waste.

Overall, minimal mitigation measures are required during the demolition phase due to the surface level nature of the works. The surface-level demolition works will have a negligible impact on the land and soils, preserving their integrity and minimizing any potential environmental consequences.

### **9.9.3 Construction Phase Mitigation**

In order to reduce impacts on the land, soils and geological environment, a number of mitigation measures will be adopted as part of the construction works on site. The measures will address the main activities of potential impact which include:

- Control of soil excavation and export from site;
- Sources of fill and aggregates for the proposed development;
- Fuel and chemical handling, transport and storage; and
- Control of water during construction.

#### **9.9.3.1 Construction Environmental Management Plan**

The project engineer (McCarthy Browne) have prepared a Construction Environmental Management Plan (CEMP) that is included with the application documentation.

The main purpose of a CEMP is to provide a mechanism for implementation of the various mitigation and monitoring measures which are described in the EIAR. The CEMP demonstrates the applicant's commitment to implementing the proposed development in such a way as to avoid or minimise the potential environmental effects arising from construction activities. All personnel will be required to understand and implement the requirements of the plan.

Construction works and the proposed mitigation measures outlined in the CEMP are informed by best practice guidance on the prevention of pollution during development projects including but not limited to:

- Construction Industry Research and Information Association (CIRIA), Control of Water Pollution from Construction Sites, Guidance for Consultants and Contractors (C532);
- Guidelines on Protection of Fisheries During Construction Works in and Adjacent to Waters (2016);
- Construction Industry Research and Information Association (CIRIA) Environmental Good Practice on Site (4th edition), (C741);
- Enterprise Ireland Best Practice Guide, Oil Storage Guidelines (BPGCS005); and
- Guidelines for the crossing of watercourses during the construction of national road schemes (National Roads Authority; 2008).

The CEMP will be implemented and adhered to by the construction contractor and will be overseen and updated as required if site conditions change by the Project Manager, Environmental Manager, Resource Manager and Ecological Clerk of Works where relevant. All personnel working on the Site will be trained in the implementation of the procedures.

The CEMP sets out the proposed procedures and operations to be utilised on the proposed construction site. All mitigation measures outlined here, and within the CEMP will be implemented during the construction phase, as well as any additional measures required pursuant to consent conditions which may be imposed.

During the project planning phase, a comprehensive emergency response plan will be developed by the construction contractor. This plan will outline a well-defined procedure for effectively managing emergencies as they arise. Furthermore, it's imperative to disseminate this emergency protocol to all site personnel during the site induction process. This plan will include for events such as:

- Pollution incidents: These may involve spillages, the malfunction of temporary structures, embankment collapse, acts of vandalism, fires, and other related events.
- Extreme weather occurrences: Events such as heavy rainfall, flooding, are important factors to consider due to their potential impact on the construction process.

The construction contractor will be required to implement emergency response procedures that align with industry best practice guidance. All personnel working on the site will be informed of the emergency procedures in place.

#### 9.9.3.2 Soil Excavation, Removal and Infill

There will be soil and stones excavated to facilitate construction of new foundations and the installation of underground services. The project engineers (McCarthy Browne) have estimated that c. 7,225 m<sup>3</sup> of material will need to be excavated to do so. It is currently envisaged that there will be an opportunity to reuse c. 4,265 m<sup>3</sup> of excavated material for use in landscaping and fill. The remaining 2,960 m<sup>3</sup> of material, will need to be removed offsite due to the limited opportunities for reuse on site. This will be taken for appropriate offsite reuse, recovery, recycling and / or disposal.

There will be dredging undertaken to facilitate navigable access and suitable berthing for the crew transfer vessels (CTV)s. McCarthy Browne have estimated that c. 45,000 m<sup>3</sup> of material to be dredged. This material will be taken for appropriate offsite reuse, recovery, recycling and / or disposal. A further 1,000 m<sup>3</sup> of possible rock dredge material will be reused on site.

Material that is exported from site, if not correctly managed or handled, could impact negatively on human beings (onsite and offsite) as well as water and soil environments. Contractors should prepare

and adhere to a method statement indicating the extent of the areas likely to be affected and demonstrating that this is the minimum disturbance necessary to achieve the required works.

Stockpiles have the potential to cause negative impacts on air and water quality. The effects of soil stripping and stockpiling will be mitigated through the implementation of an appropriate earthworks handling protocol during construction.

Dust suppression measures (e.g. damping down during dry periods), vehicle wheel washes, road sweeping, and general housekeeping will ensure that the surrounding environment are free of nuisance dust and dirt on roads.

Previous site investigations carried out by RPS in 2011 identified petroleum hydrocarbons in a number of soil samples (refer to Section 9.4.3.2 above or Appendix 9.2 - Targeted Soil and Groundwater Assessment – Ground Investigation at the Topaz Fuel Storage Terminal, Greenore). Any excavation works should be carefully monitored by a suitably qualified person to ensure any potentially contaminated soil is identified and segregated from clean/inert soil. In the unlikely event that any potentially contaminated soils are encountered, the soil will be tested and classified as hazardous or non-hazardous in accordance with the EPA *Waste Classification – List of Waste & Determining if Waste is Hazardous or Non-Hazardous* publication, HazWasteOnline tool or similar approved method. The material will then need to be classified as inert, non-hazardous, stable non-reactive hazardous or hazardous in accordance with *EC Decision 2003/33/EC*. It should then be removed from site by a suitably permitted waste contractor to an authorised waste facility.

#### 9.9.3.3 Sources of Engineering Fill and Aggregates

All imported fill and aggregate that may be required for the proposed development will be sourced from reputable suppliers. All suppliers will be vetted for:

- Aggregate compliance certificates/declarations of conformity for the classes of material specified for the proposed development;
- Environmental Management status; and
- Regulatory and Legal Compliance status of the Company

#### 9.9.3.4 Fuel and Chemical Handling

The following mitigation measures will be taken at the construction stage in order to prevent any spillages to ground of fuels and prevent any resulting soil and/or water quality impacts:

- Designation of a bunded refuelling areas on the site if refuelling cannot be undertaken off site;
- Provision of spill kit facilities across the site;
- Where mobile fuel bowzers are used the following measures will be taken:
  - Any flexible pipe, tap or valve will be fitted with a lock and will be secured when not in use;
  - The pump or valve will be fitted with a lock and will be secured when not in use;
  - All bowzers to carry a spill kit;
  - Operatives must have spill response training; and
  - Drip trays used on any required mobile fuel units.

In the case of drummed fuel or other potentially polluting substances which may be used during construction the following measures will be adopted:

- Secure storage of all containers that contain potential polluting substances in a dedicated internally bunded chemical storage cabinet unit or inside a concrete bunded area;
- Clear labelling of containers so that appropriate remedial measures can be taken in the event of a spillage;
- All drums to be quality approved and manufactured to a recognised standard;
- If drums are to be moved around the site, they will be secured and on spill pallets; and
- Drums to be loaded and unloaded by competent and trained personnel using appropriate equipment.

All contractors will be required to implement mitigation measures discussed above.

All ready-mixed concrete will be brought to site by truck. A suitable risk assessment for wet concreting will be completed prior to works being carried out which will include measures to prevent discharge of alkaline waste waters or contaminated storm water to the underlying subsoil. Wash-down and washout of concrete transporting vehicles will take place at a designated wash out point on site.

#### 9.9.3.5 Environmental Procedures

There will be comprehensive emergency response procedures and standard operating procedures to respond to chemical spillage all types. All employees will be provided with such equipment, information, training and supervision as is necessary to implement the emergency response procedures and standard operating procedures.

The predicted impact on land and soils during the construction phase is **neutral, imperceptible** and **short-term**, the magnitude of impact is considered **negligible**.

### 9.9.4 Operational Phase Mitigation

#### 9.9.4.1 Increased Run-Off and Sediment Loading

The proposed development will not add any new hardstanding areas within the port. Therefore, there will be no requirements for mitigations against increased run-off and sediment loading post construction phase of the development.

#### 9.9.4.2 Drainage

There are no direct or indirect foul water discharges to ground or Carlingford Lough as part of the existing or proposed waste water drainage design.

The port has an existing foul drainage network in place comprising a foul collection tank and foul lines servicing buildings in the port. This includes an existing 150mm connection to the foul collection tank from the former Open Hydro building.

A new network of foul sewers will be installed to serve the proposed development, discharging to the existing collection tank. Therefore, as there are no effects on the land, soils and geology at the proposed development, no mitigation is required.

There are two separate surface water drainage proposals for the proposed development, one for the O&M facility development at the terrestrial port area and a separate system for the satellite carpark at the residential site on Shore Road.

There is no discharge to ground proposed as part of the surface water drainage strategy from the O&M Facility and the existing outfall into Carlingford Lough will be utilised. Therefore, as there are no effects on the land, soils and geology at the proposed development, no mitigation is required.

There is no discharge to ground proposed as part of the surface water drainage strategy from the shore road car park. Surface water will discharge to the public surface water pipe on Shore Road. A bypass interceptor will be installed to capture pollutants such as petroleum and oil and prevent their entry to the public drainage system. Therefore, as there are no effects on the land, soils and geology at the proposed development, no mitigation is required.

#### 9.9.4.3 Storage of Hazardous Material

A fuel storage facility with a capacity of  $\geq 200,000$  liters will be provided in a dedicated area that will be maintained and managed by Greenore Port. This quantity of proposed fuel storage is significantly below the applicable threshold of 2,500 tonnes for petroleum products and alternative fuels detailed in Part 2 of Schedule 1 of the Control of Major Accident Hazards (COMAH) Regulations 2015.

In addition to this the tanks will be bunded or double skinned so in the event of a spill no discharge to ground will occur.

As part of integrated design mitigation, Surface water will be drained from this area into the proposed network with petrol interceptors included to ensure no hydrocarbon contamination exits the site through the surface water drainage system. Hence, no mitigation will be required during the operational phase.

## 9.10 Residual Impact Assessment

The implementation of mitigation measures outlined in Section 9.9 will ensure that the potential impacts on the land, soils and geological environment do not occur during the demolition, construction and operational phases of the proposed development. Due to the inter-relationship between land, soils, geology, hydrogeology and surface water the following impacts discussed will be considered applicable to both Chapter 9 (Land and Soils) & Chapter 10 (Hydrology) of the EIAR.

### 9.10.1 Demolition Phase

A carefully planned approach during the demolition phase in particular waste management, as set out in Section 9.9.2 and full adherence to the RWMP presented in Appendix 8.1 and Chapter 8 – Material Assets & Waste of the EIAR, will ensure that the predicted effect on the land, soils and geological environment will be **short-term, imperceptible** and **neutral**. Following the TII criteria for rating the magnitude and significance of impacts on the geological and hydrogeological related attributes, the magnitude of impact is considered **negligible**.



## 9.10.2 Construction Phase

### 9.10.2.1 Soil Excavation, Removal and Infill

The implementation of mitigation measures outlined in Section 9.9.3.2 will ensure that the potential impacts on the land, soils and geological environment do not occur during the construction phase and that the residual effect will be **short-term-imperceptible-neutral**. Following the TII criteria for rating the magnitude and significance of impacts on the geological and hydrogeological related attributes, the magnitude of impact is considered **negligible**.

### 9.10.2.2 Sources of Engineering Fill and Aggregate

The implementation of mitigation measures outlined in Section 9.9.3.3 will ensure that the potential impacts on the land, soils and geological environment do not occur during the construction phase and that the residual effect will be **short-term-imperceptible-neutral**. Following the TII criteria for rating the magnitude and significance of impacts on the geological and hydrogeological related attributes, the magnitude of impact is considered **negligible**.

### 9.10.2.3 Fuel and Chemical Handling

The implementation of mitigation measures outlined in Section 9.9.3.4 will ensure that the potential impacts on the land, soils and geological environment do not occur during the construction phase and that the residual effect will be **short-term-imperceptible-neutral**. Following the TII criteria for rating the magnitude and significance of impacts on the geological and hydrogeological related attributes, the magnitude of impact is considered **negligible**.

## 9.10.3 Operational Phase

### 9.10.3.1 Increased Run-Off and Sediment Loading

The implementation of mitigation measures highlighted in Section 9.9.4.1 will ensure that the potential impacts on the land, soils and geological environment do not occur during the operational phase and that the residual effect will be **short-term-imperceptible-neutral**. Following the TII criteria (Appendix 9.1) for rating the magnitude and significance of impacts on the geological and hydrogeological related attributes, the magnitude of impact is considered **negligible**.

### 9.10.3.2 Waste Water Drainage

The implementation of mitigation measures highlighted in Section 9.9.4.2 will ensure that the potential impacts on the land, soils and geological environment do not occur during the operational phase and that the residual effect will be **short-term-imperceptible-neutral**. Following the TII criteria (Appendix 9.1) for rating the magnitude and significance of impacts on the geological and hydrogeological related attributes, the magnitude of impact is considered **negligible**.

### 9.10.3.3 Surface Water Drainage

The implementation of mitigation measures highlighted in Section 9.9.4.3 will ensure that the potential impacts on the land, soils and geological environment do not occur during the operational phase and that the residual effect will be **short-term-imperceptible-neutral**. Following the TII criteria

(Appendix 9.1) for rating the magnitude and significance of impacts on the geological and hydrogeological related attributes, the magnitude of impact is considered **negligible**.

#### 9.10.3.4 Storage of Hazardous Material

The implementation of mitigation measures highlighted in Section 9.9.4.4 will ensure that the potential impacts on the land, soils and geological environment do not occur during the operational phase and that the residual effect will be **short-term-imperceptible-neutral**. Following the TII criteria (Appendix 9.1) for rating the magnitude and significance of impacts on the geological and hydrogeological related attributes, the magnitude of impact is considered **negligible**.

#### 9.10.4 Summary of Post-mitigation Effects

The implementation of mitigation measures outlined in Section 9.9 will ensure that the potential impacts on the land, soils and geological environment do not occur during the demolition, construction and operational phases of the proposed development. Due to the inter-relationship between land, soils, geology, hydrogeology and surface water the following impacts discussed will be considered applicable to both Chapter 9 (Land and Soils) & Chapter 10 (Hydrology) of the EIAR.

The following Table summarises the identified likely significant residual effects during the construction phase of the proposed development following the application of mitigation measures.

**Table 9.9 Summary of Construction Phase Effects Post Mitigation**

Likely Significant Effect	Quality	Significance	Extent	Probability	Duration	Type
Accidental Spills, Leaks and Discharges	Neutral	Imperceptible	Local & Regional	Unlikely	Short-Term	Direct
Soil Erosion & Compaction	Neutral	Imperceptible	Local & Regional	Unlikely	Short-Term	Direct
Increased Sediment Run Off carrying Sediment and Pollutants	Neutral	Imperceptible	Local & Regional	Unlikely	Short-Term	Direct
Soil Contamination from Construction Waste, Materials & Chemicals	Neutral	Imperceptible	Local & Regional	Unlikely	Short-Term	Direct
Lack of waste Classification & Improper disposal of Construction Waste	Neutral	Imperceptible	Local & Regional	Unlikely	Short-Term	Direct

Likely Significant Effect	Quality	Significance	Extent	Probability	Duration	Type
increasing the risk of Soil Contamination off-site						

The following Table summarises the identified likely residual significant effects during the operational phase of the proposed development post mitigation.

**Table 9.10 Summary of Operational Phase Effects Post Mitigation**

Likely Significant Effect	Quality	Significance	Extent	Probability	Duration	Type
Accidental Spills, Leaks and Discharges	Neutral	Imperceptible	Local & Regional	Unlikely	Short-Term	Direct
Unlicensed Waste Collection (Illegal Dumping)	Neutral	Imperceptible	Local & Regional	Unlikely	Short-Term	Direct
Increased Sediment Run Off from Hardstanding Areas carrying Sediment and Pollutants into the Soil and Bedrock Off-Site	Neutral	Imperceptible	Local & Regional	Unlikely	Short-Term	Direct & Indirect
Future Maintenance Works on Underground Services and Infrastructure involving Soil Excavations and Soil Disturbance and Disposal	Neutral	Imperceptible	Local & Regional	Unlikely	Short-Term	Direct & Indirect
Discharge of Water to Ground	Neutral	Imperceptible	Local & Regional	Unlikely	Short-Term	Direct

### 9.10.5 Cumulative Residual Effects

The following Table summarises the cumulative residual effects of the proposed development post mitigation.

**Table 9.11 Summary of Cumulative Residual Effects Post Mitigation**

Planning Ref	Description	Application type	Decision	Date
LCC 20543	Demolition of existing structures inc. railway and engine room walls and construction of two new stores and an ESB substation.	Permission	Conditional Upheld on Appeal	15/04/2021
LCC 20268	Extension and modifications to the existing former OpenHydro warehouse. The development applied for is within Greenore Port's landholding within the curtilage also exists the watertower, lighthouse and lighthouse keeper's cottage which are all included in the Louth Record of Protected Structures Ref. LH009-01, LH009-043, LH009-044 respectively	Permission	Conditional Upheld on Appeal	18/07/2020
LCC 2360119	Retention of as constructed dwellinghouse previously granted planning permission under planning Ref. No. 97/866 and all associated site development works	Retention	Conditional	14/07/2023
LCC 23234	Retention permission for (a) a domestic store; (b) a domestic outbuilding comprising of a games room, gym and home office and (c) associated site development works	Retention	Conditional	12/01/2024
LCC 2385	Retention permission for extensions and alterations to the existing dwelling, attached domestic garage and associated site development works	Retention	Conditional	21/07/2023
LCC 231	Permission for the following: (1) demolition of a single storey extension and outbuilding to the rear of the existing house; (2) alterations to the rear of the existing house; (3) construction of a one storey extension to the rear of the existing house	Permission	Conditional	24/02/2023
LCC 22614	Permission for elevational changes and alterations to existing dwelling house and all associated site works	Permission	Conditional	04/11/2022
LCC 211439	Retention permission for a single storey extension to the side and rear of the dwelling	Retention	Conditional	11/03/2022

Planning Ref	Description	Application type	Decision	Date
LCC 211331	Permission for a single storey extension to the rear of the dwelling and all associated site works. The existing building is a Protected Structure in the Louth County Council Development Plan Ref. No. LHS009-036B, NIAH Ref. 13831027	Permission	Conditional	17/12/2021
LCC 211223	Retention permission for development that consists of an extension to the rear of dwelling. This building is listed as a protected structure under the Louth County Development Plan 2015-2021 Ref No LHs 009-004	Retention	Conditional	10/11/2021
LCC 19754	Permission for extension to side of existing dwelling house, upgrading of existing effluent treatment system on site and all associated site development works. *Significant Further Information submitted 01/07/20*	Permission	Conditional	28/07/2020
LCC 19727	Permission for one dwelling house, effluent treatment system and all associated site development works.*Significant Further Information submitted 17/6/20*	Permission	Conditional	14/07/2020
LCC 19202	Permission for a one storey extension to rear of the existing dwelling, a protected structure (ID: LHS009-016, NIAH No. 13831014), alterations to the existing layout and associated site works. *Significant Further Information submitted 22/05/2019*	Permission	Conditional	18/06/2019
LCC 18718	The development will consist of (1) Retention of an existing dwelling house, domestic garage and associated site development works and (2) Permission for alterations to an existing dwelling house and part conversion of roof space to habitable accommodation.	Retention	Conditional	19/01/2019
LCC 23218	Permission for extension and alterations to the ground and first floor level of an existing dwelling house, a new waste water treatment system and associated site development works **Significant further information received on 26.9.23**	Permission	Conditional	13/10/2023
LCC 21572	Permission for development that will consist of the construction of a two storey dwelling house, a single storey domestic garage, septic tank with percolation area,	Permission	Conditional	21/12/2021

Planning Ref	Description	Application type	Decision	Date
	use of existing entrance onto public road and all associated site development works. *FI received on 06/12/2021*			
LCC 21732	Permission for a dwelling house, domestic garage, waste water treatment system and associated site development works *Significant Further Information submitted 04/11/21 which includes a revised house design*	Permission	Conditional	24/11/2021
LCC 2360256	Permission for extensions and modifications to existing dwelling house at 15 Euston Street, Greenore, Co. Louth. Permission to include for all associated and ancillary site development works. The existing dwelling house is a Protected Structure, Ref; LHS 009-020, and located within the Greenore Architectural Conservation Area	Permission	Conditional	15/09/2023
LCC 23254	Permission for alterations and extension to existing precision engineering workshop and all associated site works	Permission	Conditional	01/09/2023
LCC 23125	Permission for the change of use of existing building from commercial/residential use to voluntary community workshop and all associated site development works	Permission	Conditional	18/08/2023
LCC 22274	Permission for the demolition of an existing <b>Coast Guard Lifeboat House</b> and the replacement of same with a new Lifeboat House to include communication aerials, floodlighting, flag poles and all associated site development works.	Permission	Conditional Under Appeal ABP-315830-23	19/01/2023
LCC 20362	Permission for development consisting of the installation of a grid connected photovoltaic panel system fitted to the roofs of existing warehouse buildings.	Permission	Conditional	21/07/2020
LCC 2360352	Retention and completion of a partially constructed single storey extension permitted under P.A. Ref. No. 17/282 to the existing production building. The existing production building was permitted under P.A. Ref. 93/ 84 and has operated from the site for nearly 30 years. Permission is also sought to retain and complete c. 25 sq.m of additional production floorspace to the southwest of the partially constructed extension. The retention and completion of the extension	Retention	Conditional Under Appeal ABP-318516-23 Appeal Refused	



Planning Ref	Description	Application type	Decision	Date
	and additional floor area will facilitate the internalisation of part of the production process			
LCC 16852	Permission for development of a managed step down housing community with support facilities. The proposed development will consist of 30 no managed residential units, and associated ancillary facilities designed specifically for older residents. The proposed development is comprised of 9 no single storey 1-bed studio units, 3 no single storey 1-bed units, 11 no 1-bed apartments all with own door access over 2 storeys, 7 no 2-bed units and a 2 storey community and administration facility as well as associated site works (roads, drainage, street lighting, hard & soft landscaping, utility building & services)	Permission	Conditional	24/03/2017
LCC 21728	EXTENSION OF DURATION OF 16/852 - Permission for development of a managed step down housing community with support facilities. The proposed development will consist of 30 no managed residential units, and associated ancillary facilities designed specifically for older residents. The proposed development is comprised of 9 no single storey 1-bed studio units, 3 no single storey 1-bed units, 11 no 1-bed apartments all with own door access over 2 storeys, 7 no 2-bed units and a 2 storey community and administration facility as well as associated site works (roads, drainage, street lighting, hard & soft landscaping, utility building & services)	Extension of Duration	Conditional	09/07/2021
LA07/2016 /1273/F	Demolition of existing dwelling and erection of 3 No. detached dwellings		Granted	16/08/2017
LA07/2022 /1234/F	Renewal of planning approval granted under LA07/2016/1273/F for the demolition of existing dwelling and erection of 3 no. detached dwellings		Granted	22/03/2023

There are existing residential and commercial developments close by, along with the multiple permissions remaining in place in the area. Multiple developments in the area could potentially be developed concurrently or overlap during the demolition, construction and operational phases.

#### 9.10.5.1 Demolition Phase

The potential residual effects on the land, soils and geological environment surrounding the development are expected to be minimal due to the demolition works being limited to surface-level activities and do not involve any excavation works. As a result, there will be minimal impact on the land, soils and geological environment, and no significant effects on the composition, stability, or fertility of the land are anticipated. The absence of excavation works also means that there will be no disturbance to the natural soil structure, thus preventing potential soil erosion or compaction and increased run-off rates.

Any developments proposed in the area will have to adhere to their own CEMP and Mitigation plans. There are no pathway connecting the sites in terms of land, soils and geology.

Overall, the surface-level demolition works will have a negligible impact on the land, soils and geology environment, preserving their integrity and minimizing any potential environmental consequences.

The implementation of mitigation measures outlined in Section 9.9.2 will ensure the residual effect on the land, soils and geology environment during the demolition phase is likely to be **short-term, Imperceptible and negative**.

#### 9.10.5.2 Construction Phase

The implementation of mitigation measures outlined in Section 9.9.3 will ensure the residual effect on the land, soils and geological environment during the construction phase detailed in Section 9.8.2 will be **short-term, imperceptible and neutral**.

Following the TII criteria for rating the magnitude and significance of impacts on the geological and hydrogeological related attributes, the magnitude of impact is considered **negligible**.

#### 9.10.5.3 Operational Phase

The implementation of mitigation measures highlighted in Section 9.9.4 will ensure that the potential effects detailed in Section 9.8.3 on the land, soils and geological environment do not occur during the operational phase and that the residual effect will be **short-term-imperceptible-neutral**. Following the TII criteria (Appendix 5.1) for rating the magnitude and significance of impacts on the geological attributes, the magnitude of impact is considered **negligible**.

### 9.11 Risk of Major Accidents or Disasters

The EPA Guidelines, 2022, state that:

*“To address unforeseen or unplanned effects the Directive further requires that the EIAR takes account of the vulnerability of the project to risk of major accidents and /or disasters relevant to the project concerned and that the EIAR therefore explicitly addresses this issue. The extent to which the effects of major accidents and / or disasters are examined in the EIAR should be guided by an assessment of the likelihood of their occurrence (risk). This may be supported by general risk assessment methods or by systematic risk assessments required under other legislation e.g. a COMAH (Control of Major Accident Hazards involving Dangerous Substances) assessment.*

*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."*

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 development site is not in an area susceptible to landslides, with a GSI Landslide Susceptibility Classification of "Low". This is consistent with the topography and the geology across the site.

The nearest landslide was c.16.5km to the north-west of the proposed development, referred to as the Drumad2013 (Event ID: GSI\_LS13-0005) which occurred on March 22<sup>nd</sup> 2013. There have been no recorded landslide events at Greenore Port or in the vicinity.

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](http://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 most recent earthquake was in the Irish Sea (0.9 Magnitude) on the September 30<sup>th</sup> 2023 c. 130km to the south-east of the proposed development. There are no active volcanoes in Ireland so there is no risk from volcanic activity.

## 9.12 Worst Case Scenario

In a worst-case scenario, if the mitigation measures outlined in Section 9.9 aren't fully followed, there's a chance of contamination and pollution during the demolition, construction, and operational phases of the proposed development to occur. This could happen through accidental spills and leaks, increased run-off, sediment loading, excavation and maintenance works.

The mitigation measures set out in Section 9.9 above are in place to prevent any negative impacts on the land, soil, and geology. This will help minimize the likelihood of these issues occurring and protect the surrounding environment.

## 9.13 Interactions

This section discusses interactions between this Chapter and other specialist environmental topics considered in this EIAR.

### 9.13.1 Water and Hydrology

#### 9.13.1.1 Demolition Phase

The likelihood of significant effects on the hydrogeological and hydrological regime at the proposed development during the demolition phase is minimal due to the demolition works being limited to surface-level activities and do not involve any excavation works.

As a result, no significant effects on the land's composition, stability, or fertility are anticipated. The absence of excavation works means that there is no disturbance to the natural soil structure, preventing potential soil erosion or compaction. Therefore, there is no risk of increased sediment loading and run off entering nearby surface waterbodies during this phase.

As well as the mitigation measures outlined in this section, the development should adhere to the mitigation measures set out in Section 10.9.2 of the EIAR .

Full adherence to the RWMP presented in Appendix 8.1 and Chapter 8 – Material Assets Waste of the EIAR.

#### 9.13.1.2 Construction Phase

The construction phase of the proposed development has the potential to result in increased sediment runoff which has the potential to interact negatively on groundwater and surface water quality. The proposed construction phase mitigation outlined in Section 10.9 - Chapter 10 – Hydrology of the EIA, means that the proposed development will not result in significant negative impact on groundwater and surface water quality in the local area. The interaction is considered to be **neutral, Imperceptible, and short term**.

#### 9.13.1.3 Operational Phase

The operational phase of the proposed development has the potential to interact negatively on groundwater and surface water quality via the proposed surface water network which involves discharging to Carlingford Lough during high tide periods. The proposed operation phase mitigation outlined in Section 10.9 - Chapter 10 – Hydrology of the EIA, means that the proposed development will not result in significant negative impact on groundwater and surface water quality in the local area. The interaction is considered to be **neutral, Imperceptible, and short term**.

### 9.13.2 Biodiversity

#### 9.13.2.1 Demolition Phase

The demolition works of the proposed development are limited to surface-level activities on predominately existing buildings and infrastructure and do not involve any excavation works. As a result, the impact on biodiversity is minimal.

Overall, the surface-level demolition works will benefit the local biodiversity, preserving their integrity and minimizing any potential environmental consequences. The interaction is considered to be **short-term, Imperceptible and neutral**.

#### 9.13.2.2 Construction Phase

In the absence of standard mitigation measures to control the construction phase there is potential for silt laden material or pollution to enter nearby surface waterbodies (and impact on local biodiversity and European sites downstream from the works. Furthermore, dust emissions from exposed earthworks have the potential to settle on plants causing impacts to local ecology.

Taking into account the mitigation measures outlined in this Section 9.9.3, there still remains a residual negative interaction between land and soils with and biodiversity during the construction phase. The interaction is considered to be **negative, Imperceptible, and short term**.

#### 9.13.2.3 Operational Phase

The proposed work is expected to have no significant impact on the local designated areas and their conservation objectives. The interaction is considered to be **long-term, imperceptible and neutral**.

### 9.13.3 Air Quality

#### 9.13.3.1 Demolition & Construction Phase

Demolition and construction phase activities such as excavations and stockpiling of materials etc. have the potential for interactions between air quality and the land and soils environment (hydrology) in the form of dust emissions. Mitigation measures are proposed to prevent fugitive dust emissions from construction activities including excavated soils or dredged material.

#### 9.13.3.2 Operational Phase

There are no interactions identified between land and soils and air quality during the operational phase.

### 9.13.4 Material Assets: Transport and Built Services

#### 9.13.4.1 Demolition & Construction Phase

During the construction phase, excavated soil and stone (c. 7,225 m<sup>3</sup>) will be generated from the excavations required to facilitate site levelling, construction of new foundations and installations of site services. It is estimated that 2,960 m<sup>3</sup> of the excavated material will need to be removed off-site with the remaining balance being reused on site.

As well as soil and stone from land-based excavations there will be dredging undertaken to facilitate navigable access and suitable berthing. The project engineers (McCarthy Browne) have estimated that c. 45,000 m<sup>3</sup> of material will be removed from site.

If material has to be taken off-site, it will be taken for reuse or recovery, where practical, with disposal as a last resort.

#### 9.13.4.2 Operational Phase

There are no potentially significant interactions identified between land and soils and Transport during the operational phase.

#### 9.13.5 Waste

##### 9.13.5.1 Construction Phase

During the construction phase, excavated soil and stone (c. 7,225 m<sup>3</sup>) will be generated from the excavations required to facilitate site levelling, construction of new foundations and installations of site services. It is estimated that 2,960 m<sup>3</sup> of the excavated material will need to be removed off-site with the remaining balance being reused on site.

As well as soil and stone from land-based excavations there will be dredging undertaken to facilitate navigable access and suitable berthing. The project engineers (McCarthy Browne) have estimated that c. 45,000 m<sup>3</sup> of material will need to be dredged to do so with all to be removed from site. The 1,000m<sup>3</sup> of dredged rock will be reused on site.

If material has to be taken off-site, it will be taken for reuse or recovery, where practical, with disposal as a last resort. Adherence to the mitigation measures in Chapter 8, Chapter 9 (Land and Soils) and the requirements of the RWMP (Appendix 8.1), will ensure the effect is long-term, imperceptible and neutral.

Adherence to the mitigation measures in Chapter 8 and the requirements of the RWMP (Appendix 8.1), will ensure the interactions is **long-term, imperceptible** and **neutral**.

### 9.14 Monitoring

#### 9.14.1 Demolition Phase

The demolition works of the proposed development are limited to surface-level activities and do not involve any excavation works. The absence of excavation works means that there is no disturbance to the natural soil structure, preventing potential soil erosion or compaction.

In addition, all waste materials will be dealt with in accordance with regional and national legislation, time and resources will be dedicated to ensuring efficient waste management practices and waste arisings will be taken to suitably registered / permitted / licenced waste facilities for processing and segregation, reuse, recycling, recovery, and / or disposal, as appropriate.

Therefore, no monitoring is required.

#### 9.14.2 Construction Phase

During construction phase the following monitoring measures will be implemented:

- Regular inspection of surface water run-off and sediments controls (e.g., silt traps);
- Soil sampling to confirm disposal options for excavated soils in order to avoid contaminated run-off;



- Excavation works to be monitored to record any signs of potentially contaminated soil; and
- Regular inspection of construction / mitigation measures outlined in the CEMP should be adhered to during the construction phase. (e.g., concrete pouring, refuelling, etc).
- Soil sampling of excavated soils and monitoring of surface water run off will be required in case of accidental discharges to underlying geology.

### 9.14.3 Operational Phase

Maintenance of the surface water drainage system, including separators / interceptors, and foul sewers is recommended to minimise any accidental discharges to soil or groundwater.

Monitoring of surface water run off will be required in case of accidental discharges to underlying geology.

## 9.15 Summary of Mitigation and Monitoring

The following Table summarises the Construction Phase mitigation and monitoring measures.

**Table 9.12 Summary of Construction Phase Mitigation and Monitoring**

Likely Significant Effect	Mitigation	Monitoring
Accidental Spills, Leaks and Discharges	Regular inspection of surface water run-off and sediments controls to ensure no accidental discharge occurs to underlying geology. Soil sampling to confirm disposal options for excavated soils in order to avoid contaminated run-off. Regular inspection of construction / mitigation measures (e.g., concrete pouring, refuelling, etc). Full adherence to and implementation of the CEMP.	Continuous implementation of the mitigation measures outlined in the EIAR in accordance with best practice guidelines throughout the course of the construction phase of the proposed development.
Soil Erosion & Compaction	Regular inspection of surface water run-off and sediments controls to ensure no accidental discharge occurs to underlying geology. Soil sampling to confirm disposal options for excavated soils in order to avoid contaminated run-off. Regular inspection of construction / mitigation measures (e.g., concrete pouring, refuelling, etc). Full adherence to and implementation of the CEMP.	Continuous implementation of the mitigation measures outlined in the EIAR in accordance with best practice guidelines throughout the course of the construction phase of the propose development.
Increased Sediment Run Off carrying Sediment and Pollutants into the Soil and Bedrock	Regular inspection of surface water run-off and sediments controls to	Continuous implementation of the mitigation measures outlined in the EIAR in accordance with best

Likely Significant Effect	Mitigation	Monitoring
	<p>ensure no accidental discharge occurs to underlying geology.</p> <p>Soil sampling to confirm disposal options for excavated soils in order to avoid contaminated run-off.</p> <p>Regular inspection of construction / mitigation measures (e.g., concrete pouring, refuelling, etc).</p> <p>Full adherence to and implementation of the CEMP.</p>	<p>practice guidelines throughout the course of the construction phase of the propose development.</p>
Soil Contamination from Construction Waste, Materials & Chemicals	<p>Regular inspection of surface water run-off and sediments controls to ensure no accidental discharge occurs to underlying geology.</p> <p>Soil sampling to confirm disposal options for excavated soils in order to avoid contaminated run-off.</p> <p>Regular inspection of construction / mitigation measures (e.g., concrete pouring, refuelling, etc).</p> <p>Full adherence to and implementation of the CEMP.</p>	<p>Continuous implementation of the mitigation measures outlined in the EIAR in accordance with best practice guidelines throughout the course of the construction phase of the propose development.</p>
Lack of Waste Classification & Improper disposal of Construction Waste increasing the risk of Soil Contamination	<p>Regular inspection of surface water run-off and sediments controls to ensure no accidental discharge occurs to underlying geology.</p> <p>Soil sampling to confirm disposal options for excavated soils in order to avoid contaminated run-off.</p> <p>Regular inspection of construction / mitigation measures (e.g., concrete pouring, refuelling, etc).</p> <p>Full adherence to and implementation of the CEMP.</p>	<p>Continuous implementation of the mitigation measures outlined in the EIAR in accordance with best practice guidelines throughout the course of the construction phase of the propose development.</p>

**Table 9.13 Summary of Operational Phase Mitigation and Monitoring**

The following Table summarises the Operational Phase mitigation and monitoring measures.

Likely Significant Effect	Mitigation	Monitoring
Accidental Spills, Leaks and Discharges	Negative	Imperceptible
Unlicensed Waste Collection (Illegal Dumping)	Negative	imperceptible
Increased Sediment Run Off from Hardstanding Areas carrying Sediment	Negative	Imperceptible

Likely Significant Effect	Mitigation	Monitoring
and Pollutants into the Soil and Bedrock Off-Site		
Future Maintenance Works on Underground Services and Infrastructure involving Soil Excavations and Soil Disturbance and Disposal	Negative	Imperceptible
Discharge of Water to Ground	Negative	Imperceptible

## 9.16 Conclusion

This chapter has reviewed and analysed the potential and the predicted effects of the proposed development on the land, soils and geological environment (Land and Soils). These effects have been considered for the demolition, construction and operational phases of the proposed development. The cumulative impact of the proposed development and surrounding developments have also been considered.

Provided all mitigation measures set out in this chapter are adhered to in full throughout all phases, the overall predicted effect of the proposed development is **long-term, imperceptible** and **neutral**.

## 9.17 References and Sources

- Guidelines on the information to be contained in environmental impact assessment reports. Environmental Protection Agency (EPA, 2022).
- Guidelines for the Preparation of Soils, Geology and Hydrogeology Chapters of Environmental Impact Statements. Institute of Geologists of Ireland (2013).
- Guidelines on Procedures for Assessment and Treatment of Geology, Hydrology and Hydrogeology for National Road Schemes' by the National Roads Authority (NRA, 2009)
- Geological Survey Ireland Map Viewer (<https://www.gsi.ie>)
- Environmental Protection Agency (EPA) Map Viewer (<https://gis.epa.ie/EPAMaps/>)
- Teagasc Map Viewer (<http://gis.teagasc.ie/soils/map.php> )
- National Parks and Wildlife Services (NPWS) – Protected Site Register.
- Directive 2000/60/EC of the European Parliament and of the Council establishing a framework for the Community action in the field of water policy (2000).
- Louth County Development Plan (2021-2027).
- Directive 2014/52/EU (16 April 2014) European Parliament.
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## **CHAPTER 10**

### **WATER & HYDROLOGY**

## **VOLUME II**

### **ENVIRONMENTAL IMPACT ASSESSMENT REPORT**

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## 10 Water & Hydrology

It is noted that for ease of reference all changes from the original chapter are shown in blue.

Where text has been removed it is shown as ~~striketrough~~.

### 10.1 Introduction

This chapter of the EIAR evaluates the likely significant effects, if any, which the proposed development will have on Hydrology (surface water) and hydrogeology (groundwater). This chapter contains necessary information as defined in the Environmental Protection Agency (EPA) 'Guidelines on the Information to be contained in Environmental Impact Assessment Reports' (EPA, 2023).

The chapter initially provides a description of the receiving environment of the site and the potential impacts of the development. When assessing the potential impacts, this assessment considers the significance of the environmental attributes, and the predicted scale, and duration of the likely effects.

The chapter also outlines the proposed mitigation measures that will reduce or eliminate the identified potential impacts and defines the residual effects of the proposed development (the effect after the implementation of mitigation measures).

This chapter should be read in conjunction with Chapter 9 "Land and Soils" submitted with the planning application. A full description of the proposed development is set out in Chapter 2 "Development Description" of this EIAR.

### 10.2 Expertise & Qualifications

This chapter of the EIAR has been prepared by Alan Wilson and Marcelo Allende in the Water section of AWN Consulting Ltd.

Alan Wilson (BSc) is an Environmental Consultant at AWN. Alan holds a BSc Honours in Environmental Management in Agriculture/ Environmental and Geographical Sciences. Alan has worked on a range of large scale projects involving EIA reports, site specific flood risk assessments, baseline studies, hydrological and hydrogeological risk assessments, environmental due diligences, site investigations and groundwater, surface water and soil monitoring on various operational developments and greenfield and brownfield sites. Alan has over 2 years' experience as an Environmental Consultant including roles in Ecology and Forestry related work. Alan is a member of the International Association of Hydrogeologists (IAH) Irish Group and the Institute of Geologists of Ireland (IGI).

Teri Hayes (BSc MSc PGeol EurGeol, Adv Dip in Environmental & Planning Law) is a Director and Senior Hydrogeologist with AWN Consulting with over 25 years of experience in water resource management, environmental assessment and environmental licensing. Teri is a former President of The International Association of Hydrogeologists (IAH, Irish Group) and is a professional member of

the Institute of Geologists of Ireland (IGI) and European Federation of Geologists (EurGeol). She has qualified as a competent person for contaminated land assessment as required by the IGI and EPA. Her project experience includes contributions to a wide range of complex Environmental Impact Statements, planning applications and environmental reports for Industry Infrastructure and residential developments. Teri's specialist area of expertise is water resource management, eco-hydrogeology, hydrological assessment and environmental impact assessment.

### 10.3 Proposed Development

A full description of the proposed development is set out in Chapter 2 of this EIAR. The following is a summary of the proposed works.

**Greenore Port Unlimited Company** intend to apply for a 10-year permission for development at Greenore Port and site of dwelling house on Shore Road (A91DD42), Greenore, Co. Louth, (total site area c.4.88 hectare).

The development will provide for Operations and Maintenance (O&M) Facilities serving as a support base for future offshore windfarm projects. In general, it will comprise of terrestrial (landside) and nearshore works, with three standalone buildings incorporating office, warehouse and ancillary space landside and a pontoon to accommodate Crew Transfer Vessels (CTVs) marine side. To facilitate the proposed development, dredging within the nearshore and the demolition of existing port buildings and a vacant residential property is required.

The Operations and Maintenance Facilities (OMF) will provide twenty-four-seven, year-round support, to three individual offshore renewable energy (ORE) projects that will be owned and operated by entities separate from the applicant. These ORE projects will consist of offshore windfarms on the East Coast of Ireland.

Three standalone operation and maintenance buildings incorporating office, warehouse and ancillary space (canteen, welfare, plant, cycle parking etc.) are proposed within the 'terrestrial port' area. Each building has a gross floor area of c.1,670 sq.m and a maximum height of 13.5m.

A new quay wall will be developed at Berth 3 (70m length). This will include a new quay wall face and upgraded deck. A pontoon will be constructed to accommodate crew transfer vessels (CTVs), for use by the operators to travel out to the offshore windfarms. The CTV's will be accessed via an access ramp connected to the quay wall and deck. Approx 45,000m<sup>3</sup> of material will be dredged to facilitate navigable access at this location, and it will be disposed of on land. Where rock is encountered (estimate max of 1,000m<sup>3</sup>), it will be reused on site.

Adjacent to the buildings, space is allocated for 76 car parking spaces, with a further 135 spaces proposed in the surface carpark at the 'Residential Site' on Shore Road. The existing carpark associated with the former Open Hydro building (60 spaces) will be used during the construction phase and Phase 1 of the development.

Pedestrian and motor vehicle access is via the existing entrance beside the Port's office, which served the previous Open Hydro development. Heavy goods vehicles will access the buildings via the Port's

existing heavy goods entrance on Shore Road (R175). Pedestrian access from the surface carpark to the OMF buildings will be provided along a new pedestrian route within the Port's landholding.

To facilitate the development, demolition works are required, including the former Open Hydro building, an ESB substation, a small portion of the Port's office accommodation and the vacant dwelling at the 'residential site' on Shore Road.

Improvement works to the public / private realm in the foreground of the existing Greenore Port office building will comprise of an enhancement to existing road and pathways to facilitate improved pedestrian and vehicular access to the proposed O&M Facilities, a new feature entrance wall, removal of 6 no. port car parking spaces, link to new pedestrian route from the new Shore Road carpark and hard and soft landscaping. These works are located within the Greenore Architectural Conservation Area (ACA). The aim is to redesign the space to improve the character of the ACA at this point; provide a more user friendly space with pedestrian priority; and improve the existing access arrangements to the site. Inside the proposed main entrance to the site, it is proposed to integrate the existing engine shed wall and include this as a feature within the landscape design.

Ancillary development will include the installation of drainage infrastructure, landscaping, lighting, signage, boundary treatments, rooftop solar photovoltaic panels, an ESB substation, a communications mast, a bunded fuel storage tank and waste management areas etc.

The infrastructure described above will likely be delivered over two phases. However, this could extend to three phases, or the sequence of the works may vary,, depending on the delivery of future ORE projects and the associated Offshore Renewable Energy Auctions.

The proposed scheme is distributed over several individual plots, and for ease of reference, they are described as follows:-

- **'Terrestrial Port Area'**, (c.1.9ha) which includes, a port commodity warehouse (former Open Hydro building), hardstanding areas, remnant wall associated with the pre-existing 'engine room', and a communications mast.
- **'Nearshore Environment'** (c.2.3ha) encompassing part of Carlingford Lough and an existing caisson quay wall, known as 'Berth 3'.
- **'Residential Site'** (c. 0.5ha) a greenfield site with a single-storey unoccupied residential dwelling with frontage to the R175, Shore Road.
- **'Port Office Entrance'** (c. 0.18ha) encompassing a portion of the existing office building, known as the 'Seafarers room', hardstanding and parking area to the front of the port office with pockets of green space, that front Euston Street.

The following is a general location plan of the plots identified above.



**Figure 10.1 General Location Plan of the Scheme**

### 10.3.1 Aspects Relevant to this Chapter

#### 10.3.1.1 Construction Phase

##### 10.3.1.1.1 Ground Works, Dredging and Piling

Bulk excavation will take place during dredge and quay wall construction. It is anticipated that foundations for structures will be strip footing type supplemented where necessary by concrete piles. The existing external concrete pavement within the site will be taken up to facilitate the proposed development. The quay deck pavement, between the proposed buildings and the quayside will also be removed and replaced with a heavy-duty reinforced concrete pavement designed to withstand 50kPa port loading.

A mass concrete footing will be required for the proposed communications mast.

It is confirmed in the Environmental Risk Assessment and Waste Characterisation Report that the bulk of the excavated material is suitable for removal to an inert waste facility and/or a soil and stone recovery facility. Remaining materials will be disposed at non-hazardous licenced facilities. This is documented further in the Outline Construction Environmental Management Plan (CEMP), prepared by McCarthy Browne and the Construction and Demolition Waste Management Plan, prepared by AWN Consulting.

The site does not act as a flood storage zone and the proposed development will not add any new hardstanding areas within the port. The carpark area will be constructed with permeable paving.

The proposed 'maritime development' generally comprises dredging, development of a pontoon to accommodate Crew Transfer Vessels (CTVs) and improvement works to the existing Berth 3 quay wall.

To facilitate navigable access and suitable berthing for the CTVs it is necessary to carry out c.45,000m<sup>3</sup> of soft dredging and 1,000m<sup>3</sup> of rock in the area between the existing groyne, Berth 2 and proposed Berth 3. The declared depth in this dredge pocket shall be -4m OD. The dredge material shall be soft dredge (gravel, silt, sand, clay) and rock arisings, with EWC Code 17 05 06.

#### 10.3.1.1.2 Dewatering

Given the soil, geological and hydrogeological characteristics of the site, it is not expected that significant groundwater will be encountered throughout the site. However, during the ground works, excavation and piling, dewatering (removing of potential perched groundwater within the subsoil) may be necessary to create a dry working environment and prevent water from seeping into the excavation and flooding the construction site. This dewatering could result in the localised lowering of the local shallow (overburden) groundwater table which will not be part of the regional bedrock aquifer.

There may also be localised pumping of surface run-off from the excavations during and after heavy rainfall events to ensure that the excavation is kept relatively dry. Based on the depth to bedrock there is no potential for impact on the aquifer water table. Potential dewatering (removing of potential perched groundwater within the subsoil) may be necessary to create a dry working environment and prevent water from seeping into the excavation and flooding the construction site. This dewatering could result in the localised lowering of the local shallow (overburden) groundwater table which will not be part of the regional bedrock aquifer.

#### 10.3.1.1.3 Surface Water Run-off

Surface water run-off and dewatering from excavations will be discharged to local sewer or outfall to Carlingford Lough following settlement and treatment (if required).

#### 10.3.1.2 Operational Phase

Fuel storage facilities  $\geq 200,000$  litres will be provided in the communal zone of the OMF facility. This will be maintained and managed by Greenore Port. CTV fuelling infrastructure will be provided at the Push On / service berth located on the new Berth 3 upgrade. This will be a metered facility monitored and maintained by Greenore Port.

The proposed development will not add any new hardstanding areas within the port.

An **Engineering Planning Report** prepared by Clifton Scannell Emerson Associates, Consulting Engineers accompanies this application and should be referenced for a comprehensive description of the proposed surface water, foul water and water supply strategies. Surface water, wastewater drainage and water supply for the proposed development is designed to comply with the Irish Water Code of Practice, standard details, policies and guidelines and the requirements of Louth County Council. A Confirmation of Feasibility has been received from Uisce Éireann and is included with this application.

#### 10.3.1.2.1 Wastewater

The port currently has an existing foul drainage network in place comprising of a foul septic tank and foul lines servicing buildings in the port. The foul collection tank is located under the floor of an existing warehouse north of the port office and collects foul effluent from the port and the village. The

collection tank is a Uisce Éireann asset, and they are given access to the site to allow tankers enter and empty the chamber for off-site disposal.

There is an existing 150mm connection to the public Louth County Council/ Uisce Éireann collection foul network from an existing building to be demolished. It is intended to continue this connection and repurpose it for the new development. This foul network in the port and the surround town and hinterland is collected in public network that terminates in the aforementioned Uisce Éireann collection tank in Greenore port (in the warehouse). This tank is then emptied with a tanker periodically and sent to Dundalk Wastewater Treatment Plant (WWTP). There will be no direct foul water discharge into Carlingford Lough. A service berth is included along the quay wall to facilitate loading parts, maintenance, loading equipment onto CTV's refuelling and collection of waste water for disposal into the waste water network.

#### 10.3.1.2.2 Surface Water

The port currently has an existing stormwater drainage network in place. This serves as a drainage network for both yard surface water and roof water from buildings. The system drains via gravity to a bypass separator and discharges via one existing outfall into Carlingford Lough.

The Shore Road Carpark site is a greenfield sloping eastward towards Euston Road. A 100mm diameter existing surface water uPVC pipe system is located on Shore Road.

The proposed surface water drainage is designed in accordance with the Greater Dublin Strategic Drainage Study (GDSDS), Water Services Guidelines for Planning Authorities Draft (2018) and CIRIA SuDS Manual, 2015. The proposed surface water drainage will not include new outfalls into Carlingford Lough as part of the development; the existing outfall will be used, and its capacity will not be increased in size.

The surface catchment area will increase in comparison with the existing situation; however, it is intended to attenuate storm volumes and ultimately outfall them at a restricted greenfield runoff rate. A petrol bypass interceptor is proposed before the discharge point.

The proposed surface water drainage system designed for this development includes a number of Sustainable Urban Drainage Systems (SuDS) measures such as permeable paving/ grasscrete, filter drains and attenuation systems. These measures will be incorporated to reduce run-off volumes and improve run-off water quality. The design of the attenuation storage system has been carried out for the 1 in 100-year event with a 20% allowance for climate change. The design of the 2no. attenuation systems has been completed as follows:

- *Underground Arch-Type Attenuation Storage:* The attenuation storage systems shall comprise of underground Arch-type storage units, i.e., stormtech systems or similar approved. Its final discharge destination will be Irish Sea through by-pass petrol separators.
- *Underground Stone-Fill Reservoir Attenuation System:* Surface water drainage from the Satellite Car Park shall be discharged into an underground stone-fill reservoir designed using the results of soakaway tests in accordance with BRE 365, 2016. Its final discharge destination will be the 100mm diameter pipe along Shore Road.



The catchment at the Shore Road carpark will be connected to the public Louth County Council surface water collection on the public road. It is proposed to limit the surface water discharge from the Shore Road carpark catchment zone of the development to the equivalent Qbar value to 2.13 l/s/ha in compliance with the Greater Dublin Strategic Drainage Study (GDSDS), Water Services Guidelines for Planning Authorities Draft (2018) and CIRIA SuDS Manual, 2015. It is proposed to use a “Hydrobrake Optimum” (downstream of each attenuation unit) vortex flow control devices to restrict the flows to the amounts calculated.

#### 10.3.1.2.3 Water Supply

There is an existing 100mm diameter watermain parallel to the southern boundary of the development site. There is also a significant watermain network within the Port serving the existing infrastructure and quayside operations.

A pre-connection enquiry (PCE) form was submitted to Uisce Éireann which addressed design population, proposed water demand applicable to the development for proposed connection point. The average water demand for the development was calculated as 0.39 litres/sec whilst peak water demand was calculated as 1.95 litres/sec. It is proposed to use HDPE watermain size of 100mm to service the three buildings. Each proposed building will have a separate flow meter/ boundary box as per IW standards.

Uisce Éireann have issued their Confirmation of Feasibility letter for the above.

#### 10.3.1.2.4 Flooding

A Site Specific Flood Risk Assessment (SSFRA) has been carried out by McCarthy Browne and accompanies this planning application under separate cover. This SSFRA confirms the location of the proposed development is predominantly within Flood Zone C (i.e., where the probability of flooding from rivers and coastal is less than 0.1% or 1 in 1000 years – probability of fluvial flooding is low risk).

The final design for Buildings A, B and C has a finished floor level of no lower than 5.05m OD which is a safe freeboard above the water level estimated for Flood Zone C. Therefore, any flood events will not cause flooding of the proposed buildings.

The site does not act as a flood storage zone and the proposed development will not add any new hardstanding areas within the port. The Shore Road carpark area will be constructed with permeable paving. On this basis, it can be stated that the development will not affect the flood storage volume or increase flood risk elsewhere.

## 10.4 Methodology

Alongside the legislation, policy, and guidance outlined in Chapter 1, the following relevant legislation, policy, and guidance has informed the preparation of this Chapter:

### 10.4.1 Relevant Legislation & Guidance

The section establishes the criteria, and guidance used to rate the significance of the potential impacts on the hydrological aspects of the site and surrounding area.

The document entitled 'Guidelines on Procedures for Assessment and Treatment of Geology, Hydrology and Hydrogeology for National Road Schemes' by the Transport Infrastructure Ireland (TII, 2009, previously NRA) is referenced where the methodology for assessment of impact is appropriate.

Furthermore, in line with this TII Guidelines, an assessment of the attribute importance has been undertaken in order to provide a basis for the assessment of impact provided. The attribute importance considers the potential as well as the existing use of the surface water features as a water resource (i.e., water supply, fisheries and other uses) as well as ecological habitat requirements. The TII criteria for rating the hydrological related attributes are presented in Appendix 10.1 of this EIAR.

The quality, significance, and duration of the potential impacts, residual effects, and cumulative effects are described using standard EIA descriptive terminology set out in Chapter 1 of this EIAR.

The principal attributes (and effects) to be assessed include the following:

- Water Framework Directive (WFD) Status and potential for increased risk of deterioration of this status due to the activities of the site.
- River and stream water quality in the vicinity of the site (where available).
- Surface, transitional and coastal watercourses near the site and potential impact on surface water quality arising from Proposed Development related works including any discharge of surface water run-off.
- Localised flooding (potential increase or reduction) and floodplains including benefitting lands and drainage districts (if any); and
- Surface water features within the area of the site.

#### 10.4.2 Water Framework Directive (WFD) Status

*Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy*, commonly known as the Water Framework Directive (WFD), establishes a framework for community action in the field of water policy.

The WFD requires 'Good Water Status' for all European waters to be achieved through a system of river basin management planning and extensive monitoring by 2015 or, at the least, by 2027. 'Good status' means both 'Good Ecological Status' and 'Good Chemical Status'. In 2009 the first River Basin Management Plan (RBMP) 2009-2015 was published. The second cycle river basin management plan was carried out between 2018-2021 with the previous management districts now merged into one Ireland River Basin District (Ireland RBD). The third cycle (2022-2027) is currently being undertaken.

During the development of this Plan, a prioritisation exercise was undertaken by the local authorities, the EPA and other stakeholders to identify those water bodies that require immediate action within this plan cycle to 2021. During the catchment characterisation, the EPA identified those water bodies either 'At Risk' of not achieving their objectives or 'Under Review'. The outcome of this prioritisation process was the selection of 190 Areas for Action across the 5 Local Authority regions. Within these 190 areas, a total of 726 water bodies were selected for initial actions during this RBMP cycle. There are 832 water bodies identified as being 'At Risk' of not achieving their environmental objectives under this Plan that have not been included in the Areas for Action. For most of these water bodies, targeted actions will be undertaken in the third cycle RBMP from 2022-2027. The draft 3<sup>rd</sup> cycle RBMP has been reviewed in the context of ensuring mitigation measures comply with current and expected future

measures required to be implemented for protection of water body status within the context of the Proposed Development.

The strategies and objectives of the WFD in Ireland have influenced a range of national legislation, regulations and guidelines. These include the following:

- European Communities (Water Policy) Regulations, 2003 (S.I. No. 722 of 2003).
- European Communities (Drinking Water) Regulations 2014 (S.I. 122 of 2014).
- European Communities Environmental Objectives (Surface Waters); Regulations, 2009 (S.I. No. 272 of 2009 as amended SI No. 77 of 2019).
- European Communities Environmental Objectives (Groundwater) Regulations, 2010 (S.I. No. 9 of 2010 S.I. No. 366 of 2016).
- European Communities (Good Agricultural Practice for Protection of Waters) Regulations, 2010 (S.I. No. 610 of 2010).
- European Communities (Technical Specifications for the Chemical Analysis and Monitoring of Water Status) Regulations, 2011 (S.I. No. 489 of 2011).
- Statutory Instrument (SI) No. 293 of 1988 European Communities (Quality of Salmonid Waters) Regulations 1988.
- Local Government (Water Pollution) Acts 1977-1990.
- SI No. 258 of 1988 Water Quality Standards for Phosphorus Regulations 1998.
- Requirements for the Protection of Fisheries Habitat during Construction and Development Works at River Sites (Eastern Regional Fisheries Board).
- Central Fisheries Board Channels and Challenges – The enhancement of Salmonid Rivers.
- CIRIA C532 Control of Water Pollution from Construction Sites Guidance for Consultants and Contractors.
- CIRIA C648 Control of Water Pollution from Constructional Sites; and
- Water Services Guidelines for Planning Authorities Draft (Department of Housing, Planning and Local Government, 2018)
- Guidelines for the Crossing of Watercourses during the Construction of National Road Schemes (NRA/TII, 2006).

#### 10.4.3 Sources of Information

Desk-based hydrological information in the vicinity of the site was obtained through accessing databases and other archives where available. Data was sourced from the following:

- Latest EPA Envision water quality monitoring data for watercourses in the area.
- Geological Survey of Ireland (GSI) - on-line mapping, Geo-hazard Database, Geological Heritage Sites & Sites of Special Scientific Interest, Bedrock Memoirs and 1:100,000 mapping.
- River Basin Management Plan for Ireland 2018-2021 (Department of Housing, planning and Local Government, 2018).
- The Planning System and Flood Risk Management, Guidelines for Planning Authorities (Department of the Environment, Heritage and Local Government (DoEHLG) and the Office of Public Works (OPW), 2009).
- Office of Public Works (OPW) flood mapping data ([www.floodmaps.ie](http://www.floodmaps.ie)).
- Relevant Eastern Catchment Flood Risk Assessment and Management (CFRAM) Flood Reports.
- Requirements for the Protection of Fisheries Habitat During Construction and Development Works at River Sites (Eastern Regional Fisheries Board (ERFB), YEAR).

- Guidelines on Protection of Fisheries During Construction Works in and Adjacent to Waters' (Inland Fisheries Ireland, 2016).
- Control of Water Pollution from Construction Sites, Guidance for Consultants and Contractors (CIRIA 532, 2001).
- National Parks and Wildlife Services (NPWS) – Protected Site Register.

Site specific data was derived from the following sources:

- Various design site plans and drawings, as submitted with this planning application .
- Consultation with the engineering team, Greenore Port – O & M Facility – Site Specific Flood Risk Assessment (McCarthy Browne, 2024).
- Appendix 10.2 – Design Package for Alterations & Extensions to Sote Buildings at Greenore Port, Greenore, Co. Louth – Services Design Report (Rockwood Chartered Engineers, March 2020).
- Greenore Port OMF – Engineering Planning Report (Clifton Scannell Emerson Associates, 2024).
- Appendix 9.5 - BRE 365 percolation test results, Shore Road Carpark site (McCarthy Browne, 2024).
- Appendix 10.3 – Greenore Port Hydrological Risk Assessment (AWN, 2023).
- Appendix 10.4 – Greenore Port – WFD Assessment Report (AWN, 2023).

#### 10.4.4 Site Surveys/Investigations

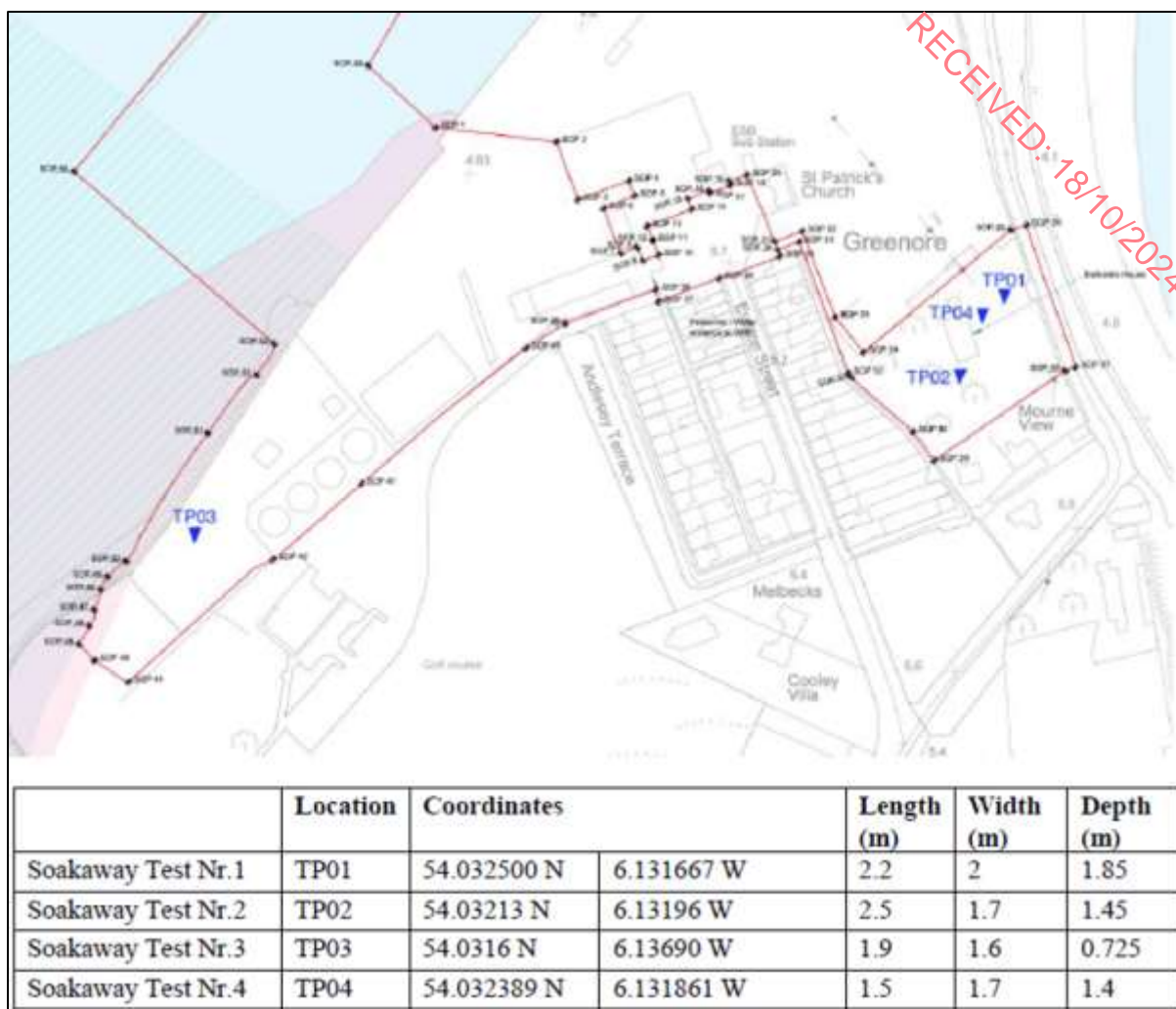
##### 10.4.4.1 McCarthy Browne and BHP, 2024

Additional site investigation works conducted at Greenore Port, Co. Louth in 2024. The objective of this site investigation was to further characterise the soil quality at Greenore Port and determine whether the ground conditions are suitable for soakaway installation and the soil is suitable for disposal.

As part of the site investigation works, BHP Laboratories Ltd were contracted by McCarthy Browne were required to carry out the following tests:

- BRE365 at 4 no. locations (TP01, TP02, TP03 & TP04);
- Plate Bearing Tests; and
- Waste Acceptance Criteria suite in accordance with Council Decision 2003/33/EC (Rilta 2016 Revised WAC suite.

The location of the site investigation works (TP01, TP02, TP03 & TP04) are shown below in Figure 10.2 below.



**Figure 10.2 Location of Works (McCarthy Browne, 2024)**

Dark grey, loose, sandy soil and Dark brown, loose, granular soil with cobbles present were encountered in TP01 and TP02, respectively. Compacted gravel and fractures bedrock were encountered at TP03 and TP04, respectively. The maximum depth reached was 1.85m bgl. No field evidence of potential impact from hazardous substances was noted. Soil samples were collected from each of the test holes for laboratory analysis.

No water strikes / ingresses were encountered in any of the trial holes.

Refer to Appendix 9.4 – Waste Classification Report (BHP, 2024) and Appendix 9.6 – WAC Laboratory Report (Eurofins Chemtest Ltd, 2024) of the EIA for further information on soil classification and soil quality results.

Refer to Appendix 9.5 - BRE 365 and Plate Bearing Report (BHP, 2024) of the EIA for further information on percolation test results.



#### 10.4.4.2 Greenore Port Geotechnical Interpretive Report - GDG, 2023

Gavin & Doherty Geosolutions Limited (GDG) produced a Geotechnical Interpretive Report (GIR) to be considered in the design and site development for the proposed development. This report is presented in Appendix 9.3 of the EIAR.

This GIR produced a ground model based on all ground investigations carried out within the proposed development area. Cross-sections of the land and marine development areas extracted from the ground model are presented in Appendix 9.3. Refer to Chapter 9 – Land and Soils for further information on the land-based site investigation data.

This assessment was based on the following:

- Ground investigation data (historic and recent investigations and surveys completed in the harbour area; including bathymetric and geophysical surveys).
- Geotechnical laboratory data, and
- Published and unpublished geological information.

Site investigations included trial pits, boreholes, rotary cores and cone penetration testing. These investigations allowed an assessment of ground conditions and ground stability.

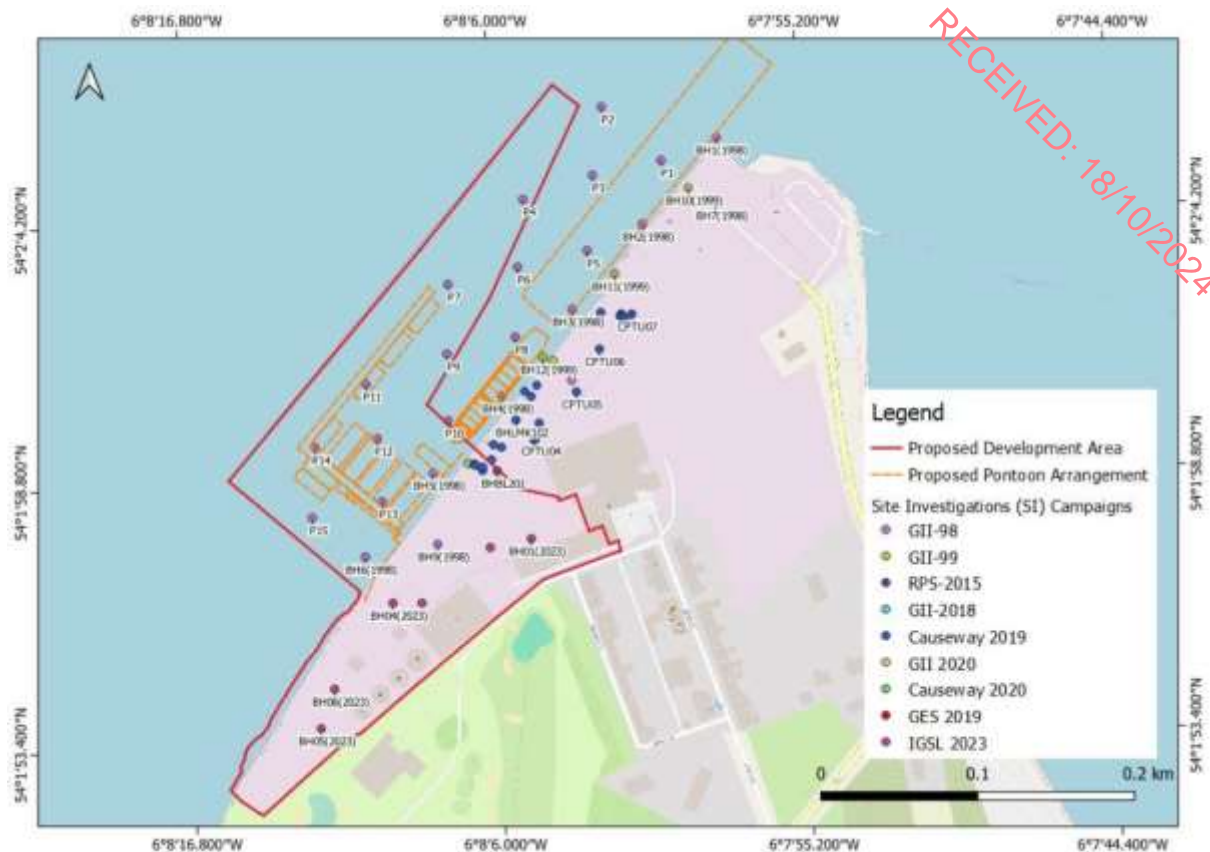
An overview of the site investigations carried out in and around the subject site is summarised in Table 10.1 below.

**Table 10.1 Summary of GI's carried out around Greenore Port (GDG, 2023)**

SI Campaign	Contractor	Year	GI Scope Summary	Report Ref:	Client Representative/ultimate client
Causeway Geotech		May 2020	#6 No of dynamic probe tests	only logs	
Ground Investigations Ireland (GII)		March 2020	#6 No of dynamic probe tests	only logs	
Geotechnical Environmental Services Limited (GES)		December 2019	#2 No. boreholes drilled in soil and rock to a maximum depth of 21.2m below existing ground level (bgl), Boreholes BH01 and BH02, on encountering rock, were continued by HQ wireline core drilling. #6 No. dynamic probes to a maximum depth of 21.9m below existing ground level (bgl). Lab tests: point load x 18, UCSx14	Berth 2 Upgrade Works, Factual Report, Report No. 011/ROI/19	Keating Construction Limited
Causeway Geotech		March 2019	#15 No. boreholes, 11 no of cone penetrometer test, standpipe installation, 2 no. of trial pits, 2 no. of plate tests. Lab tests: Atterberg test x6, PSD x 10, Consolidated drained Shear boxx2, Oedometerx3	Greenore Port Development, Berth 2-Ground Investigation. Report no.18-1305	Arup/Byrne Looby Consulting Engineers, on the behalf of L&M Keating Ltd.
Ground Investigations Ireland (GII)		February 2018	#4 No. boreholes (BH1 to BH4) drilled in soil and rock. Lab tests: shear box tests x 5, UCS x 4, point load x 17	Greenore Port Ground Investigation Report - 7350-01-18	RPS Consulting Engineers
Ground Investigations Ireland (GII)		May 2015	#2 No. boreholes (BH1 & BH2) drilled in soil and rock. Lab tests: PSD x10, Consolidated Shear box testsx4, point load x 6, UCS X4	Greenore Port Land Based SI carried out for RPS, only logs and lab results	RPS Group
Glover Site Investigations Ltd		May 1999	#5 No. of boreholes (10,11,12a,12RC,13) were excavated to bedrock along the existing quay	Greenore Harbour Development Rock Coring Investigation Report No.3309	Kirk McClure Morton on behalf of Greenore Ferry Services Ltd
Glover Site Investigations Ltd		August 1998	#9No. of boreholes (BH1 to BH9) and 15 No. of marine probe boreholes majority of them excavated to bedrock. Lab tests: Triaxial x5, pH and soluble sulphate content x6, Atterberg limit x4 ,PSD X17	Greenore, Co.Louth Harbour Development Site Investigation Report No.3059	Kirk McClure Morton on behalf of Greenore Ferry Services Ltd

The borehole and In-situ tests locations from all the GI campaigns carried out at the site and the wider Greenore Port area are presented in Figure 10.3 below.





**Figure 10.3 Site Investigation Point Locations of various GI carried out in Greenore Port**  
(Source: GDG, 2023)

#### 10.4.4.3 Soil and Groundwater Assessment Report – RPS 2011

Site investigations were carried out by K.T. Cullen & Co Ltd in December 1996 which identified slight hydrocarbon contamination in the soil in the southern extent of the site and in the groundwater. To further analyse the hydrocarbon contamination identified in the December 1996 site investigation, an environmental site assessment of the site was carried out by URS in 2004 and identified hydrocarbon contamination in the shallow soils in an area of scrub grassland and to the north-east of the refuelling gantry. No hydrocarbon contamination was detected during the 2004 site investigation.

On November 14<sup>th</sup> 2011, RPS carried out a site investigation on behalf of then “Topaz Energy Group Ltd” on the shallow subsoil and groundwater beneath the decommissioned Topaz fuel storage facility at Greenore Port, Co. Louth, with the aim of developing an exit strategy for the site. The refuelling gantry was identified as the primary target for investigation in the RPS 2011 Targeted Soil and Groundwater Assessment Report. .

The main objectives of the site investigation were as follows:

- Determine if hydrocarbon contamination exists in the shallow subsoil underlying the site;
- Determine if hydrocarbon contamination exists in the groundwater beneath the site; and
- Provide recommendations on any further works to take place based on the ground investigation results.

As part of the groundwater investigation, 2 no. groundwater monitoring wells (MW3 & MW4) installed by K.T. Cullen & Co Ltd. during the December 1996 site investigation were identified. The monitoring wells were installed in the vicinity of the hardcover area beneath the refuelling gantry.

#### **10.4.5 Consultation**

There was no consultation with internal Local Authority departments community or stakeholder encountered in compiling the specified information for this EIA chapter.

### **10.5 Difficulties Encountered**

There were no significant difficulties encountered in compiling the specified information for this EIAR chapter.

### **10.6 Baseline Environment**

#### **10.6.1 Site Location & Surrounding Land Use**

Greenore Port is located on Ireland's east coast in Co. Louth and serves as the south entrance to Carlingford Lough. It benefits from its proximity to the Dublin-Belfast economic corridor and is conveniently positioned near the M1 motorway.

The proposed development site, Greenore deep-water Port, is strategically located on Ireland's east coast in Co. Louth. It is situated approximately 20km East of Dundalk and serves as the South entrance to Carlingford Lough.

The topography of the site is flat with an average elevation of around 4.1m of the site. Access to the proposed site is offered by the existing Shore Road (R175) and Euston Street.

The port features a single quay facing North-West, protected by a detached breakwater made of a rubble mound rock structure with wooden piles. The exact depth of these piles is currently unknown. The main berthing pocket offers 260m of quayside berthage, with varying water depths at high water (HW) and low water (LW).

The port has a water depth of 9.1m at high water and 4.9m at low water. It can accommodate vessels up to 60,000DWT and has Liebherr port cranes capable of lifting up to 124T. The port handles both container and bulk traffic and offers marine and logistical support services.

In terms of imports, the port receives a variety of products including animal feed, fuel oil, steel, fruit, wood products, coal, timber, fertilizers, and chemicals. Its exports consist of items such as fish cages, milk powder, live cattle, frozen meats, rock, steel, woodchip, and general cargo like wind turbines.

Additionally, Greenore Port is the leading importer of steel reinforcement in Ireland, with storage facilities for steel rebar and dry bulk storage facilities capable of accommodating various dry bulk products.

Refer to Figure 10-4 below for the site location in the context of the surrounding environment and land use.

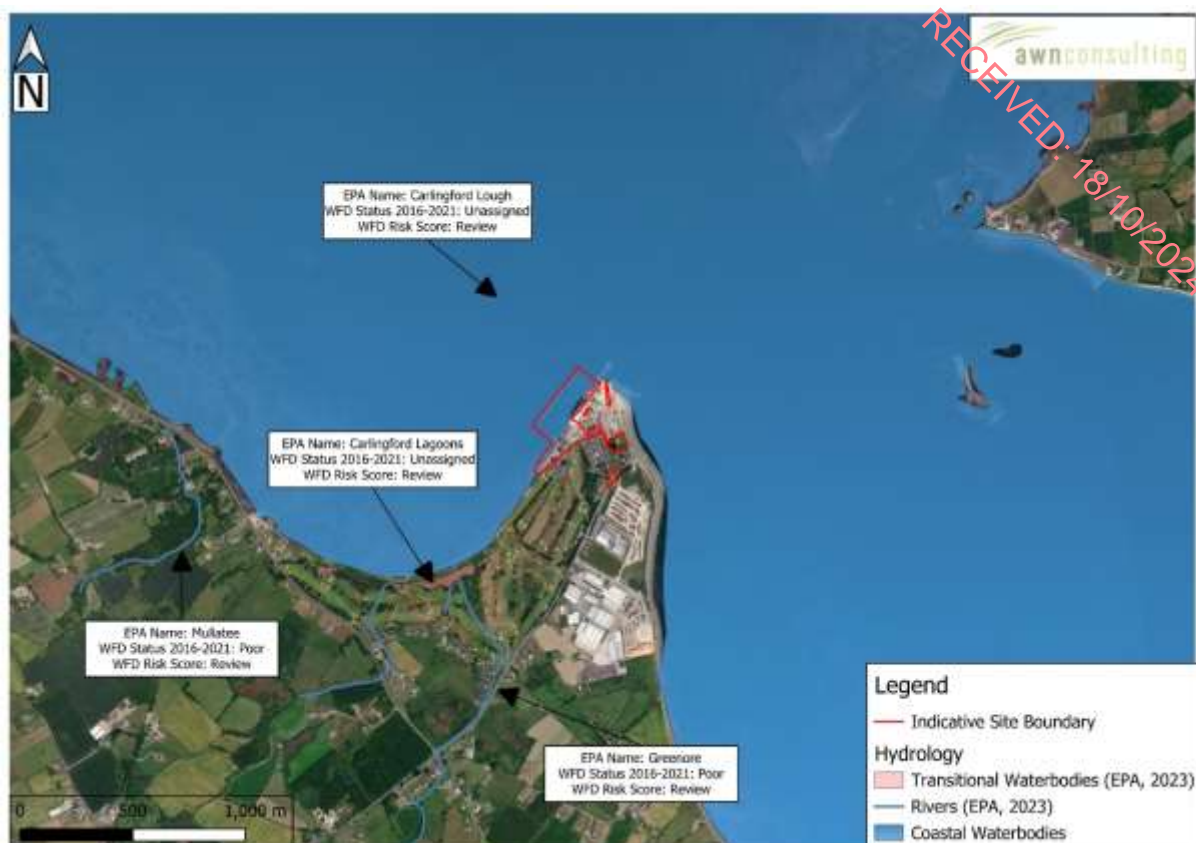


**Figure 10.4 Site Location & Surrounding Land Use (AWN, 2023)**

## 10.6.2 Water & Hydrology

### 10.6.2.1 Regional Hydrological Environment

The proposed development site lies within the Newry, Fane, Glyde and Dee Catchment 06 and Big [Louth]\_SC\_10 WFD sub-catchment 06-9 (Greenore\_010 WFD River Sub Basin). According to the EPA river network (EPA maps, <https://gis.epa.ie/EPAMaps/> accessed on 12-10-2023), the nearest surface water receptor is the Carlingford Lough coastal waterbody (WFD code: GBNIIE6NB030) which is a transboundary waterbody located adjacent to the proposed development site. The application site is located at Greenore Port and is largely within the Port confines. Refer to Figure 10-5 below showing the regional hydrological environment in context of the proposed development site.



**Figure 10.5 Site Location and Regional Hydrological Environment (EPA, 2023)**

The port currently has an existing stormwater drainage network in place. This serves as a drainage network for both yard surface water and roof water from buildings. A site survey conducted (Refer to Engineering Planning Report) shows gullies alongside the road and around buildings. The gravity system discharges through a bypass separator before discharging into Carlingford Lough coastal waterbody through one existing outfall. The outfall (Outfall 1) is a 225mm diameter uPVC pipe that discharges through a 225mm diameter tide lock. it should be noted that this system includes hydrocarbon interceptors prior to discharge into the waterbody.

#### 10.6.2.2 Surface Water Quality

The Environmental Protection Agency (EPA, 2023) on-line mapping presents the available water quality status information for water bodies in Ireland. The most recent WFD Status score (2016-2021) states that the Carlingford Lough coastal waterbody has an '*Unassigned*' status while its WFD risk score is '*Under Review*' (refer to [www.catchments.ie](http://www.catchments.ie)).

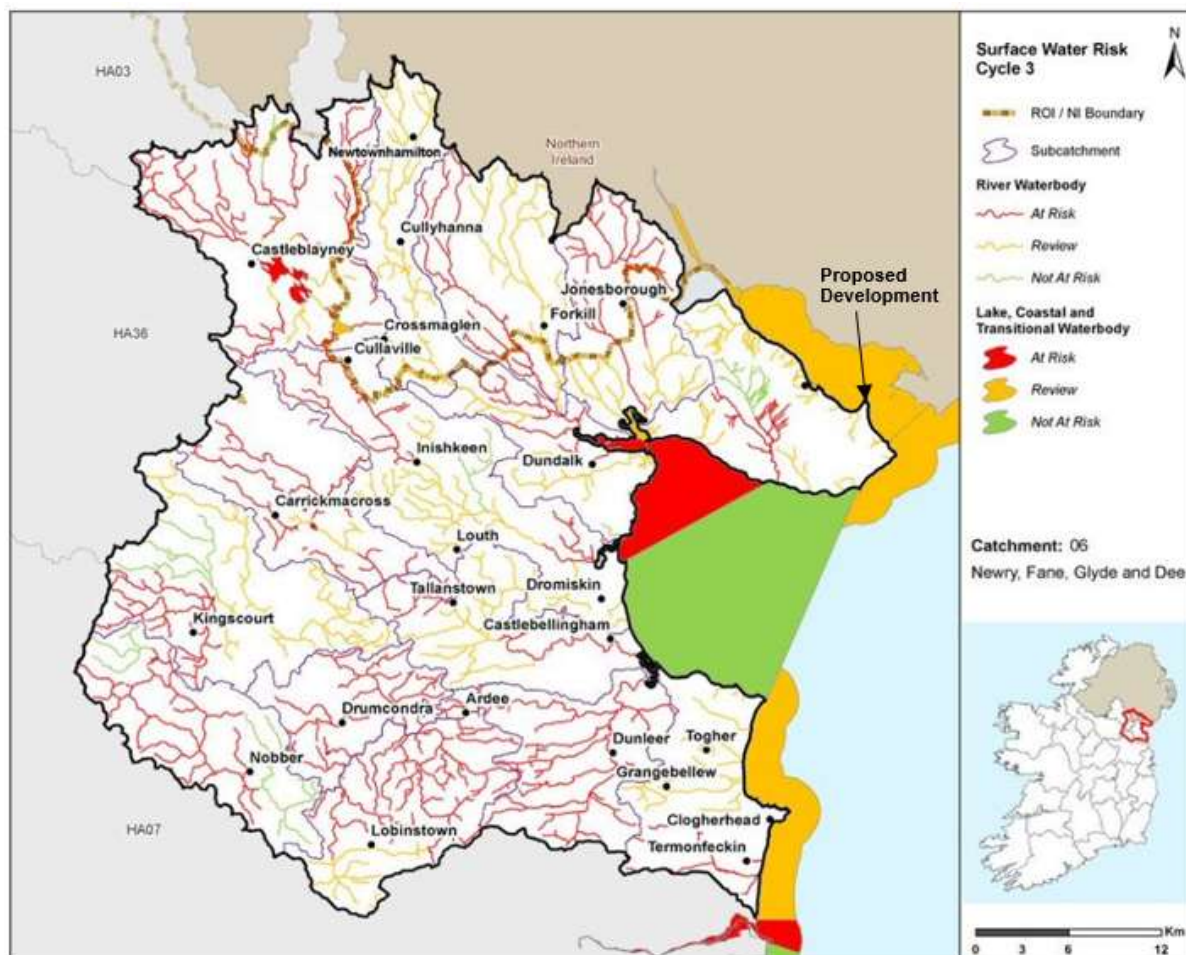
Nevertheless, the Northern Ireland Environment Agency (NIEA) Catchment Data Viewer also presents the water quality status for water bodies in Northern Ireland. As such, the Carlingford Lough coastal waterbody has a '*Moderate*' status for the period 2016-2021.

Surface water quality is monitored periodically by the EPA at various regional locations along with principal and other smaller watercourses. The EPA assess the water quality of rivers and streams across Ireland using a biological assessment method, which is regarded as a representative indicator of the status of such waters and reflects the overall trend in conditions of the watercourse. However,



it should be noted that the Carlingford coastal waterbody and its tributary, the Newry Estuary transitional waterbody are not currently monitored by the EPA. The portal [www.catchments.ie](http://www.catchments.ie) presented water quality data for the Carlingford waterbody at a single station named 'ambient monitoring TPEFF2100D0268SW001' but only for the period 2016-2017.

Figure 10-6 below presents a waterbody risk EPA map for the Newry Fane, Glyde and Dee WFD Catchment.



**Figure 10.6 Surface Water 'Risk of not achieving WFD good status' Map (EPA, 2023)**

The Greenore\_010 waterbody is considered to have an ecological status of 'Poor' through modelling assessment technique.

According to the sub-catchment assessment of the Big[Louth]\_SC\_010 subcatchment carried out by the EPA in September 2022, there are a number of pressures within this sub-catchments that impact on the hydrological environment (refer to [www.catchments.ie](http://www.catchments.ie)). All the water bodies considered within this subcatchment have a WFD risk score of 'At Risk' or under review. According to this assessment, the Greenore\_010 and Carlingford Lough are under anthropogenic pressures.

### 10.6.2.3 Surface Water Local Drainage

As mentioned on Section 10.3.1 above, the port currently has an existing stormwater drainage network in place. This serves as a drainage network for both yard surface water and roof water from buildings. The system drains via gravity and discharges via two existing outfalls into Carlingford Lough.

### 10.6.2.4 Wastewater

As mentioned on Section 10.3.1 above, the port currently has an existing foul drainage network in place comprising of a foul septic tank and foul lines servicing buildings in the port. The foul collection tank is located under the floor of an existing warehouse north of the port office and collects foul effluent from the Port and the village. The collection tank is a Uisce Éireann asset and is emptied with a tanker periodically and sent to Dundalk Wastewater Treatment Plant (WWTP).

### 10.6.2.5 Water Supply

As mentioned on Section 10.3.1 above, there is an existing 100mm diameter watermain parallel to the southern boundary of the Main Greenore OMF. There is also a significant watermain network within the Port serving the existing infrastructure and quayside operations.

### 10.6.2.6 Flood Risk

As part of the planning application for the scheme, McCarthy Browne conducted a Stage 3 Site Specific Flood Risk Assessment (SSFRA) in line with current flooding guidelines which is submitted with this application.

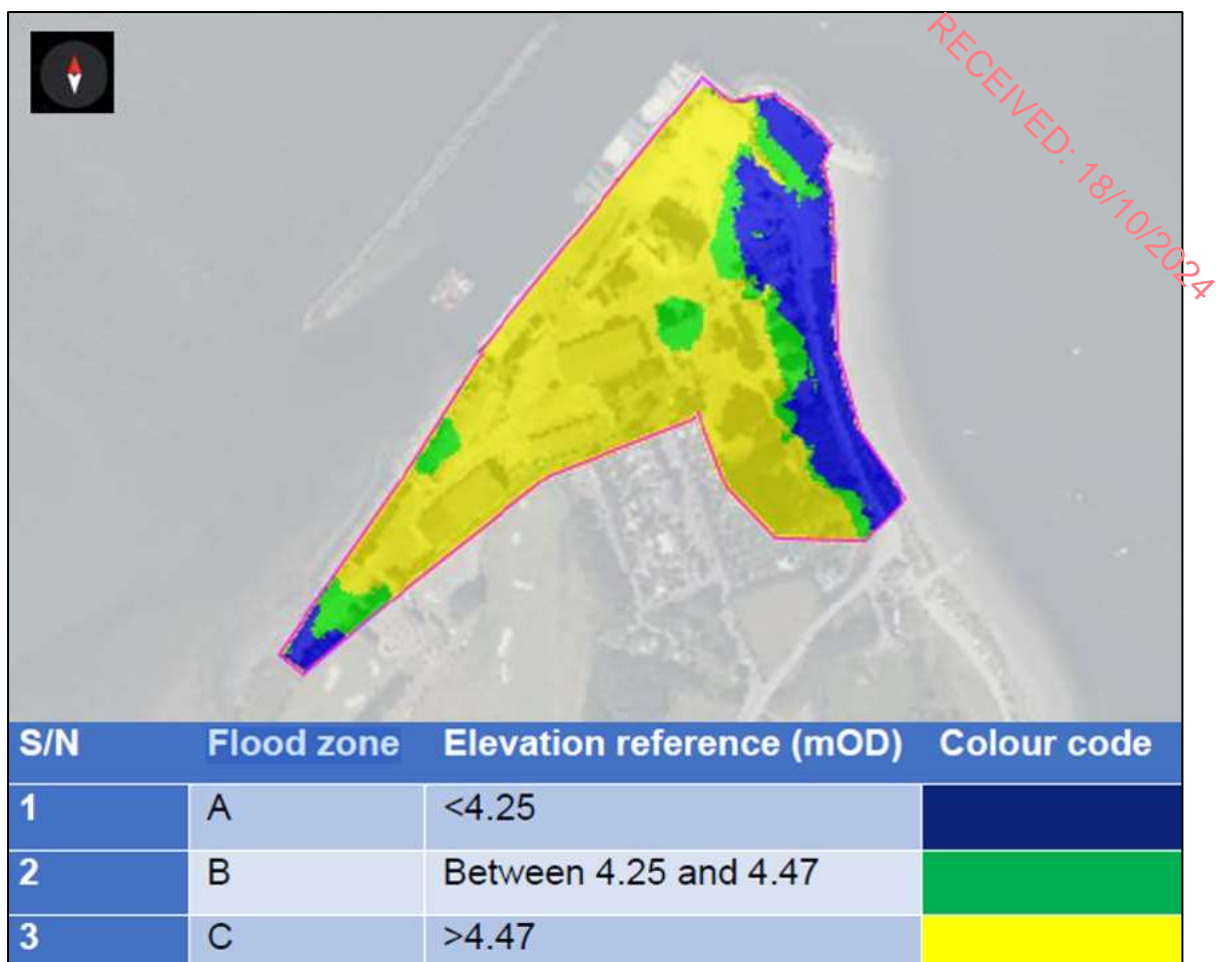
As part of the assessment the Louth County Development Plan was reviewed which designated the application area as being outside a flood zone and within "Port/Port Related Activity." There have also been no recorded flood events near the proposed development, according to the Office of Public Works (OPW) Flood Hazard Mapping website and discussions with Greenore Port.

The North Western - Neagh Bann CFRAM Flood Risk was also reviewed and identified Greenore town as an Area for Further Assessment (AFA) for fluvial and coastal flooding. Preliminary Flood Risk Assessment (PFRA) mapping indicates that the site is unlikely to be at risk from coastal flooding.

According to the DCFPP the increase in water level due to a fluvial component during a combined tidal and fluvial 1 in 200 event is up to approximately 100mm. The 1 in 200 year tidal flood level is estimated at 4.25 OD Malin.

For this reason, McCarthy Browne recommends an absolute minimum freeboard of 300mm, which includes tolerances associated with the ICPSS extreme water levels and accounts for an additional fluvial component. The recommended finish floor level of warehouses and offices within the proposed development is recommended to be no lower than 5.05m OD Malin, that the quay wall level and quayside facility be no lower than 4.25m OD and that the level of the proposed satellite carpark be no lower than 4.25m OD Malin.





**Figure 10.7 Flood Zone Map (McCarthy Browne, 2024)**

The assessment confirms that the proposed development is located predominately in Flood Zone C, which means the probability of flooding from rivers and coastal areas is less than 0.1% or 1 in 1000 years. The assessment concludes with the appropriate mitigation measures outlined in the Site Specific Flood Risk Assessment (McCarthy Browne, 2024), the proposed development is not at risk of fluvial or coastal flooding. Refer to Figure 10.7 above showing the flood zones in relation to Greenore Port.

#### 10.6.2.7 Areas of Conservation

The proposed development site is partially within Carlingford Shore SAC (Site code: 002306) and Carlingford Lough SPA (Site code: 004078). Currently there is a direct hydrological linkage between the proposed development and these sites through the existing stormwater drainage network which outfalls into the Carlingford Lough. Refer to Figure 10.8 below.

The Carlingford Lough receives water from the Newry catchment, which is a transboundary catchment, and more specifically from the Newry Estuary transitional waterbody (WFD Code: UKGBNI5NB030010).



**Figure 10.8 Site Location with Areas of Conservation (NPWS, 2023)**

*Note: Proposed Natural Heritage Areas (pNHAs) are designations introduced under the Wildlife Act 1976 (as amended). Although many NHA designations are not yet fully in force under this legislation, they are offered protection in the meantime under planning legislation which requires that planning authorities give due regard to their protection in planning policies and decisions.*

#### 10.6.2.8 Rating of Site Importance of the Hydrological Features

Based on the NRA (2009) methodology (refer to Appendix 10.1) and criteria for rating the importance of hydrological features, the importance of the hydrological features at this site is rated as '*Extremely High*' Importance.

This is based on the assessment that the attribute has a high quality, or value on an international scale. The site directly connected with a surface water body ecosystem protected by EU legislation (Carlingford Lough SPA/ Carlingford Shore SAC).

### 10.6.3 Hydrogeology

#### 10.6.3.1 Aquifer Classification

The GSI has devised a system for classifying the bedrock aquifers in Ireland. The aquifer classification for bedrock depends on a number of parameters including, the area extent of the aquifer (km<sup>2</sup>), well yield (m<sup>3</sup> /d), specific capacity (m<sup>3</sup> /d/m) and groundwater transmissivity (mm<sup>3</sup> /d). There are three main classifications: regionally important, locally important and poor aquifers. Where an aquifer has been classified as regionally important, it is further subdivided according to the main groundwater

flow regime within it. This sub-division includes regionally important fissured aquifers (Rf) and regionally important karstified aquifers (Rk). Locally important aquifers are sub-divided into those that are generally moderately productive (Lm) and those that are generally moderately productive only in local zones (LI). Similarly, poor aquifers are classed as either generally unproductive except for local zones (PI) or generally unproductive (Pu).

The GSI (2024) classifies the principal aquifer types in Ireland as:

#### Bedrock Aquifer

- Rkc – Regionally Important Aquifer – Karstified (conduit)
- Rkd – Regionally Important Aquifer – Karstified (diffuse)
- RK – Regionally Important Aquifer – Karstified
- Rf – Regionally Important Aquifer – Fissured bedrock
- Lm – Locally Important Aquifer – Bedrock which is Generally Moderately Productive
- Lk – Locally Important Aquifer – Karstified
- LI – Locally Important Aquifer – Bedrock which Moderately Productive only in Local Zones
- PI – Poor Aquifer – Bedrock which is Generally Unproductive except for Local Zones
- PU – Poor Aquifer – Bedrock which is generally Unproductive

#### Gravel Aquifer

- Lg – Locally Important Aquifer – Sand & Gravel
- Rg – Regionally Important Aquifer – Sand & Gravel
- 

Presently, from the GSI (2023) National Bedrock Aquifer Map, the GSI classifies the bedrock aquifer beneath the subject site as a Locally Important Aquifer (Lm). The potential for vertical or horizontal migration within this type of aquifer could be significant in the presence of regional scale fractures. The GSI map does not identify structural faults underneath the area of the subject site. Refer to Figure 10.9 below.



**Figure 10.9 Aquifer Classification Map (GSI, 2023)**

#### 10.6.3.2 Aquifer Vulnerability

Aquifer vulnerability is a term used to represent the intrinsic geological and hydrological characteristics that determine the ease with which groundwater may be contaminated generally by human activities. Due to the nature of the flow of groundwater through bedrock in Ireland, which is almost completely through fissures, the main feature that protects groundwater from contamination, and therefore the most important feature in protection of groundwater, is the subsoil (which can consist solely or of mixtures of peat, sand, gravel, glacial till, clays or silts). The aquifer vulnerability class in the region of the site is presented in Figure 10.10 below and Table 10.2 presents its corresponding guidelines.

Groundwater vulnerability is based on the thickness of the subsoil overlying the bedrock aquifer. The GSI (2023) guidance presently classifies the bedrock aquifer in the region of the subject site as having 'High' vulnerability which indicates a general overburden depth potential between 3-5m, suggesting a moderate to good natural protection of the aquifer by high permeability marine gravel and sands. This is consistent with local site investigations, as carboniferous limestones have been encountered at depths from 4.4 m below ground level.





Figure 10.10 Aquifer Vulnerability Map (GSI, 2023)

Table 10-2 Vulnerability Mapping Criteria (GSI, 2023)

Depth to Rock	Hydrogeological Requirements for Vulnerability Categories				
	Diffuse Recharge		Point Recharge	Unsaturated Zone	
	High Permeability (sand/gravel)	Moderate Permeability (sandy subsoil)	Low Permeability (clayey subsoil)	(swallow holes, losing streams)	(sand/gravel aquifers only)
0-3 m	Extreme	Extreme	Extreme	Extreme (<30m radius)	Extreme
3-5 m	High	High	High	>3 m	High
5-10 m	High	High	Moderate	N/A	N/A
>10 m	High	Moderate	Low	N/A	N/A
Notes: (1) N/A: Not applicable (2) Permeability classifications relate to the engineering behaviour as described by BS5930. (3) Release point of contaminants is assumed to be 1-2 below ground surface. (4) Outcrop and shallow subsoil (i.e. generally <1.0 m) areas are shown as a sub-category of extreme vulnerability.					

### 10.6.3.3 Local Hydrogeological Environment

#### 10.6.3.3.1 Geological Profile for Land Development Area

According to the GIR (refer to Appendix 9.3 - Greenore Port Geotechnical Interpretive Report (Gavin & Doherty Geosolutions, 2023), the following profile was determined for the land development area.

##### Overburden Deposit

The top strata recorded in all borehole logs were Concrete, Made Ground and Hardcore Fill, followed by '*silty sandy GRAVEL interbedded with gravelly Sand*'. Similarly, the presence of thick layers of cobbles and boulders were also recorded within this unit in BH9 (1998).

This stratum is underlaid by '*SILT/CLAY with some gravel and occasional shells content*'. In majority of the boreholes this stratum lies above the bedrock and started to record below -9.0mOD.

##### Bedrock

Limestone is encountered in BH9 from the 1998 SI at 20.70mBGL or -16.10mOD (i.e. -19.15mCD). Bedrock is described as moderately strong fine grained Carboniferous Limestone.:

- P7 at 4.40mBGL -8.5mAOD (i.e. -11.55mCD);
- BH5(1998) at 17.90mBGL -13.4mAOD (i.e. -16.45mCD); and
- BH6(1998) at 17.60mBGL -13.00mAOD (i.e. -16.05mCD).

Table 10-3 below summarises the ground profile for the Land Development Area.

**Table 10.3 Geology Unit Summary for Land-Based Ground Model (GDG, 2023)**

Material Name/ Soil Geological Unit	Elevation (mAOD)		Thickness (m)	
	Top	Base	Min	Max
Concrete	4.5	4.0	0.15	0.4
Made Ground/ Hardcore Fill	4.6	-1.5	0.5	6.1
Granular Deposits (silty sandy Gravels)	4.0	-9.5	4.2	6.5
Cohesive Deposits (Silt/Clay)	-8.3	Unproven	1.3	4.6
Granular Deposits (sandy Gravels)	-13.5	Unproven	2.7	Unproven
Bedrock	-16.10	Unproven	Unproven	

#### 10.6.3.3.2 Ground Profile for Marine Development Area

According to the GIR in Appendix 9.3, the following profile was determined for the marine development area.

##### Overburden Deposit

Generally, the main overburden material is described as '*silty sandy GRAVEL interbedded with gravelly sand*'. The proportion of the silt and sand composition varies slightly between borehole to boreholes based on the log descriptions.

The presence of thick layers of cobbles and boulders were recorded in P13(1998). In P9, P7 and P4 cohesive layer of '*sandy silty CLAY*' as top strata is noted. The presence of cohesive material '*silty CLAY*'



with some gravel and occasional shells' content is recorded in boreholes especially at the centre of the harbour. In P14 and P13. boreholes this layer appeared as interbedded unit – 'very stiff SILT/CLAY with some gravel and occasional shells content'.

## Bedrock

Moderately strong grey fine grained Carboniferous Limestone was encountered in the following boreholes:

- P7 at 4.40mBGL -8.5mAOD (i.e. -11.55mCD);
- BH5(1998) at 17.90mBGL -13.4mAOD (i.e. -16.45mCD); and
- BH6(1998) at 17.60mBGL -13.00mAOD (i.e. -16.05mCD).

Table 10.2 below summarises the ground profile for the Marine Development Area.

**Table 10.2 Geology Unit Summary for Marine-Based Ground Model (GDG, 2023)**

Material Name/ Soil Geological Unit	Elevation (mAOD)		Thickness (m)	
	Top	Base	Min	Max
Granular Deposits (silty sandy Gravels)	2.5	-8.5	1.5	7.3
Cohesive Deposits (Silt/Clay)	-4.5	-13.0	0.6	4.6
Granular Deposits (sandy Gravels)	-5.5	Unproven	2.3	Unproven
Bedrock	-8.5	Unproven	Unproven	

For the marine development area, the GI data used are from 1998 and 1991 SI campaigns. Even though the boreholes are spread well to cover the site area to understand the ground conditions, majority of these boreholes go maximum depth of 6mBGL.

### 10.6.3.3.3 Groundwater Strikes

Water strikes were recorded in all boreholes drilled for IGSL 2023 SI and water strikes details are provided in Table 10.3 below. Groundwater conditions observed in the borings are those appertaining to the 20-minute period of investigation. It should be noted however, that groundwater levels are subject to diurnal, seasonal and climatic variations and can also be affected by drainage conditions, tidal variations etc.

**Table 10.3 Water Strikes Summary Table (GDG, 2023)**

Location	Depth Strike-Rose to (mBGL)	Depth Strike-Rose to (mAOD)	Geological Unit
BH01 (2023)	4.8 – 4.4	-0.16 – 0.24	Granular Deposits (silty sandy Gravel)
BH02 (2023)	5.4 – 4.2	-0.98 – 0.22	Granular Deposits (silty sandy Gravel)
BH03 (2023)	4.5 – 4.4	0.02 – 0.12	Made Ground (sandy clayey Gravel)
BH04 (2023)	4.5 – 4.4	0.32 – 0.42	Granular Deposits (silty sandy Gravel)

Location	Depth Strike-Rose to (mBGL)	Depth Strike-Rose to (mAOD)	Geological Unit
BH05 (2023)	4.8 – 4.5	-0.44 – -0.04	Granular Deposits (silty sandy Gravel)
BH06 (2023)	5.5 – 4.2	-0.57 – 0.73	Granular Deposits (silty sandy Gravel)

*Note: Additional site investigation works conducted at Greenore Port, Co. Louth in 2024. The objective of this site investigation was to further characterise the soil quality at Greenore Port and determine whether the ground conditions are suitable for soakaway installation and the soil is suitable for disposal. No water strikes / ingresses were encountered in any of the trial holes. Refer to Appendix 9.5 - BRE 365 and Plate Bearing Report (BHP, 2024) of the EIA for further information on percolation test results.*

#### 10.6.3.4 Groundwater Quality

The Water Framework Directive (WFD) 2000/60/EC was adopted in 2000 as a single piece of legislation covering rivers, lakes, groundwater, transitional (estuarine) and coastal waters. In addition to protecting said waters, its objectives include the attainment of 'Good Status' in water bodies that are of lesser status at present and retaining 'Good Status' or better where such status exists at present. 'Good Status' was to be achieved in all waters by 2015, as well as maintaining 'high status' where the status already exists. The EPA co-ordinates the activities of the River Basin Districts, local authorities and state agencies in implementing the directive, and operates a groundwater quality monitoring programme undertaking surveys and studies across the Republic of Ireland.

The Groundwater Body (GWB) underlying the site is the Dundalk GWB (EU Groundwater Body Code: IE\_NB\_G\_015). Currently, the EPA (2023) classifies the Dundalk GWB as having 'Good Status', and a WFD Risk Score of 'Not at risk of not achieving good status'. The Dundalk GWB has a Good Status for chemical and quantitative categories. Therefore, the overall status is considered Good.

##### 10.6.3.4.1 Local Groundwater Quality Results

As part of the site investigation carried out by RPS (2011; refer to Section 10.4.4.2 above), groundwater samples were taken from MW3 only, as MW4 was found to be dry at the time of sampling. The samples were analysed for Special Petroleum Hydrocarbons by STL, a UKAS accredited laboratory. Hydrocarbon levels were below the laboratories limit of detection (LOD) in the groundwater sampled from MW3 for all ranges.

Refer to Appendix 9.3 of the EIAR - Greenore Port – Geotechnical Interpretive Report (Gavin & Doherty Geosolutions, 2023) for site investigation locations on the site area.

#### 10.6.3.5 Groundwater Wells

The Geological Survey of Ireland (GSI) Well Index is a record of known wells drilled in Ireland, kept by the Geological Survey of Ireland. It is noted that this record is not comprehensive as licensing of wells is not currently a requirement in Ireland.

While much useful information can be obtained from this Index, it is important to note that it is by no means exhaustive, as it requires individual drillers to submit details of wells in each area. There is no licencing system for wells in Ireland at present and as such no complete data set available.

The well card data presented in Table 10.4 shows the occurrence of 1 No. recorded well within a 2 km radius of the overall development site, information regarding the depth to bedrock, and hence the depth of overburden is noted; no information is provided by the GSI online mapping on the yield class, yield m<sup>3</sup>/d or usage at well 3231SWW001, which is located within 1km of the overall development site.

There is a significant watermain network within the Port serving the existing infrastructure and quayside operations.

**Table 10.4 GSI Well Card Data for the Site Location and Surrounding Areas (GSI, 2023)**

GSI Name	Type	Depth (m)	Depth to Bedrock (m)	Townland
3231SWW001	Borehole	19.9	3.3	Greenore

The well card data shows that well 3231SWW001 recorded close to the site location indicate the depth of overburden to be c. 3.3m below ground level (bgl). Refer to Figure 10.11 below for well locations in relation to the overall development site.



**Figure 10.11 GSI Well Search Map (GSI, 2023)**

#### 10.6.3.6 Source Protection Areas

Within a 2 km radius of the overall development site, there are no recorded source protection areas. The nearest source protection area, Cooley Carlingford, is located approximately 2.7 km west of the development site. Additionally, there is a second source protection area, Ardtullybeg PWS, situated approximately 4.4 km southwest of the proposed development site. It is important to note that both of these source protection areas are positioned upgradient of the development site. As a result, there is no potential for negative effects on these sites from the proposed development.

#### 10.6.3.7 Rating of Site Importance of the Hydrogeological Features

Based on the NRA (2009) methodology (refer to Appendix 10.1) and criteria for rating the importance of hydrological features, the importance of the hydrogeological features at this site is rated as '*Extremely High*' Importance.

This is based on the assessment that the attribute has a high quality, or value on an international scale. The aquifer underlying the site supports a surface water ecosystem protected by EU legislation (Carlingford Lough SPA/ Carlingford Shore SAC).

## 10.7 The 'Do Nothing' Scenario

If the proposed development at Greenore Port was not to go ahead (i.e. in a Do-Nothing scenario) the baseline environment in terms of hydrogeology and hydrology would remain unchanged as there would be no excavations or construction. Therefore, in a "Do Nothing" scenario, there would be a neutral effect on the hydrogeological and hydrological environment at the site. The likelihood in a temporary and short-term basis is the existing natural state of the area would persist, without any alterations or disturbances caused by the development.

However, there are a number existing permitted developments at the site and Greenore Port area. It should be noted that in the event that the proposed development does not go ahead, the extant permissions for Greenore Port can still go ahead. It is likely that in the absence of the proposed development that a development of a similar nature would be progressed on the site that accords with national and regional policies and therefore the likely significant effects would be similar to this proposal.

## 10.8 Potential Significant Effects

An analysis of the potential effects of the proposed development on the hydrological and hydrogeological environment during the demolition, construction and operational phases are outlined below. Due to the inter-relationship between land, soils, geology, hydrogeology and surface water (hydrology) the following effects discussed will be considered applicable to both Chapter 9 and 10 of the EIA Report. Remediation and mitigation measures included in the design of this project to address these potential impacts are presented in Section 10.9.

### 10.8.1 Demolition Phase

The development project requires demolition works, including the demolition of the former 'Open Hydro building', a portion of the port's office accommodation, an ESB substation, and an unoccupied dwelling house. However, the potential impacts on the hydrogeological and hydrological environment surrounding the development are expected to be minimal due to the demolition works being limited to surface-level activities and do not involve any excavation works. As a result, there will be minimal impact on the hydrogeological and hydrological environment, and no significant effects on the composition, stability, or fertility of the land are anticipated. The absence of excavation works also means that there will be no disturbance to the natural soil structure, thus preventing potential soil erosion or compaction and increased run-off rates.

For more detailed information on the predicted reuse, recycle, and disposal rates for demolition waste, please refer to Chapter 8 - Material Assets - Waste of this EIAR.

Overall, the surface-level demolition works will have a negligible impact on the hydrogeological and hydrological environment, preserving their integrity and minimizing any potential environmental consequences. In the absence of mitigation, the effect on land, soils and geology is likely to be **short-term, not significant and negative.**

## 10.8.2 Construction Phase

### 10.8.2.1 Potential Impacts on Surface Water and Groundwater Quality

There is potential for the surface water quality to become contaminated with pollutants associated with construction activity. If a spill occurs, contaminated water and collected surface water run-off which arises from construction sites can pose a short-term risk to nearby watercourses. This potential contaminated run-off may enter directly into Carlingford Lough coastal waterbody or Dundalk ground waterbody beneath the site through lateral migration into the underlying aquifer. Mitigation and avoidance measures will be put in place to manage run-off during the construction phase. The potential of contamination is associated with the following sources:

- Suspended solids (muddy water with increased turbidity (measure of the degree to which the water loses its transparency due to the presence of suspended particulates) – arising from dewatering, excavation and ground disturbance;
- Hydrocarbons and other construction chemicals (ecotoxic) – accidental spillages from construction plant or stored fuels, oils, and materials.
- Cement/concrete (increase turbidity and pH) – arising from construction materials.
- Wastewater (nutrient and microbial rich) – arising from accidental discharge from on-site toilets and washrooms.

In the absence of mitigation, rainfall run-off and potential dewatering during the construction and commissioning phase may contain increased silt levels or otherwise become polluted from construction activities. Suspended solids in runoff water may result in an increase in suspended sediment load, resulting in increased turbidity, which may in turn impact on local infiltration capacity, or downstream infrastructure or watercourses. There is also the potential risk of unintentional discharge from construction traffic or stored materials like fuels and oils which could have negative impacts on both surface waters (Carlingford Lough) and the underlying groundwater (Dundalk GWB). Moreover, construction activities often involve the use of chemicals, such as paints, adhesives, solvents, and pesticides, which can also pose a risk of contamination if not handled and disposed of properly. These chemicals can seep into the soil or be carried by rainwater or other runoff, ultimately contaminating surface water. Concreting operations carried out near surface water drainage points during construction activities could lead to discharges to a watercourse. Concrete (specifically, the cement component) is highly alkaline and any spillage to a local watercourse would be detrimental to water quality and local fauna and flora. It is necessary for the measures (set out in Section 10.9.3) to be implemented to reduce and prevent accidental discharges from occurring during construction, including the implementation of effective containment and monitoring procedures.

Accidental discharges can also occur from welfare facilities during construction activities. Wastewater can contain high levels of bacteria, chemicals and organic matter, which could contaminate nearby water sources if discharged incorrectly. The establishment and use of welfare facilities and use of sealed containment, ensures that there are no potential significant impacts; therefore, no additional mitigation is required.

During the proposed dredging works c. 45,000 cubic metres of soft silty material will be dredged and disposed of on land. The 1000m<sup>3</sup> of excavated rock will be reused on site.



This can increase sedimentation levels which can result in increased levels of suspended solids in the water potentially leading to reduced water clarity which may disrupt aquatic ecosystems. The dredging may also cause resuspension of contaminants such as heavy metals or hydrocarbons that are present within the dredged material. Furthermore, construction materials, fuels, and other substances used during the dredging process can potentially enter the water, introducing contaminants that can harm aquatic life and alter water chemistry. For instance, oil or chemicals may be inadvertently spilled, impacting the water quality.

In the absence of mitigation measures the potential impacts during the construction phase on surface water quality are **negative, significant** and **short-term**.

#### 10.8.2.2 Potential Impacts on Human Health and Populations

A reduction in water quality via unmitigated pollutants entering into Carlingford Lough coastal waterbody and Dundalk GWB (groundwater body) 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 Recreational Waters, Bathing Waterbodies, or Surface Water Drinking RPA, located downstream in the environments.

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, slight**, and **short-term**.

#### 10.8.2.3 Potential Impacts on Water Framework Directive Status

AWN Consulting have prepared a Water Framework Directive (WFD) Screening Assessment as Appendix 10.4 of this EIAR.

The WFD assessment indicates that, based on the current understanding of the proposed development, there is no potential for adverse or minor temporary/ long-term or localised effects on the Carlingford Lough surface waterbody. Therefore, it has been assessed that the proposed development will not cause any deterioration or change in water body status or prevent attainment, or potential to achieve, future good status or to meet the requirements and/or objectives in the second RBMP 2018-2021 (River Basin Management Plan) and draft third RBMP 2022-2027.

The WFD assessment indicates that there is no potential for adverse or minor temporary or localised effects on the Dundalk groundwater body. Therefore, it has been assessed that it is unlikely that the proposed development will cause any deterioration or change on its water body status or prevent attainment, or potential to achieve the WFD objectives or to meet the requirements and/or objectives in the second RBMP 2018-2021 (River Basin Management Plan) and draft third RBMP 2022-2027.

No further assessment of WFD is recommended given that no significant deterioration or change in water body status is expected based on the current understanding of the proposed development during construction and operation.

There is a potential of accidental discharges during the construction phase. However, these are temporary short-lived events that will not impact on the water quality status of Carlingford Lough

coastal waterbody and Dundalk ground waterbody in the long-term and as such will not impact on trends in water quality and overall WFD status assessment. If bedrock is encountered during excavations, only its uppermost shallow weathered strata will be exposed (i.e. the regional aquifer will not be affected). Therefore, no potential for negative impacts for human health and populations is foreseen (i.e. drinking water supplies). There is also no source pathway linkage to drinking water supplies or recreational uses. As identified in Section 10.6.3, there are no wells categorised as domestic use in the area.

### 10.8.3 Operational Phase

#### 10.8.3.1 Potential Effects on Surface Water Quality

##### 10.8.3.1.1 Surface Water Drainage

Surface water runoff from roads, car parking, and hardstanding areas, can potentially contain elevated levels of contaminants such as hydrocarbons. These pollutants such as hydrocarbons if discharged accidentally due to runoff water may result in adverse changes in water chemistry (dissolved oxygen content, biological oxygen demand etc).

The port currently has an existing stormwater drainage network in place. This serves as a drainage network for both yard surface water and roof water from buildings. The system drains via gravity to a bypass separator and discharges via one existing outfall into Carlingford Lough.

In absence of bypass separator and mitigation measures, the potential effects during the operational phase on hydrology and hydrogeology are **long-term, significant and negative**.

#### O&M Facility Site

There is no discharge to ground proposed as part of the surface water drainage strategy from the O&M site and the existing outfall into Carlingford Lough will be utilised. A bypass separator will be installed to intercept pollutants such as petroleum and oil before the surface water outfalls to sea.

In absence of bypass separator and mitigation measures, the potential effects during the operational phase on hydrology and hydrogeology are **long-term, significant and negative**.

#### Shore Road Car Park

Surface water drainage will discharge by a series of filter drains into an underground stone-filled reservoir attenuation system. This system has been designed using the results of the soakaway tests in accordance with BRE 365, 2016. These results are included in the Engineering Report by CSEA included with this application.

A bypass interceptor will be installed to capture pollutants such as petroleum and oil and prevent their entry to the public drainage system or groundwater or groundwater where an infiltration system is utilised.

Surface water will discharge to the public surface water pipe on Shore Road.

In the absence of bypass interceptor and mitigation measures, the potential effects during the operational phase on hydrology and hydrogeology are **long-term, significant and negative**.

#### 10.8.3.1.2 Foul Wastewater Drainage

The port has an existing foul drainage network in place comprising of a foul collection tank and foul lines servicing buildings in the port. This includes an existing 150mm connection to the foul collection tank from the former Open Hydro building. A new network of foul sewers will be installed to serve the proposed development, discharging to the existing collection tank. There will be no direct or indirect foul water discharge into Carlingford Lough.

The collection tank is an Uisce Éireann asset, and they are given access to the site to allow tankers to enter and empty the chamber for off-site disposal to Dundalk Wastewater Treatment Plant (WWTP). There is no direct connection from the proposed development to Carlingford Lough. However, there is an indirect hydrological connection to the European sites (Dundalk Bay SAC and SPA's) located in Dundalk Bay at Dundalk Wastewater Treatment Plant (D0053-01).

It is worth noting that even without treatment at the Dundalk WWTP, the design Dry Weather Flow (DWF) is found to be 19.80 m<sup>3</sup>/d. This volume equates to 23.6% of the septic tank capacity (84m<sup>3</sup>) estimated for the proposed development. The peak hydraulic capacity of Dundalk WWTP is currently 56,706 m<sup>3</sup>/d according to their 2018 Annual Environmental Report. Therefore, the proposed developments maximum septic tank capacity that will be delivered to Dundalk WWTP equates to 0.0035% of Dundalk WWTP's peak hydraulic capacity.

Therefore, there would not be any measurable impact on the overall water quality within Dundalk Bay or the Natura 2000 sites located therein, and therefore would not have an impact on the current Water Body Status (as defined within the Water Framework Directive). In addition, as the proposed development will not contribute any additional stormwater drainage to the WWTP, the development will therefore have no measurable impact on the water quality in any overflow situation.

On the basis of the design characteristics of the proposed development, and feasibility of the connection with Uisce Éireann to Ringsend WWTP, the potential effects during the operational phase on surface water quality are **neutral, imperceptible, long-term** in respect of foul water loading.

In the absence of mitigation measures the potential effects during the operational phase on hydrology and hydrogeology are **long-term, imperceptible and neutral**.

#### 10.8.3.2 Potential Effects on Human Health and Populations

A reduction in water quality via unmitigated pollutants entering Carlingford Lough or discharging to Dundalk ground waterbody (as set out in Section 10.8.3.3.1) 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 Recreational Waters, Bathing Waterbodies, or Surface Water Drinking RPA, located downstream in the environments. Therefore, the proposed development has no potential to impact on human health, populations, and material assets through the surrounding hydrogeological and hydrological environment.

There is no potential for unmitigated off-site flooding as a result of the proposed surface water drainage strategy as the existing outfall into Carlingford Lough will be utilised, the coastal location of the proposed development and due to the low flood risk at the site (as set out in section 10.6.2.6 and

the Site Specific Flood Risk Assessment prepared with regard to the proposed development (McCarthy Browne, 2024).

In the absence of mitigation measures, the potential effects during the construction phase on human health and populations due to changes to the hydrological and hydrogeological environment are **neutral, imperceptible, long-term**.

#### 10.8.3.3 Potential Effects on Water Framework Directive Status

There are limited indirect discharges of water during the operational phase to open waterbody/ watercourse from the proposed development. These discharges will be adequately treated via SuDS measures, hydrobrake (or equivalent) and oil/water interceptor to ensure there is no long-term negative impact to the WFD water quality status of the receiving watercourse. The SuDS and proposed measures have been designed in detail with the ultimate aim of protecting the hydrological (& hydrogeological) environment. The SuDS and project design measures will be maintained correctly as per specifications to ensure long-term/ on-going integrity of same. Wastewater will be collected from the on-site septic tanks and adequately treated off-site at Dundalk WWTP.

In the scenario of an accidental release there is potential for a temporary impact only which would not be of a sufficient magnitude to effect a change in the current water body status.

In the absence of mitigation measures and any accidental discharge, the potential effects during the construction phase on human health and populations due to changes to the hydrological and hydrogeological environment are **negative, imperceptible, long-term**.

#### 10.8.4 Cumulative Effects

There are existing residential and commercial developments close by, along with the multiple permissions remaining in place in the area. Multiple developments in the area could potentially be developed concurrently or overlap during the demolition, construction and operational phases. There will be no effects on hydrogeology and hydrology as each development will adhere to their own CEMP and mitigation plan.

#### 10.8.5 Summary

Table 10.5 below summarises the identified likely significant effects during the construction phase of the proposed development before mitigation measures are applied.

**Table 10.5 Summary of Construction Phase Likely Significant Effects in the absence of mitigation**

Likely Significant Effect	Quality	Significance	Extent	Probability	Duration	Type
Accidental Spills, Leaks and Discharges	Negative	Significant	Local & Regional	Likely	Long-Term	Direct
Increased Sediment Run Off during excavation works carrying Sediment and	Negative	Significant	Local & Regional	Likely	Long-Term	Direct

Likely Significant Effect	Quality	Significance	Extent	Probability	Duration	Type
Pollutants into Carlingford Lough and Dundalk GWB						
Groundwater Contamination through lateral migration from improper management of Construction Waste, Materials & Chemicals	Negative	Significant	Local & Regional	Unlikely	Long-Term	Direct

Table 10.6 below summarises the identified likely significant effects during the operational phase of the proposed development before mitigation measures are applied.

**Table 10.6 Summary of Operational Phase Likely Significant Effects in the absence of mitigation**

Likely Significant Effect	Quality	Significance	Extent	Probability	Duration	Type
Accidental Spills, Leaks and Discharges	Negative	Significant	Local & Regional	Likely	Long-Term	Direct
Increased Sediment Run Off from Hardstanding Areas carrying Sediment and Pollutants into Carlingford Lough and Dundalk GWB	Negative	Significant	Local & Regional	Likely	Long-Term	Direct
Future Maintenance Works on Underground Services and Infrastructure involving Excavations exposing bedrock aquifer beneath the site introducing a pathway for contaminants to enter Dundalk GWB	Negative	Significant	Local & Regional	Likely	Short-Term	Direct

If the mitigation measures outlined in Section 10.9 below are not implemented and adhered to in full, the effect on the hydrogeological and hydrological environment is likely to be **long-term, significant and negative**.

## 10.9 Mitigation

### 10.9.1 Incorporated Design Mitigation

This section outlines the measures that will be employed in order to ensure the project has minimal adverse effects on the surrounding environment, in this case hydrogeology and hydrology. These measures include appropriate design measures such as the proper storage and containment of hazardous substances and proper drainage systems in line with best practice, standard details, policies

and guidelines. For further information on design refer to Engineering Planning Report – Greenore Port OMF (CSEA, 2023)

#### 10.9.1.1 Surface Water Quality and Drainage

The site is located adjacent to the sea (Carlingford Lough) and as there is no downstream development before outfalling to the Irish Sea, it is not required to provide full attenuation for the 100-year return storm as per the requirements in Section 6.6, Volume 2, of the GDSDS. The principal issue therefore is the quality of water discharge from Greenore and not the quantity of water discharged to the sea.

The following mitigation measures are proposed in the design of the surface water network for the proposed development:

- Storing surface water during high tides to limit discharge rates at the outfall to the sea.
- Tide locking the outfall during extreme high tide events, with a closure period of up to 6 hours.
- Assuming no outfall rate during the entire 6 hours of tide lock in the worst-case scenario.
- Draining roofs, yards, internal roads, and parking areas through a sealed drainage system, collected and conveyed through stormwater pipes before discharging into an underground attenuation tank.
- Draining car parks, parking bays, and access roads through permeable paving and supplementary gully system, with surface water pipework discharging into a Stormtech Attenuation system.
- Introducing stormwater manholes at appropriate spacing distances for maintenance purposes (no greater than 90m).
- Draining the satellite car park catchment area through proposed filter drains, collecting surface water runoff from impermeable vehicular aisles and discharging into a stone-filled attenuation system.
- Using stormwater drainage network pipework with diameters ranging from 225mm to 450mm, depending on flow capacity.
- Ensuring the proposed surface water network can handle up to a 30-year critical storm event plus a 20% climate change allowance without causing flooding.

The proposed surface water drainage system designed for this development also includes a number of Sustainable Urban Drainage Systems (SuDS) measures such as permeable paving/ grasscrete, filter drains and attenuation systems. These measures will be incorporated to reduce run-off volumes and improve run-off water quality. The design of the attenuation storage system has been carried out for the 1 in 100-year event with a 20% allowance for climate change. The design of the 2 no. attenuation systems has been completed as follows:

- *Underground Arch-Type Attenuation Storage:* The attenuation storage systems shall comprise of underground Arch-type storage units, i.e., stormtech systems or similar approved. Its final discharge destination will be Irish Sea through by-pass petrol separators.
- *Underground Stone-Fill Reservoir Attenuation System:* Surface water drainage from the Satellite Car Park shall be discharged into an underground stone-fill reservoir designed using the results of soakaway tests in accordance with BRE 365, 2016. Its final discharge destination will be the 100mm diameter pipe along Shore Road.



The catchment at the Shore Road carpark will be connected to the public Louth County Council surface water collection on the public road. It is proposed to limit the surface water discharge from the Shore Road carpark catchment zone of the development to the equivalent  $Q_{bar}$  value to 2.13 l/s/ha in compliance with the Greater Dublin Strategic Drainage Study (GDSDS), Water Services Guidelines for Planning Authorities Draft (2018) and CIRIA SuDS Manual, 2015. It is proposed to use a “Hydrobrake Optimum” (downstream of each attenuation unit) vortex flow control devices to restrict the flows to the amounts calculated.

Refer to the Engineering Planning Report (CSEA, 2024) for further information on the proposed incorporated design measures to mitigate against the degradation of the surface water environment and quality.

#### 10.9.1.2 Foul Water Drainage

A new network of foul sewers will be installed to serve the proposed development, discharging to existing connections to the existing collection tank. There will be no direct or indirect foul water discharge into Carlingford Lough.

#### 10.9.1.3 Potential Impacts on Water Framework Directive Status

The following design mitigation measures have been incorporated in the design to mitigate potential impacts have taken account of the potential impacts of the development.

- A fuel store with a capacity of  $\geq 200,000$  litres will be provided in a dedicated area that will be maintained and managed by Greenore Port. The overall volume will be stored in 1-2 bunded tanks and located in a secure area of the site to avoid accidental impact. The tanks will be fitted with overfill prevention, bund alarm and automatic shut off valves to mitigate risk of spills.
- Surface water will be drained from this area into the proposed network with petrol interceptors included.
- The proposed stormwater drainage network design includes sustainable drainage systems (SuDS) these measures by design ensure the stormwater leaving the site is to be attenuated and treated within the new development site boundary to ensure suitable quality, before discharging to the Carlingford Lough
- It is proposed to separate the surface water and foul drainage networks, which will serve the proposed development, and provide independent connections to the local public surface water and foul sewer networks respectively.

The surface water discharges from the site are indirect, and will be adequately attenuated via SuDS measures, hydro-brake (or equivalent) and oil/water separator ensure there is no long-term negative impact to the WFD water quality status of the (Carlingford Lough) and (Dundalk GWB).

#### 10.9.2 Demolition Phase Mitigation

To facilitate the development, demolition works are required. This will include the demolition of the former ‘Open Hydro building’ to, and a small portion of the port’s office accommodation, an ESB substation, and an unoccupied dwelling house. The demolition works of the proposed development are limited to surface-level activities and do not involve any excavation works. As a result, the impact on hydrogeology and hydrology is minimal.

The demolition process focuses on dismantling and removing structures, buildings and infrastructure (i.e. Open Hydro building, office accommodation, ESB substation and associated switch room, unoccupied dwelling house etc.) to accommodate the new development and facilitation works, without disturbing the underlying soil or altering the landscape. This approach ensures that there are no significant effects on the underlying aquifer (Dundalk GWB) and Carlingford Lough due to increased run-off, soil compaction related to excavation works.

Refer to Chapter 8 – Material Assets – Waste – Section 8.9.2 of the EIA for further information on predicted on demolition phase mitigation in terms of off-site reuse, recycle and disposal rates for demolition waste. These measures will ensure no discharge of contaminated run-off enter the surrounding hydrogeological and hydrological environment.

Overall, no mitigation measures are required during the demolition phase in relation to hydrogeology and hydrology due to the surface level nature of the works. The surface-level demolition works will have a negligible impact on hydrogeology and hydrology, preserving their integrity and minimizing any potential environmental consequences.

### **10.9.3 Construction Phase Mitigation**

In order to reduce impacts on the hydrogeological and hydrological environment, a number of mitigation measures will be adopted as part of the construction works on site. The measures will address the main activities of potential impact which include:

- Control of soil excavation and export from site;
- Sources of fill and aggregates for the proposed development;
- Fuel and chemical handling, transport and storage; and
- Control of water during construction.

#### **10.9.3.1 Outline Construction Environmental Management Plan**

An Outline Construction Environmental Management Plan (CEMP) is included with the application documentation.

The main purpose of a CEMP is to provide a mechanism for implementation of the various mitigation and monitoring measures which are described in the EIAR. The Outline CEMP demonstrates the applicant's commitment to implementing the proposed development in such a way as to avoid or minimise the potential environmental effects arising from construction activities. All personnel will be required to understand and implement the requirements of the plan.

Construction works and the proposed mitigation measures outlined in the Outline CEMP are informed by best practice guidance on the prevention of pollution during development projects including but not limited to:

- Construction Industry Research and Information Association (CIRIA), Control of Water Pollution from Construction Sites, Guidance for Consultants and Contractors (C532);
- Guidelines on Protection of Fisheries During Construction Works in and Adjacent to Waters (2016);

- Construction Industry Research and Information Association (CIRIA) Environmental Good Practice on Site (4th edition), (C741);
- Enterprise Ireland Best Practice Guide, Oil Storage Guidelines (BPGCS005); and
- Guidelines for the crossing of watercourses during the construction of national road schemes (National Roads Authority; 2008).

The Outline CEMP will be implemented and adhered to by the construction contractor and will be overseen and updated as required if site conditions change by the Project Manager, Environmental Manager, Resource Manager and Ecological Clerk of Works where relevant. All personnel working on the Site will be trained in the implementation of the procedures.

The Outline CEMP sets out the proposed procedures and operations to be utilised on the proposed construction site. All mitigation measures outlined here, and within the Outline CEMP will be implemented during the construction phase, as well as any additional measures required pursuant to consent conditions which may be imposed.

During the project planning phase, a comprehensive emergency response plan will be developed by the construction contractor. This plan will outline a well-defined procedure for effectively managing emergencies as they arise. Furthermore, it's imperative to disseminate this emergency protocol to all site personnel during the site induction process. This plan will include for events such as:

- Pollution incidents: These may involve spillages, the malfunction of temporary structures, embankment collapse, acts of vandalism, fires, and other related events.
- Extreme weather occurrences: Events such as heavy rainfall, flooding, are important factors to consider due to their potential impact on the construction process.

The construction contractor will be required to implement emergency response procedures, and these will be in line with industry guidance. Personnel working on the site will be suitably trained in the implementation of the procedures.

#### 10.9.3.2 Surface Water Run-Off

As there is potential for run-off to enter/discharge into to the surrounding Natura sites located in Carlingford Lough (Carlingford Lough SPA & Carlingford Shore SAC), mitigations will be put in place to manage run-off during the construction phase as follows:

- Care will be taken to ensure that exposed soil surfaces are stable to minimise erosion. All exposed soil surfaces will be within the main excavation site which limits the potential for any offsite impacts.
- Should any discharge of construction water be required during the construction phase, discharge will be to the surface water network. Therefore, there will be interaction between silt laden construction water and surface water quality combined with Pre-treatment and silt reduction measures on site and hydrocarbon interceptors. All refuelling will be carried out at adequate distances away from waterbodies from doubled skinned bowsers and spill kits will be available at all times.
- Any minor ingress of groundwater and collected rainfall in the excavation will be pumped out during construction. It is estimated that the inflow rate of groundwater will be low and limited to localised perched water. It is therefore proposed that the water be discharged via the existing stormwater sewer network. The use of slit traps and an oil interceptor (if required)

will be adopted if the monitoring indicates the requirements for the same with no silt or contaminated water permitted to discharge to the sewer. There shall be localised pumping of surface run-off from the excavations during and after heavy rainfall events to ensure that the excavations are kept relatively dry, however this is expected to be low due to the low permeability of the subsoils and the relative shallow nature for excavations. Likewise, infiltration to the underlying aquifer is not anticipated (Refer to Chapter 9 (Land, Soils, Geology and Hydrogeology) for further details).

- Run-off water containing silt will be contained on site via settlement tanks/lagoons and treated to ensure adequate silt removal. Silt reduction measures on site will include a combination of silt fencing and settlement measures (silt traps, silt sacks and settlement tanks/ponds).
- The temporary storage of soil will be carefully managed. Stockpiles will be tightly compacted and / or backbucketed to reduce runoff and graded to aid in runoff collection. This will prevent any potential negative impact on the stormwater drainage and the material will be stored away from any surface water drains. Movement of material will be minimised to reduce the degradation of soil structure and generation of dust. Excavations will remain open for as little time as possible before the placement of fill. This will help to minimise the potential for water ingress into excavations. Soil from works will be stored away from existing drainage features to remove any potential impact.
- Weather conditions will be considered when planning construction activities to minimise the risk of run-off from the site and the suitable distance of topsoil piles from surface water drains will be maintained.

#### 10.9.3.3 Fuel and Chemical Handling

The following mitigation measures will be taken at the construction stage in order to prevent any spillages to ground of fuels and prevent any resulting soil and/or groundwater quality impacts:

- Designation of a bunded refuelling areas on the site
- Provision of spill kit facilities across the site;
- Where mobile fuel bowzers are used the following measures will be taken:
  - Any flexible pipe, tap or valve will be fitted with a lock and will be secured when not in use;
  - The pump or valve will be fitted with a lock and will be secured when not in use;
  - All bowzers to carry a spill kit;
  - Operatives must have spill response training; and
  - Bowzers to be double skinned.

In the case of drummed fuel or other potentially polluting substances which may be used during construction the following measures will be adopted:

- Secure storage of all containers that contain potential polluting substances in a dedicated internally bunded chemical storage cabinet unit or inside a concrete bunded area;
- Clear labelling of containers so that appropriate remedial measures can be taken in the event of a spillage;
- All drums to be quality approved and manufactured to a recognised standard;
- If drums are to be moved around the site, they will be secured and on spill pallets; and

- Drums to be loaded and unloaded by competent and trained personnel using appropriate equipment.

All contractors will be required to implement mitigation measures discussed above.

All ready-mixed concrete will be brought to site by truck. A suitable risk assessment for wet concreting will be completed prior to works being carried out which will include measures to prevent discharge of alkaline waste waters or contaminated storm water to the underlying subsoil. Wash-down and washout of concrete transporting vehicles will take place at an appropriate facility offsite.

#### 10.9.3.4 Cement/ concrete works

Where feasible all ready-mixed concrete will be brought to site by truck. A suitable risk assessment for wet concreting will be completed prior to works being carried out which will include measures to prevent discharge of alkaline wastewaters or contaminated storm water to the underlying subsoil.

No wash-down or wash-out of ready-mix concrete vehicles during the construction works will be carried out at the site within 10 meters of an existing surface water drainage point. Washouts will only be allowed to take place in designated areas with an impervious surface where all wash water is contained and removed from site by road tanker or discharged to foul sewer submit to agreement with Uisce Éireann.

The construction contractor will be required to implement emergency response procedures, and these will be in line with industry guidance. All personnel working on the Site will be suitably trained in the implementation of the procedures.

#### 10.9.3.5 Soil Removal and Compaction

There will be soil and stones excavated to facilitate construction of new foundations and the installation of underground services. The project engineers (McCarthy Browne) have estimated that c. 7,225 m<sup>3</sup> of material will need to be excavated to do so. It is currently envisaged that there will be an opportunity to reuse c. 4,265 m<sup>3</sup> of excavated material for use in landscaping and fill. The remaining 2,960 m<sup>3</sup> of material, will need to be removed offsite due to the limited opportunities for reuse on site. This will be taken for appropriate offsite reuse, recovery, recycling and / or disposal.

There will be dredging undertaken to facilitate navigable access and suitable berthing for the crew transfer vessels (CTV)s. McCarthy Browne have estimated that c. 41,000 m<sup>3</sup> of material will need to be dredged to do so with all but 1,000 m<sup>3</sup> of this material to be removed from site. This material will be taken for appropriate offsite reuse, recovery, recycling and / or disposal.

During the construction phase of the proposed development, several mitigation measures will be implemented to effectively manage and mitigate the effects of soil compaction and its associated negative consequences.

- Excavated soil and stone surplus to requirements on-site will be taken for appropriate offsite reuse, recovery, recycling and/or disposal.
- Dredge material will be taken for appropriate offsite reuse, recovery, recycling and / or disposal.

- Temporary storage of soil will be carefully managed in such a way as to prevent any potential negative impact on the receiving environment. The material will be stored away from any surface water drains and surface waterbodies (Carlingford Lough). Movement of material will be minimised to reduce degradation of soil structure and generation of dust.
- All excavated materials will be visually assessed for signs of possible contamination such as staining or strong odours. Should any unusual staining or odour be noticed, samples of this soil will be analysed for the presence of potential contaminants to ensure that historical pollution of the soil has not occurred. Should it be determined that any of the soil excavated is contaminated, this will be segregated and appropriately disposed of by a suitably permitted/licensed waste disposal contractor.

#### 10.9.3.6 Environmental Procedures

There will be comprehensive emergency response procedures and standard operating procedures to respond to chemical spillage all types. All employees will be provided with such equipment, information, training and supervision as is necessary to implement the emergency response procedures and standard operating procedures.

#### 10.9.3.7 Human Health and Populations

It has been established (Section 10.8.2.2) that there are no recorded Recreational Waters, Bathing Waterbodies, or Drinking Water Rivers, located in the vicinity of the proposed development site associated with Carlingford Lough. On a precautionary basis, the mitigation measures set out in Section 10.9.3 will be implemented during the construction works for the protection of human health and populations.

Furthermore, as stated in Section 10.9.3.5 all excavated materials will be visually assessed by suitably qualified persons for signs of possible contamination such as staining or strong odours. Should any unusual staining or odour be noticed, samples of this soil will be analysed for the presence of potential contaminants to ensure that historical pollution of the soil has not occurred. Should it be determined that any of the soil excavated is contaminated, this will be segregated and appropriately disposed of by a suitably permitted/licensed waste disposal contractor.

#### 10.9.3.8 Water Framework Directive Status

It has been established (Section 10.8.2.3) that while, there is a potential of accidental discharges during the construction phase this will not impact on trends in water quality and overall WFD status assessment. On a precautionary basis, the mitigation measures set out in Section 10.9.3 will be implemented during the construction works for the protection of surface water quality.

### 10.9.4 Operational Phase Mitigation

#### 10.9.4.1 Surface Water Quality

The design has taken account of the potential effects of the development on surface water quality and measures have been incorporated in the design to mitigate these potential effects, as outlined in Section 10.9.1. The proposed surface water drainage strategy is designed in accordance with the Greater Dublin Strategic Drainage Study (GDSDS), Water Services Guidelines for Planning Authorities



(Draft – 2018) and The SuDS Manual (CIRIA, 2015). The proposed surface water drainage system designed for this development includes a number of Sustainable Urban Drainage Systems (SuDS) measures incorporated to reduce run-off volumes and improve run-off water quality such as permeable paving/grasscrete, filter drains, underground arch-type attenuation storage and an underground stone-fill reservoir attenuation system. The design of the attenuation storage system has been carried out for the 1 in 100-year event with a 20% allowance for climate change.

There is no discharge to ground proposed as part of the surface water drainage strategy from the O&M Facility and the existing outfall into Carlingford Lough will be utilised. Therefore, as there are no effects on the hydrogeology and hydrology at the proposed development, no mitigation is required.

There is no discharge to ground proposed as part of the surface water drainage strategy from the shore road car park. Surface water will discharge to the public surface water pipe on Shore Road. A bypass interceptor will be installed to capture pollutants such as petroleum and oil and prevent their entry to the public drainage system. Therefore, as there are no effects on the hydrogeology and hydrology at the proposed development, no mitigation is required.

#### 10.9.4.2 Foul Water Drainage

The port has an existing foul drainage network in place comprising a foul collection tank and foul lines servicing buildings in the port. This includes an existing 150mm connection to the foul collection tank from the former Open Hydro building.

A new network of foul sewers will be installed to serve the proposed development, discharging to existing connections to the existing collection tank. Therefore, as there are no effects on the hydrogeology and hydrogeology at the proposed development, no mitigation is required.

#### 10.9.4.3 Human Health and Populations

On a precautionary basis, the incorporate design mitigation measures for Water & Hydrology and included in the Summary of Mitigation and Monitoring Measures Tables (Chapter 19) will be implemented during the operational phase for the protection of human health and populations and material assets.

There is no discharge to ground proposed as part of the surface water drainage strategy from the O&M Facility and the existing outfall into Carlingford Lough will be utilised. There is no discharge to ground proposed as part of the surface water drainage strategy from the shore road car park. Therefore, as there are no effects on the hydrogeological and hydrological environment at the proposed development, no mitigation is required.

#### 10.9.4.4 Potential Impacts on Water Framework Directive Status

AWN Consulting have prepared a Water Framework Directive (WFD) Screening Assessment that is included with the application documentation (Appendix 10.4 of the EIAR). The WFD Screening Report includes robust mitigation measures to protect the hydrological environment (Carlingford Lough) and underlying hydrogeological environment (Dundalk GWB).

The design mitigation measures included in section 10.9.1 have taken account of the potential impacts of the development on surface water quality; measures have been incorporated in the design to mitigate these potential impacts.

A fuel store with a capacity of  $\geq 200,000$  liters will be provided in a dedicated area that will be maintained and managed by Greenore Port. The overall volume will be stored in 1-2 bunded tanks and located in a secure area of the site to avoid accidental impact. The tanks will be fitted with overflow prevention, bund alarm and automatic shut off valves to mitigate risk of spills. Surface water will be drained from this area into the proposed network with petrol interceptors included.

The proposed development stormwater drainage network design includes sustainable drainage systems (SuDS) these measures by design ensure the stormwater leaving the site is to be attenuated and treated within the new development site boundary to ensure suitable quality, before discharging to the Carlingford Lough.

The purpose of the proposed design is to:

- Treat runoff and remove pollutants to improve quality.
- Restrict outflow and to control quantity.
- Increase amenity value.

The layout of the proposed surface water drainage network is shown on the drawing set included with this Application. It is proposed to separate the surface water and foul drainage networks, which will serve the proposed development, and provide independent connections to the local public surface water and foul sewer networks respectively.

The surface water discharges from the site are indirect, and will be adequately attenuated via SuDS measures, hydro-brake (or equivalent) and oil/water separator ensure there is no long-term negative impact to the WFD water quality status of the (Carlingford Lough) and (Dundalk GWB).

No further mitigation is required.

## 10.10 Residual Impact Assessment

This section assesses potential significant environmental impacts which remain after mitigation measures are implemented. The implementation of mitigation measures outlined in Section 10.9 will ensure that the potential impacts on the hydrogeological and hydrological environment do not occur during the demolition, construction and operational phases of the proposed development. Due to the inter-relationship between land, soils, geology, hydrogeology and surface water the following impacts discussed will be considered applicable to both Chapter 10 (Hydrology) and Chapter 9 (Land and Soils) of the EIAR.

### 10.10.1 Demolition Phase

As stated in Section 10.8.1, the potential impacts on the hydrogeological and hydrological environment surrounding the development are expected to be minimal due to the demolition works being limited to surface-level activities and do not involve any excavation works. As a result, there will

be minimal impact on the hydrogeological and hydrological environment, and no significant effects on the composition, stability, or fertility of the land are anticipated. The absence of excavation works also means that there will be no disturbance to the natural soil structure, thus preventing potential soil erosion or compaction and increased run-off rates.

Overall, the surface-level demolition works will have a negligible impact on the hydrogeological and hydrological environment, preserving their integrity and minimizing any potential environmental consequences.

The implementation of mitigation measures outlined in Section 10.9.2 will ensure the residual effect on the hydrogeological and hydrological environment during the demolition phase is likely to be **short-term, not significant and negative**.

## 10.10.2 Construction Phase

### 10.10.2.1 Surface Water Quality

The implementation of the mitigation and monitoring measures detailed in Section 10.9.3 will ensure that the potential impacts on the hydrogeological and hydrological environment during the construction phase are adequately mitigated. The residual effect on surface water quality during the construction phase is considered to be **neutral, imperceptible** and **short-term**.

### 10.10.2.2 Human Health and Populations

The implementation of the mitigation and monitoring measures detailed in Section 10.9.3, will ensure that the potential impacts on human health and populations (and material assets) 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**.

### 10.10.2.3 Water Framework Directive Status

Even in the absence of the mitigation and monitoring measures detailed in Section 10.9.3, there will be no predicted degradation of the current water body (chemically, ecological and quantity) or any impact on its potential to meet the requirements and/or objectives in the second RBMP 2018-2021 (River Basin Management Plan) and draft third RBMP 2022-2027.

There are appropriately designed mitigation measures which will be implemented during the construction phase to protect the hydrological environment. There is a potential of accidental discharges during the construction phase, however these are temporary short-lived events that will not impact on the water status of waterbodies long-term and as such will not impact on trends in water quality and overall status assessment.

The residual effect on Water Framework Directive Status during the construction phase is considered to be **neutral, imperceptible** and **short-term**.

### 10.10.3 Operational Phase

#### 10.10.3.1 Surface Water Quality

The implementation of the mitigation measures detailed in Section 10.9.4.1, will ensure that the potential impacts on surface water quality once the proposed development is constructed and operational are adequately mitigated. The residual effect on surface water quality during the operational phase is considered to be **neutral, imperceptible and long-term**.

There will be no impact to the quality of designated sites associated with Carlingford Lough (Carlingford Shore SAC/ Carlingford Lough SPA) due to the hydrological volume and dilution of Carlingford Lough and the mitigation measures cited. In addition, overall, the SuDS attenuation proposed will improve flood management and water quality exiting the site.

#### 10.10.3.2 Human Health and Populations

The implementation of the mitigation measures detailed in Section 10.9.4.4, will ensure that the potential impacts on human health and populations (and material assets) once the proposed development is constructed and operational are adequately mitigated. The residual effect on human health and populations during the operational phase is considered to be **neutral, imperceptible and long-term**.

#### 10.10.3.3 Water Framework Assessment

Even in the absence of the mitigation measures detailed in Section 10.9.4, there will be no predicted degradation of the current water body (chemically, ecological and quantity) or any impact on its potential to meet the requirements and/or objectives in the second RBMP 2018-2021 (River Basin Management Plan) and draft third RBMP 2022-2027.

There are appropriately designed mitigation measures which will be implemented during the operational phase to protect the hydrogeological and hydrological environment. There is a potential of accidental discharges during the operational phase, however these are temporary short-lived events that will not impact on the water status of waterbodies long-term and as such will not impact on trends in water quality and over all status assessment.

There are no untreated discharges of wastewater during the operational phase to any open waterbody / watercourse. All surface water discharges will be adequately treated via SuDS measures, hydro-brake (or equivalent) and oil/water interceptor / separator to ensure there is no long-term negative impact to the WFD water quality status of the receiving water body. The SuDS and proposed measures have been designed in detail with the ultimate aim of protecting the hydrological (& hydrogeological) environment. The SuDS and project design measures will be maintained correctly as per specifications to ensure long-term / on-going integrity of same.

### 10.10.4 Summary of Post-mitigation Effects

The implementation of mitigation measures outlined in Section 10.9 will ensure that the potential impacts on the hydrogeological and hydrological environment do not occur during the demolition, construction and operational phases of the proposed development. Due to the inter-relationship

between land, soils, geology, hydrogeology and surface water the following impacts discussed will be considered applicable to both Chapter 10 (Hydrology) & Chapter 9 (Land and Soils) of the EIAR.

The following Table summarises the identified likely significant residual effects during the construction phase of the proposed development following the application of mitigation measures.

**Table 10.7 Summary of Construction Phase Effects Post Mitigation**

Likely Significant Effect	Quality	Significance	Extent	Probability	Duration	Type
Accidental Spills, Leaks and Discharges	Neutral	Imperceptible	Local & Regional	Unlikely	Short-Term	Direct
Increased Sediment Run Off carrying Sediment and Pollutants	Neutral	Imperceptible	Local & Regional	Unlikely	Short-Term	Direct
Surface Water and Groundwater Contamination from Construction Waste, Materials & Chemicals	Neutral	Imperceptible	Local & Regional	Unlikely	Short-Term	Direct

The following Table summarises the identified likely residual significant effects during the operational phase of the proposed development post mitigation.

**Table 10.8 Summary of Operational Phase Effects Post Mitigation**

Likely Significant Effect	Quality	Significance	Extent	Probability	Duration	Type
Accidental Spills, Leaks and Discharges	Neutral	Imperceptible	Local & Regional	Unlikely	Short-Term	Direct
Surface Water discharge to Surface and Ground Waterbodies carrying Potential Contaminants / Pollutants	Neutral	Imperceptible	Local & Regional	Unlikely	Short-Term	Direct
Future Maintenance Works on Underground Services and Infrastructure involving Excavations exposing bedrock aquifer beneath the site introducing a pathway for	Neutral	Imperceptible	Local & Regional	Unlikely	Short-Term	Neutral

Likely Effect	Significant	Quality	Significance	Extent	Probability	Duration	Type
contaminants to enter Dundalk GWB							
Discharge of Water to Ground	Negative	Significant	Local & Regional	Unlikely	Long-Term	Direct	

### 10.10.5 Cumulative Residual Effects

The cumulative impact of the proposed development with any/all relevant other planned or permitted developments are discussed below.

There are existing residential and commercial developments close by, along with the multiple permissions remaining in place in the area. Multiple developments in the area could potentially be developed concurrently or overlap in the construction phase.

Developments that potentially could overlap during the demolition and construction phase are as follows:

Planning Ref	Description	Application type	Decision	Date
LCC 20543	Demolition of existing structures inc. railway and engine room walls and construction of two new stores and an ESB substation.	Permission	Conditional Upheld on Appeal	15/04/2021
LCC 20268	Extension and modifications to the existing former OpenHydro warehouse. The development applied for is within Greenore Port's landholding within the curtilage also exists the watertower, lighthouse and lighthouse keeper's cottage which are all included in the Louth Record of Protected Structures Ref. LH009-01, LH009-043, LH009-044 respectively	Permission	Conditional Upheld on Appeal	18/07/2020
LCC 2360119	Retention of as constructed dwellinghouse previously granted planning permission under planning Ref. No. 97/866 and all associated site development works	Retention	Conditional	14/07/2023
LCC 23234	Retention permission for (a) a domestic store; (b) a domestic outbuilding comprising of a games room, gym and home office and (c) associated site development works	Retention	Conditional	12/01/2024
LCC 2385	Retention permission for extensions and alterations to the existing dwelling, attached	Retention	Conditional	21/07/2023



	domestic garage and associated site development works			
LCC 231	Permission for the following: (1) demolition of a single storey extension and outbuilding to the rear of the existing house; (2) alterations to the rear of the existing house; (3) construction of a one storey extension to the rear of the existing house	Permission	Conditional	24/02/2023
LCC 22614	Permission for elevational changes and alterations to existing dwelling house and all associated site works	Permission	Conditional	04/11/2022
LCC 211439	Retention permission for a single storey extension to the side and rear of the dwelling	Retention	Conditional	11/03/2022
LCC 211331	Permission for a single storey extension to the rear of the dwelling and all associated site works. The existing building is a Protected Structure in the Louth County Council Development Plan Ref. No. LHS009-036B, NIAH Ref. 13831027	Permission	Conditional	17/12/2021
LCC 211223	Retention permission for development that consists of an extension to the rear of dwelling. This building is listed as a protected structure under the Louth County Development Plan 2015-2021 Ref No LHs 009-004	Retention	Conditional	10/11/2021
LCC 19754	Permission for extension to side of existing dwelling house, upgrading of existing effluent treatment system on site and all associated site development works. *Significant Further Information submitted 01/07/20*	Permission	Conditional	28/07/2020
LCC 19727	Permission for one dwelling house, effluent treatment system and all associated site development works. *Significant Further Information submitted 17/6/20*	Permission	Conditional	14/07/2020
LCC 19202	Permission for a one storey extension to rear of the existing dwelling, a protected structure (ID: LHS009-016, NIAH No. 13831014), alterations to the existing layout and associated site works. *Significant Further Information submitted 22/05/2019*	Permission	Conditional	18/06/2019
LCC 18718	The development will consist of (1) Retention of an existing dwelling house, domestic garage and associated site development works and (2) Permission for alterations to an existing dwelling house and part conversion of roof space to habitable accommodation.	Retention	Conditional	19/01/2019
LCC 23218	Permission for extension and alterations to the ground and first floor level of an existing dwelling house, a new waste water treatment system and associated site development works **Significant further information received on 26.9.23**	Permission	Conditional	13/10/2023
LCC 21572	Permission for development that will consist of the construction of a two storey dwelling house, a single storey domestic garage, septic	Permission	Conditional	21/12/2021

	tank with percolation area, use of existing entrance onto public road and all associated site development works. *FI received on 06/12/2021*			
LCC 21732	Permission for a dwelling house, domestic garage, waste water treatment system and associated site development works *Significant Further Information submitted 04/11/21 which includes a revised house design*	Permission	Conditional	24/11/2021
LCC 2360256	Permission for extensions and modifications to existing dwelling house at 15 Euston Street, Greenore, Co. Louth. Permission to include for all associated and ancillary site development works. The existing dwelling house is a Protected Structure, Ref; LHS 009-020, and located within the Greenore Architectural Conservation Area	Permission	Conditional	15/09/2023
LCC 23254	Permission for alterations and extension to existing precision engineering workshop and all associated site works	Permission	Conditional	01/09/2023
LCC 23125	Permission for the change of use of existing building from commercial/residential use to voluntary community workshop and all associated site development works	Permission	Conditional	18/08/2023
LCC 22274	Permission for the demolition of an existing <b>Coast Guard Lifeboat House</b> and the replacement of same with a new Lifeboat House to include communication aerials, floodlighting, flag poles and all associated site development works.	Permission	Conditional Under Appeal ABP-315830-23	19/01/2023
LCC 20362	Permission for development consisting of the installation of a grid connected photovoltaic panel system fitted to the roofs of existing warehouse buildings.	Permission	Conditional	21/07/2020
LCC 2360352	Retention and completion of a partially constructed single storey extension permitted under P.A. Ref. No. 17/282 to the existing production building. The existing production building was permitted under P.A. Ref. 93/ 84 and has operated from the site for nearly 30 years. Permission is also sought to retain and complete c. 25 sq.m of additional production floorspace to the southwest of the partially constructed extension. The retention and completion of the extension and additional floor area will facilitate the internalisation of part of the production process	Retention	Conditional Under Appeal ABP-318516-23 <a href="#">Appeal Refused</a>	
LCC 16852	Permission for development of a managed step down housing community with support facilities. The proposed development will consist of 30 no managed residential units, and associated ancillary facilities designed specifically for older residents. The proposed development is comprised of 9 no single storey 1-bed studio units, 3 no single storey 1-	Permission	Conditional	24/03/2017

	bed units, 11 no 1-bed apartments all with own door access over 2 storeys, 7 no 2-bed units and a 2 storey community and administration facility as well as associated site works (roads, drainage, street lighting, hard & soft landscaping, utility building & services)			
LCC 21728	EXTENSION OF DURATION OF 16/852 - Permission for development of a managed step down housing community with support facilities. The proposed development will consist of 30 no managed residential units, and associated ancillary facilities designed specifically for older residents. The proposed development is comprised of 9 no single storey 1-bed studio units, 3 no single storey 1-bed units, 11 no 1-bed apartments all with own door access over 2 storeys, 7 no 2-bed units and a 2 storey community and administration facility as well as associated site works (roads, drainage, street lighting, hard & soft landscaping, utility building & services)	Extension of Duration	Conditional	09/07/2021
LA07/2016 /1273/F	Demolition of existing dwelling and erection of 3 No. detached dwellings		Granted	16/08/2017
LA07/2022 /1234/F	Renewal of planning approval granted under LA07/2016/1273/F for the demolition of existing dwelling and erection of 3 no. detached dwellings		Granted	22/03/2023

The additional projects included in the updated List of Cumulative Projects appended to Chapter 1, i.e. the proposed ORE developments in the Irish Sea were considered and no additional cumulative effects arising from these projects were identified.

#### 10.10.5.1 Demolition Phase

The potential residual effects on the hydrogeological and hydrological environment surrounding the development are expected to be minimal due to the demolition works being limited to surface-level activities and do not involve any excavation works. As a result, there will be minimal impact on the hydrogeological and hydrological environment, and no significant effects on the composition, stability, or fertility of the land are anticipated. The absence of excavation works also means that there will be no disturbance to the natural soil structure, thus preventing potential soil erosion or compaction and increased run-off rates.

Overall, the surface-level demolition works will have a negligible impact on the hydrogeological and hydrological environment, preserving their integrity and minimizing any potential environmental consequences.

The implementation of mitigation measures outlined in Section 10.9.2 will ensure the residual effect on the hydrogeological and hydrological environment during the demolition phase is likely to be **short-term, Imperceptible and negative.**

### 10.10.5.2 Construction Phase

In relation to the potential cumulative impact on hydrology during the construction phases, the construction works which would have potential cumulative impacts are as follows:

- Surface water run-off during the construction phase may contain increased silt levels or become polluted from construction activities. Run-off containing large amounts of silt can cause damage to receiving surface and ground waterbodies.
- Stockpiled material will be stored away from surface water drains, and gullies will be protected during works to ensure there is no discharge of silt-laden water into the surrounding surface water drainage system.
- Contamination of local water sources from accidental spillage and leakage from construction traffic and construction materials is possible unless project-specific measures are put in place for each development and complied with.

The works contractors for other planned or permitted developments as set out in Chapter 1 of this EIA Report will be obliged to ensure that measures are in place to protect groundwater and surface water quality in compliance with legislative standards for receiving water quality (European Communities Environmental Objectives (Surface Water) Regulations (S.I. 272 of 2009 and S.I. 77 of 2019)).

A review of the permitted development set out in Chapter 2 – Development Description of this EIA Report has been undertaken and there are no proposed developments capable of combining with the proposed development and resulting in significant cumulative effects. The implementation of mitigation measures detailed in Section 10.9.3 as well as the compliance of the above permitted development with their respective planning conditions, will ensure there will be minimal cumulative potential for change in groundwater and surface water during the construction phase of the proposed development.

The residual cumulative impact of the proposed development in combination with other planned or permitted developments can therefore be considered to be **neutral, imperceptible** and **short-term**.

### 10.10.5.3 Operational Phase

In relation to the potential cumulative impact on hydrogeology and hydrology during the operational phases, the operational activities which would have potential cumulative impacts are as follows:

- Discharge of surface water to Carlingford Lough and Dundalk groundwater body.
- Increased risk of accidental discharge of hydrocarbons from car parking areas, and along roads is possible unless diverted to surface water system with oil separator.
- Additional foul discharges to be discharge to the foul sewer system.

The port has an existing foul water drainage network in place comprising of a foul collection tank and foul lines servicing buildings in the port. The port also has an existing stormwater drainage network in place. This serves as a drainage network for both yard surface water and roof water from buildings. The system drains via gravity to a bypass separator and discharges via one existing outfall into Carlingford Lough. The proposed surface water drainage is designed in accordance with the Greater Dublin Strategic Drainage Study (GDSDS), Water Services Guidelines for Planning Authorities (Draft – 2018) and The SuDS Manual (CIRIA, 2015).

The surface water and foul drainage infrastructure and water supply requirements for the proposed development have been designed to accommodate the proposed development.

Each permitted development is required by the Local Authority and IW to comply with the Local Authority and IW requirements by providing suitable attenuation on-site and ensure that there is no increase in off-site flooding as a result of the development in question.

All developments are required to ensure they do not have an impact on the receiving water environment in accordance with the relevant legislation (Water Framework Directive and associated legislation) such that they would be required to manage run-off and fuel leakages.

The implementation of mitigation measures detailed in Section 10.9.4 as well as the compliance of the above permitted development with their respective planning conditions, will ensure there will be minimal cumulative potential for change in surface water during the operational phase of the proposed development. The residual cumulative impact of the proposed development in combination with other planned or permitted developments can therefore be considered to be **neutral, imperceptible** and **long-term**.

## 10.11 Risk of Major Accidents or Disasters

The EPA Guidelines, 2022, state that:

*“To address unforeseen or unplanned effects the Directive further requires that the EIAR takes account of the vulnerability of the project to risk of major accidents and /or disasters relevant to the project concerned and that the EIAR therefore explicitly addresses this issue. The extent to which the effects of major accidents and / or disasters are examined in the EIAR should be guided by an assessment of the likelihood of their occurrence (risk). This may be supported by general risk assessment methods or by systematic risk assessments required under other legislation e.g. a COMAH (Control of Major Accident Hazards involving Dangerous Substances) assessment.*

*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.”*

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 development site is not in an area susceptible to landslides, with a GSI Landslide

Susceptibility Classification of “Low”. This is consistent with the topography and the geology across the site.

The nearest landslide was c.16.5km to the north-west of the proposed development, referred to as the Drumad2013 (Event ID: GSI\_LS13-0005) which occurred on March 22<sup>nd</sup> 2013. There have been no recorded landslide events at Greenore Port or in the vicinity.

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](http://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 most recent earthquake was in the Irish Sea (0.9 Magnitude) on the September 30<sup>th</sup> 2023 c. 130km to the south-east of the proposed development. There are no active volcanoes in Ireland so there is no risk from volcanic activity.

## 10.12 Worst Case Scenario

In a worst-case scenario, if the mitigation measures outlined in Section 10.9 aren't fully followed, there's a chance of contamination and pollution during the demolition, construction, and operational phases of the proposed development to occur. This could happen through accidental spills and leaks, increased run-off, sediment loading, excavation and maintenance works.

The mitigation measures set out in Section 10.9 above are in place to prevent any negative impacts on the hydrogeological and hydrological environment. This will help minimize the likelihood of these issues occurring and protect the surrounding environment.

## 10.13 Interactions

This section discusses interactions between this Chapter and other specialist environmental topics considered in this EIAR.

### 10.13.1 Land and Soils

#### 10.13.1.1 Demolition Phase

The likelihood of significant effects on hydrogeology and hydrology at the proposed development during the demolition phase is minimal due to the demolition works being limited to surface-level activities and do not involve any excavation works.

As a result, no significant effects on the land's composition, stability, or fertility are anticipated. The absence of excavation works means that there is no disturbance to the natural soil structure, preventing potential soil erosion or compaction.



As well as the mitigation measures outlined in this section, the development should adhere to the mitigation measures set out in Section 9.9.2 of the EIAR.

Full adherence to the RWMP presented in Appendix 8.1 and Chapter 8 – Material Assets Waste of the EIAR.

#### 10.13.1.2 Construction Phase

The construction phase of the proposed development has the potential to result in increased sediment runoff which has the potential to interact on surface water quality. The proposed construction phase mitigation outlined in Section 10.9.3, means that the proposed development will not result in significant negative impact on surface water quality in the local area.

Taking into account the design and mitigation measures set out in Chapter 9 (Land and Soils) and 10 (Water and Hydrology) of this EIA Report, means that the proposed development will not result in significant negative impact on the hydrogeology and hydrology in the local area. The interaction is considered to be **neutral, Imperceptible, and short term**.

#### 10.13.1.3 Operational Phase

Taking into account the design and mitigation measures set out in Chapter 9 (Land and Soils) and 10 (Water and Hydrology) of this EIA Report there are no potentially significant interactions identified between Land, Soils and, Hydrogeology and Hydrology during the operational phase.

### 10.13.2 Biodiversity

#### 10.13.2.1 Demolition Phase

The demolition works of the proposed development are limited to surface-level activities on predominately existing buildings and infrastructure and do not involve any excavation works. As a result, the impact on biodiversity is minimal.

Overall, the surface-level demolition works will benefit the local biodiversity, preserving their integrity and minimizing any potential environmental consequences. The interaction is considered to be **short-term, Imperceptible and neutral**.

#### 10.13.2.2 Construction Phase

Dust emissions have the potential to settle on plants causing impacts to local ecology. Mitigation measures during the construction phase of the proposed development will ensure that dust generation is minimised y.

There is potential for impacts to biodiversity associated with uncontrolled discharges to surface water (Carlingford Lough). In this instance the existing surface water system discharges into Carlingford Lough. Therefore there is a direct hydrological connection to Carlingford Lough and the Natura 200 sites located therein (Carlingford Shore SAC & Carlingford Lough SPA). However the risk is considered negligible due to the mitigation measures outlined in Section 10.9 and the hydrological volume of the surface waterbody. The foul water collection tank on site services the existing and proposed development and is a Uisce Éireann asset and is emptied with a tanker periodically and sent to Dundalk

Wastewater Treatment Plant (WWTP). The use of standard construction control measures as provided in the Outline CEMP and the sustainable urban drainage systems.

Taking into account the design and mitigation measures set out in Chapter 10 (Water and Hydrology), and Chapter 11 (Biodiversity) of this EIA Report, the interaction between Water and Hydrology, and Biodiversity is considered to be **neutral, not significant, and short term**.

#### 10.13.2.3 Operational Phase

There is potential for impacts to biodiversity associated with uncontrolled discharges to surface water (Carlingford Lough). In this instance the existing and proposed surface water system discharges into Carlingford Lough for the O&M Facility Site and is proposed to discharge to ground for the Shore Road Car Park. Therefore there is a direct hydrological connection to Carlingford Lough and the Natura 200 sites located therein (Carlingford Shore SAC & Carlingford Lough SPA). However the risk is considered negligible due to the mitigation measures outlined in Section 10.9.4 and the hydrological volume of the surface waterbody. The foul water collection tank on site services the existing and proposed development and is a Uisce Éireann asset and is emptied with a tanker periodically and sent to Dundalk Wastewater Treatment Plant (WWTP).

Taking into account the design and mitigation measures set out in Section 10.9.3 of this EIA Report, the interaction between Hydrogeology and Hydrology, and Biodiversity during the operational phase is considered to be **long-term, imperceptible and neutral**.

### 10.13.3 Air Quality

#### 10.13.3.1 Demolition Phase

Demolition phase activities such as demolition of existing infrastructure and stockpiling of materials etc. have the potential for interactions between air quality and water and hydrology in the form of dust emissions that may deposit in surface waters.

Mitigation measures implemented during the demolition phase outlined in Section 10.9.2 will ensure that the deposition of dust is minimised. With the appropriate mitigation measures to prevent fugitive dust emissions, it is predicted that there will be no significant interactions between air quality and, water and hydrology. The interaction is considered to be **negative, not significant, and short term**.

There are no interactions identified between Water and Hydrology, and Climate during the demolition phase.

#### 10.13.3.2 Construction Phase

Construction phase activities such as land clearing, excavations, stockpiling of materials etc. have the potential for interactions between air quality and water and hydrology in the form of dust emissions that may deposit in surface waters.

Mitigation measures implemented during the construction phase will ensure that the deposition of dust is minimised. With the appropriate mitigation measures to prevent fugitive dust emissions, it is predicted that there will be no significant interactions between air quality and, water and hydrology. The interaction is considered to be **negative, not significant, and short term**.

There are no potentially significant interactions identified between Water and Hydrology, and Climate during the construction phase.

#### 10.13.3.3 Operational Phase

There are no potentially significant interactions identified between Water and Hydrology, and Air Quality during the construction phase.

### 10.13.4 Climate

#### 10.13.4.1 Demolition Phase

There are no interactions identified between Water and Hydrology, and Climate during the demolition phase.

#### 10.13.4.2 Construction Phase

There are no interactions identified between Water and Hydrology, and Climate during the construction phase.

#### 10.13.4.3 Operational Phase

Climate change has the potential to lead to increased rainfall in future years which may result in flood impacts and interactions between Hydrogeology and Hydrology, and Land, Soils and Geology.

A Site Specific Flood Risk Assessment (SSFRA) has been carried out by McCarthy Browne and accompanies this planning application under separate cover. This SSFRA confirms the location of the proposed development is predominantly within Flood Zone C (i.e., where the probability of flooding from rivers and coastal is less than 0.1% or 1 in 1000 years – probability of fluvial flooding is low risk).

The final design for Buildings A, B and C has a finished floor level of no lower than 5.05m OD which is a safe freeboard above the water level estimated for Flood Zone C. Therefore, any flood events will not cause flooding of the proposed buildings.

The site does not act as a flood storage zone and the proposed development will not add any new hardstanding areas within the port. The Shore Road carpark area will be constructed with permeable paving. On this basis, it can be stated that the development will not affect the flood storage volume or increase flood risk elsewhere.

Therefore, it can be determined that there is no significant risk to the proposed development as a result of increased rainfall and climate. No significant interactions between Climate, Hydrology and Hydrogeology, and Land, Soils and Geology is predicted.

### 10.13.5 Material Assets: Built Services

#### 10.13.5.1 Demolition Phase

There are no interactions identified between Hydrogeology, Hydrology and Material Assets during the demolition phase of the proposed development.

#### 10.13.5.2 Construction Phase

There are no interactions identified between Hydrogeology, Hydrology and Material Assets during the construction phase of the proposed development.

#### 10.13.5.3 Operational Phase

The use of SuDS during operations will mean that the development will result in neutral water impacts in the operational phase with regard to runoff rates and flooding risk. As a part of the SuDS features, it is anticipated that small amounts of hydrocarbon sludge waste and debris may be generated in the hydrocarbon interceptors which will treat the surface water run-off.

The foul water collection tank on site services the existing and proposed development and is a Uisce Éireann asset and is emptied with a tanker periodically and sent to Dundalk Wastewater Treatment Plant (WWTP).

This waste will be managed in accordance with the relevant legislation identified in Chapter –7 Material Assets: Built Services. The interaction is considered to be **negative, not significant, and long-term**.

### 10.14 Monitoring

#### 10.14.1 Demolition Phase

The demolition works of the proposed development are limited to surface-level activities and do not involve any excavation works. The absence of excavation works means that there is no potential for increasing the groundwater vulnerability to contamination in case of accidental spills or discharges.

In addition, all waste materials will be dealt with in accordance with regional and national legislation, time and resources will be dedicated to ensuring efficient waste management practices and waste arisings will be taken to suitably registered / permitted / licenced waste facilities for processing and segregation, reuse, recycling, recovery, and / or disposal, as appropriate. Hence, eliminating the risk of contaminated runoff to surface or groundwater.

#### 10.14.2 Construction Phase

During construction phase the following monitoring measures will be considered:

- Weekly checks will be carried out to ensure surface water drains are not blocked by silt, or other items, and that all storage is located at least 20 m from surface water receptors.
- Regular inspection of surface water run-off and sediments controls will be implemented throughout the construction phase and full adherence to the Outline Construction Environmental Plan will be maintained.
- Runoff diversion channels/bunds need regular maintenance to keep functioning throughout their life.
- Soil sampling to confirm disposal options for excavated soils in order to avoid contaminated run-off; and

- Regular inspection of construction / mitigation measures (e.g., concrete pouring, refuelling, etc).
- Monitoring will be adopted to ensure that the water is of sufficient quality to discharge to the stormwater network.

### 10.14.3 Operational Phase

Oil separators will be maintained and cleaned out in accordance with the manufacturer's instructions.

Maintenance of the surface water drainage system and foul sewers is recommended to minimise any accidental discharges to surface water.

## 10.15 Summary of Mitigation and Monitoring

The following Table summarises the Construction Phase mitigation and monitoring measures.

**Table 10.9 Summary of Construction Phase Mitigation and Monitoring**

Likely Significant Effect	Mitigation	Monitoring
Accidental Spills, Leaks and Discharges	<p>Regular inspection of surface water run-off and sediments controls (e.g., silt traps).</p> <p>Inspection and maintenance of the silt fences.</p> <p>Runoff diversion channels/bunds need regular maintenance to keep functioning throughout their life.</p> <p>Soil sampling to confirm disposal options for excavated soils in order to avoid contaminated run-off.</p> <p>Regular inspection of construction / mitigation measures (e.g., concrete pouring, refuelling, etc).</p> <p>Monitoring will be adopted to ensure that the water is of sufficient quality to discharge to the stormwater network.</p> <p>Full adherence to and implementation of the CEMP.</p>	<p>Continuous implementation of the mitigation measures outlined in the EIAR in accordance with best practice guidelines throughout the course of the construction phase of the proposed development.</p>
Soil Erosion & Compaction	<p>Regular inspection of surface water run-off and sediments controls (e.g., silt traps).</p> <p>Inspection and maintenance of the silt fences.</p> <p>Runoff diversion channels/bunds need regular maintenance to keep functioning throughout their life.</p>	<p>Continuous implementation of the mitigation measures outlined in the EIAR in accordance with best practice guidelines throughout the course of the construction phase of the proposed development.</p>

Likely Significant Effect	Mitigation	Monitoring
	<p>Soil sampling to confirm disposal options for excavated soils in order to avoid contaminated run-off.</p> <p>Regular inspection of construction / mitigation measures (e.g., concrete pouring, refuelling, etc).</p> <p>Monitoring will be adopted to ensure that the water is of sufficient quality to discharge to the stormwater network.</p> <p>Full adherence to and implementation of the CEMP.</p>	<p>RECEIVED: 18/10/2024</p>
Increased Sediment Run Off carrying Sediment and Pollutants	<p>Regular inspection of surface water run-off and sediments controls (e.g., silt traps).</p> <p>Inspection and maintenance of the silt fences.</p> <p>Runoff diversion channels/bunds need regular maintenance to keep functioning throughout their life.</p> <p>Soil sampling to confirm disposal options for excavated soils in order to avoid contaminated run-off.</p> <p>Regular inspection of construction / mitigation measures (e.g., concrete pouring, refuelling, etc).</p> <p>Monitoring will be adopted to ensure that the water is of sufficient quality to discharge to the stormwater network.</p> <p>Full adherence to and implementation of the CEMP.</p>	Continuous implementation of the mitigation measures outlined in the EIAR in accordance with best practice guidelines throughout the course of the construction phase of the proposed development.
Surface Water and Groundwater Contamination from Construction Waste, Materials & Chemicals	<p>Regular inspection of surface water run-off and sediments controls (e.g., silt traps).</p> <p>Inspection and maintenance of the silt fences.</p> <p>Runoff diversion channels/bunds need regular maintenance to keep functioning throughout their life.</p> <p>Soil sampling to confirm disposal options for excavated soils in order to avoid contaminated run-off.</p> <p>Regular inspection of construction / mitigation measures (e.g., concrete pouring, refuelling, etc).</p>	Continuous implementation of the mitigation measures outlined in the EIAR in accordance with best practice guidelines throughout the course of the construction phase of the proposed development.



Likely Significant Effect	Mitigation	Monitoring
	<p>Monitoring will be adopted to ensure that the water is of sufficient quality to discharge to the stormwater network.</p> <p>Full adherence to and implementation of the CEMP.</p>	

The following Table summarises the Operational Phase mitigation and monitoring measures.

**Table 10.10 Summary of Operational Phase Mitigation and Monitoring**

Likely Significant Effect	Mitigation	Monitoring
Accidental Spills, Leaks and Discharges	<p>Implementation of a number of Sustainable Urban Drainage Systems (SuDS) measures such as permeable paving/ grasscrete, filter drains and attenuation systems.</p> <p>Regular inspection of surface water run-off and sediments controls (e.g., silt traps).</p> <p>Inspection and maintenance of the silt fences.</p> <p>Runoff diversion channels/bunds need regular maintenance to keep functioning throughout their life.</p> <p>Monitoring will be adopted to ensure that the water is of sufficient quality to discharge to the stormwater network.</p> <p>Full adherence to and implementation of the CEMP.</p>	Continuous implementation of the mitigation measures outlined in the EIAR in accordance with best practice guidelines throughout the course of the operational phase of the proposed development.
Surface Water discharge to Surface and Ground Waterbodies carrying Potential Contaminants / Pollutants	<p>Implementation of a number of Sustainable Urban Drainage Systems (SuDS) measures such as permeable paving/ grasscrete, filter drains and attenuation systems.</p> <p>Regular inspection of surface water run-off and sediments controls (e.g., silt traps).</p> <p>Inspection and maintenance of the silt fences.</p> <p>Runoff diversion channels/bunds need regular maintenance to keep functioning throughout their life.</p> <p>Monitoring will be adopted to ensure that the water is of sufficient quality</p>	Continuous implementation of the mitigation measures outlined in the EIAR in accordance with best practice guidelines throughout the course of the operational phase of the proposed development.

Likely Significant Effect	Mitigation	Monitoring
	<p>to discharge to the stormwater network.</p> <p>Full adherence to and implementation of the CEMP.</p>	
<p>Future Maintenance Works on Underground Services and Infrastructure involving Excavations exposing bedrock aquifer beneath the site introducing a pathway for contaminants to enter Dundalk GWB</p>	<p>Implementation of a number of Sustainable Urban Drainage Systems (SuDS) measures such as permeable paving/ grasscrete, filter drains and attenuation systems.</p> <p>Regular inspection of surface water run-off and sediments controls (e.g., silt traps).</p> <p>Inspection and maintenance of the silt fences.</p> <p>Runoff diversion channels/bunds need regular maintenance to keep functioning throughout their life.</p> <p>Monitoring will be adopted to ensure that the water is of sufficient quality to discharge to the stormwater network.</p> <p>Full adherence to and implementation of the CEMP.</p>	<p>Continuous implementation of the mitigation measures outlined in the EIAR in accordance with best practice guidelines throughout the course of the operational phase of the proposed development.</p>

## 10.16 Conclusion

This chapter has reviewed and analysed the potential and the predicted impacts of the proposed development on the Hydrogeological and hydrological environment (Water & Hydrology). These effects have been considered for the demolition, construction and operational phases of the proposed development. The cumulative impact of the proposed development and surrounding developments have also been considered.

Provided all mitigation measures set out in this chapter are adhered to in full throughout all phases, the overall predicted impact of the proposed development is **long-term, imperceptible** and **neutral**.

## 10.17 References and Sources

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